Color Television **Chassis**

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Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

1.1 Technical Specifications

1.1.1 Reception

Tuning System	:	PLL
Nr. Of Presets	:	181
Color Systems Off-air / Cable	:	ATSC, NTSC M, Clear QAM
A/V Connections	:	480i, 480p
	:	720p
	:	1080i
	:	NTSC 3.58
Sound Systems Off-air	:	BTSC
	:	AC-3
Frequency Bands	:	UHF
	:	UVSH
	:	Full-Cable
Aerial Input	:	75 Ohm coax, F type

1.1.2 Picture

Display Type	:	Rear Projection
	:	3 CRTs
Aspect Ratio	:	16:9
Picture Screen Diameter	:	51” (130 cm)
	:	60” (152 cm)
Visible Screen Size	:	51” (130 cm)
	:	60” (152 cm)
Picture Enhancements	:	Progressive Scan
	:	Interlaced Scan
	:	Digital Combfilter
	:	Dynamic Contrast
	:	Pixel Plus
Color Enhancements	:	Digital CTI
	:	Digital Histogram
	:	Digital NR 3D
	:	Tint Control (3 Modes)
Active Control	:	Auto Sharpness
	:	Auto DNR

1.1.3 Sound

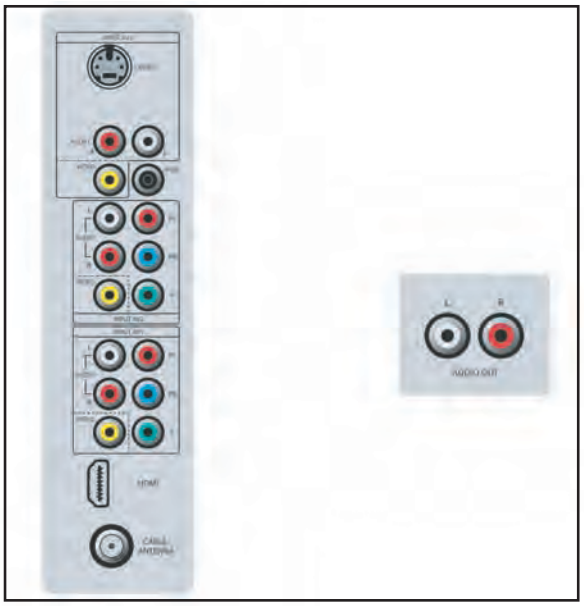
Loudspeakers	:	2 x 2” Full-range
AutoSound™ Control	:	Theatre, Voice, Music, Personal
Stereo	:	AC-3, Virtual Dolby Surround
Sound Output	:	2 x 10 W_rms

1.1.4 Miscellaneous

Ambient Temperature	:	+5/+45 deg. C
Mains Voltage	:	90 - 140V_ac
Mains Frequency	:	60 Hz
Power Consumptions:		
Normal Operation	:	255 W avg.
Standby	:	<1 W
Product Dimensions (WxDxH cm):		
51 inch model	:	124.5 x 58.5 x 127.8 (49.02 x 23.03 x 50.31”)
55 inch model	:	143.9 x 68.3 x 150.8 (56.65 x 26.89 x 59.37”)
Product Weight:		
51 inch model	:	75 kg (165 lbs)
60 inch model	:	84 kg (185 lbs)

1.2 Connections

1.2.1 Rear Jack Panel



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Figure 1-1 Rear I/O overview

AV1 (Cinch)

Ye	- Video (CVBS)	1.0 V_pp / 75 ohm
Wh	- Audio L	0.5 V_rms / 10 kohm
Rd	- Audio R	0.5 V_rms / 10 kohm
Gn	- Y	1.0 V_pp / 75 ohm
Bu	- Pb	0.7 V_pp / 75 ohm
Rd	- Pr	0.7 V_pp / 75 ohm

AV2 (Cinch)

Ye	- Video (CVBS)	1.0 V_pp / 75 ohm
Wh	- Audio L	0.5 V_rms / 10 kohm
Rd	- Audio R	0.5 V_rms / 10 kohm
Gn	- Y	1.0 V_pp / 75 ohm
Bu	- Pb	0.7 V_pp / 75 ohm
Rd	- Pr	0.7 V_pp / 75 ohm

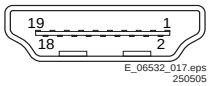
AV3 (Hosiden: S-Video - In)

1	- Y	Ground
2	- C	Ground
3	- Y	1.0 Vpp / 75 ohm
4	- C	0.3 Vpp / 75 ohm

AV3 - (Cinch)

Gn	- G/Y	1.0 V_pp
Rd	- R/Pr	0.7 V_pp
Bu	- B/Pb	0.7 V_pp
Bk	- V-sync	3.0 V_pp / 1 kohm
Gy	- H-sync	3.0 V_pp / 1 kohm
Wh	- Audio L	0.5 V_rms / 10 kohm
Rd	- Audio R	0.5 V_rms / 10 kohm

HDMI: Digital Video, Digital Audio - In



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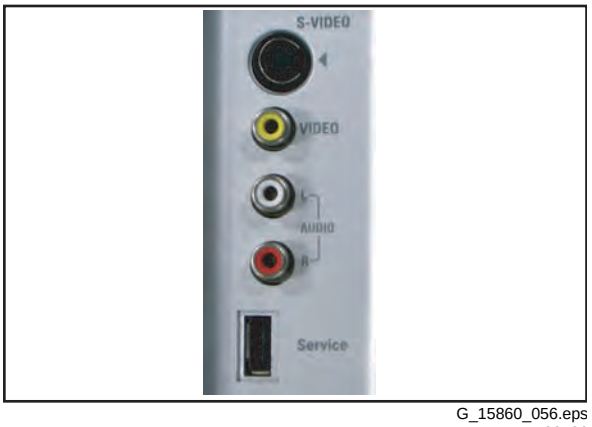
Figure 1-2 HDMI (type A) connector

1	- D2+	Data channel
2	- Shield	Gnd
3	- D2-	Data channel
4	- D1+	Data channel
5	- Shield	Gnd
6	- D1-	Data channel
7	- D0+	Data channel
8	- Shield	Gnd
9	- D0-	Data channel
10	- CLK+	Data channel
11	- Shield	Gnd
12	- CLK-	Data channel
13	- n.c.	
14	- n.c.	
15	- DDC_SCL	DDC clock
16	- DDC_SDA	DDC data
17	- Ground	Gnd
18	- +5V	
19	- HPD	Hot Plug Detect
20	- Ground	Gnd

Audio (Cinch, In)

Wh	- Audio L	0.5 V_rms / 10 kohm
Rd	- Audio R	0.5 V_rms / 10 kohm

1.2.2 Side AV Panel



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Figure 1-3 Side AV overview

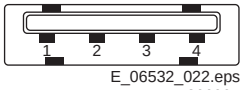
Side I/O (Hosiden: S-Video - In)

1	- Y	Ground
2	- C	Ground
3	- Y	1.0 Vpp / 75 ohm
4	- C	0.3 Vpp / 75 ohm

Side I/O (Cinch)

Ye	- Video (CVBS)	1.0 V_pp / 75 ohm
Wh	- Audio L	0.5 V_rms / 10 kohm
Rd	- Audio R	0.5 V_rms / 10 kohm

USB1.1

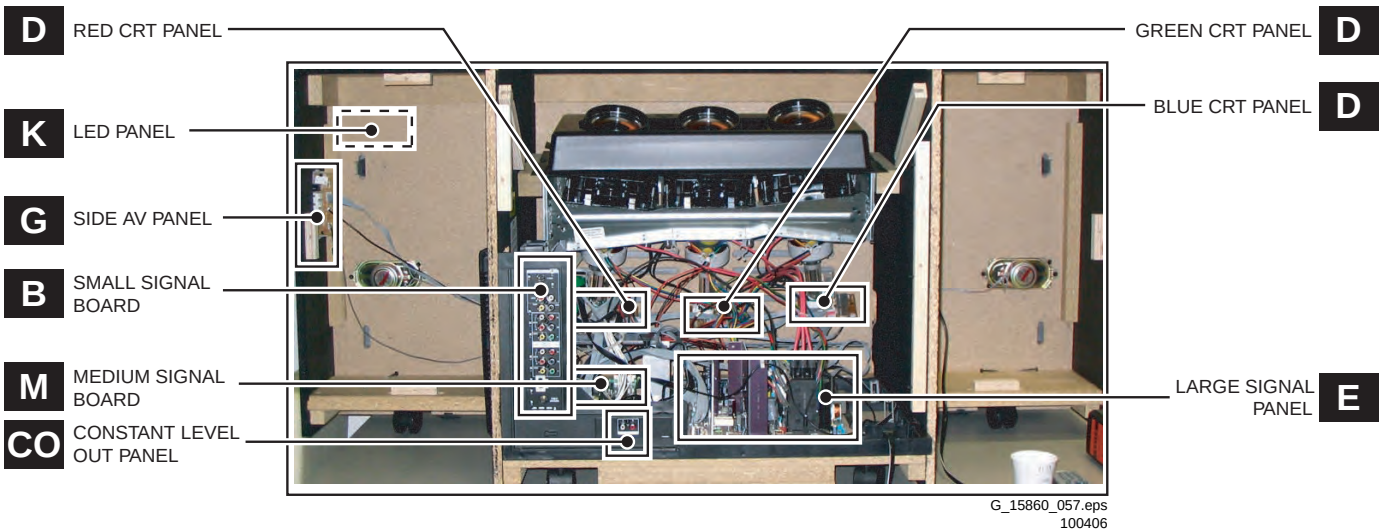


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Figure 1-4 USB (type A)

1	- +5V	
2	- Data (-)	
3	- Data (+)	
4	- Ground	Gnd

1.3 Chassis Overview



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Figure 1-5 CBA location

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions
2.2 Maintenance Instructions
2.3 Warnings
2.4 Notes

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current flows. In particular this is valid for the:
  1. Pins of the line output transformer (LOT).
  2. Fly-back capacitor(s).
  3. S-correction capacitor(s).
  4. Line output transistor.
  5. Pins of the connector with wires to the deflection coil.
  6. Other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:
  1. Perform the “general repair instruction” noted above.
  2. Clean the power supply and deflection circuitry on the chassis.
  3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in figure “Discharge picture tube”, to discharge the picture tube. Use a high voltage probe and a multi-meter (position V_{DC}). Discharge until the meter reading is 0 V (after approx. 30 s).

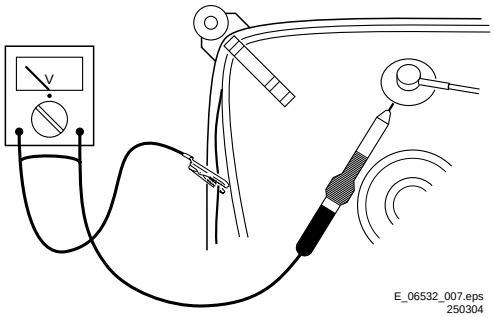


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and prevents circuits from becoming unstable.

2.4 Notes

2.4.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⏋⏌) and without (⏋⏌) aerial signal. Measure the voltages in the power supply section both in normal operation (⏻) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the

semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the “double-D symbol”, are trademarks of Dolby Laboratories.

2.4.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-12}).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.4.3 Rework on BGA (Ball Grid Array) ICs

General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the CBA and replacing it with a new component. If an (LF)BGA is removed from a CBA, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal
As is the case with any component that is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the CBA.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers.
So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information
For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select “Magazine”, then go to “Repair downloads”. Here you will find Information on how to deal with BGA-ICs.

2.4.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).



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Figure 2-2 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.



Figure 2-3 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:
- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clean the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
  Do not re-use BGAs at all!

- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions)
You will find this and more technical information within the "Magazine", chapter "Repair downloads".
For additional questions please contact your local repair help desk.

2.4.5 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-2) is composed. From this date on, the **third digit** in the serial number (example: AG**2**B0335000001) indicates the number of the alternative BOM (Bill of Materials used for producing the specific model of TV set). It is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different O.E.M.s.
By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 28PW9515/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used.
If the third digit of the serial number contains the number 1 (example: AG**1**B033500001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG**2**B0335000001), then there are two different B.O.M.s. ***Information about this is important for ordering the correct spare parts!***
For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

2.4.6 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

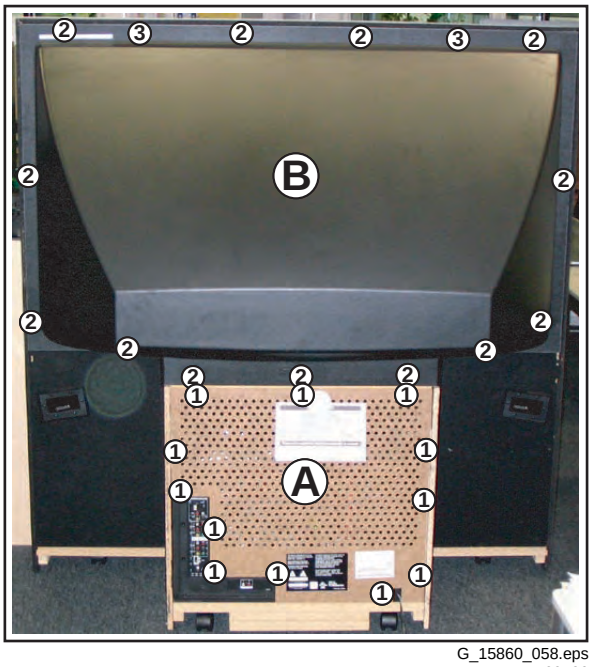
4. Mechanical Instructions

Index of this chapter:
1. Disassembly Procedures
2. Service Position
3. Picture Tube Replacement
4. Re-assembly

Notes:
- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassembly instructions in described order.

4.1 Disassembly Procedures

Note:
- Not all shown items are available for all models.
- If you are servicing a CBA or speaker, you do not need to remove the plastic Upper Back Cover.



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Figure 4-1 Rear view

4.1.1 Lower Center Back Cover Removal {A]

1. Remove all screws [1] (see Figure “Rear view”).
2. Remove the Lower Center Back Cover.

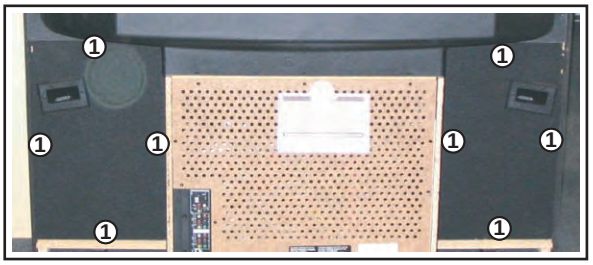
4.1.2 Upper Back Cover Removal (B)

1. Remove all screws [2] (see Figure “Rear view”).
2. Lift the cover from pegs [3] and remove the cover.

4.1.3 Side Back Cover Removal

Remove all screws from each of the Side Back Covers (see Figure “Side back covers”).

Note: This allows access to the Side I/O Panel, or to the Left or the Right Speaker.



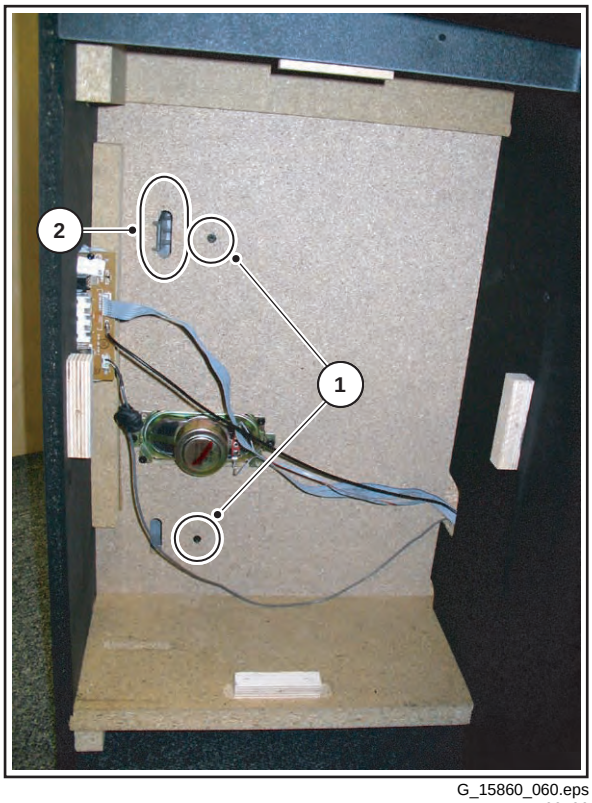
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Figure 4-2 Side back covers

4.1.4 Lower Front Cover Removal

1. Remove all screws from each of the Side Back Covers (see Figure “Side back covers”).
2. Remove screws [1] (see Figures “Lower Front Cover”).

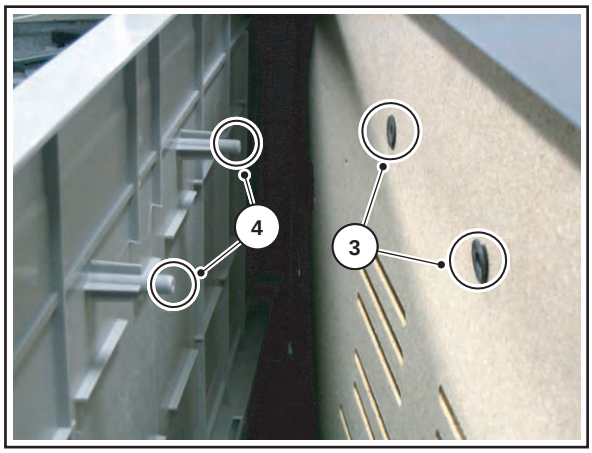
3. Release catches [2] and remove the Lower Front Cover.
Note: This allows access to the Front Control Panel.



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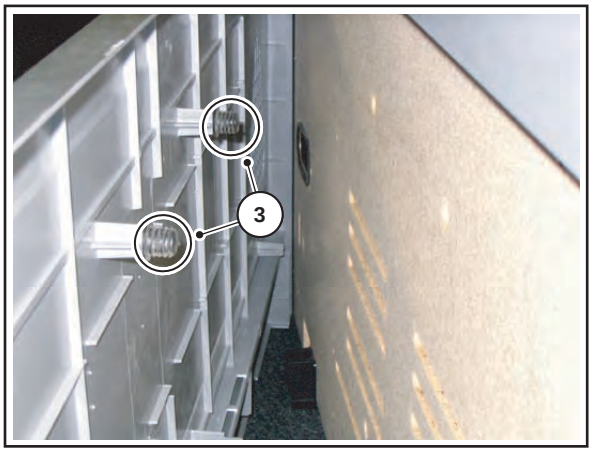
Figure 4-3 Lower front cover 1/3

To re-assemble:
1. Remove the two rubber plugs [3] from the centre of the frame, and put them back on the pins [4] on the rear of the Lower Front Cover.
2. Put the Front Cover back in its approximate position, push the catches [2] in place, lift the Lower Front Cover as far as possible, and position the pins by gently tapping on the center of the cover.



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Figure 4-4 Lower front cover 2/3



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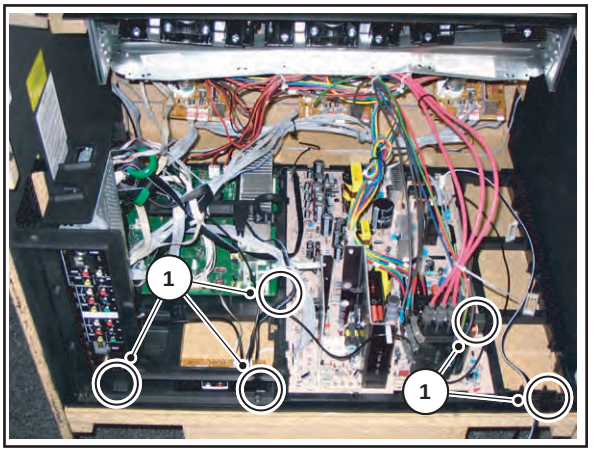
Figure 4-5 Lower front cover 3/3

4.1.5 CBA Carrier Frame

Note 1: To facilitate the replacement of panels, it is possible to slide the CBA carrier frame about 4" out of the cabinet. And the more wires/cables you disconnect, the more you can slide the carrier outward.

Note 2: For the location of the **panels** see figure "CBA location" in Chapter 1 "Technical Specifications, Connection Facilities, and Chassis Overview".

3. Remove the screws [1].
4. Slide the carrier outward as far as the cables permit..

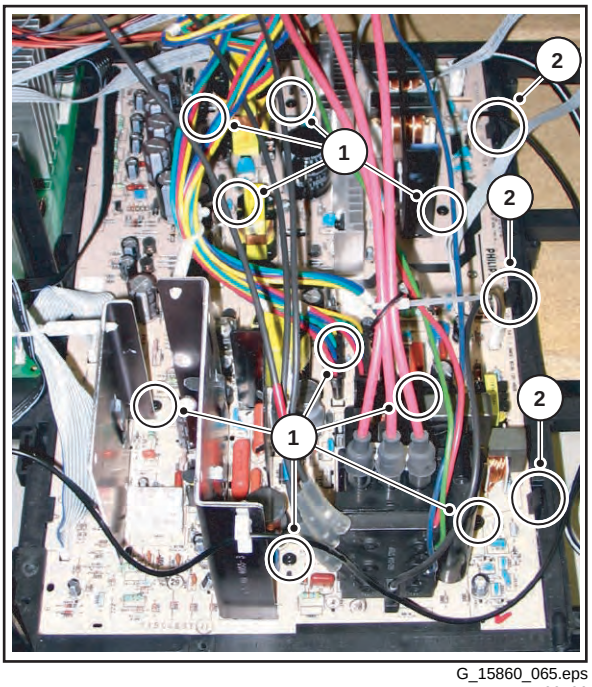


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Figure 4-6 CBA carrier frame

4.1.6 Large Signal Board Removal (LSB)

1. Remove lower centre back cover.
2. Disconnect all cables from the LSB.
3. Remove all fixation screws [1] from the LSB and pull the tabs [2] on the right hand side of the LSB.
4. Lift the right side of the LSB and slide the panel up and out.

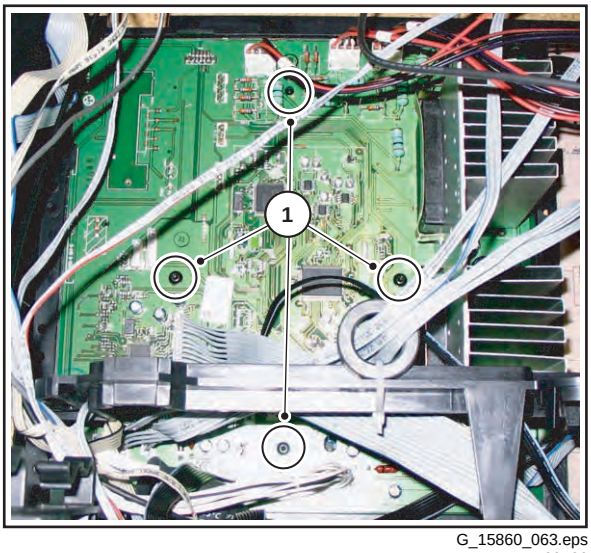


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Figure 4-7 Large signal board

4.1.7 Medium Signal Board Removal (MSB)

1. Remove lower centre back cover.
2. Disconnect all cables from the MSB.
3. Remove all fixation screws [1] from the MSB and pull the tab [2] on the right hand side of the MSB.
4. Lift the right side of the MSB and slide the panel up and out.



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Figure 4-8 Medium signal board

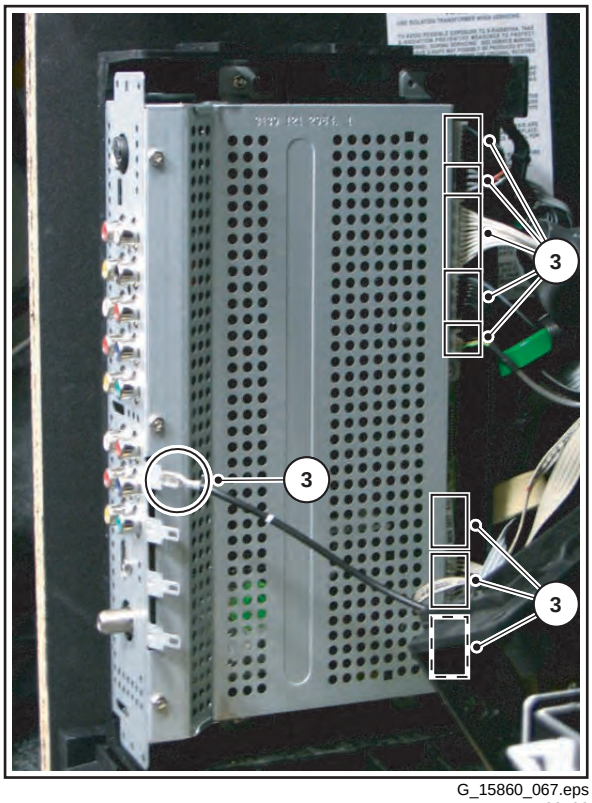
4.1.8 Small Signal Module Removal (SSM)

1. Remove lower centre back cover.
2. Remove screws [1], holding the plastic cover [2] of the connectors.
3. Remove plastic cover [2].
4. Loosen all connectors [3].
5. Release the clips [4] and remove the ventilation grid from the left side.
6. Remove screw [5], keeping the SSB module in place.
7. Lift catch [6] and remove the SSB module by pulling it to the rear.



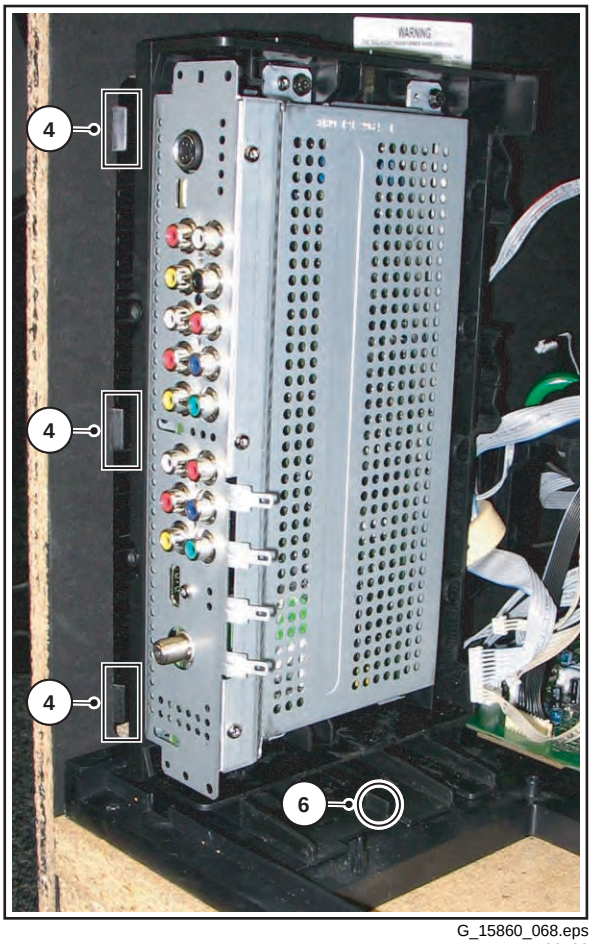
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Figure 4-9 Small signal module 1/4



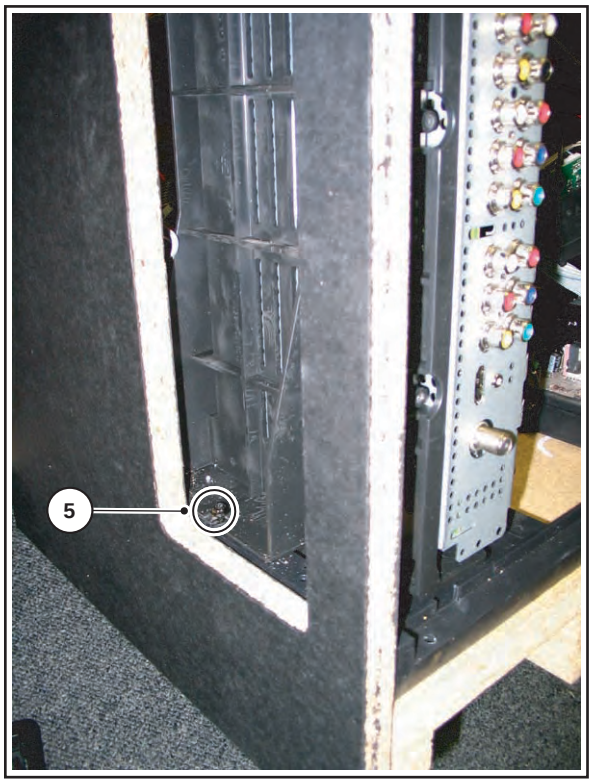
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Figure 4-10 Small signal module 2/4



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Figure 4-11 Small signal module 3/4



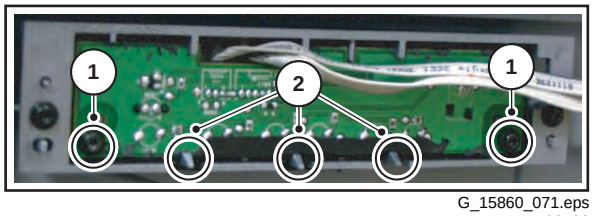
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Figure 4-12 Small signal module 4/4

4.1.9 Front Control Panel Removal

1. Remove the Lower Front Cover.
2. Remove screws [1] (see Figures “Front Control Panel”).

3. Release clamps [2] and remove the Front Control Panel.
4. Loosen the connectors.

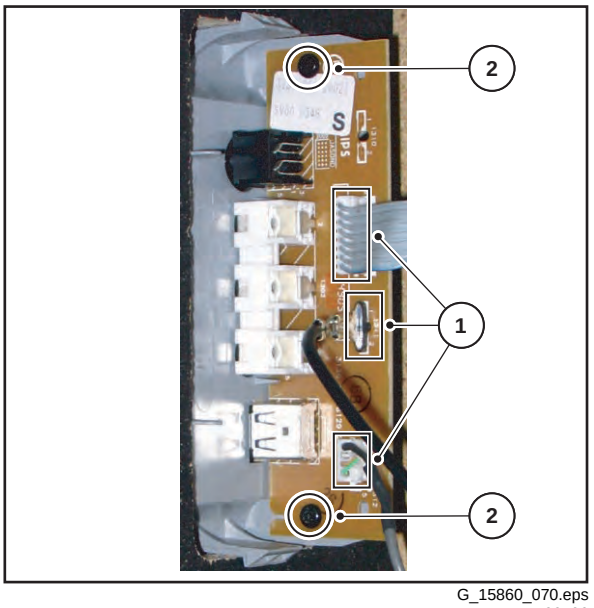


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Figure 4-13 Front control panel

4.1.10 Side I/O Panel Removal

1. Remove the Left Side Back Cover (see procedure above).
2. Disconnect the connectors [1] from the panel.
3. Remove two screws [2] from the panel.
4. Slide the Side I/O Panel CBA out of the bracket.



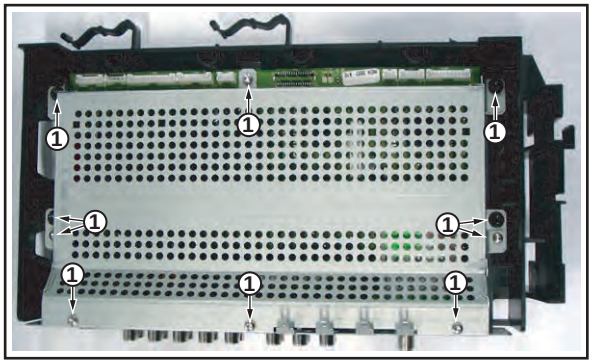
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Figure 4-14 Side I/O panel

4.1.11 Small Signal Board Removal (SSB)

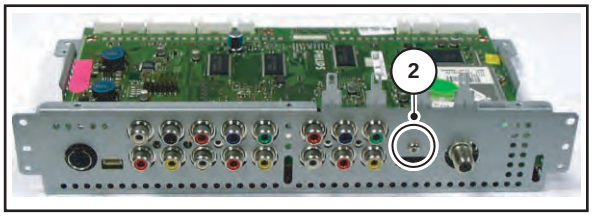
First, remove the Module Bracket (see the chapter “Small Signal Module Removal”).

1. Remove screws [1].
2. Remove the top shield.
3. Lift the SSB with the bottom shield out of its plastic retainer.
1. Remove screws [2] and [3].
1. Lift the SSB out of the bottom shield.



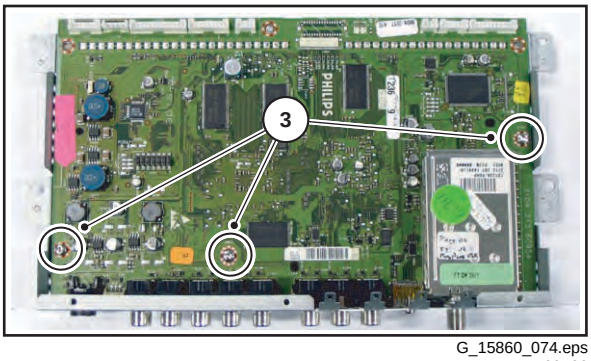
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Figure 4-15 Small signal board 1/3



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Figure 4-16 Small signal board 2/3

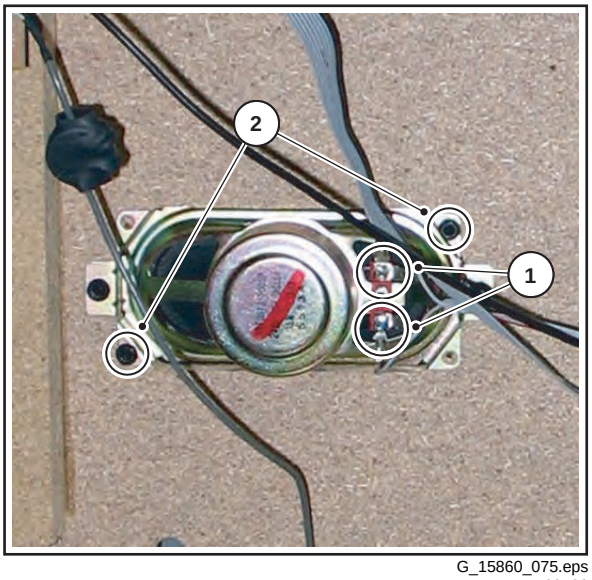


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Figure 4-17 Small signal board 3/3

4.1.12 Left or Right Speaker Removal

1. Remove the Left or Right Side Back Cover.
2. Remove the two connectors [1] from the speaker.
3. Remove the two fixation screws [2] of the speaker.

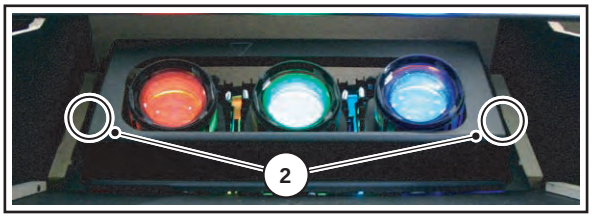


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Figure 4-18 Speaker

4.1.13 Plastic Light Barrier Removal (from the Optical Assembly)

Remove two screws [1] (one each at either end of the plastic light barrier).



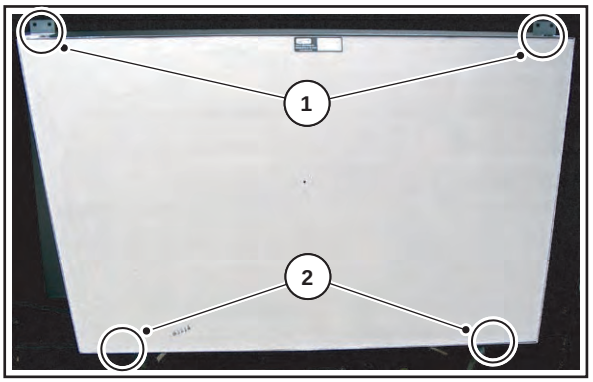
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Figure 4-19 Light barrier

4.1.14 Mirror Removal

1. Remove the upper back cover.
2. Remove two screws [1] at the top of the mirror.
3. Remove two screws [2] at the bottom of the mirror.
4. Remove the mirror.

Note: Take care **not** to place fingerprints or smudges on the mirror.



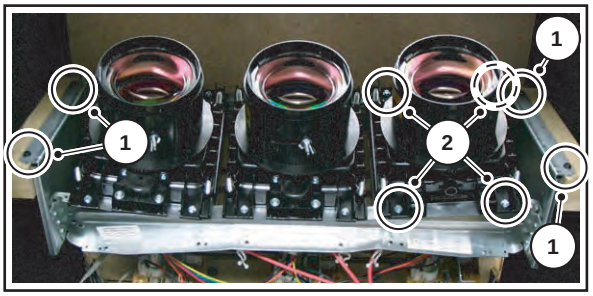
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Figure 4-20 Mirror

4.1.15 Complete Optical Assembly or Individual CRT Assembly Removal

1. Remove the upper back cover.
1. Remove the Plastic Light Barrier.
2. Disconnect the CRT panels, 2nd anode leads (at the 6-pack HVG), and the yoke connectors from assemblies to be removed.
3. To remove the complete Optical Assembly, remove four screws [1] and lift the assembly up and out.
4. To remove individual CRT assemblies, remove four screws [2] from the desired assembly and lift the assembly up and out.

Caution: Do not disturb the focus assembly wing nuts, as this will misadjust mechanical focus.



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Figure 4-21 Optical assy

4.2 Picture Tube Replacement

Replacement of the cathode ray tube (CRT) and/or optical system components of a Projection TV (PTV) can be easily accomplished by following general guidelines. Use care when working around the CRT and optical systems of the PTV. The PTV light path encompasses a number of precision optical components. These include lenses, mirrors, the lenticular screen, and Fresnel lens. The PTV incorporates three separate CRTs, representing green, red, and blue outputs. Each CRT uses an independent deflection/convergence yoke, magnetic centring ring, coupler, C-element lens, and output lens (A/B lens). Each tube is mechanically fastened to a coupler which houses fluid (a glycol-type substance) used to cool the high temperatures generated by the small (7") CRTs. The fluid also provides an optical characteristic supporting the optical system of the PTV. When replacement of a CRT or optical component is required, caution must be exercised in preventing fluid

spillage. The technician must carefully reassemble the CRT/optical components, ensuring a proper seal of the coupling fluid. Use only factory original coupling fluid.

Caution: Do not use or add water as an alternative to the prescribed coupling fluid.

Note: Upon completion of CRT/optical assembly repair, the centring, convergence, grey scale, mechanical and electrical focus adjustments are required. If more than one assembly requires repair, it is recommended the service technician fully completes one assembly at a time, using the existing assemblies as a reference for the alignment of the centring and convergence.

The following procedure should be used when performing repairs on the CRT/optical assemblies of the Projection TV.

4.2.1 Disassembly Procedure

A. Removal of a single CRT/Lens Assembly from the light rack

1. Remove AC power from the PTV.
2. Remove the upper and lower back covers (torx 20 screws).
3. Remove the barrier board and the shield cover from around the lens assemblies (1/4" screws).
4. Carefully remove the CRT Socket Board from the CRT of the CRT/optical assembly being serviced.
5. Remove the yoke and convergence plugs, of the CRT/optical assembly being serviced, from the Large Signal Module.
6. Remove the high voltage anode lead from the HV splitter block on the Large Signal Module of the CRT/optical assembly being serviced. Remove ground lug connectors from the coupler frame.
7. Remove the four 1/4" screws that secure the CRT/lens assembly to the light rack. These four screws are located in each corner, on the top of the coupler assembly.
   Caution: Do not remove the bolts with pressure springs or the inverted Torx screws of the CRT/lens assembly. The removal of these components could result in fluid spillage into the PTV cabinet.
8. Carefully remove the CRT/Lens assembly from the PTV cabinet.

4.2.2 Servicing the CRT/Lens Assembly

Warning: Coupling fluid is a poisonous solution containing a high concentration of ethylene glycol. Do not leave exposed fluid unattended. Prevent children or pets from coming into contact with the fluid. Clean up spills immediately.

Caution: Do not attempt any repairs on the CRT/optical block assembly without first removing the CRT coupling fluid. Removal of the delta output lens will result in spillage of the coupling fluid.

B. Removing the PTV Coupling Fluid

All repairs made to the CRT/optical block assembly require the removal of the coupling fluid. The following procedure describes how to remove the PTV coupling fluid.

1. Lay the CRT assembly on its side with the plug pointing up.
2. Remove the plug (X8).
3. Remove some of the fluid from the coupler to prevent spillage when the CRT is removed. An empty coupling fluid bottle with a cone top is recommended to lower the fluid level within the coupler. Squeeze and hold the bottle and insert the tip of the cap into the drain hole of the coupler. Loosen the grip on the bottle, allowing the fluid to be pulled up into the bottle. Save the fluid.
4. Reinstall the plug (X8).
5. Stand the CRT assembly up with the neck of the CRT pointing up.
6. With an awl or marking pen, outline the edges of the CRT onto the coupler.
   Note: The correct positioning of the CRT to the coupler is critical to the optimum performance of the optical system.
7. Remove the four CRT mounting bolts (A) (with springs and spacers) and remove the mounting bracket (D).
8. Remove the four CRT mounting ear screws.
   Note: The CRT mounting ear screws are not used on some assemblies.
9. Gently remove any metal shavings from around the screw holes. Do not allow the metal shavings to get into the fluid. Note the position of the high voltage anode cap with respect to the coupler.
10. Carefully remove the CRT from the coupler. Wipe any excess fluid from the faceplate of the CRT. Set the CRT aside.
11. Use an empty coupling fluid bottle to extract the remainder of the fluid from the coupler.
    Note: Complete removal of the coupling fluid is not necessary when only replacing the CRT.
12. Clean any remaining fluid from the coupler and the CRT gasket channel using absorbent tissue. Refer to "C". Cleaning the Coupler, C-element Lens, and CRT Faceplate procedure if the fluid is discoloured or contaminated.
13. Make all necessary repairs.

C. Cleaning the Coupler, C-Element Lens, and CRT Faceplate

1. Remove CRT coupling fluid as described in steps B1 through B13.
2. Using denatured alcohol on a cloth made of 100% cotton or a lens cleaning tissue, gently clean the C-element (fisheye) lens, coupler and the CRT faceplate. Thoroughly clean the coupler assembly, including the expansion chamber bladder, and allow to fully dry.
   Caution: Do not use soap or detergent type substances to clean the coupler and its related assemblies. Water can be used as an alternative to denatured alcohol, but the assemblies must be completely dry before reassembly of the coupler and the addition of the coupling fluid. A hair dryer may be used to dry the coupler and its assemblies before reassembly. If contaminated fluid is discovered, the coupler and its related assemblies must be completely disassembled and cleaned to prevent a reoccurrence.
3. Replace the CRT and C-element lens gaskets.
4. Reassemble the C-element lens and the output lens to the coupler.
5. Refer to "Replacing the CRT Coupling Fluid" upon completion of necessary repairs and cleaning of the optical/coupler assemblies.

D. Replacement of the CRT

1. Remove CRT coupling fluid as described in steps B1 through B13.
2. Remove the plastic protective coating (if present) from the faceplate of the replacement CRT.
3. Refer to "Replacing the CRT Coupling Fluid" to complete the CRT replacement.

E. Repair or Replacement of the Optical/Coupler Assembly

1. Remove CRT coupling fluid as described in steps B1 through B13.
2. Remove the four inverted-type Torx screws, which secure the Delta output lens to the coupler. An inverted-type Torx socket can be purchased using part number 4835 395 17303.
3. Removal of the Delta output lens will allow access to the C-element lens, C-element gasket, coupler, and its assemblies.
4. Refer to "Replacing the CRT Coupling Fluid" upon completion of necessary repairs to the optical/coupler assemblies.

F. Replacing the PTV Coupling Fluid

Notes:

- Before replacing the CRT coupling fluid, ensure the expansion chamber bladder is fully collapsed. This can be easily inspected by viewing the bladder through the small hole on the expansion chamber assembly. If the rubber of the bladder is not easily visible through the small hole, then the bladder may be considered collapsed and fluid can be added. If the rubber of the expansion chamber bladder is visible at the hole of the expansion chamber, then replacement of the expansion chamber bladder is required.
- The CRT coupling fluid is critical to the optical performance of the PTV. Use only part number 4835 310 67032 (3 bottle kit) or 4835 310 67031 (1 bottle) to ensure the optical integrity and performance reliability of the PTV when replacing the CRT coupling fluid.

1. Reinstall the CRT gasket into the gasket channel of the coupler. Confirm the placement of the CRT, C-element lens, and vent plug gaskets.
2. Place the CRT onto the coupler with the high voltage anode lead positioned as marked in step 10 of procedure B.
3. Carefully position the CRT onto the coupler, using the outline defined in step 6 of procedure B as a reference.
4. Start the CRT mounting ear screws but do not tighten them.
5. Tighten the CRT mounting ear screws in a star pattern (like tightening lug nuts on the wheel of a car). Make sure the CRT does not shift position from the outline defined in step B6.
   Caution: do not over tighten the CRT ear screws (the CRT mounting ear screws are not used on some assemblies).
6. Install the CRT mounting bracket and start the four CRT mounting bracket bolts with springs.
7. Tighten the bolts in a star pattern.
8. Lay the CRT assembly on its side with the plug pointing up.
9. Remove the plug.
10. Using the PTV coupling fluid bottle with the cone top, refill the coupler with fluid through the drain access hole. Completely fill the coupler chamber so the fluid is level with the top of the coupler at the plug. Wipe any excess fluid from around the coupler.
11. Reinstall the plug and check for any fluid leaks.
12. Install the repaired CRT/optical block assembly into the PTV and perform any necessary adjustments.

4.3 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Note: While re-assembling, make sure that all cables are placed and connected in their original position

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:
5.1 Test Points
5.2 Service Modes
5.3 Service Tools
5.4 Error Codes
5.5 The Blinking LED Procedure
5.6 Protections
5.7 Fault Finding and Repair Tips
5.8 Software Upgrading

5.1 Test Points

As most signals are digital, it will be almost impossible to measure waveforms with a standard oscilloscope. Therefore, waveforms are not given in this manual. Several key ICs are capable of generating test patterns, which can be controlled via ComPair. In this way it is possible to determine which part is defective.

Perform measurements under the following conditions:
- Service Default Mode.
- Video: Color bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Customer Helpdesk and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.

Minimum requirements for ComPair: a Pentium processor, Windows 95/98, and a CD-ROM drive (see also paragraph “ComPair”).

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections (only applicable for protections detected by stand-by processor) and make the TV start up to the step just before protection (a sort of automatic stepwise start up). See paragraph “Stepwise Start Up”.
- To start the blinking LED procedure (not valid in protection mode).

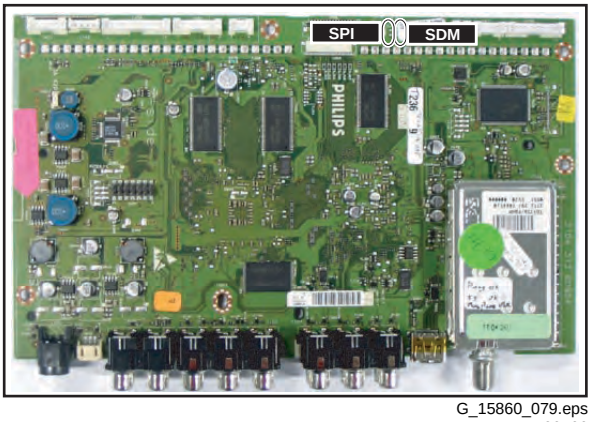
Specifications

Table 5-1 SDM default settings

Region	Freq. (MHz)	Default system
NAFTA, AP-NTSC, LATAM	61.25 (ch. 3)	NTSC M

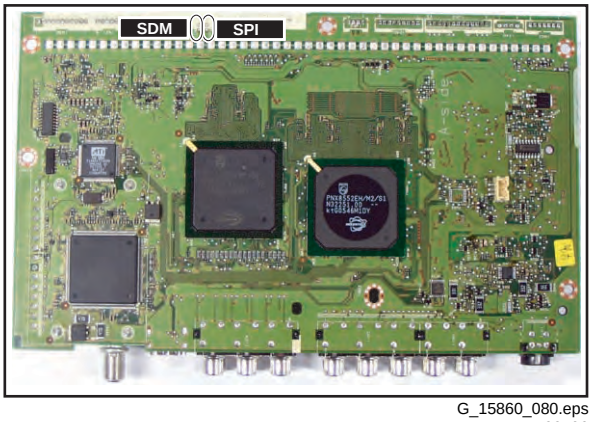
- Tuning frequency 61.25 MHz for NTSC: The TV shall tune to physical channel 3 only if channel 3 is an analog channel or if there is no channel 3 installed in the channel map. If there is a digital channel installed in channel 3, then the frequency to which the set will tune, would be as specified in the channel map and could be different from the one corresponding to the physical channel 3.
- All picture settings at 50% (brightness, color, contrast).
- All sound settings at 50%, except volume at 25%.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Picture mute (blue mute or black mute).
  - Automatic volume levelling (AVL).
  - Auto switch "off" (when no video signal was received for 10 minutes).
  - Skip/blank of non-favorite pre-sets.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

How to Activate SDM
Use one of the following methods:
- Use the standard RC-transmitter and key in the code “062596”, directly followed by the “MENU” button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the “MENU” button again.
- Short for a moment the two solder pads [1] on the SSB, with the indication “SDM”. They are located outside the shielding. Activation can be performed in all modes, except when the set has a problem with the Stand-by Processor. See figure “SDM and SPI service pads”.



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Figure 5-1 SDM and SPI service pads 1/2



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Figure 5-2 SDM and SPI service pads 2/2

After activating this mode, “SDM” will appear in the upper right corner of the screen (if you have picture).

How to Navigate

When you press the “MENU” button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

How to Exit SDM

Use one of the following methods:

- Switch the set to STAND-BY via the RC-transmitter.
- Via a standard customer RC-transmitter: key in “00”-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

How to Activate SAM

Via a standard RC transmitter: key in the code “062596” directly followed by the “INFO” button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing the red button on the RC.

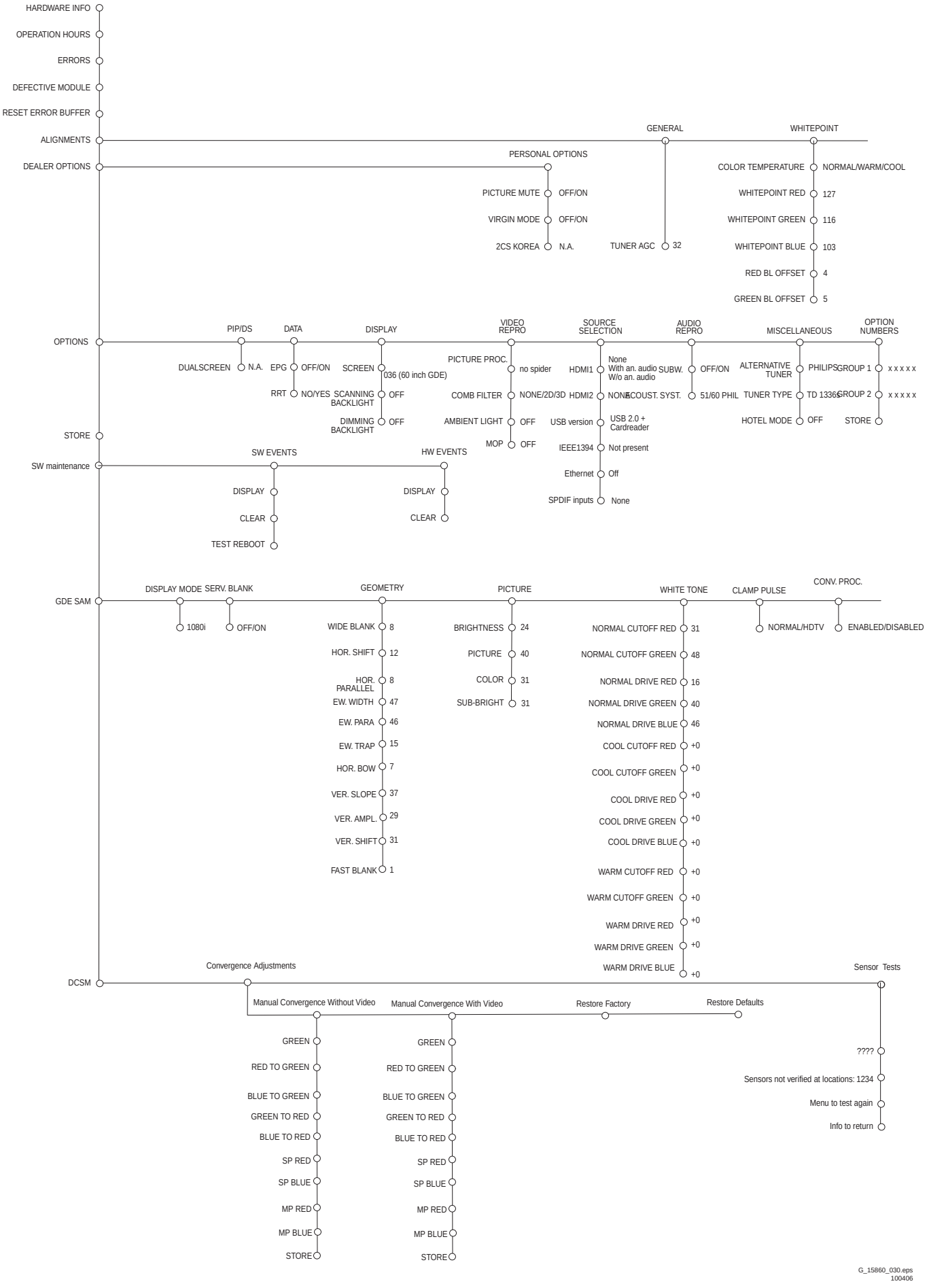


Figure 5-3 SAM menu

Contents of SAM:

- **Hardware Info.**
  - **A. VIPER SW Version.** Displays the software version of the VIPER software (main software) (**example:** EP23U-1.2.3.4_12345 = AAAAB_X.Y.W.Z_NNNNN).
    - **AAAA**= the chassis name.
    - **B**= the region: A= AP, E= EU, L= Latam, U = US.
    - **X.Y.W.Z**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number). The last two digits are used for development reasons only, so they will always be zero in official releases.
    - **NNNNN**= last five digits of 12nc code of the software.
  - **B. SBY PROC Version.** Displays the software version of the stand-by processor.
  - **C. Production Code**. Displays the production code of the TV, this is the serial number as printed on the back of the TV set. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee in a possibility to do this.
- **Operation Hours.** Displays the accumulated total of operation hours (not the stand-by hours). Every time the TV is switched "on/off", 0.5 hours is added to this number.
- **Errors.** (Followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph “Error Codes”).
- **Defective Module.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message “UNKNOWN” here.
- **Reset Error Buffer.** When you press “cursor right” and then the “OK” button, the error buffer is reset.
- **Alignments.** This will activate the “ALIGNMENTS” sub-menu.
- **Dealer Options.** Extra features for the dealers.
- **Options.** Extra features for Service.
- **Initialise NVM.** When an NVM was corrupted (or replaced) in the former EMG based chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all preferences and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognizes a corrupted NVM, the “initialize NVM” line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, **before** initializing. This will give the Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialize the NVM (same as in the past, however now it happens conscious).

Note: When you have a corrupted NVM, or you have replaced the NVM, there is a high possibility that you will not have picture any more because your display option is not correct. So, before you can initialize your NVM via the SAM, you need to have a picture and therefore you need the correct display option. To adapt this option, use ComPair (the correct HEX values for the options can be found in the table below) or a method via a standard RC (as described below).

Changing the display option via a standard RC:

Key in the code “062598" directly followed by the “MENU” button and “XXX” (where XXX is the 3 digit decimal display option code as mentioned in the first column of the next table). Make sure to key in all three digits, also the leading zero’s.

If the above action is successful, the front LED will go out as an indication that the RC sequence was correct.

After the display option is changed in the NVM, the TV will go to the Stand-by mode.

If the NVM was corrupted or empty before this action, it will be initialised first (loaded with default values). This initialising can take up to 20 seconds.

Table 5-2 Display option code overview

Display Option	HEX	Display Type	Size	Vertical Resolution
000	00	PDP SDI HD V3	42”	768p
001	01	PDP SDI HD V3	50”	768p
002	02	PDP FHP	42”	1024i
003	03	LCD LPL	30”	768p
004	04	LCD LPL	37”	768p
005	05	LCD LPL	42”	768p
006	06	LCD SHARP	32”	768p
007	07	PDP SDI SD V3	42”	480p
008	08	PDP FHP	37”	1024i
009	09	LCOS XION	-	720p
010	0A	LCD AUO	30”	768p
011	0B	LCD LPL	32”	768p
012	0C	LCD AUO	32”	768p
013	0D	LCD SHARP	37”	768p
014	0E	LCD LPL full HD	42”	1080p
015	0F	PDP SDI SD	37”	480p
016	10	PDP FHP	37”	1080i
017	11	PDP FHP	42”	1080i
018	12	PDP FHP	55”	768p
019	13	LCOS VENUS	-	720p
020	14	LCOS VENUS full HD	-	1080p
021	15	LCD LPL	26”	768p
022	16	LCD LPL clear lcd	32”	768p
023	17	PDP LG SD	42”	480p
024	18	PDP SDI V4	42”	480p
025	19	PDP SDI V4	42”	768p
026	1A	PDP FHP A2	42”	1024i
027	1B	PDP SDI HD V4	50”	768p
028	1C	LCD Sharp full HD	37”	1080p
029	1D	LCD AUO	32”	768p
030	1E	for development sample only		
031	1F	LCD Sharp full HD clear lcd V3.0	37”	1080p
032	20	LCD LPL	20”	768p
033	21	LCD QDI	23”	768p
034	22	ECO PTV	51”	1080i
035	23	ECO PTV	55”	1080i
036	24	ECO PTV	61”	1080i
037	25	PDP FHP A3	42”	1024i
038	26	DLP	50”	720p
039	27	DLP	60”	720p
040	28	LCD Sharp V2.3	32”	768p
041	29	LCD LPL clear lcd	42”	768p
042	2A	PDP SDI V4	63”	768p
043	2B	LCD Sharp V3.0 clear lcd	37”	768p
044	2C	LCD Sharp V2.3	37”	768p
045	2D	LCD LPL	26”	768p
046	2E	LCD LPL	32”	768p

- **Store.** All options and alignments are stored when pressing “cursor right” and then the “OK”-button
- **SW Maintenance.**
  - **SW Events.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.
  - **HW Events.** Not functional at the moment this manual is released, description will be published in an update manual if the function becomes available.

- **Operation hours.** Displays the accumulated total of operation hours.

How to Navigate

- In SAM, you can select the menu items with the “CURSOR UP/DOWN” key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the “CURSOR UP/DOWN” key to display the next/previous menu items.
- With the “CURSOR LEFT/RIGHT” keys, it is possible to:
  - (De) activate the selected menu item.

– (De) activate the selected submenu.

How to Exit SAM

Use one of the following methods:

- Press the “MENU” button on the RC-transmitter.
- Switch the set to STAND-BY via the RC-transmitter.

Note: As long as SAM is activated, it is not possible to change a channel. This could hamper the White Point alignments because you cannot choose your channel/frequency any more. Workaround: after you have sent the RC code “062596 INFO” you will see the service-warning screen, and in this stage it is still possible to change the channel (so before pressing the “OK” button).

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer or the Customer Helpdesk. The service technician can then ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to Activate CSM

Key in the code “123654” via the standard RC transmitter.

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

How to Navigate

By means of the “CURSOR-DOWN/UP” knob on the RC-transmitter, you can navigate through the menus.

Contents of CSM

- **SW Version (example:** EP23U-1.2.3.4_12345**).** Displays the built-in main software version. In case of field problems related to software, software can be upgraded. As this software is consumer upgradeable, it will also be published on the Internet.
- **SBY Processor Version.** Displays the built-in stand-by processor software version. Upgrading this software will be possible via a PC and a ComPair interface (see chapter Software upgrade).
- **Set Type.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set. Note that if an NVM is replaced or is initialized after corruption, this set type has to be re-written to NVM. ComPair will foresee a possibility to do this.
- **Production Code.** Displays the production code (the serial number) of the TV. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee a possibility to do this.
- **Code 1.** Gives the latest five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 2-digit number. When less than 10 errors occur, the rest of the buffer is empty (00). See also paragraph Error Codes for a description.
- **Code 2.** Gives the first five errors of the error buffer. See also paragraph Error Codes for a description.
- **Headphone Volume.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Change via”MENU”, “TV”, “SOUND”, “HEADPHONE VOLUME”.
- **Dolby.** Indicates whether the received transmitter transmits Dolby sound (“ON”) or not (“OFF”). Attention: The presence of Dolby can only be tested by the software on the Dolby Signaling bit. If a Dolby transmission is received without a Dolby Signaling bit, this indicator will show “OFF” even though a Dolby transmission is received.
- **Sound Mode.** Indicates the by the customer selected sound mode (or automatically chosen mode). Possible values are “STEREO” and “VIRTUAL DOLBY SURROUND”. Change via “MENU”, “TV”, “SOUND”, “SOUND MODE”. It can also have been selected automatically by signaling bits (internal software).
- **Tuner Frequency.** Not applicable for US sets.
- **Digital Processing.** Indicates the selected digital mode. Possible values are “STANDARD” and “PIXEL PLUS”. Change via “MENU”, “TV”, “PICTURE”, “DIGITAL PROCESSING”.
- **TV System.** Gives information about the video system of the selected transmitter.
  – M: NTSC M signal received
  – ATSC: ATSC signal received
- **Center Mode.** Not applicable.
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), “OFF”, “MINIMUM”, “MEDIUM”, or “MAXIMUM”. Change via “MENU”, “TV”, “PICTURE”, “DNR”
- **Noise Figure.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when “Active Control” is set to “medium” or “maximum” before activating CSM.
- **Source.** Indicates which source is used and the video/ audio signal quality of the selected source. (Example: Tuner, Video/NICAM) Source: “TUNER”, “AV1”, “AV2”, “AV3”, “HDMI 1”, “SIDE”. Video signal quality: “VIDEO”, “S-VIDEO”, “RGB 1FH”, “YPBPR 1FH 480P”, “YPBPR 1FH 576P”, “YPBPR 1FH 1080I”, “YPBPR 2FH 480P”, “YPBPR 2FH 576P”, “YPBPR 2FH 1080I”, “RGB 2FH 480P”, “RGB 2FH 576P” or “RGB 2FH 1080I”. Audio signal quality: “STEREO”, “SPDIF 1”, “SPDIF 2”, or “SPDIF”.
- **Audio System.** Gives information about the audible audio system. Possible values are “Stereo”, ”Mono”, “Mono selected”, “Analog In: No Dig. Audio”, “Dolby Digital 1+1”, “Dolby Digital 1/0”, “Dolby Digital 2/0”, “Dolby Digital 2/1”, “Dolby Digital 2/2”, “Dolby Digital 3/0”, “Dolby Digital 3/1”, “Dolby Digital 3/2”, “Dolby Digital Dual I”, “Dolby Digital Dual II”, “MPEG 1+1”, “MPEG 1/0”, “MPEG 2/0”. This is the same info as you will see when pressing the “INFO” button in normal user mode (item “signal”). In case of ATSC receiving there will be no info displayed.
- **Tuned Bit.** Indicates if the selected preset is automatically tuned (via “Automatic Installation” in the setup menu) or via the automatic tuning system of the TV. In this case “Tuned bit” will show “YES”. If the TV was not able to auto-tune to the correct frequency, this item will show “NO”. So if “NO” is displayed, it could indicate that the customer has manually tuned to a frequency which was too far from a correct frequency, that the TV was not able to auto-tune any more.
- **Preset Lock.** Indicates if the selected preset has a child lock: “LOCKED” or “UNLOCKED”. Change via “MENU”, “TV”, “CHANNELS”, “CHANNEL LOCK”.
- **Lock After.** Indicates at what time the channel lock is set: “OFF” or e.g. “18:45” (lock time). Change “MENU”, “TV”, “CHANNELS”, “LOCK AFTER”.
- **TV Ratings Lock.** Indicates the “TV ratings lock” as set by the customer. Change via “MENU”, “TV”, “CHANNELS”, “TV RATINGS LOCK”. Possible values are: “ALL”, “NONE”, “TV-Y”, “TV-Y7”, “TV-G”, “TV-PG”, “TV-14” and “TV-MA”.
- **Movie Ratings Lock.** Indicates the “Movie ratings lock” as set by the customer. Change via “MENU”, “TV”, “CHANNELS”, “MOVIE RATINGS LOCK”. Possible values are: “ALL”, “NR”, “G”, “PG”, “PG-13”, “R”, “NC-17” and “X”.

- **V-Chip Tv Status.** Indicates the setting of the V-chip as applied by the selected TV channel. Same values can be shown as for “TV RATINGS LOCK”.
- **V-Chip Movie Status.** Indicates the setting of the V-chip as applied by the selected TV channel. Same values can be shown as for “MOVIE RATINGS LOCK”.
- **Options 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **Options 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **AVL.** Indicates the last status of AVL (Automatic Volume Level): “ON” or “OFF”. Change via “MENU”, “TV”, “SOUND”, “AVL”. AVL can not be set in case of digital audio reception (e.g. Dolby Digital or AC3)
- **Delta Volume.** Indicates the last status of the delta volume for the selected preset as set by the customer: from “-12” to “+12”. Change via “MENU”, “TV”, “SOUND”, “DELTA VOLUME”.
- **HDMI key validity.** Indicates the key’s validity.
- **IEEE key validity.** Indicates the key’s validity (n.a.).
- **POD key validity.** Indicates the key’s validity (n.a.).
- **Digital Signal Quality.** Indicates quality of the received digital signal (0= low).

How to Exit CSM

Press any key on the RC-transmitter (with exception of the “CHANNEL +/-”, “VOLUME”, “MUTE” and digit (0-9) keys).

5.3 Service Tools

5.3.1 ComPair

Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

1. ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
2. ComPair allows very detailed diagnostics (on I^2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^2C commands yourself because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and CBAs are only a mouse click away.

Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS-232) cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatically (by communicating with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^2C/UART level. ComPair can access the I^2C/UART bus of the television. ComPair can send and receive I^2C/UART commands to the microcontroller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^2C/UART buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the microcontroller of the television is working correctly and only to a certain extent. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions *(e.g. Does the screen give a picture? Click on the correct answer: YES / NO)* and showing you examples *(e.g. Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope)*. You can answer by clicking on a link *(e.g. text or a waveform picture)* that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

How To Connect

This is described in the chassis fault finding database in ComPair.

Caution: It is compulsory to connect the TV to the PC as shown in the picture below (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

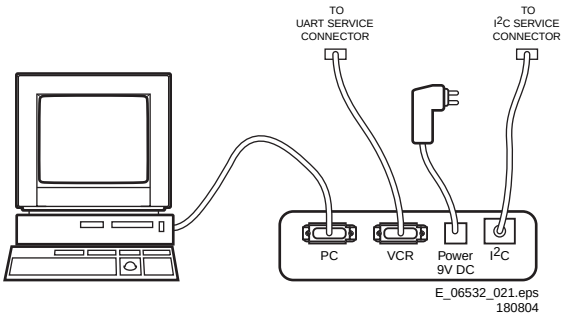


Figure 5-4 ComPair interface connection

How To Order

ComPair order codes:

- ComPair Software: ST4191.
- ComPair Interface Box: 4822 727 21631.
- AC Adapter: T405-ND.
- ComPair Quick Start Guide: ST4190.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.

Note: If you encounter any problems, contact your local support desk.

5.4 Error Codes

5.4.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

Basically there are three kinds of errors:

- **Errors detected by the Stand-by Processor.** These errors will always lead to protection and an automatic start of the blinking LED for the concerned error (see paragraph “The Blinking LED Procedure”). In these cases SDM can be used to start up (see chapter “Stepwise Start-up”).
- **Errors detected by VIPER that lead to protection.** In this case the TV will go to protection and the front LED will blink at 3 Hz. Further diagnosis via service modes is not possible here (see also paragraph “Error Codes” -> “Error Buffer” -> “Extra Info”).
- **Errors detected by VIPER that do not lead to protection.** In this case the error can be read out via ComPair, via blinking LED method, or in case you have picture, via SAM.

5.4.2 How to Read the Error Buffer

Use one of the following methods:

- On screen via the SAM (only if you have a picture). E.g.:
  - **00 00 00 00 00**: No errors detected
  - **06 00 00 00 00**: Error code 6 is the last and only detected error
  - **09 06 00 00 00**: Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

5.4.3 How to Clear the Error Buffer

Use one of the following methods:

- By activation of the “RESET ERROR BUFFER” command in the SAM menu.
- With a normal RC, key in sequence “MUTE” followed by “062599” and “OK”.
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.4.4 Error Buffer

In case of non-intermittent faults, clear the error buffer before you begin the repair (**before** clearing the buffer, write down the content, as this history can give you significant information). This to ensure that old error codes are no longer present.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).
There are several mechanisms of error detection:

- Via error bits in the status registers of ICs.
- Via polling on I/O pins going to the stand-by processor.
- Via sensing of analogue values on the stand-by processor.
- Via a “not acknowledge” of an I^2C communication

Take notice that some errors need more than 90 seconds before they start blinking. So in case of problems wait 2 minutes from start-up onwards, and then check if the front LED is blinking.

Table 5-3 Error code overview

Error	Description	Monitored by	Error/Prot	Device	Defective Module	schematics ID
1	I2C1	Viper	P		i2c1_blocked	
2	I2C2	Viper	P		i2c2_blocked	
3	I2C3 (connect SDA line to GND)	St-by µP	P		i2c3_blocked	B05E/B05A
4	I2C4	Viper	P		i2c4_blocked	
5	Viper - Severe HW problem	St-by µP	P	PNX8550	control	B01B/B05A
6	5V supply	St-by µP	P		5v_supply	B04E
7	8V6 supply	St-by µP	P		8v_supply	
8	1.2V DC/DC	St-by µP	P		1v2_supply	B04E
9	2.5V DC/DC	St-by µP	P		2v5_supply	
11	3.3V DC/DC	St-by µP	P		3v3_supply	B04E
12	12V supply	St-by µP	P		12v_supply	B04E
13	Audio supply	St-by µP	P		audio_supply	
14	Class D amplifiers	St-by µP	P		class_d_supply	B08A
16	MPIF1 main supply (MSUP)	Viper	E	KN10241C	if_io	
17	MPIF1 audio supply (ASUP)	Viper	E	KN10241C	if_io	B03D
18	MPIF1 ref freq (ROK)	Viper	E	KN10241C	if_io	B03B
21	MPIF2 main supply (MSUP)	Viper	E	KN10241C	if_io2	
22	MPIF2 audio supply (ASUP)	Viper	E	KN10241C	if_io2	
23	MPIF2 ref freq (ROK)	Viper	E	KN10241C	if_io2	
25	Supply fault	St-by µP	P		dc_dc_supply	B01A
26	Power Dip detected	St-by µP	E		[2]	
27	Phoenix	Viper	E	PNX2015B	hd_subsystem	B04E
28	MOP	Viper	P	EP1C6	ouput_processor	
28	JOP	Viper	P	EP1C6	ouput_processor	
29	AVIP1	Viper	E	PNX3000	av_input_processor1	B04E
31	AVIP2	Viper	E	PNX3000	av_input_processor2	
32	MPIF1	Viper	E	KN10241C	anl_fr_1	B03B
33	MPIF2	Viper	E	KN10241C	anl_fr_2	
34	Tuner1	Viper	E	UV1318/TEDH700A	tuner1	B02B
35	Tuner2	Viper	E	UV1318/TEDH700A	tuner2	
36	OFDM	Viper	E	TDA10046	digital_if	
37	Channel decoder	Viper	E	NXT2003	Channel decoder 1	B02A
38	I/O expander audio	Viper	E	PCA9555	audio_io_expander	
39	POD Interface	Viper	E	STV701	POD Interface	
41	Channel decoder	Viper	E	NXT2004	Channel decoder 2	
42	audio source select matrix	Viper	E	TEA6422	audio_source_select	
43	Hi Rate Front End	Viper	E	TDA8751	hdmi	B07B
44	main NVM	Viper	E	M24C32	nvm	B05E
45	Columbus 1	Viper	E	T6TU5XB-0001	comb_filter	B04E
46	Pacific 3	Viper	E	t.b.d.	pq_fpga	

Error	Description	Monitored by	Error/Prot	Device	Defective Module	schematics ID
47	PIC ambient light controller	EPLD	E	16F818	ambient_light	
48	PIC ambient light controller	EPLD	E	16F818	ambient_light	
49	DVD engine disc systems	Viper	E	t.b.d.	dvd_engine	
51	1394 Physical Layer	Viper	E	PD11394P23	ieee_1394	
52	1394 Link Layer	Viper	E	PDI1394L41BE	ieee_1394	
53	Viper - HW Peripheral Problem	St-by µP	P	PNX8550	control	B05A
54	3D FPGA	Viper	E	t.b.d	3d	
55	Spider	Viper	E	t.b.d.	video_featuring	
60						
61	Vertical Sweep Fail	PTV GDE	P		PTV GDE	
62	HOP POR Unsuccessful	PTV GDE	P		PTV GDE	
63	PDPDisplay	Viper	t.b.d.	t.b.d.	display	
64						
65	GdeInitCommunicationFailure	PTV GDE / HCS	p			B04G
66	GDE Non-Critical Error	PTV GDE	E		PTV GDE	
67	System Integrity Failure	PTV GDE	E		HCS	B04G
68	Horizontal Sweep Fail	PTV GDE / HCS	P		PTV GDE	
71	Thermal overheating	CDE/HCS	E		CDE	CoreTronic MTV512
72	Fan state too low	CDE/HCS	E		CDE	CoreTronic MTV512
73	Lamp break down	CDE/HCS	E		CDE	CoreTronic MTV512
74	MCU initialization fail	CDE/HCS	E		CDE	CoreTronic MTV512
81	Flash NVM Read only Mount error	Viper	E		nand_flash	
82	Flash NVM Read Write Mount error	Viper	E		nand_flash	
83	Flash read only Once File error	Viper	E		nand_flash	
84	Flash read only Upgrade File error	Viper	E		nand_flash	
85	Flash read write full error	Viper	E		nand_flash	
86	Flash system bad error	Viper	E		nand_flash	
91	RDS decoder	Viper	E	SAA6588	tdl_radio	
92	Tech design line interface µP	Viper	E	89C662		
95	DVD interface	Viper	E	PCF8574AT	tdl_radio	

Extra Info

- **Error 1 (I²C bus 1 blocked).** When this error occurs, the TV will go to protection and the front LED will blink at 3 Hz. Now you can partially restart the TV via the SDM shortcut pins on the SSB. Depending on the software version it is possible that no further diagnose (error code read-out) is possible. With the knowledge that only errors 1, 2, 4, and 63 result in a 3 Hz blinking LED, the range of possible defects is limited.
- **Error 2 (I²C bus 2 blocked).** When this error occurs, the TV will go to protection and the front LED will blink at 3 Hz. Now you can partially restart the TV via the SDM shortcut pins on the SSB. Due to hardware restriction (I²C bus 2 is the fast I²C bus) it will be impossible to start up the VIPER and therefore it is also impossible to read out the error codes via ComPair or via the blinking LED method. With the knowledge that only errors 1, 2, 4, and 63 result in a 3 Hz blinking LED, the range of possible defects is limited. When you have restarted the TV via the SDM shortcut pins, and then pressed "CH+" on your remote control, the TV will go to protection again, and the front LED blink at 3 Hz again. This could be an indication that the problem is related to error 2.
- **Error 3 (I²C bus 3 blocked).** There are only three devices on I²C bus 3: VIPER, Stand-by Processor, and NVM. The Stand-by Processor is the detection device of this error, so this error will only occur if the VIPER or the NVM is blocking the bus. This error will also be logged when the NVM gives no acknowledge on the I²C bus (see error 44). Note that if the 12 V supply is missing (connector 1M46 on the SSB), the DC/DC supply on the SSB will not work. Therefore the VIPER will not get supplies and could block I²C bus 3. So, a missing 12 V can also lead to an error 3.
- **Error 4 (I²C bus 4 blocked).** Same remark as with error 1.
- **Error 5 (I²C bus 5 blocked).** This error will point to a severe hardware problem around the VIPER (supplies not OK, VIPER completely dead, I²C link between VIPER and Stand-by Processor broken, etc...).
- **Error 7 (8.6 V error).** Except a physical problem with the 8.6 V itself, it is also possible that there is something wrong with the Audio DC Protection: see paragraph "Hardware Protections" for this.
- **Error 12 (12 V error).** Except a physical problem with the 12 V itself, it is also possible that there is something wrong with the Audio DC Protection: see paragraph "Hardware Protections" for this.
- **Error 14 (Audio supply).** This error is triggered in case of too low voltage of the audio supplies and therefore a drop of the audio supply voltage of below appr. 9 V per supply rail (or lower than 18 V rail to rail). Also a DC voltage of higher than 1 V DC on the speakers will lead to protection and error 14 blinking. For LCD sets this circuit can be found on schematic SA3, for PDP sets this can be found on schematic C. It should be noted that for 26-inch models there is only a supply link between the amplifiers and the stand-by µC whereas in all other models this link is implemented by Audio-Prot line pin 7 on 1 M02.
- **Error 29 (AVIP1).** This error will probably generate extra errors. You will probably also see errors 32 (MPIF) and error 31 (AVIP 2). Error 29 and 31 will always be logged together due to the fact that both AVIPs are inside the PNX2015 and are on the same I²C bus. In this case start looking for the cause around AVIP (part of PNX2015).
- **Error 31 (AVIP2).** See info on error 29.
- **Error 34 (Tuner 1).** When this error is logged, it is not sure that there is something wrong with the tuner itself. It is also possible that there is something wrong with the communication between channel decoder and tuner. See schematic B2B.
- **Error 37 (Channel decoder).** This error will always log error 34 (tuner) extra. This is due to the fact that the tuner I²C bus is coming from the channel decoder.
- **Error 44 (NVM).** This error will never occur because it is masked by error 3 (I²C bus 3). The detection mechanism for error 3 checks on an I²C acknowledge of the NVM. If NVM gives no acknowledge, the stand-by software assumes that the bus is blocked, the TV goes to protection and error 3 will be blinking.
- **Error 53.** This error will indicate that the VIPER has started to function (by reading his boot script, if this would have failed, error 5 would blink) but initialization was never completed because of hardware peripheral problems (NAND flash, ...) or software initialization problems. Possible cause could be that there is no valid software loaded (try to upgrade to the latest main software version).

5.5 The Blinking LED Procedure

5.5.1 Introduction

The blinking LED procedure can be split up into two situations:

- Blinking LED procedure in case of a protection detected by the stand-by processor. In this case the error is automatically blinked. This will be only one error, namely the one that is causing the protection. Therefore, you do not have to do anything special, just read out the blinks. A long blink indicates the decimal digit, a short blink indicates the units.
- Blinking LED procedure in the “on” state. Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the blinking LED procedure is activated in the “on” state, the front LED will show (blink) the contents of the error-buffer. Error-codes > 10 are shown as follows:

1. “n” long blinks (where “n” = 1 - 9) indicating decimal digit,
2. A pause of 1.5 s,
3. “n” short blinks (where “n”= 1 - 9),
4. A pause of approx. 3 s.
5. When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
6. The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the front LED will show:

1. 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
2. 2 short blinks of 250 ms followed by a pause of 3 s,
3. 9 short blinks followed by a pause of 3 s,
4. 6 short blinks followed by a pause of 3 s,
5. 1 long blink of 3 s to finish the sequence,
6. The sequence starts again.

5.5.2 How to Activate

Use one of the following methods:

- **Activate the SDM.** The blinking front LED will show the entire contents of the error buffer (this works in “normal operation” mode).
- **Transmit the commands “MUTE” - “062500” - “OK” with a normal RC.** The complete error buffer is shown. Take notice that it takes some seconds before the blinking LED starts.
- **Transmit the commands “MUTE” - “06250x” - “OK” with a normal RC** (where “x” is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking LED starts.

5.6 Protections

5.6.1 Software Protections

Most of the protections and errors use either the stand-by microprocessor or the VIPER controller as detection device. Since in these cases, checking of observers, polling of ADCs, filtering of input values are all heavily software based, these protections are referred to as software protections.
There are several types of software related protections, solving a variety of fault conditions:

- **Protections related to supplies:** check of the 12V, +5V, +8V6, +1.2V, +2.5V and +3.3V.
- **Protections related to breakdown of the safety check mechanism.** E.g. since a lot of protection detections are done by means of the VIPER, failing of the VIPER communication will have to initiate a protection mode since safety cannot be guaranteed anymore.

Remark on the Supply Errors
The detection of a supply dip or supply loss during the normal playing of the set does not lead to a protection, but to a cold reboot of the set.

Protections during Start-up
During TV start-up, some voltages and IC observers are actively monitored to be able to optimize the start-up speed, and to assure good operation of all components. If these monitors do not respond in a defined way, this indicates a malfunction of the system and leads to a protection. As the observers are only used during start-up, they are described in the start-up flow in detail (see paragraph “Stepwise Start-up").

5.6.2 Hardware Protections

There is one hardware protection in this chassis: “Audio DC Protection”. This protection occurs when there is a DC voltage on the speakers. In that case the main supply is switched "off", but the stand-by supply is still working.
For the Samsung V4 PDP displays, the 8V6 supply is switched "off" and the LED on the display’s Main Supply blinks eleven times, which means there is an overvoltage protection. The front LED of the TV will blink error 7 (8V6 error).
In case of LCD supplies, the 12V supply will drop. This will be detected by the stand-by processor, which will start blinking the 12 V error (error 12).

Repair Tip

- It is possible that you have an audio DC protection because of an interruption in one or both speakers (the DC voltage that is still on the circuit cannot disappear through the speakers).

5.7 Fault Finding and Repair Tips

Read also paragraph "Error Codes" - "Extra Info".

5.7.1 Exit “Factory Mode”

When an "F" is displayed in the screen's right corner, this means that the set is in "Factory" mode, and it normally happens after a new SSB has been mounted.
To exit this mode, push the "VOLUME minus" button on the TV's keyboard control for 5 seconds and restart the set

5.7.2 MPIF

Important things to make the MPIF work:

- Supply.
- Clock signal from the AVIP.
- I^2C from the VIPER.

5.7.3 AVIP

Important things to make the AVIP work:

- Supplies.
- Clock signal from the VIPER.
- I^2C from the VIPER (error 29 and 31).

5.7.4 DC/DC Converter

Introduction

- The best way to find a failure in the DC/DC converters is to check their starting-up sequence at power "on" via the Mains/AC Power cord, presuming that the Stand-by Processor is operational.
- If the input voltage of the DC/DC converters is around 12 V (measured on the decoupling capacitors 2U17/2U25/ 2U45) and the ENABLE signals are "low" (active), then the output voltages should have their normal values.
- First, the Stand-by Processor activates the +1V2 supply (via ENABLE-1V2).
- Then, after this voltage becomes present and is detected OK (about 100 ms), the other two voltages (+2V5 and +3V3) will be activated (via ENABLE-3V3).
- The current consumption of controller IC 7U00 is around 20 mA (that means around 200 mV drop voltage across resistor 3U22).
- The current capability of DC/DC converters is quite high (short-circuit current is 7 to 10 A), therefore if there is a linear integrated stabilizer that, for example delivers 1.8V from +3V3 with its output overloaded, the +3V3 stays usually at its normal value even though the consumption from +3V3 increases significantly.
- The +2V5 supply voltage is obtained via a linear stabilizer made with discrete components that can deliver a lot of current. Therefore, in case +2V5 (or +2V5D) is short-circuited to GND, the +3V3 will not have the normal value but much less.
- The supply voltage +12VSW is protected for over-currents by fuse 1U04.

Fault Finding

- **Symptom:** +1V2, +2V5, and +3V3 not present (even for a short while ~10ms).
  1. Check 12V availability (fuse 1U01, resistor 3U22, power MOS-FETs) and enable signal ENABLE-1V2 (active low).
  2. Check the voltage on pin 9 (1.5 V).
  3. Check for +1V2 output voltage short-circuit to GND that can generate pulsed over-currents 7-10 A through coil 5U03.
  4. Check the over-current detection circuit (2U12 or 3U97 interrupted).

- **Symptom:** +1V2 present for about 100 ms. Supplies +2V5 and +3V3 not rising.
  1. Check the ENABLE-3V3 signal (active "low").
  2. Check the voltage on pin 8 (1.5 V).
  3. Check the under-voltage detection circuit (the voltage on collector of transistor 7U10-1 should be less than 0.8 V).
  4. Check for output voltages short-circuits to GND (+3V3, +2V5 and +2V5D) that generate pulsed over-currents of 7-10 A through coil 5U00.
  5. Check the over-current detection circuit (2U18 or 3U83 interrupted).

- **Symptom:** +1V2 OK, but +2V5 and +3V3 present for about 100 ms. **Cause:** The SUPPLY-FAULT line stays "low" even though the +3V3 and +1V2 is available. The Stand-by Processor is detecting that and switches all supply voltages "off".
  1. Check the drop voltage across resistor 3U22 (this could be too high)
  2. Check if the +1V2 or +3V3 are higher than their normal values. This can be due to defective DC feedback of the respective DC/DC converter (3U18 or 3UA7).

- **Symptom:** +1V2, +2V5, and +3V3 look okay, except the ripple voltage is increased (audible noise can come from the filtering coils 5U00 or 5U03).
  Cause: Instability of the frequency and/or duty cycle of one or both DC/DC converters.
  – Check resistor 3U06, the decoupling capacitors, the AC feedback circuits (2U20 + 2U21 + 3U14 + 3U15 for +1V2 or 2U19 + 2U85 + 3U12 + 3U13 for +3V3), the compensation capacitors 2U09, 2U10, 2U23 and 2U73, and IC 7U00.

Note 1: If fuse 1U01 is broken, this usually means a pair of defective power MOSFETs (7U01 or 7U03). Item 7U00 should be replaced as well in this case.

5.8 Software Upgrading

5.8.1 Introduction

The set software and security keys are stored in a NAND-Flash (item 7P80), which is connected to the VIPER via the PCI bus.

It is possible **for the user** to upgrade the **main** software via the USB port. This allows replacement of a software image in a standalone set, without the need of an E-JTAG debugger. A description on how to upgrade the main software can be found in chapter 3 "Directions For Use".

Important: When the NAND-Flash must be replaced, a new SSB must be ordered, due to the presence of the security keys!!! See table “SSB service kits” for the order codes.
Perform the following actions after SSB replacement:
1. Set the correct option codes (see sticker inside the TV).
2. Update the TV software (see chapter 3 for instructions).
3. Perform the alignments as described in chapter 8.
4. Check in CSM menu 5 if the HDMI and POD keys are valid.

Table 5-4 SSB service kits

12 NC	Description
3139 267 29251	SSB Service Kit PTV 2k6

5.8.2 Main Software Upgrade

The software image resides in the NAND-Flash, and is formatted in the following way:

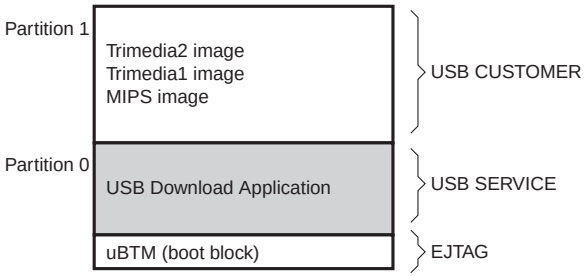


Figure 5-5 NAND-Flash format

Executables are stored as files in a file system. The boot loader (uBTM) will load the USB Download Application in partition 0 (USB drivers, bootscript, etc). This application makes it then possible to upgrade the main software via USB.

Installing "Partition 0" software is possible via an external EJTAG tool, but also in a special way with the USB stick (see description in paragraph “Partition 0“).

Partition 1 (Customer)
To do a main software upgrade (partition 1) via USB, the set must be operational, and the "Partition 0" files for the VIPER **must** be installed in the NAND-Flash!

The new software can be uploaded to the TV by using a portable memory device or USB storage compliant devices (e.g. USB memory stick). You can download the new software from the Philips website to your PC.

Partition 0 (Service)
If the "Partition 0" software is corrupted, the software needs to be re-installed.
To upgrade this “USB download application” (partition 0 except the bootblock), insert an USB stick with the correct software, but press the “red” button on the remote control (in ”TV” mode) when it is asked via the on screen text.

Caution:
- The USB download application will now erase **both** partitions (except the boot block), so you need to reload the main SW after upgrading the USB download application. As long as this is not done, the USB download application will start when the set is switched “on”.
- When something goes wrong during the progress of this method (e.g. voltage dip or corrupted software file), the set will not start up, and can only be recovered via the EJTAG tool!

5.8.3 Manual Start of the Main Software Upgrade Application

Normally, the software upgrading procedure will start automatically, when a memory device with the correct software is inserted, but in case this does not work, it is possible to force the TV into the software upgrade application. To do so:

- Disconnect the TV from the Mains/AC Power.
- Press the “OK” button on a Philips DVD RC-6 remote control (it is also possible to use the TV remote in "DVD" mode when available).
- Keep the “OK” button pressed while connecting the TV to the Mains/AC Power.
- The software upgrade application will start.
- When a memory device with upgrade software is connected, the upgrade process will start.

5.8.4 Stand-by Software Upgrade

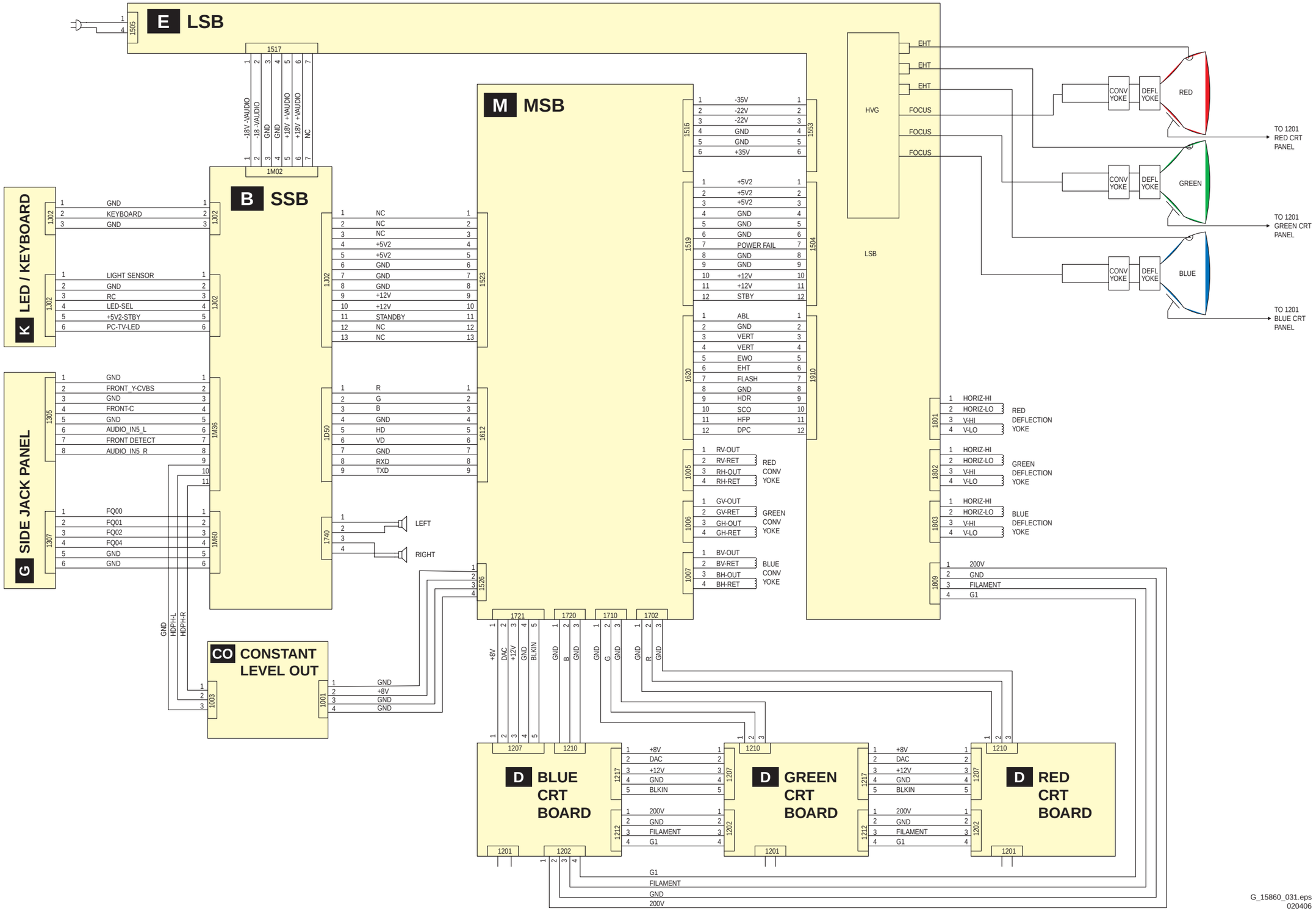
It will be possible to upgrade the Stand-by software via a PC and the ComPair interface. Check paragraph "ComPair" on how to connect the interface. To upgrade the Stand-by software, use the following steps:

1. Disconnect the TV from the Mains/AC Power.
2. Short circuit the SPI pins [2] on the SSB. They are located outside the shielding (see figure “SDM and SPI service pads” earlier in this chapter).
3. Keep the SPI pins shorted while connecting the TV to the Mains/AC Power.
4. Release the short circuit after approx. two seconds.
5. Start up HyperTerminal (can be found in every Windows application via Programs -> Accessories -> Communications -> HyperTerminal. Use the following settings:
   – COM1
   – Bits per second = 38400
   – Data bits = 8
   – Parity = none
   – Stop bits = 1
   – Flow control = Xon / Xoff.
6. Press “Shift U” on your PC keyboard. You should now see the following info:
   – PNX2015 Loader V1.0
   – 19-09-2003
   – DEVID=0x05
   – Erasing
   – MCSUM=0x0000
   – =
7. If you do not see the above info, restart the above procedure, and check your HyperTerminal settings and the connections between PC and TV.
8. Via “Transfer” -> “Send text file ...”, you can send the proper upgrade file to the TV (e.g.*.hex). This file will be distributed via the Service Organization.
9. After successful programming, you must see the following info (this can take several minutes):
   – DCSUM=0xECB3
   – :Ok
   – MCSUM=0xECB3
   – Programming
   – PCSUM=0xECB3
   – Finished
10. If you do not see this info, restart the complete procedure.
11. Close HyperTerminal.
12. Disconnect and connect Mains/AC Power again.

6. Block Diagrams, Test Point Overviews, and Waveforms

Wiring Diagram

WIRING



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Block Diagram Supply

SUPPLY

E2 STAMDBY SUPPLY

MAINS INPUT
1505
1506 6A3
5511 5512 MAINS FILTER
6500 GBU6JL
Mains_Pos
Mains_Neg
3502
5501
7510 STR-W6833N
D
FB
OLP
VCC
6509
3531
5510
6505
5515 +12V
6512
5508 +5V2
6510
IC_SUP
3538
7511 TCET1103
7516
Feedback Circuit
2534
3547
E1 STANDBY
E1 PWRFAIL
1504
TO 1519 M1 MSB
HOT GROUND
COLD GROUND

E1 MAIN SUPPLY

3560
7551 TEA1506T/N1
SPMS CONTROL
DRIVER
VCC
DEM
ISENSE
CTRL
3556
6551
3555
3557
3559
7552
5552
5551
6U07
2562
6556
2565
6557
2568
6558
2571
6559
2574
6560
2582
6561
2584
5553
5555 -VAUDIO
5556
5558 +VAUDIO
5559
5560 +35V
5561
5562 -22V
5563
5564 -35V
5565 +130VS
5567 +130VHV
1517
TO 1M02 B8B MSB
1553
TO 1516 M1 MSB
3570 +5V2
7554 TCET1103
3573
3574
7555
Feedback Circuit
2587
3577
7556
STANDBY E2
3583
3584 +5V2
7557
3592
3581
6544
PWRFAIL E2
PROTECT E3
HOT GROUND
COLD GROUND

E3 DEFLECTION

+130VS
5802
5500
6802 2803
3817
6801 2805
1806 6A3
3810
3802 HBLANK
+30V_CLAMP
DEFGND
6805 2811
1804 6A3 +13V
6806 2814
1805 6A3 -13V
7801
5806
CONTROL
DYN-FOCUS-LOW
DYN-FOCUS-HIGH
VERT-PARABOLA
HOT COLLECTOR
E4 DM-INPUT
7803
7802
7807
E4 HOUT
VDOA
VDOB
VPULSE
7811 STV8172A
AMPLIFIER
1809
FILAMENT
TO 1202 D CRT
E4 VPULSE
E1 PROTECT
NEG-HORIZ-PULSE
CONTROL
HVG-ON
3804
3805
3806
1801
1802
1803
TO DEFLECTON YOKE RED
TO DEFLECTON YOKE GREEN
TO DEFLECTON YOKE BLUE

E4 HV GEN

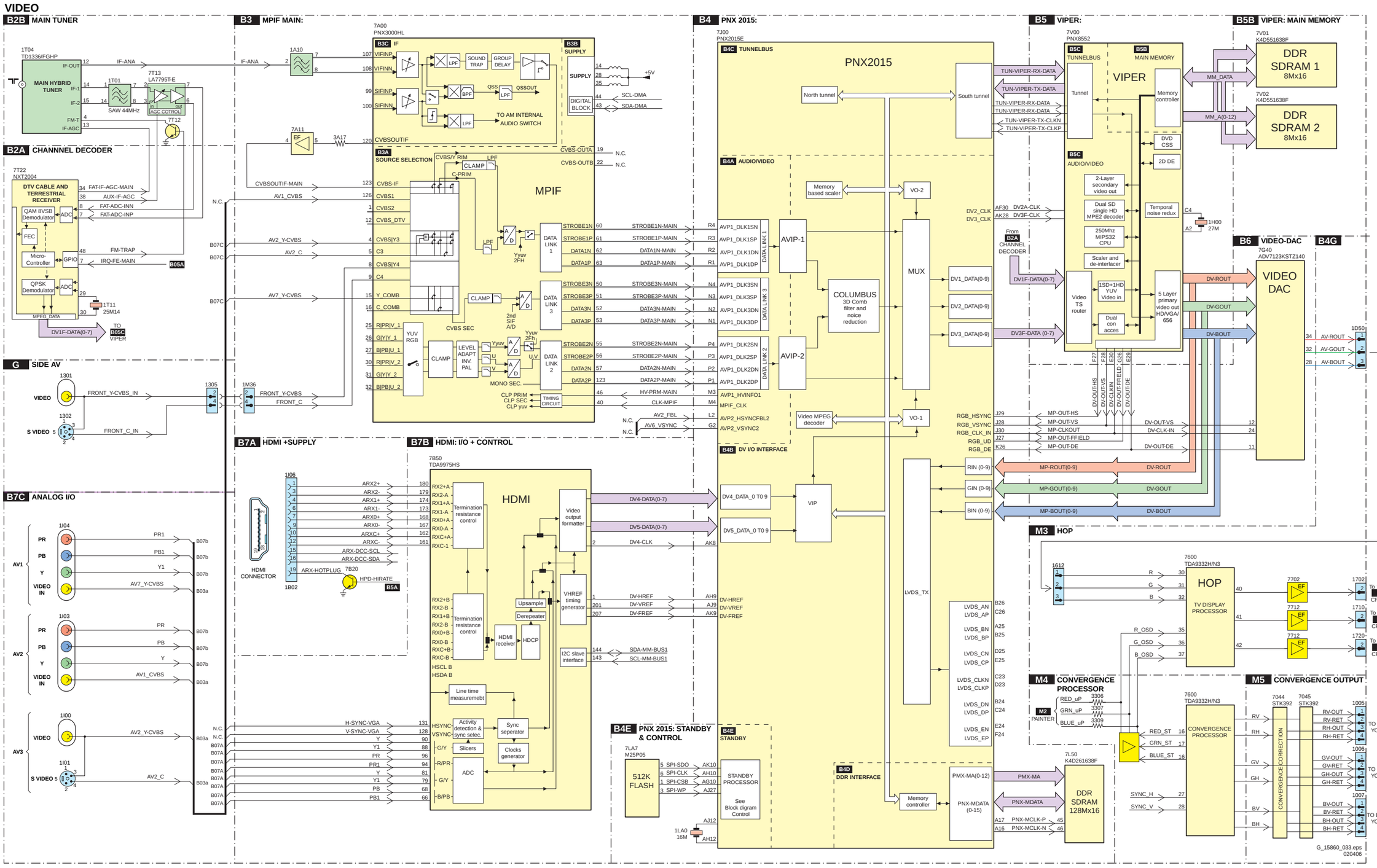
R G B
VFOC EHT EHT EHT
5904
TRANSFORMER VAUX
ABL RTN VAUX GND
DRIVERS & CONTROL OVP ON / TEST OFF GND VB+
MT
+130HV
5902
1904 DYN FOCUS
3902
5901
CONTROL
HVG-ON
1901
TEST
3908
2919
2922
6917 -200V
2924
6916 +330V
E4
E3 VDOB
E3 VDOA
E3 DM-INPUT
E3 HOUT
E3 VPULSE
E3 HOT-COLLECTOR
1910
TO 1620 M3 MSB

M1 POWER SUPLY

1516
TO 1553 E1 LSB
5504 -35V
-22VR
7506
5508
-8V
5505 -22V
1519
TO 1504 E2 LSB
+5V2
POWER FAILURE
+12VA
STBY
7502-2
7502-1
STANDBY
5508 +5V
5509 +12V
7500 +8V
7501 +9V
1523
TO 1J02 B01B SSB

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Block Diagram Video



Block Diagram Audio

AUDIO

B2B MAIN TUNER

1T04 TD1336/FGHP
MAIN HYBRID TUNER
12
IF-ANA

B2A

7T22 NXT2004
DTV CABLE AND TERRESTRIAL RECEIVER
FOR MORE MORE DETAILS SEE ALSO BLOCK DIAGRAM VIDEO AND CONTROL
DV1F-DATA(0-7)

G SIDE AV

1302
AUDIO IN L+R
L_FRONT_IN
R_FRONT_IN
1305
1M36
AUDIO-IN5-L
AUDIO-IN5-R

B7C ANALOG I/O

1I04 AV1 AUDIO IN L+R
AUDIO-IN4-R
AUDIO-IN4-L
1I03 AV2 AUDIO IN L+R
AUDIO-IN1-R
AUDIO-IN1-L
1I00-1 AV3 AUDIO IN L+R
AUDIO-IN2-R
AUDIO-IN2-L
B03d
1I00-2 AV3 DIGITAL AUDIO OUT
SPDIF-OUT1

B3 MPIF MAIN:

7A00 PNX3000HL
B3C IF
1A10
107 VIFINP
108 VIFINN
99 SIFINP
100 SIFINN
SEE ALSO BLOCKDIAGRAM VIDEO
B3D AUDIO SOURCE SELECTIOM
MPIF
AUDIO SWITCH
LPF
DLINK1
DLINK2
AM SOUND
AUDIO AMPS
AUDIO SWITCH (DIGITAL OUT)
AUDIO SWITCH (ANALOG OUT)
DSND
DATA LINK
AUDIO-IN1-R 85
AUDIO-IN1-L 86
AUDIO-IN2-R 83
AUDIO-IN2-L 84
AUDIO-IN4-L 80
AUDIO-IN4-R 79
AUDIO-OUT1-R 70
AUDIO-OUT1-L 69
LINE / SCART L/R

DATA LINK 1
DATA LINK 2
DATA LINK 3
72 DSNDR2
73 DSNDL2
74 DSNDR1
75 DSNDL1
40 CLK-MPIF

B4 PNX2015

7J00 PNX2015E
PNX2015
I2D
DEM DEC
ADAC1
AUDIO PROCESSING
ADAC2
AVIP
AH1 ADAC1
AG1 ADAC2
AC3 ADCAC12
AD3 ADCAC11
AE3 ADCAC10
AF3 ADCAC19
M4

B5 VIPER:

7V00 PNX8552EH
B5C
VIPER
I2S_IN1_WS T29 I2S-WS-MAIN V3
I2S_IN1_SCK T30 I2S-BCLK-MAIN V2
I2S_OUT2_SD0 T28 I2S-MCH-LR U2
I2S_OUT2_SD1 T27 I2S-MCH-CSW U3
I2S_OUT2_SD2 R30 I2S-MCH-SLR U4
I2S_OUT1_SD0 U27 I2S-SUB-D V5
I2S_OUT2_SD3 R29 I2S-MAIN-D V4
SPDIF-OUT1 AB29
I2S OUT
I2S IN

B5B VIPER: MAIN MEMORY

7V02
7V01
K4D551638F 2X DDR SDRAM 8Mx16
MM_DATA
MM_A(0-12)
B5B MAIN MEMORY
DDR INTERFACE
AA27 SPDIF-HDMI

B7A HDMI +SUPPLY

B7B HDMI: I/O + CONTROL

7B50 TDA9970HS
HDMI
RX2+ RX2-
RX1+ RX1-
RX0+ RX0-
RXC+ RXC-
Termination Resistance Control
Audio Formatter
Audio PLL
Audio FIFO
HDMI receiver
HDCP
Packet extraction
183 SPDIF-HDMI
DV4-DATA
DV5-DATA
DV INPUT
1I06
HDMI CONNECTOR
PARX2+
AUDIO MULTIPLEXED WITH VIDEO SEE ALSO BLOCKDIAGRAM VIDEO

B8A AUDIO: AMPLIFIER

+12_20V
-12_20V
7D14÷7D17
7D18-1
7D18-2
7D10-02
7D10-03
7D10-01
7D11
7D10-04
CONTROL
FEEDBACK-LR
FEEDBACK
FEEDBACK-RL
INV-MUTE
MUTE
PROT-AUDIOSUPPLY
LEFT-SPEAKER
RIGHT-SPEAKER
SOUND-ENABLE B5A
B4E
7D19÷7D22
7D23-1
7D23-2
7D26
7D25
U-VOLT-DETECT

B8B AUDIO: CONNECTORS

1740
5M02
5M03
Speaker L 15W/8Ω
Speaker R 15W/8Ω
1M02
5M10
5M11
5M12
5M09
(-12-16V-NF)
(+12-16V-NF)
-12_20V
From 1517 E1 SUPPLY
PROT-AUDIOSUPPLY

B3E MPIF MAIN: AUDIO AMPLIFIER

ADAC7 AB1
ADAC8 AA1
3A27
3A33
AUDIO-HDPH-L-AP
AUDIO-HDPH-R-AP
7A08 7A14 7A15 7A16
A-PLOP
CONTROL

B3A MPIF MAIN: VIDEO SOURS SELECTION

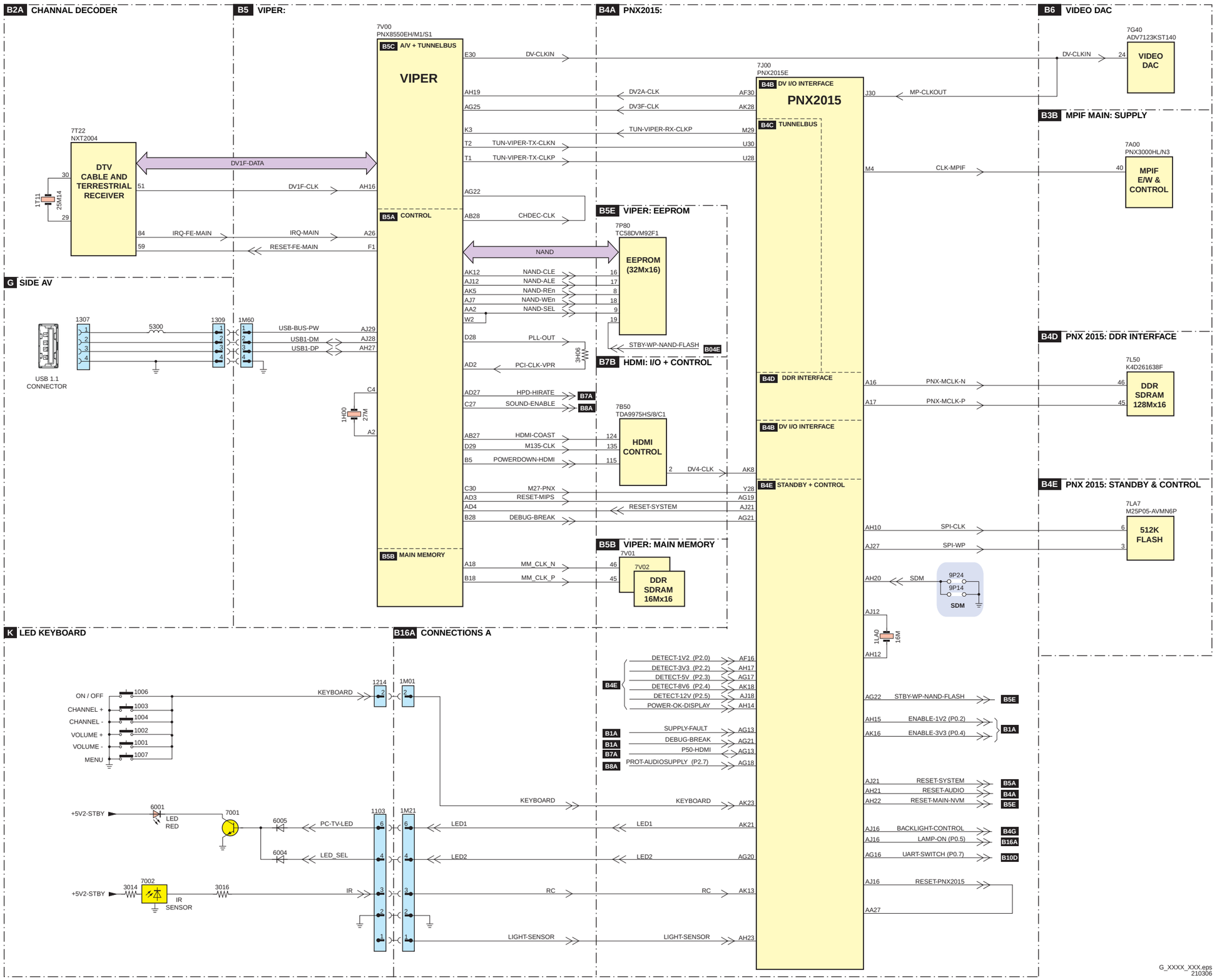
1M36
1001
7000
7002
1002

CO CONSTANT LEVEL OUT

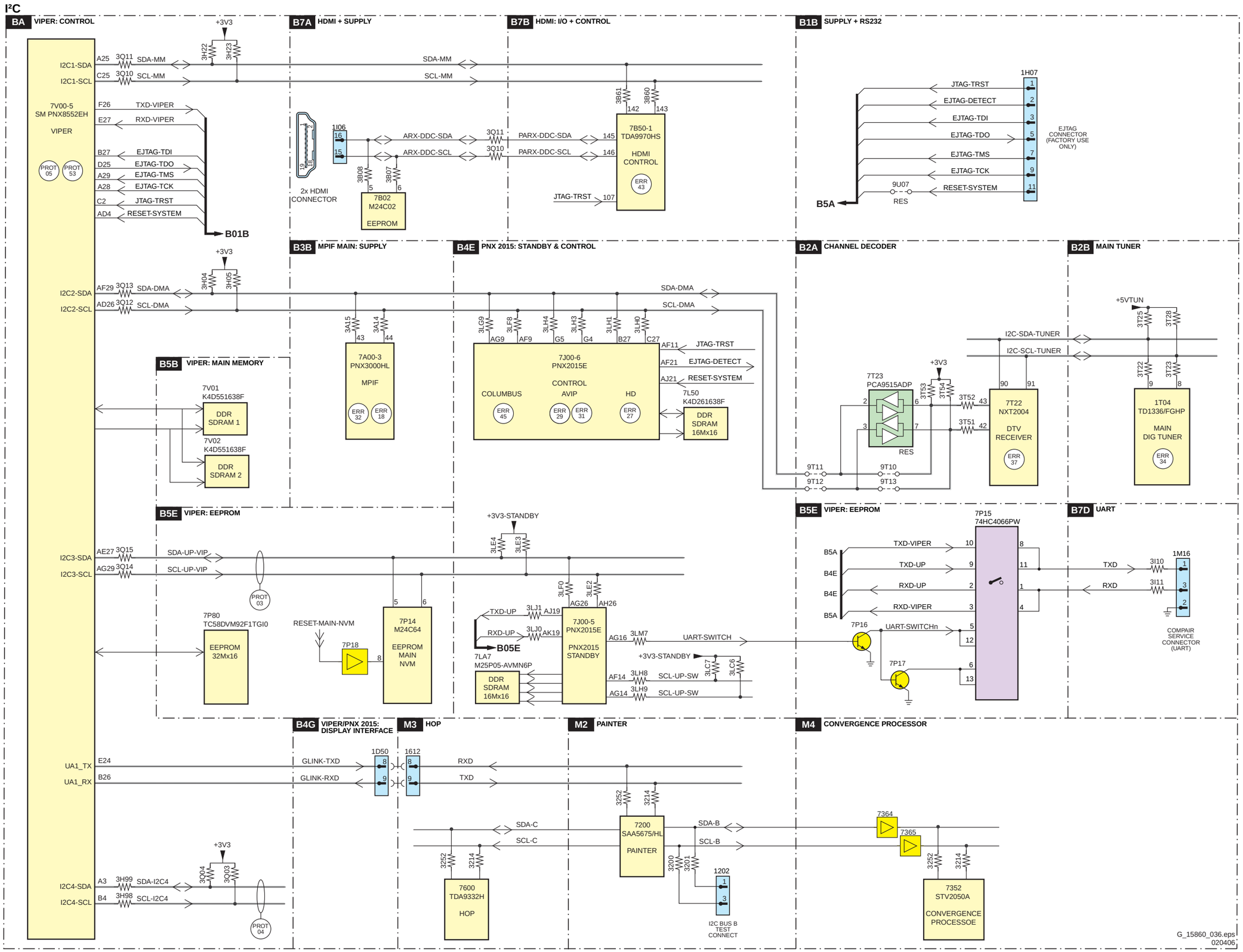
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Block Diagram Control & Clock Signals

CONTROL + CLOCK SIGNALS

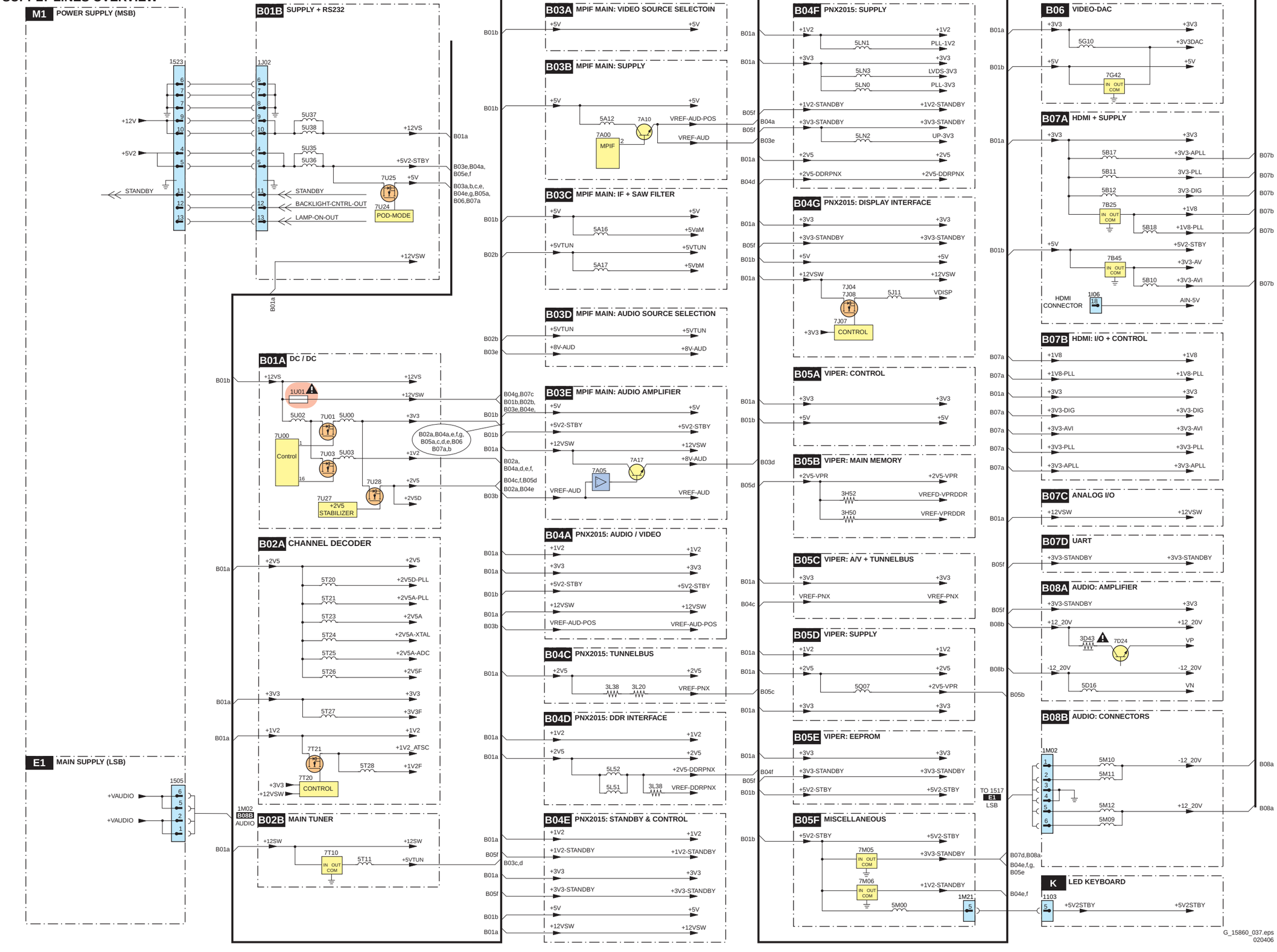


Block Diagram I²C



Block Diagram I²C

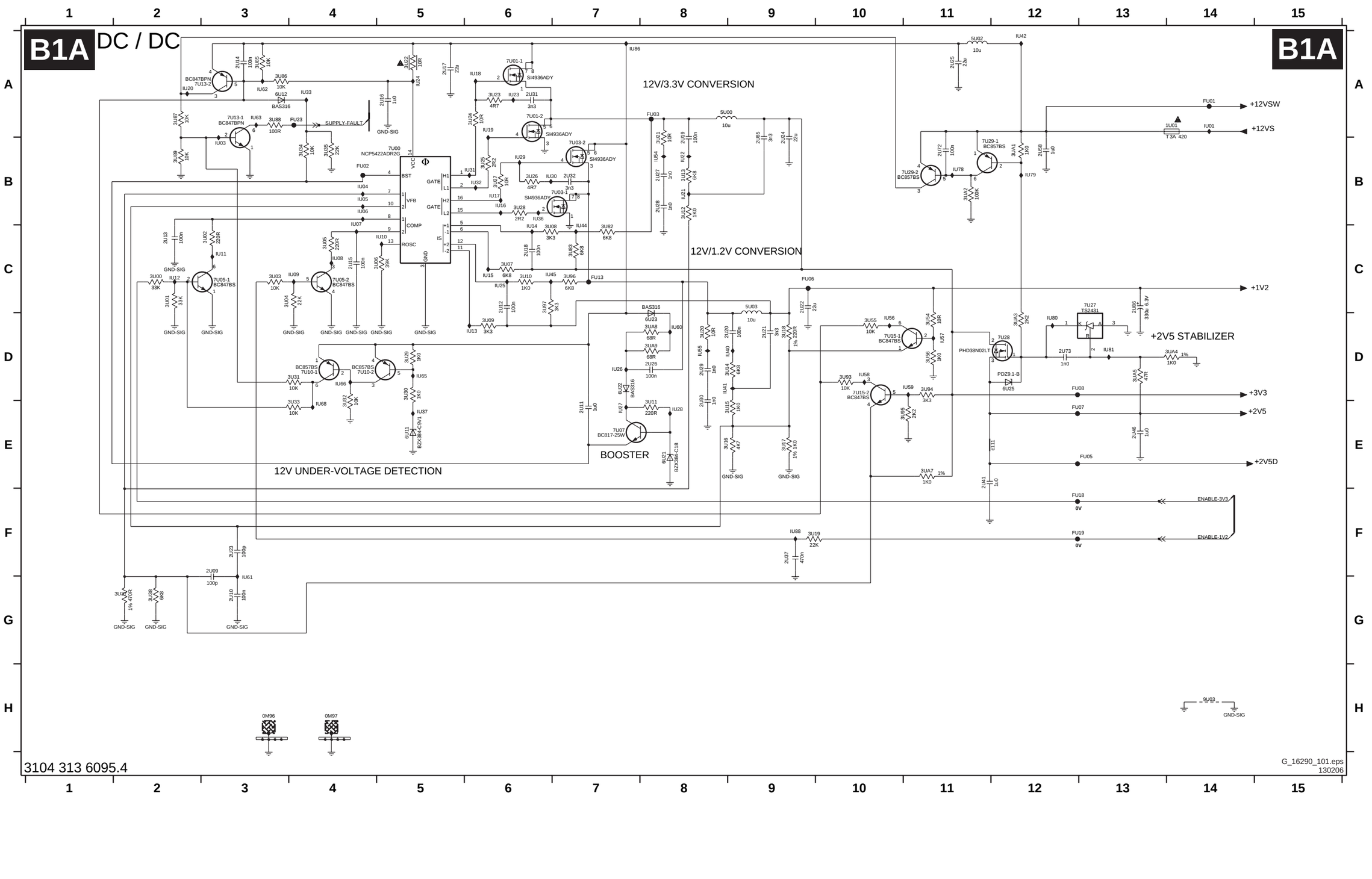
SUPPLY LINES OVERVIEW



7. Circuit Diagrams and PWB Layouts

SSB (.4 Version): DC / DC

0M96 H3	2U13 C2	2U20 D9	2U27 B8	2U41 E11	3U00 C2	3U07 C6	3U14 D9	3U21 B8	3U28 B6	3U35 B4	3U83 C7	3U94 D11	3UA4 D14	5U03 C9	7U00 B5	7U07 E7	7U27 C13	FU03 A8	FU19 F12	IU07 B4	IU14 C6	IU21 B8	IU28 E8	IU37 E5	IU55 D8	IU62 A3	IU80 D12
0M97 H4	2U14 A3	2U21 D9	2U28 B8	2U46 E13	3U01 C2	3U08 C6	3U15 E9	3U22 A5	3U29 D5	3U37 G2	3U85 A3	3U95 E11	3UA5 D13	6U11 E5	7U01-1 A6	7U10-1 D4	7U28 D12	FU05 E13	FU23 A4	IU08 C4	IU15 C6	IU22 B8	IU29 B6	IU40 D8	IU56 D10	IU63 A3	IU81 D13
1U01 A14	2U15 C4	2U22 C9	2U29 D8	2U58 B12	3U02 C3	3U09 D6	3U16 E8	3U23 A6	3U30 D5	3U38 G2	3U86 A3	3U96 C7	3UA7 E11	6U12 A3	7U01-2 A6	7U10-2 D4	7U29-1 B12	FU06 C9	IU01 A14	IU09 C4	IU16 B6	IU23 A6	IU30 B6	IU41 D8	IU57 D11	IU65 D5	IU86 A7
2U09 F3	2U16 A5	2U23 F3	2U30 E8	2U72 B11	3U03 C3	3U10 C6	3U17 E9	3U24 A6	3U31 D4	3U54 D11	3U87 A2	3U97 C6	3UA8 D8	6U21 E8	7U03-1 B6	7U13-1 A3	7U29-2 B11	FU07 E12	IU03 B3	IU10 C5	IU17 B6	IU24 A5	IU31 B6	IU42 A12	IU58 D10	IU66 D4	IU88 F9
2U10 G3	2U17 A5	2U24 B9	2U31 A6	2U73 D12	3U04 C3	3U11 E8	3U18 D9	3U25 B6	3U32 E4	3U55 D10	3U88 A3	3UA1 B12	3UA9 D8	6U22 D7	7U03-2 B7	7U13-2 A3	9U03 H14	FU08 D12	IU04 B4	IU11 C3	IU18 A6	IU25 C6	IU32 B6	IU44 C7	IU59 D11	IU68 E4	c111 E11
2U11 E7	2U18 C6	2U25 A11	2U32 B7	2U85 B9	3U05 C4	3U12 B8	3U19 F9	3U26 B6	3U33 E4	3U56 D11	3U89 B2	3UA2 B11	5U00 A8	6U23 D8	7U05-1 C3	7U15-1 D10	FU01 A14	FU13 C7	IU05 B4	IU12 C2	IU19 A6	IU26 D7	IU33 A4	IU45 C6	IU60 D8	IU78 B11	
2U12 C6	2U19 B8	2U26 D8	2U37 F9	2U86 C13	3U06 C5	3U13 B8	3U20 D8	3U27 B6	3U34 B4	3U82 C7	3U93 D10	3UA3 D12	5U02 A11	6U25 D12	7U05-2 C4	7U15-2 D10	FU02 B4	FU18 F12	IU06 B4	IU13 D6	IU20 A2	IU27 E7	IU36 B6	IU54 B8	IU61 G3	IU79 B12	



SSB (.4 Version) Supply + RS232

B1B SUPPLY + RS232

B1B

1J02
B13B-PH-K-S(LF)(SN)
FU04 FU10 FU11 GND-D FU14 FU15 FU17 FU12 FU16
0V2 FU20
0V3 FU21
3V2 FU22
5U35 5U36 5U37 5U38
2U48 100p 2U49 100p 2U50 100p 2U51 100p 2U52 100p
2U53 100n 2U54 100n 2U40 1u0
3U47 3U48 100R 100R
-12-16V-NF
+12-16V-NF
+5V2-STBY
+12VS
STANDBY
BACKLIGHT-CNTRL-OUT
LAMP-ON-OUT
POD-MODE
+12VSW +5V2-STBY +5V2-STBY
3U39 100K
7U25-1 SI4936ADY
7U25-2 SI4936ADY
IU43 IU46 0V 3U42 47K IU47
7U24 BC847BW
3U44 47K
2U55 100n
2U61 1u0
FU33 +5V
+5V2-STBY
3U74 1K0
3U72 150R 3U73 150R
IU90
FOR FACTORY USE ONLY
IU91 3V9
7U20 BC847B
7U21 TS431AILT
2U60 10n
IU92 3U75 1K0 +3V3-UART
3U76 1K0 3U77 1K5
2U56 10u 16V
9U13 RES +3V3-UART FU30
RES 7U22 ST3232C
RS232
VCC
2U63 100n IU93 C1+
IU94 C1-
2U66 100n IU95 C2+
IU96 C2-
V- V+
IU84 2U65 100n IU85 2U64 100n
+3V3
3U91 10K 3U90 10K
1H07
FU40 FU41 FU42 FU43 FU44 FU45 FU46 FU47 FU48 FU50 FU49
5-147279-3
FOR FACTORY USE ONLY
9U07
JTAG-TRST
EJTAG-DETECT
EJTAG-TDI
EJTAG-TDO
EJTAG-TMS
EJTAG-TCK
RESET-SYSTEM
3U92 10K
IU72 GLINK-TXD 9U15 RES
TXD
RXD
IU74 GLINK-RXD 9U16 RES
IU73 IU87 IU99 IU75
T1 IN T2 IN R1 IN R2 IN
OUT T1 OUT T2 OUT R1 OUT R2 GND
IU70 IU64 IU97 IU98
3U98 RES 100R 3U99 RES 100R
3U79 RES 100R 3U81 RES 100R
FU51 FU52 FU31 FU32
1U02 1U03
B3B-PH-SM4-TBT(LF)
B3B-PH-SM4-TBT(LF) RES
FOR FACTORY USE ONLY
9U01 RES
9U02 RES
9U14 RES

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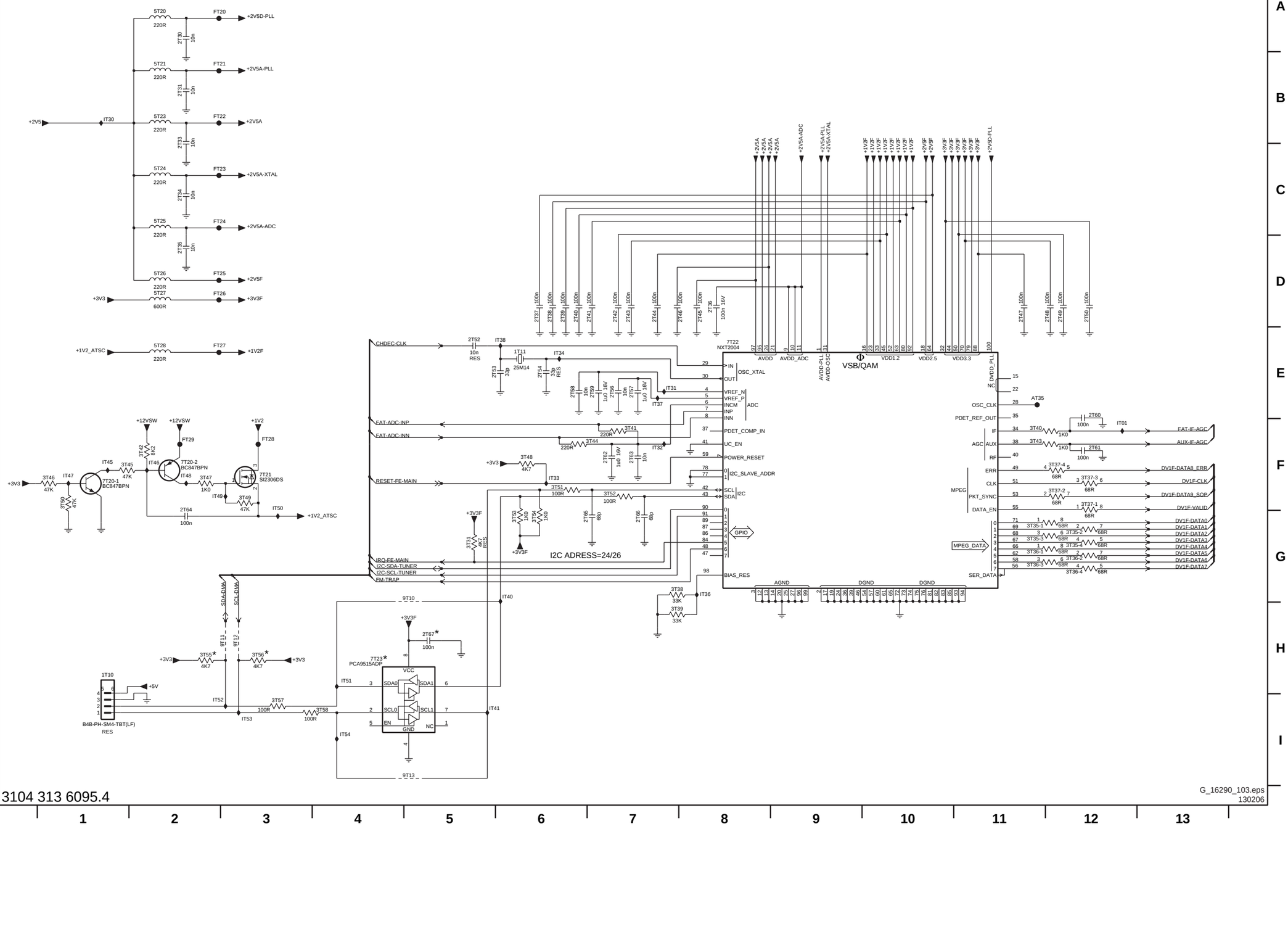
1H07 E2
1J02 A1
1U02 E9
1U03 E9
2U40 B4
2U48 B2
2U49 B2
2U50 B2
2U51 B2
2U52 B3
2U53 B3
2U54 B3
2U55 C7
2U56 D2
2U60 D2
2U61 C8
2U63 D5
2U64 D7
2U65 D7
2U66 D5
3U39 B7
3U42 B6
3U44 C6
3U47 B3
3U48 B3
3U72 C3
3U73 C3
3U74 C1
3U75 D2
3U76 D2
3U77 D2
3U79 E7
3U81 E8
3U90 E3
3U91 E3
3U92 F3
3U98 E8
3U99 E8
5U35 A3
5U36 A3
5U37 A3
5U38 A3
7U20 C3
7U21 D1
7U22 D6
7U24 C6
7U25-1 B7
7U25-2 B8
9U01 F6
9U02 F6
9U07 E3
9U13 C6
9U14 F6
9U15 E5
9U16 F5
FU04 A2
FU10 A2
FU11 A1
FU12 A3
FU14 A1
FU15 A1
FU16 A3
FU17 A1
FU20 B2
FU21 B2
FU22 B2
FU30 D6
FU31 E8
FU32 E8
FU33 B8
FU40 E2
FU41 E2
FU42 E2
FU43 E2
FU44 E2
FU45 E2
FU46 E2
FU47 F2
FU48 F2
FU49 F2
FU50 F2
FU51 E8
FU52 E8
IU43 B6
IU46 B5
IU47 B6
IU64 E7
IU70 E7
IU72 E4
IU73 E5
IU74 F4
IU75 F5
IU84 D7
IU85 D7
IU87 E5
IU90 C3
IU91 C2
IU92 D2
IU93 D6
IU94 D6
IU95 D6
IU96 E6
IU97 E7
IU98 E7
IU99 F5

SSB (.4 Version) Channel Decoder

B2A CHANNEL DECODER

B2A

1T10 H1
1T11 E6
2T30 A2
2T31 B2
2T33 B2
2T34 C2
2T35 D2
2T36 D8
2T37 D6
2T38 D6
2T39 D6
2T40 D6
2T41 D7
2T42 D7
2T43 D7
2T44 D7
2T45 D8
2T46 D7
2T47 D11
2T48 D12
2T49 D12
2T50 D12
2T52 E5
2T53 E6
2T54 E6
2T56 E7
2T57 E7
2T58 E6
2T59 E7
2T60 E12
2T61 F12
2T62 F7
2T63 F7
2T64 G2
2T65 G7
2T66 G7
3T31 G5
3T35-1 G11
3T35-2 G12
3T35-3 G11
3T35-4 G12
3T36-1 G11
3T36-2 G12
3T36-3 G11
3T36-4 G12
3T37-1 F12
3T37-2 F12
3T37-3 F12
3T37-4 F12
3T38 G7
3T39 H7
3T40 F11
3T41 F7
3T42 F2
3T43 F11
3T44 F7
3T45 F1
3T46 F1
3T47 F2
3T48 F6
3T49 F3
3T50 F1
3T51 F6
3T52 F7
3T53 G6
3T54 G6
3T55 H2
3T56 H3
3T57 I3
3T58 I4
5T20 A2
5T21 B2
5T23 B2
5T24 C2
5T25 C2
5T26 D2
5T27 D2
5T28 E2
7T20-1 F1
7T20-2 F2
7T21 F3
7T22 E8
7T23 H4
9T10 G5
9T11 H3
9T12 H3
9T13 I5
AT35 E11
FT20 A2
FT21 B2
FT22 B2
FT23 C2
FT24 C2
FT25 D2
FT26 D2
FT27 E2
FT28 F3
FT29 F2
IT01 F12
IT30 B1
IT31 E7
IT32 F7
IT33 F6
IT34 E6
IT36 G8
IT37 E7
IT38 E6
IT40 G6
IT41 I5
IT45 F1
IT46 F2
IT47 F1
IT48 F2
IT49 F2
IT50 F3
IT51 H4
IT52 I2
IT53 I3
IT54 I4



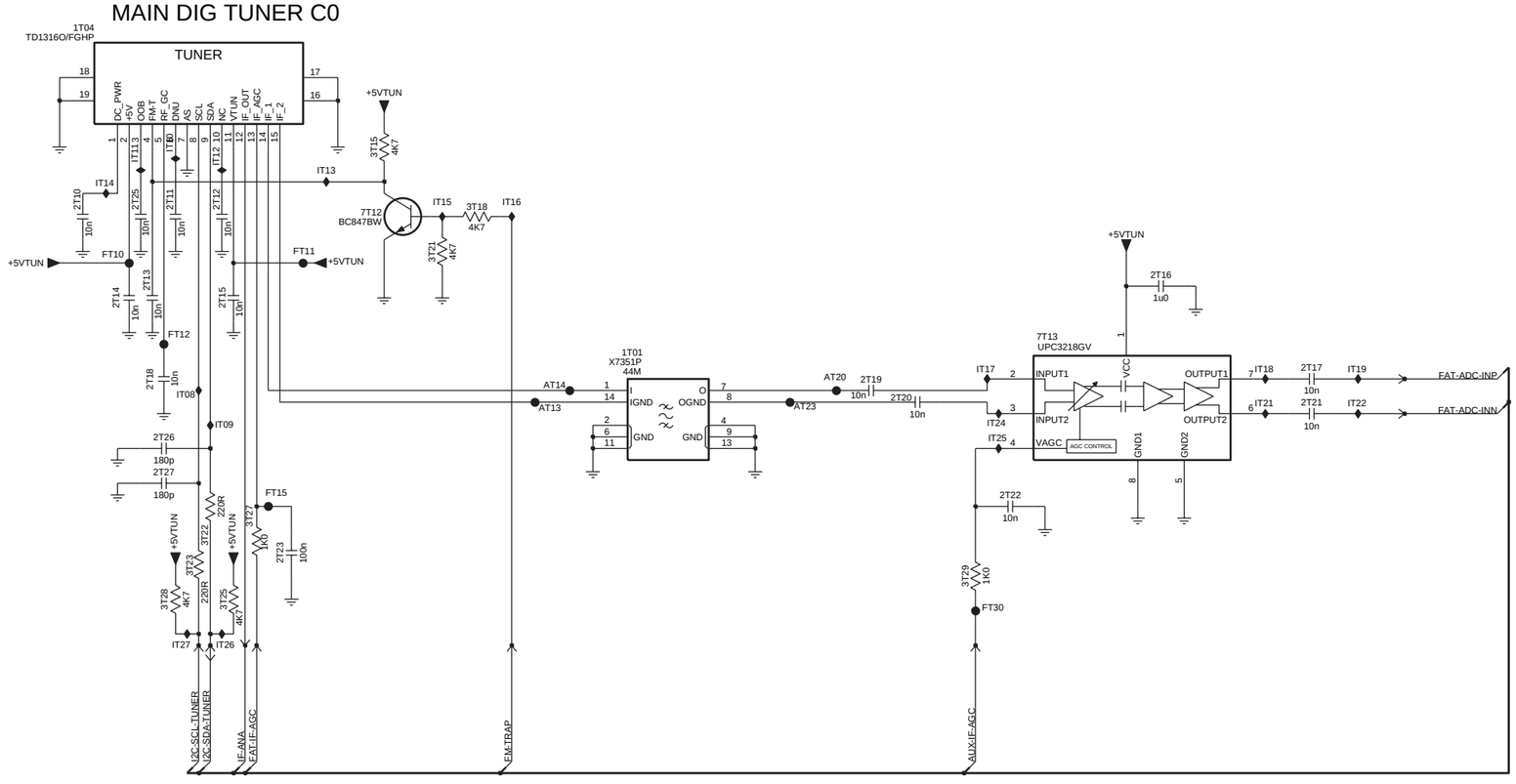
3104 313 6095.4

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SSB (.4 Version) Main Tuner

B2B MAIN TUNER **B2B**

MAIN DIG TUNER C0



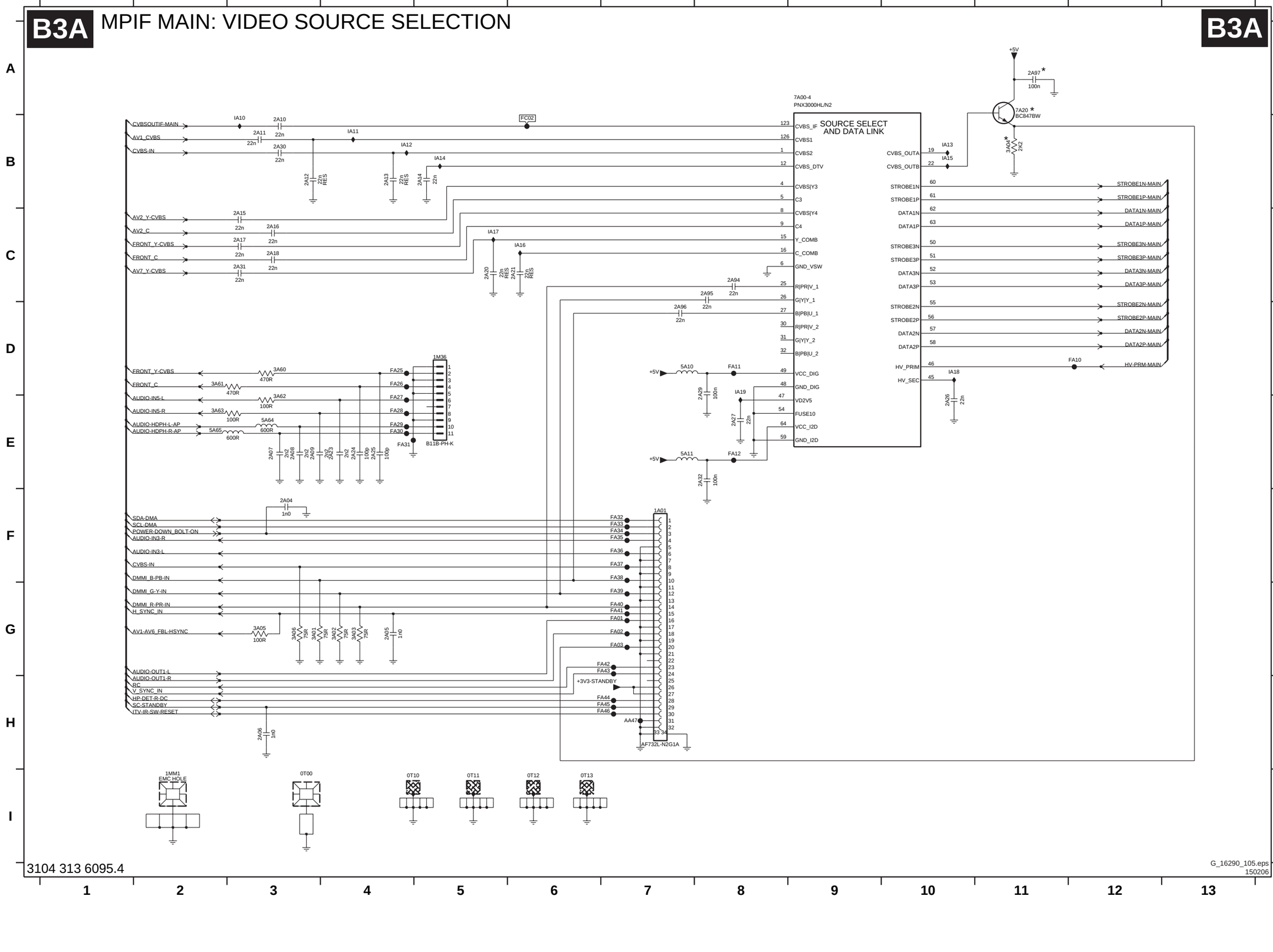
1T01 D5
1T04 B1
2T10 C1
2T11 C2
2T12 C2
2T13 C2
2T14 D2
2T15 D2
2T16 C8
2T17 D9
2T18 D2
2T19 D6
2T20 D6
2T21 D9
2T22 E7
2T23 E3
2T24 D12
2T25 C2
2T26 D2
2T27 E2
3T10 C12
3T15 C3
3T18 C4
3T20 C11
3T21 C4
3T22 E2
3T23 E2
3T25 E2
3T27 E2
3T28 E2
3T29 E7
5T11 C12
7T10 C11
7T12 C3
7T13 D7
AT13 D4
AT14 D4
AT20 D6
AT23 D6
FT10 C2
FT11 C3
FT12 D2
FT15 E3
FT30 E7
IT08 D2
IT09 D2
IT10 C2
IT11 C2
IT12 C2
IT13 C3
IT14 C1
IT15 C4
IT16 C4
IT17 D7
IT18 D9
IT19 D9
IT21 D9
IT22 D9
IT24 D7
IT25 D7
IT26 F2
IT27 F2
IT60 C11
IT61 C11
IT62 C12

3104 313 6095.4

G_16290_104.eps
150206

SSB (.4 Version) MPIF Main: Video Source Selection

B3A MPIF MAIN: VIDEO SOURCE SELECTION

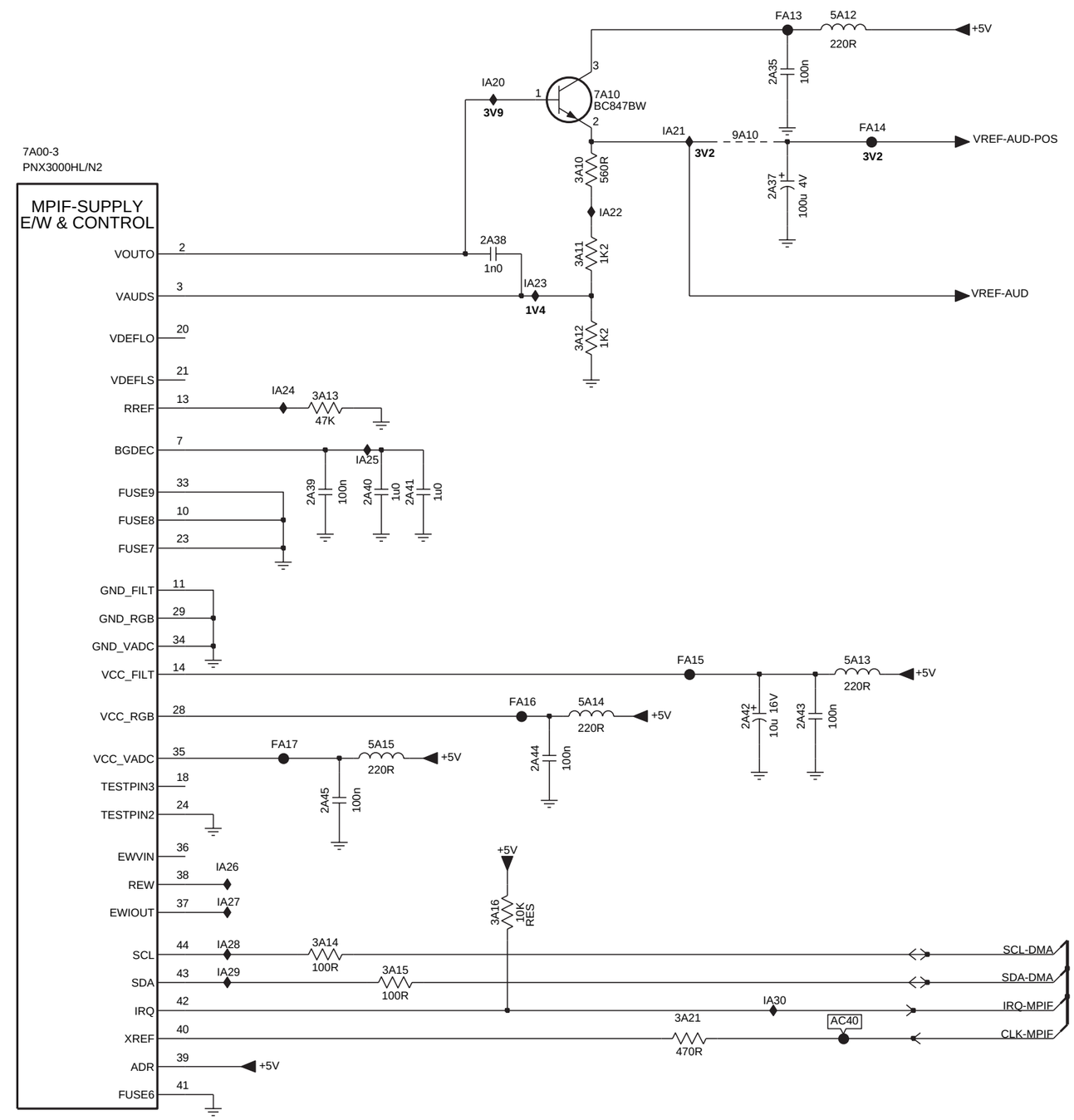


0T00 I3
0T10 I4
0T11 I5
0T12 I6
0T13 I6
1A01 F7
1M36 D5
1MM1 I2
2A04 F3
2A05 G4
2A06 H3
2A07 E3
2A08 E3
2A09 E3
2A10 B3
2A11 B3
2A12 B3
2A13 B4
2A14 B5
2A15 C3
2A16 C3
2A17 C3
2A18 C3
2A20 C5
2A21 C6
2A23 E4
2A24 E4
2A25 E4
2A26 E10
2A27 E8
2A29 D8
2A30 B3
2A31 C3
2A32 E8
2A94 C8
2A95 C8
2A96 D7
2A97 A11
3A01 G3
3A02 G4
3A03 G4
3A04 B11
3A05 G3
3A06 G3
3A60 D3
3A61 D2
3A62 E3
3A63 E2
5A10 D7
5A11 E7
5A64 E3
5A65 E2
7A00-4 A9
7A20 A11
AA47 H7
FA01 G7
FA02 G7
FA03 G7
FA10 D12
FA11 D8
FA12 E8
FA25 D4
FA26 D4
FA27 E4
FA28 E4
FA29 E4
FA30 E4
FA31 E4
FA32 F7
FA33 F7
FA34 F7
FA35 F7
FA36 F7
FA37 F7
FA38 F7
FA39 G7
FA40 G7
FA41 G7
FA42 G7
FA43 G7
FA44 H7
FA45 H7
FA46 H7
FC02 B6
IA10 B3
IA11 B4
IA12 B4
IA13 B10
IA14 B5
IA15 B10
IA16 C6
IA17 C5
IA18 D10
IA19 D8

SSB (.4 Version) MPIF Main: Supply

B3B MPIF MAIN: SUPPLY

B3B



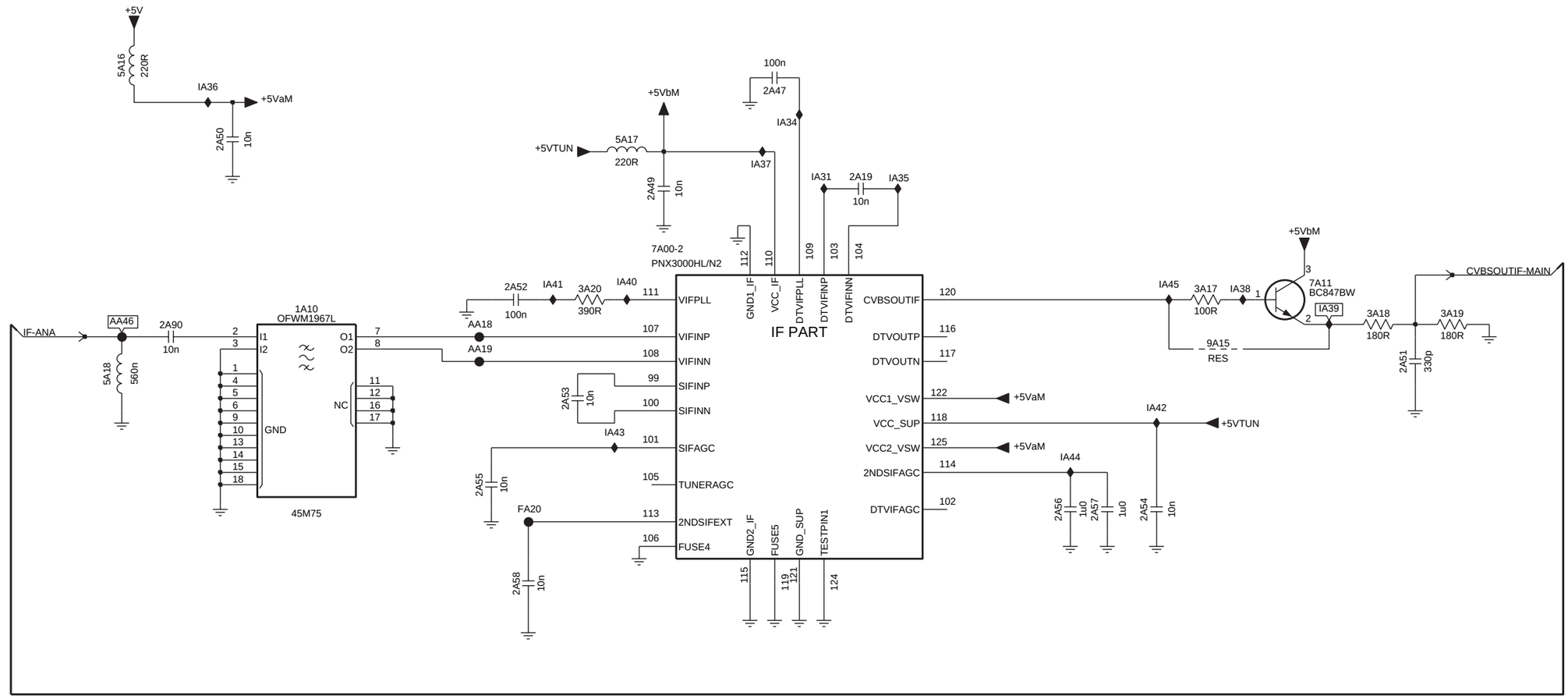
G_16290_106.eps
150206

2A35 A6
2A37 B6
2A38 B5
2A39 C4
2A40 C4
2A41 C4
2A42 D6
2A43 D6
2A44 E5
2A45 E4
3A10 B5
3A11 B5
3A12 B5
3A13 C4
3A14 F4
3A15 F4
3A16 E5
3A21 F6
5A12 A6
5A13 D7
5A14 D5
5A15 E4
7A00-3 B2
7A10 A5
9A10 A6
AC40 F6
FA13 A6
FA14 A7
FA15 D6
FA16 D5
FA17 E4
IA20 A5
IA21 A6
IA22 B5
IA23 B5
IA24 C4
IA25 C4
IA26 E3
IA27 E3
IA28 F3
IA29 F3
IA30 F6

SSB (.4 Version) MPIF Main: IF & SAW Filter

B3C MPIF MAIN: IF + SAW FILTER

B3C



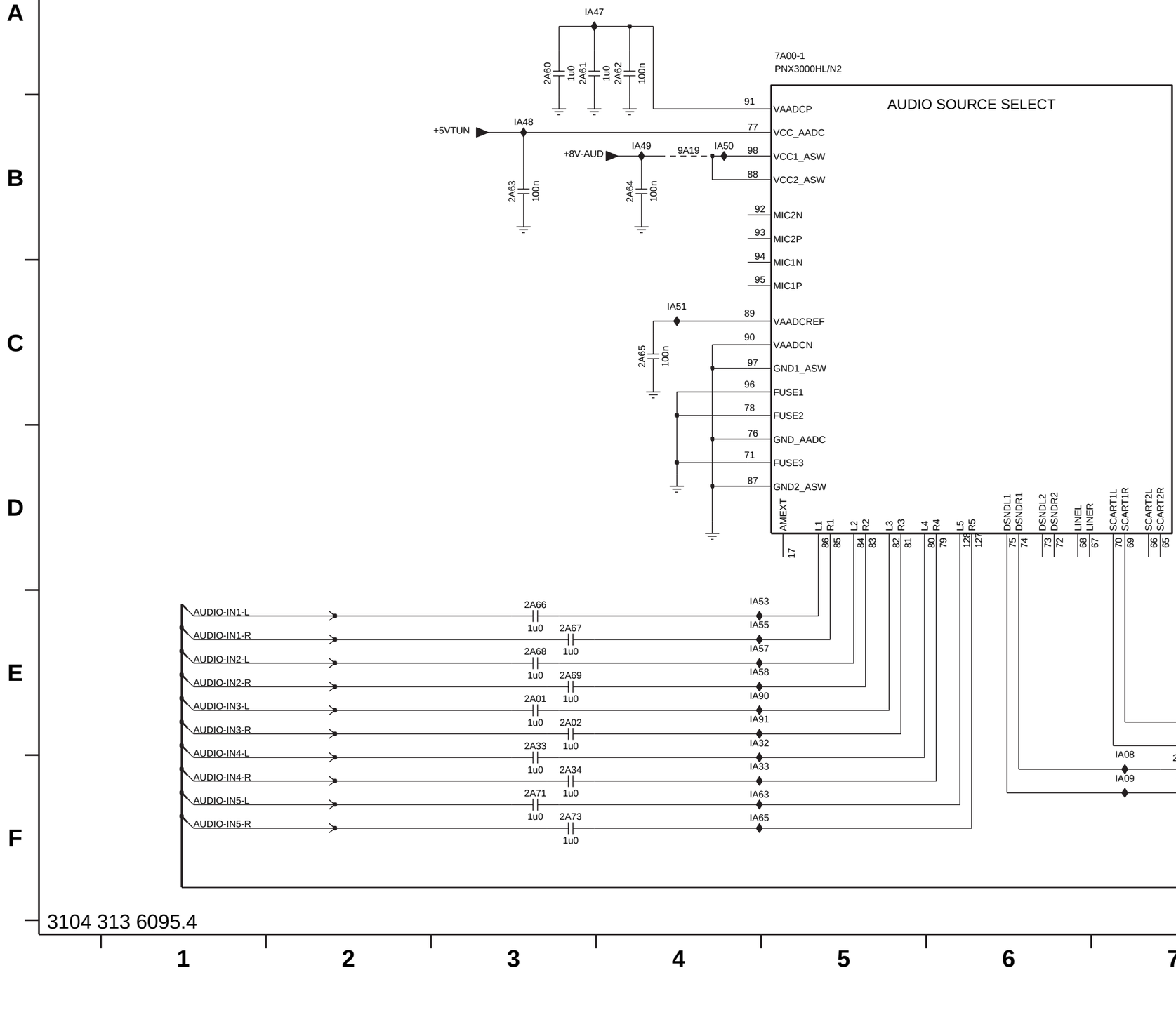
1A10 C2
2A19 B5
2A47 B5
2A49 B4
2A50 B2
2A51 C9
2A52 C3
2A53 C4
2A54 D7
2A55 D3
2A56 D7
2A57 D7
2A58 E3
2A90 C1
3A17 C7
3A18 C8
3A19 C9
3A20 C4
5A16 B1
5A17 B4
5A18 C1
7A00-2 C4
7A11 C8
9A15 C7
AA18 C3
AA19 C3
AA46 C1
FA20 D3
IA31 B5
IA34 B5
IA35 B6
IA36 B2
IA37 B5
IA38 C8
IA39 C8
IA40 C4
IA41 C4
IA42 D7
IA43 D4
IA44 D7
IA45 C7

3104 313 6095.4

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SSB (.4 Version) MPIF Main: Audio Source Selection

B3D MPIF MAIN: AUDIO SOURCE SELECTION



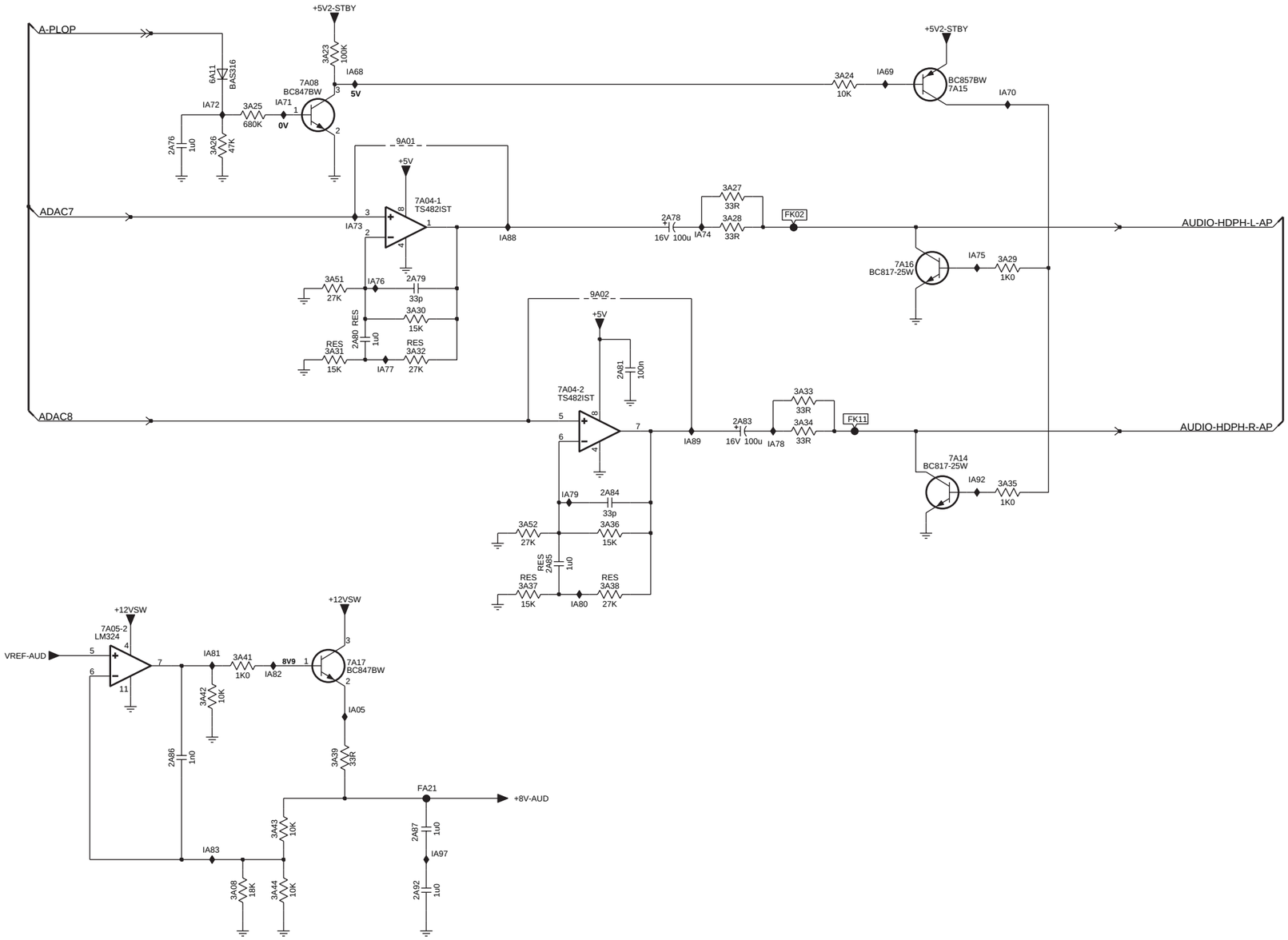
2A01 E3
2A02 E3
2A33 E3
2A34 F3
2A60 A3
2A61 A3
2A62 A4
2A63 B3
2A64 B4
2A65 C4
2A66 E3
2A67 E3
2A68 E3
2A69 E3
2A71 F3
2A73 F3
2A98 F7
2A99 F7
7A00-1 A5
9A19 B4
IA01 F8
IA02 F8
IA08 E7
IA09 F7
IA32 E4
IA33 F4
IA47 A3
IA48 B3
IA49 B4
IA50 B4
IA51 C4
IA53 E4
IA55 E4
IA57 E4
IA58 E4
IA63 F4
IA65 F4
IA90 E4
IA91 E4

3104 313 6095.4

G_16290_108.eps
150206

SSB (.4 Version) MPIF Main: Audio Amplifier

B3E MPIF MAIN: AUDIO AMPLIFIER



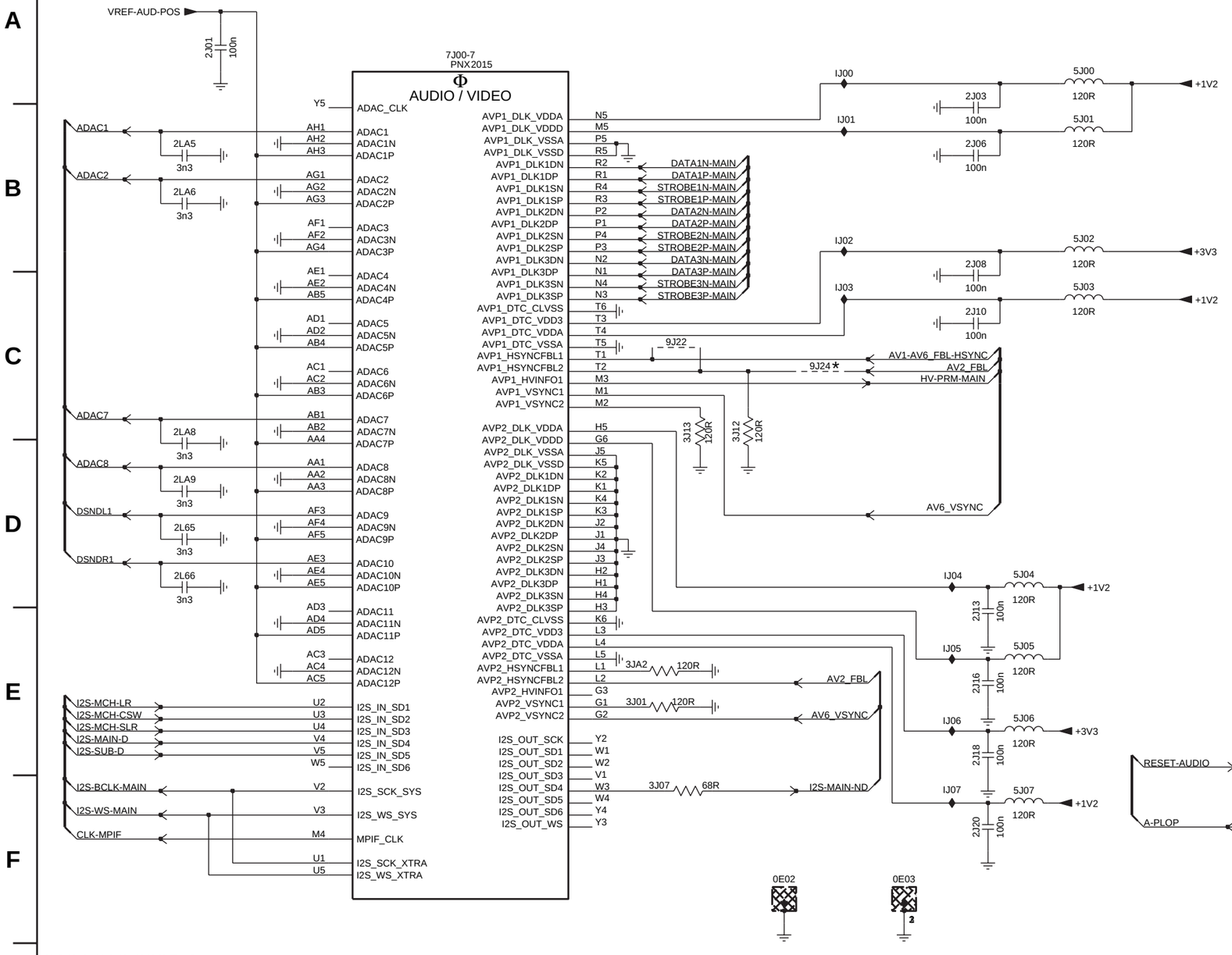
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G_16290_109.eps
150206

2A76 B2
2A78 C5
2A79 C4
2A80 C3
2A81 D5
2A83 D6
2A84 E5
2A85 E5
2A86 F2
2A87 G4
2A92 G4
3A08 G2
3A23 A3
3A24 B7
3A25 B3
3A26 B2
3A27 B6
3A28 C6
3A29 C8
3A30 C4
3A31 D3
3A32 D4
3A33 D6
3A34 D6
3A35 D8
3A36 E5
3A37 E4
3A38 E5
3A39 F3
3A41 F2
3A42 F2
3A43 G3
3A44 G3
3A51 C3
3A52 E4
6A11 B2
7A04-1 C4
7A04-2 D5
7A05-2 E1
7A08 B3
7A14 D8
7A15 B7
7A16 C7
7A17 F3
9A01 B4
9A02 C5
FA21 G4
FK02 C6
FK11 D7
IA05 F3
IA68 B3
IA69 B7
IA70 B8
IA71 B3
IA72 B2
IA73 C3
IA74 C6
IA75 C8
IA76 C3
IA77 D3
IA78 D6
IA79 E5
IA80 E5
IA81 F2
IA82 F3
IA83 G2
IA88 C4
IA89 D6
IA92 D8
IA97 G4

SSB (.4 Version) PNX2015: Audio / Video

B4A PNX2015: AUDIO / VIDEO



0E02 F5
0E03 F5
2J01 A1
2J03 A6
2J06 B6
2J08 B6
2J10 C6
2J13 E6
2J16 E6
2J18 E6
2J20 F6
2L65 D1
2L66 D1
2LA5 B1
2LA6 B1
2LA8 C1
2LA9 D1
2LT0 E9
3J01 E4
3J07 F4
3J12 C4
3J13 C4
3JA2 E4
3L00 E9
3L01 E8
3L02 E9
3L03 E8
5J00 A6
5J01 B6
5J02 B6
5J03 C6
5J04 D6
5J05 E6
5J06 E6
5J07 F6
6J07 D9
6J08 D9
7J00-7 A3
7J01 E8
7J02-1 F9
7J02-2 E9
9J22 C4
9J24 C5
FLA8 E7
IJ00 A5
IJ01 B5
IJ02 B5
IJ03 C5
IJ04 D6
IJ05 E6
IJ06 E6
IJ07 F6
IJ09 E9
IJ11 E8
IJ25 E9
IJ26 E9
IJ27 F8
IJ53 D9
IJ54 D9
IJ55 E8

SSB (.4 Version) PNX2015: DV I/O Interface

B4B PNX 2015: DV I/O INTERFACE

B4B

3LR0 D4
3LR1 C4
3LR9-1 D4
3LR9-2 E4
3LR9-3 D4
3LR9-4 D4
3LS0-2 D4
3LS0-3 D4
3LS0-4 E4
3LS1-1 D4
3LS1-2 D4
3LS1-3 E4
3LS1-4 E4
7J00-2 B7
7J00-4 B2
AJ10 D8

7J00-4
PNX2015
Φ
DV INPUT

DV4-CLK AK8 → DV_CLK
DV4-VALID AH8 → DV_VALID
DV4-DATA0_SOP AG8 → DV4_DATA_0
DV4-DATA1_ERR AK7 → DV4_DATA_1
DV4-DATA2_0 AJ7 → DV4_DATA_2
DV4-DATA3_1 AH7 → DV4_DATA_3
DV4-DATA4_2 AG7 → DV4_DATA_4
DV4-DATA5_3 AF7 → DV4_DATA_5
DV4-DATA6_4 AK6 → DV4_DATA_6
DV4-DATA7_5 AJ6 → DV4_DATA_7
DV4-DATA8_6 AH6 → DV4_DATA_8
DV4-DATA9_7 AG6 → DV4_DATA_9
DV5-DATA0_SOP AF6 → DV5_DATA_0
DV5-DATA1_ERR AK5 → DV5_DATA_1
DV5-DATA2_0 AH5 → DV5_DATA_2
DV5-DATA3_1 AG5 → DV5_DATA_3
DV5-DATA4_2 AK4 → DV5_DATA_4
DV5-DATA5_3 AJ4 → DV5_DATA_5
DV5-DATA6_4 AH4 → DV5_DATA_6
DV5-DATA7_5 AK3 → DV5_DATA_7
DV5-DATA8_6 AJ3 → DV5_DATA_8
DV5-DATA9_7 AK2 → DV5_DATA_9
DV-VREF AJ9 → DV_VREF
DV-FREF AK9 → DV_FREF
DV-HREF AH9 → DV_HREF

DV1_CLK AD28
DV1_VALID AD29
DV1_DATA0 AB27
DV1_DATA1 AA30
DV1_DATA2 AA29
DV1_DATA3 AA28
DV1_DATA4 AB29
DV1_DATA5 AB28
DV1_DATA6 AC30
DV1_DATA7 AC28
DV1_DATA8 AC27
DV1_DATA9 AB30

DV2_CLK AF30 → 33R 3LR1 → DV2A-CLK
DV2_VALID AF27
DV2_DATA0 AE30
DV2_DATA1 AF28
DV2_DATA2 AD27
DV2_DATA3 AD26
DV2_DATA4 AD30
DV2_DATA5 AE26
DV2_DATA6 AE27
DV2_DATA7 AE28
DV2_DATA8 AE29
DV2_DATA9 AG27

DV3_CLK AK28 → 33R 3LR0 → DV3F-CLK
DV3_VALID AK30 → 33R 3LS1-2 → DV3F-VALID
DV3_DATA0 AJ30 → 33R 3LR9-4 → DV3F-DATA0_SOP
DV3_DATA1 AH29 → 33R 3LR9-3 → DV3F-DATA1_ERR
DV3_DATA2 AG29 → 33R 3LS0-3 → DV3F-DATA2_0
DV3_DATA3 AG30 → 33R 3LR9-1 → DV3F-DATA3_1
DV3_DATA4 AH30 → 33R 3LS1-1 → DV3F-DATA4_2
DV3_DATA5 AG28 → 33R 3LS0-2 → DV3F-DATA5_3
DV3_DATA6 AH27 → 33R 3LR9-2 → DV3F-DATA6_4
DV3_DATA7 AJ28 → 33R 3LS1-3 → DV3F-DATA7_5
DV3_DATA8 AK29 → 33R 3LS1-4 → DV3F-DATA8_6
DV3_DATA9 AH28 → 33R 3LS0-4 → DV3F-DATA9_7

7J00-2
PNX2015
Φ
OUTPUT INTERFACE

MP-ROUT-0 A27 → RIN0
MP-ROUT-1 A28 → RIN1
MP-ROUT-2 A29 → RIN2
MP-ROUT-3 A30 → RIN3
MP-ROUT-4 B28 → RIN4
MP-ROUT-5 B30 → RIN5
MP-ROUT-6 C28 → RIN6
MP-ROUT-7 C29 → RIN7
MP-ROUT-8 C30 → RIN8
MP-ROUT-9 D27 → RIN9
MP-GOUT-0 D28 → GIN0
MP-GOUT-1 D29 → GIN1
MP-GOUT-2 D30 → GIN2
MP-GOUT-3 E27 → GIN3
MP-GOUT-4 E28 → GIN4
MP-GOUT-5 E30 → GIN5
MP-GOUT-6 F26 → GIN6
MP-GOUT-7 F27 → GIN7
MP-GOUT-8 F28 → GIN8
MP-GOUT-9 F29 → GIN9
MP-BOUT-0 F30 → BIN0
MP-BOUT-1 G26 → BIN1
MP-BOUT-2 G27 → BIN2
MP-BOUT-3 G28 → BIN3
MP-BOUT-4 G29 → BIN4
MP-BOUT-5 G30 → BIN5
MP-BOUT-6 H27 → BIN6
MP-BOUT-7 H28 → BIN7
MP-BOUT-8 H30 → BIN8
MP-BOUT-9 J26 → BIN9

LVDS_AN B26 → TXPNXA-
LVDS_AP C26 → TXPNXA+
LVDS_BN A25 → TXPNXB-
LVDS_BP B25 → TXPNXB+
LVDS_CN D25 → TXPNXC-
LVDS_CP E25 → TXPNXC+
LVDS_DN B24 → TXPNXD-
LVDS_DP C24 → TXPNXD+
LVDS_EN E24 → TXPNXE-
LVDS_EP F24 → TXPNXE+
LVDS_CLKN C23 → TXPNXCLK-
LVDS_CLKP D23 → TXPNXCLK+
RGB_CLK_IN J30 ← AJ10 → MP-CLKOUT
RGB_UD J27 → MP-OUT-FFIELD
RGB_HSYNC J29 → MP-OUT-HS
RGB_VSYNC J28 → MP-OUT-VS
RGB_DE K26 → MP-OUT-DE

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SSB (.4 Version) PNX2015: Tunnelbus

B4C PNX 2015: TUNNELBUS

B4C

7J00-1
PNX2015
Φ
TUNNELBUS

A1	TUNN_TX_BUSY	TUNS_TX_BUSY	R28		TUN-VIPER-RX-BUSY
D2	TUNN_TX_CLKN	TUNS_TX_CLKN	M30		
C2	TUNN_TX_CLKP	TUNS_TX_CLKP	M29	3L10 33R	TUN-VIPER-RX-CLKP
C4	TUNN_TX_D0	TUNS_TX_D0	K28	3L12-2 33R	TUN-VIPER-RX-DATA0
B4	TUNN_TX_D1	TUNS_TX_D1	K27	3L12-1 33R	TUN-VIPER-RX-DATA1
A4	TUNN_TX_D2	TUNS_TX_D2	L30	3L13-4 33R	TUN-VIPER-RX-DATA2
F3	TUNN_TX_D3	TUNS_TX_D3	L28	3L13-3 33R	TUN-VIPER-RX-DATA3
B3	TUNN_TX_D4	TUNS_TX_D4	K29	3L12-4 33R	TUN-VIPER-RX-DATA4
C3	TUNN_TX_D5	TUNS_TX_D5	N26	3L13-2 33R	TUN-VIPER-RX-DATA5
D3	TUNN_TX_D6	TUNS_TX_D6	L27	3L13-1 33R	TUN-VIPER-RX-DATA6
E3	TUNN_TX_D7	TUNS_TX_D7	K30	3L12-3 33R	TUN-VIPER-RX-DATA7
F2	TUNN_TX_D8	TUNS_TX_D8	M27	3L14-4 33R	TUN-VIPER-RX-DATA8
A3	TUNN_TX_D9	TUNS_TX_D9	N28	3L14-1 33R	TUN-VIPER-RX-DATA9
F1	TUNN_TX_D10	TUNS_TX_D10	N27	3L11-4 33R	TUN-VIPER-RX-DATA10
A2	TUNN_TX_D11	TUNS_TX_D11	P28	3L11-3 33R	TUN-VIPER-RX-DATA11
B1	TUNN_TX_D12	TUNS_TX_D12	P27	3L11-2 33R	TUN-VIPER-RX-DATA12
C1	TUNN_TX_D13	TUNS_TX_D13	N30	3L14-3 33R	TUN-VIPER-RX-DATA13
D1	TUNN_TX_D14	TUNS_TX_D14	N29	3L14-2 33R	TUN-VIPER-RX-DATA14
E1	TUNN_TX_D15	TUNS_TX_D15	R29	3L11-1 33R	TUN-VIPER-RX-DATA15
D9	TUNN_RX_D0	TUNS_RX_D0	R27		TUN-VIPER-TX-DATA0
C9	TUNN_RX_D1	TUNS_RX_D1	P30		TUN-VIPER-TX-DATA1
A9	TUNN_RX_D2	TUNS_RX_D2	T27		TUN-VIPER-TX-DATA2
D8	TUNN_RX_D3	TUNS_RX_D3	R30		TUN-VIPER-TX-DATA3
B9	TUNN_RX_D4	TUNS_RX_D4	T28		TUN-VIPER-TX-DATA4
D7	TUNN_RX_D5	TUNS_RX_D5	T29		TUN-VIPER-TX-DATA5
C8	TUNN_RX_D6	TUNS_RX_D6	T30		TUN-VIPER-TX-DATA6
A8	TUNN_RX_D7	TUNS_RX_D7	U27		TUN-VIPER-TX-DATA7
D6	TUNN_RX_D8	TUNS_RX_D8	V27		TUN-VIPER-TX-DATA8
C6	TUNN_RX_D9	TUNS_RX_D9	V28		TUN-VIPER-TX-DATA9
B6	TUNN_RX_D10	TUNS_RX_D10	V29		TUN-VIPER-TX-DATA10
A6	TUNN_RX_D11	TUNS_RX_D11	V30		TUN-VIPER-TX-DATA11
D5	TUNN_RX_D12	TUNS_RX_D12	W26		TUN-VIPER-TX-DATA12
C5	TUNN_RX_D13	TUNS_RX_D13	W27		TUN-VIPER-TX-DATA13
A5	TUNN_RX_D14	TUNS_RX_D14	W28		TUN-VIPER-TX-DATA14
E4	TUNN_RX_D15	TUNS_RX_D15	W29		TUN-VIPER-TX-DATA15
D4	TUNN_RX_BUSY	TUNS_RX_BUSY	W30	3L15 33R	TUN-VIPER-TX-BUSY
B7	TUNN_RX_CLKN	TUNS_RX_CLKN	U30		TUN-VIPER-TX-CLKN
C7	TUNN_RX_CLKP	TUNS_RX_CLKP	U28		TUN-VIPER-TX-CLKP
A7	TUNN_REF	TUNS_REF	M28		VREF-PNX

9LA8, 9LA9, +2V5

2L64 1n0

2L01 1n0

+2V5

IL03

2L06 1u0 RES

3L38 1K0

2L07 100n

3L20 47R

IL05 **1V3**

VREF-PNX

3L39 1K0

2L08 100n

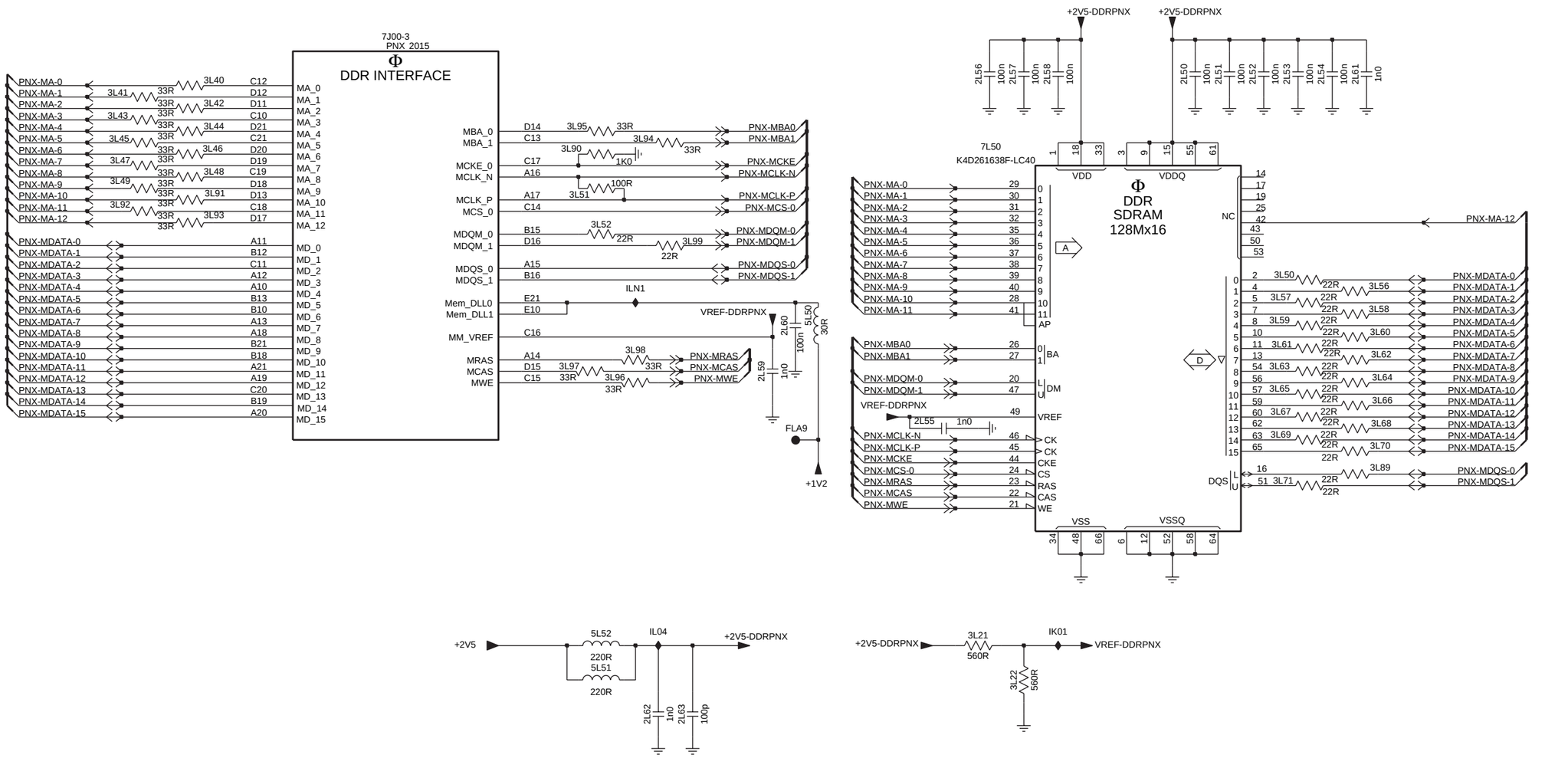
2L01 E5
2L06 F2
2L07 F3
2L08 F3
2L64 E2
3L10 B4
3L11-1 C4
3L11-2 C5
3L11-3 C4
3L11-4 B5
3L12-1 B4
3L12-2 B5
3L12-3 B4
3L12-4 B5
3L13-1 B5
3L13-2 B4
3L13-3 B4
3L13-4 B5
3L14-1 B4
3L14-2 C5
3L14-3 C4
3L14-4 B5
3L15 D4
3L20 F3
3L38 F3
3L39 F3
7J00-1 A3
9LA8 D2
9LA9 D2
IL03 E3
IL05 F4

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SSB (.4 Version) PNX2015: DDR Interface

B4D PNX 2015: DDR INTERFACE



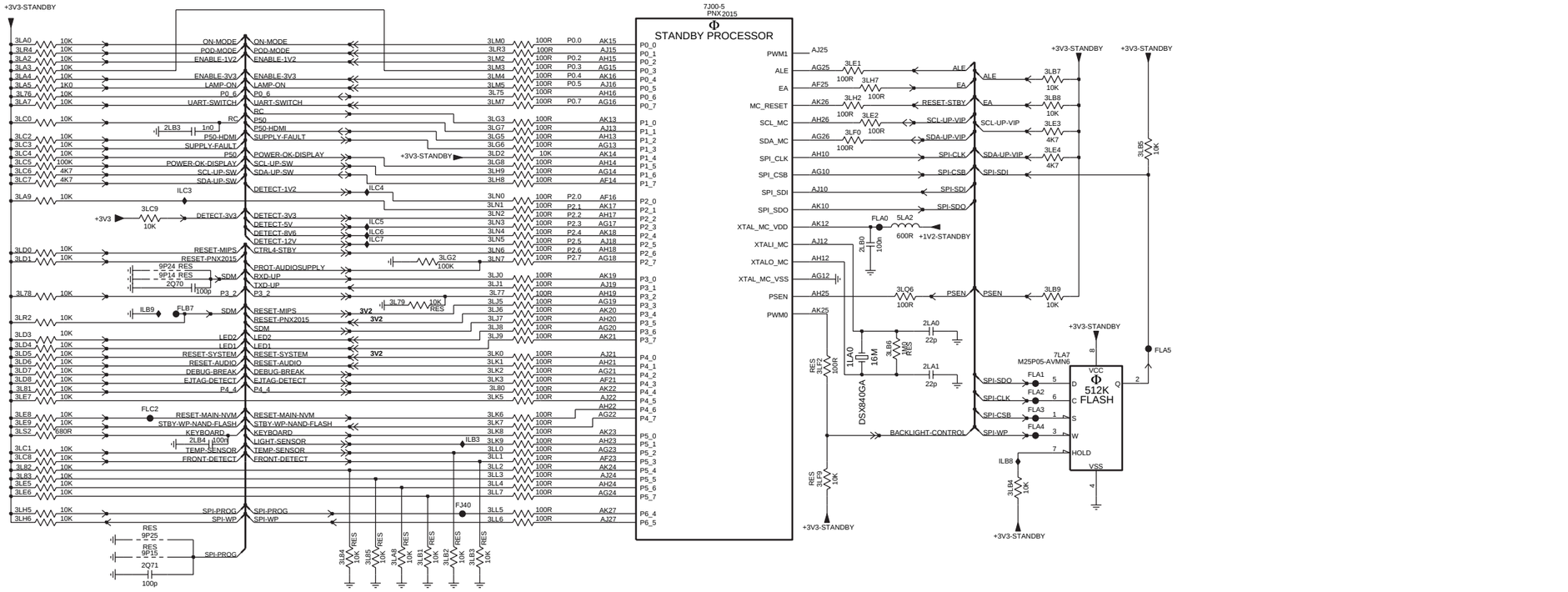
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150206

2L50 A8
2L51 A8
2L52 A8
2L53 A9
2L54 A9
2L55 C6
2L56 A7
2L57 A7
2L58 A7
2L59 C5
2L60 C6
2L61 A9
2L62 E7
2L63 E7
3L40 A2
3L41 A1
3L42 A2
3L43 A1
3L44 B2
3L45 B1
3L46 B2
3L47 B1
3L48 B2
3L49 B1
3L50 B9
3L51 B4
3L52 B4
3L56 C9
3L57 C9
3L58 C9
3L59 C9
3L60 C9
3L61 C9
3L62 C9
3L63 C9
3L64 C9
3L65 C9
3L66 C9
3L67 C9
3L68 C9
3L69 C9
3L70 D9
3L71 D9
3L89 D9
3L90 B4
3L91 B2
3L92 B1
3L93 B2
3L94 B5
3L95 B4
3L96 C4
3L97 C4
3L98 C5
3L99 B5
5L50 C6
5L51 E7
5L52 E7
7J00-3 A3
7L50 B7
FLA9 C6
IL04 E7

SSB (.4 Version) PNX2015: Standby & Control

B4E PNX 2015: STANDBY & CONTROL



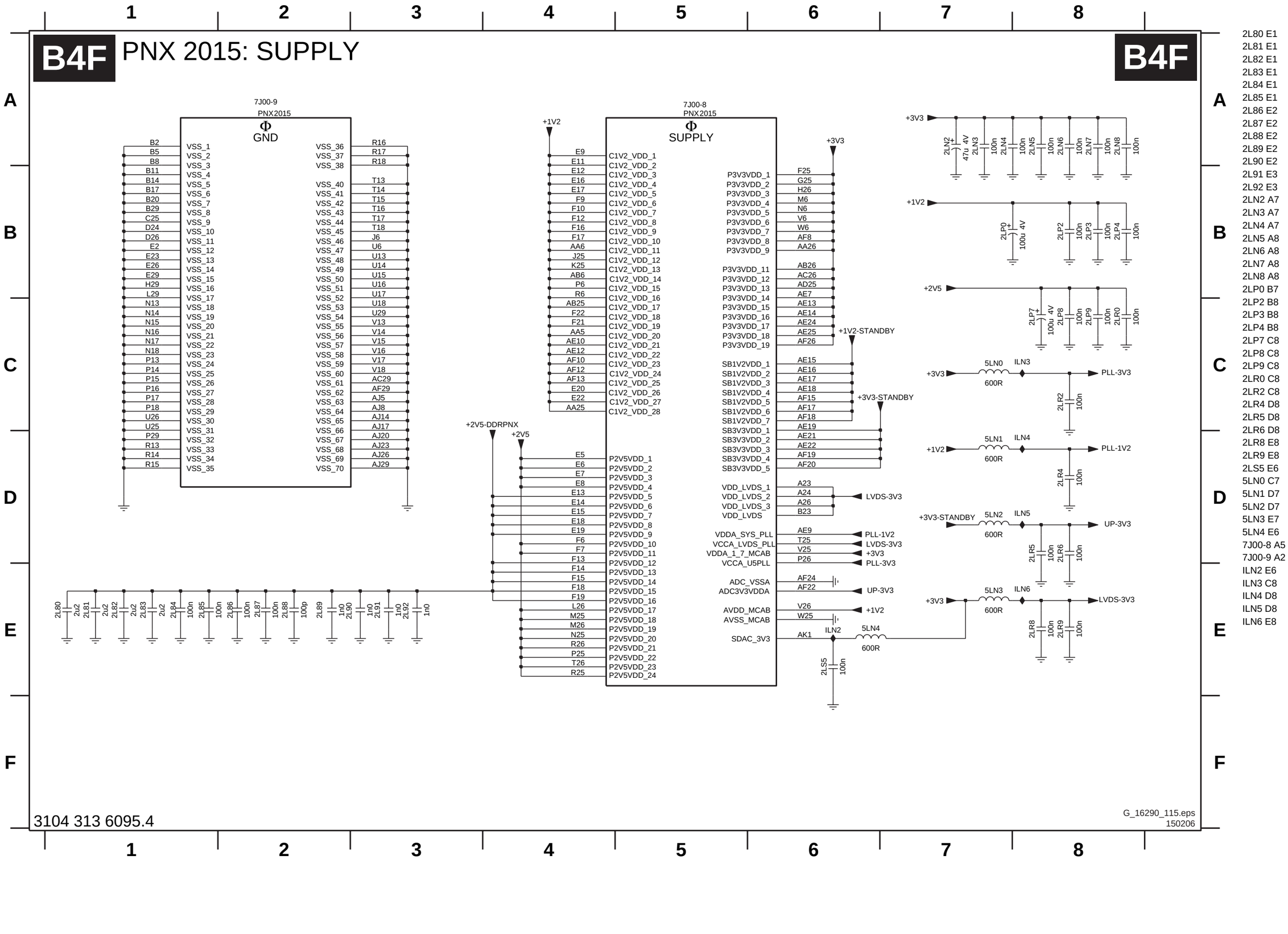
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1LA0	D9	3LK5	D6
2LA0	D9	3LK6	D6
2LA1	D9	3LK7	D6
2LA2	G3	3LK8	D6
2LA4	I3	3LK9	E6
2LB0	C9	3LL0	E6
2LB1	G3	3LL1	E6
3LB3	B3	3LL2	E6
2LB4	D3	3LL3	E6
2Q70	C3	3LL4	E6
2Q71	F3	3LL5	E6
3L75	B6	3LL6	E6
3L76	B2	3LL7	E6
3L77	C6	3LL8	G3
3L78	C2	3LL9	G3
3L79	C5	3LM0	A6
3L80	D6	3LM2	A6
3L81	D2	3LM3	A6
3L82	E2	3LM4	B6
3L83	E2	3LM5	B6
3L84	E4	3LM7	B6
3L85	E5	3LN0	B6
3LA0	A2	3LN1	C6
3LA2	A2	3LN2	C6
3LA3	A2	3LN3	C6
3LA4	B2	3LN4	C6
3LA5	B2	3LN5	C6
3LA7	B2	3LN6	C6
3LA8	E5	3LN7	C6
3LA9	B2	3LQ6	C9
3LB1	E5	3LR2	C2
3LB2	E5	3LR3	A6
3LB3	E6	3LR4	A2
3LB4	E10	3LS2	D2
3LB5	B11	3LT5	G12
3LB6	D9	3LT7	G13
3LB7	A10	3LT9	H13
3LB8	B10	3LU0	H12
3LB9	C10	3LU1	I13
3LC0	B2	3LU2	H12
3LC1	E2	3LU7	G10
3LC2	B2	3LU8	G9
3LC3	B2	3LV7	G10
3LC4	B2	3LV8	G9
3LC5	B2	5LA1	G3
3LC6	B2	5LA2	C9
3LC7	B2	5LA3	H3
3LC8	E2	7J00-5	A8
3LC9	C3	7J00-6	G4
3LD0	C2	7LA7	D10
3LD1	C2	7LB2-1	H13
3LD2	B6	7LB2-2	I12
3LD3	D2	7LB5	G12
3LD4	D2	9J23	G10
3LD5	D2	9LA0	H3
3LD6	D2	9LA1	H3
3LD7	D2	9LA2	H3
3LD8	D2	9LA3	H3
3LE1	A9	9P14	C3
3LE2	B9	9P15	E3
3LE3	B10	9P24	C3
3LE4	B10	9P25	E3
3LE5	E2	ALB0	G3
3LE6	E2	FJ40	E5
3LE7	D2	FLA0	C9
3LE8	D2	FLA1	D10
3LE9	D2	FLA2	D10
3LF0	B9	FLA3	D10
3LF2	D8	FLA4	D10
3LF8	G6	FLA5	D11
3LF9	E8	FLA6	G6
3LG2	C5	FLA7	G6
3LG3	B6	FLB7	C3
3LG5	B6	FLC2	D3
3LG6	B6	ILB2	I6
3LG7	B6	ILB3	D6
3LG8	B6	ILB5	G3
3LG9	G5	ILB6	G4
3LH0	H5	ILB7	H3
3LH1	H5	ILB8	E10
3LH2	B9	ILB9	C3
3LH3	H5	ILC3	B3
3LH4	I5	ILC4	B5
3LH5	E2	ILC5	C5
3LH6	E2	ILC6	C5
3LH7	B9	ILC7	C5
3LH8	B6	ILD1	G13
3LH9	B6	ILD2	H13
3LJ0	C6	ILD3	H12
3LJ1	C6	ILD4	H12
3LJ2	H6	ILD5	I13
3LJ3	H3		
3LJ5	C6		
3LJ6	C6		
3LJ7	C6		
3LJ8	D6		
3LJ9	D6		
3LK0	D6		
3LK1	D6		
3LK2	D6		
3LK3	D6		

SSB (.4 Version) PNX2015: Supply

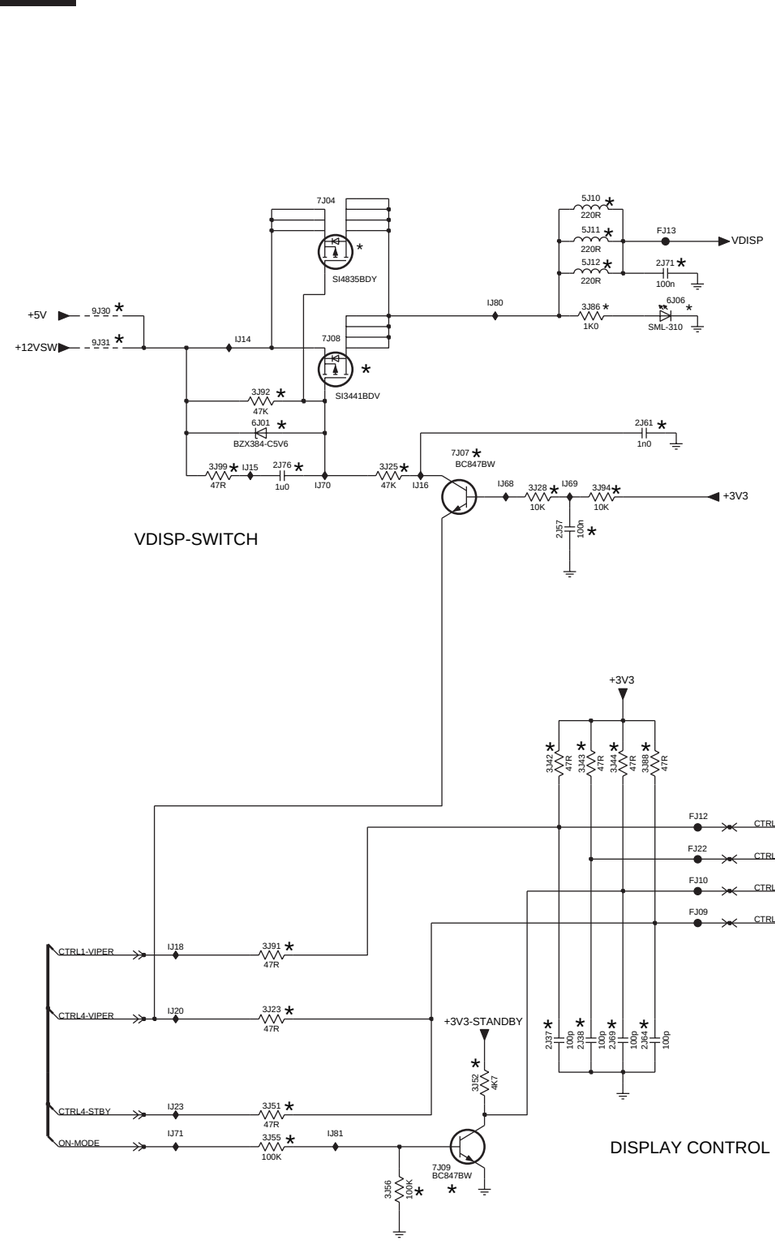
B4F PNX 2015: SUPPLY



2L80 E1
2L81 E1
2L82 E1
2L83 E1
2L84 E1
2L85 E1
2L86 E2
2L87 E2
2L88 E2
2L89 E2
2L90 E2
2L91 E3
2L92 E3
2LN2 A7
2LN3 A7
2LN4 A7
2LN5 A8
2LN6 A8
2LN7 A8
2LN8 A8
2LP0 B7
2LP2 B8
2LP3 B8
2LP4 B8
2LP7 C8
2LP8 C8
2LP9 C8
2LR0 C8
2LR2 C8
2LR4 D8
2LR5 D8
2LR6 D8
2LR8 E8
2LR9 E8
2LS5 E6
5LN0 C7
5LN1 D7
5LN2 D7
5LN3 E7
5LN4 E6
7J00-8 A5
7J00-9 A2
ILN2 E6
ILN3 C8
ILN4 D8
ILN5 D8
ILN6 E8

SSB (.4 Version) PNX2015: Display Interface

B4G VIPER/PNX 2015: DISPLAY INTERFACE



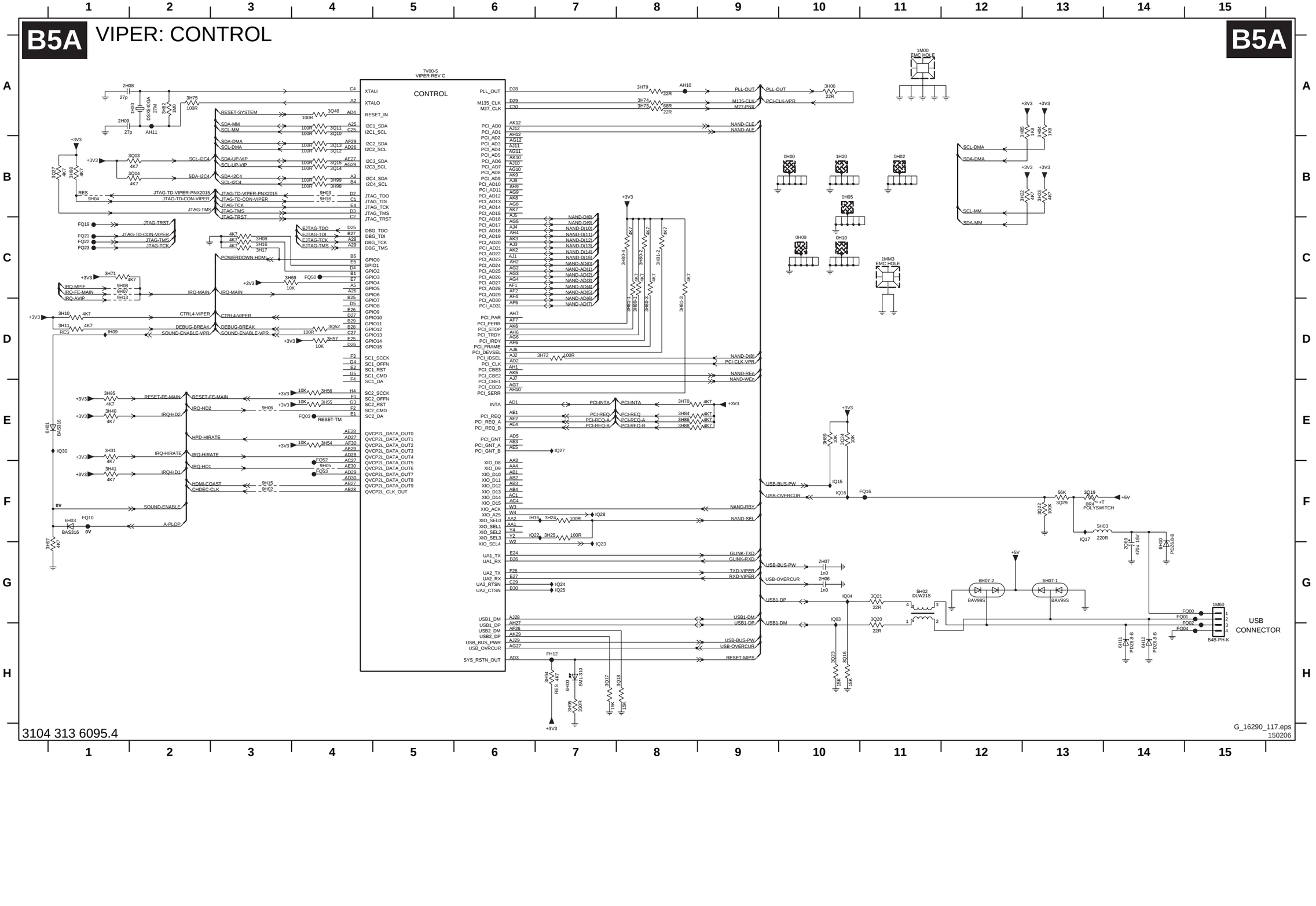
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1D50 C13 FJ10 G5
1G50 F12 FJ12 F5
1P06 F13 FJ13 B5
1P16 I13 FJ22 F5
2G35 D8 FJ23 G11
2J21 B12 FJ24 G11
2J22 B12 FJ25 G11
2J23 C12 FJ26 G11
2J24 C12 FJ27 H11
2J25 D12 FJ28 H11
2J26 D12 FJ29 H11
2J27 E12 FJ30 H11
2J30 I11 FJ31 H11
2J31 I11 FJ32 H11
2J37 H4 FJ36 H11
2J38 H4 FJ37 H11
2J40 F9 FQ40 H11
2J41 F9 FQ41 I11
2J42 F9 IJ14 C2
2J43 G9 IJ15 D2
2J44 G9 IJ16 D3
2J45 G9 IJ18 G2
2J46 H9 IJ20 G2
2J47 H9 IJ23 H2
2J48 H9 IJ30 B9
2J49 I9 IJ31 B9
2J57 D4 IJ32 B10
2J61 D5 IJ68 D4
2J64 H5 IJ69 D4
2J69 H5 IJ70 D3
2J71 B5 IJ71 H2
2J72 I9 IJ72 D7
2J73 I9 IJ73 C9
2J76 D2 IJ74 C9
2J77 C9 IJ75 C8
3J15 B7 IJ76 C7
3J16 C8 IJ80 C4
3J17 C8 IJ81 H3
3J18 C9 IJ82 C9
3J19 C9
3J20 D9
3J21 D8
3J22 D7
3J23 G2
3J25 D3
3J28 D4
3J30 H11
3J31 I11
3J40 A9
3J41 A9
3J42 F4
3J43 F4
3J44 F5
3J51 H2
3J52 H4
3J55 H2
3J56 I3
3J60 C12
3J61 D12
3J62 D12
3J63 E12
3J86 C4
3J88 F5
3J91 G2
3J92 C2
3J94 D4
3J99 D2
5J10 B4
5J11 B4
5J12 B4
5J20 B12
5J21 B12
5J22 C12
5J50 F9
5J52 G9
5J54 G9
5J56 H9
5J58 H9
5J60 I9
6J01 D2
6J06 C5
7J04 B3
7J05-1 C7
7J05-2 C7
7J06 C8
7J07 D4
7J08 C3
7J09 I3
7J10 B10
9J21 D7
9J30 C1
9J31 C1
9J40 B9
FJ01 B13
FJ02 B13
FJ03 C13
FJ04 C13
FJ05 D13
FJ06 D13
FJ07 E13
FJ09 G5

SSB (.4 Version) Viper: Control

0H00 B10	1H00 A2	2H06 G10	3H04 A13	3H11 D1	3H24 F7	3H54 E4	3H70 E8	3H75 A2	3H80-4 C8	3H84 E8	3H90 B1	3H99 B4	3Q12 B4	3Q17 H7	3Q22 F13	3Q48 A4	6H01 E1	6H11 H14	9H04 B1	9H13 C1	FH12 H7	FQ04 H14	FQ22 C1	IH09 D1	IQ16 F10	IQ25 G7
0H02 B11	1H20 B10	2H07 G10	3H05 A13	3H16 C3	3H25 F7	3H55 E4	3H71 C1	3H79 A8	3H81-1 D8	3H85 E1	3H94 H7	3Q03 B2	3Q13 B4	3Q18 H8	3Q23 H10	3Q52 D4	6H03 F1	6H12 H14	9H05 F4	9H15 F3	FQ00 G15	FQ10 F1	FQ23 C1	IH16 F6	IQ17 F13	IQ27 E7
0H05 B10	1M00 A11	2H08 A1	3H06 A10	3H17 C3	3H31 E1	3H56 E4	3H72 D7	3H80-1 D8	3H81-2 C8	3H86 E8	3H95 H7	3Q04 B2	3Q14 B4	3Q19 F13	3Q24 E10	5H02 G11	6H07-1 G13	7V00-5 A5	9H06 E3	9H16 B4	FQ01 G14	FQ16 F11	FQ50 C4	IQ03 G10	IQ22 F6	IQ28 F7
0H09 C10	1M60 G15	2H09 A1	3H08 C3	3H22 B13	3H40 E1	3H57 D4	3H73 A8	3H80-2 C8	3H81-3 D8	3H88 E8	3H97 G1	3Q10 A4	3Q15 B4	3Q20 G11	3Q27 B1	5H03 F13	6H07-2 G12	9H02 F3	9H07 C1	AH10 A8	FQ02 H15	FQ19 C1	FQ52 F4	IQ04 G10	IQ23 G7	IQ30 E1
0H10 C10	1MM3 C11	2Q69 G14	3H10 D1	3H23 B13	3H41 F1	3H69 C3	3H74 A8	3H80-3 D8	3H82 A2	3H89 E10	3H98 B4	3Q11 A4	3Q16 H10	3Q21 G11	3Q29 F13	6H00 H7	6H10 G14	9H03 B4	9H08 C1	AH11 A2	FQ03 E4	FQ21 C1	FQ53 F4	IQ15 F10	IQ24 G7	



SSB (.4 Version) Viper: Main Memory

B5B VIPER: MAIN MEMORY

B5B

7V00-2
VIPER REV C

DDR INTERFACE

SD RAM1

SD RAM2

7V01
MT46V32M16P-5B

7V02
MT46V32M16P-5B

DDR
SDRAM
8Mx16

+2V5-VPR

VREF-VPRDDR

VREFD-VPRDDR

RES

IQ13

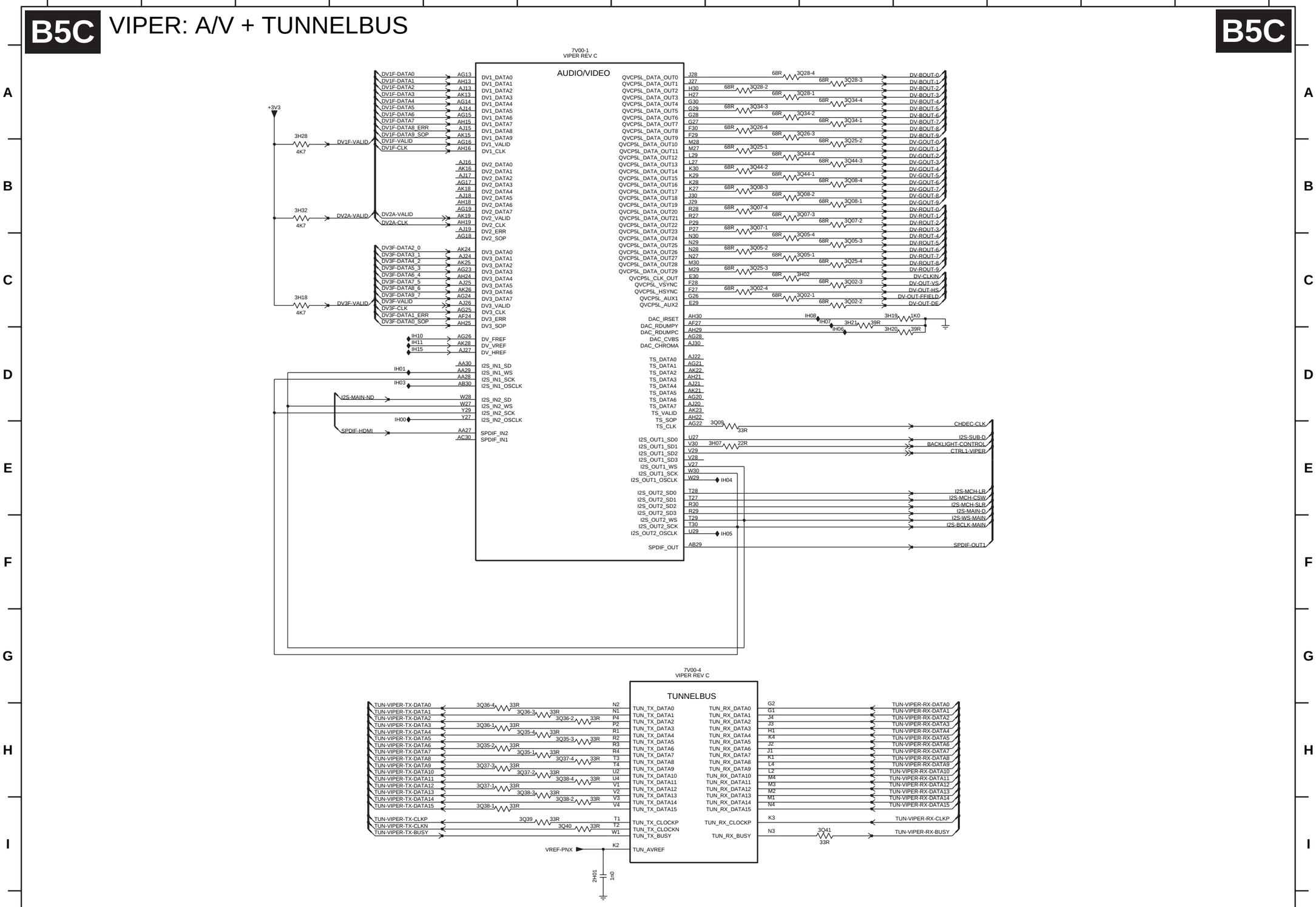
IQ14

2H00 H9
2H02 H8
2H03 H9
2H10 G8
2H11 G9
2H12 G9
2Q01 B9
2Q03 B9
2Q21 B14
2Q23 B14
2V00 D7
2V01 D14
2V02 C2
2V16 G11
2V17 G11
2V18 G11
2V19 G11
2V20 G12
2V21 G12
2V22 G12
2V23 G12
2V24 G12
2V25 G13
2V26 G13
2V27 G13
2V28 G13
2V29 G14
2V30 G14
2V31 G14
2V35 G14
2V36 B9
2V37 B10
2V38 B10
2V40 B10
2V41 B11
2V42 B12
2V43 B12
2V44 B12
2V45 B12
3H50 G8
3H51 H8
3H52 F8
3H53 G8
3V00 C10
3V01 C12
3V02 C9
3V03 C11
3V04 C10
3V05 C12
3V06 C9
3V07 C11
3V08 C10
3V09 C12
3V10 C9
3V11 C11
3V12 C10
3V13 C12
3V14 C9
3V15 C11
3V16 C10
3V17 C12
3V18 C9
3V19 C11
3V20 C10
3V21 C12
3V22 D9
3V23 D11
3V24 D7
3V25 D14
3V32 D10
3V33 D12
3V34 D9
3V35 D11
3V36 D10
3V37 D12
3V38 D9
3V39 D11
3V40 D9
3V41 D11
3V42 D9
3V43 D11
3V44 E3
3V78 E3
7V00-2 B4
7V01 B7
7V02 B12
IH20 D3
IQ13 F9
IQ14 G9

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SSB (.4 Version) Viper: A/V + Tunnelbus

B5C VIPER: A/V + TUNNELBUS



2H01 I6
3H02 C9
3H07 E8
3H18 C3
3H19 C9
3H20 D9
3H21 C9
3H28 A3
3H32 B3
3Q02-1 C9
3Q02-2 C9
3Q02-3 C9
3Q02-4 C8
3Q05-1 C9
3Q05-2 C8
3Q05-3 C9
3Q05-4 B9
3Q07-1 B8
3Q07-2 B9
3Q07-3 B9
3Q07-4 B8
3Q08-1 B9
3Q08-2 B9
3Q08-3 B8
3Q08-4 B9
3Q09 E8
3Q25-1 B8
3Q25-2 A9
3Q25-3 C8
3Q25-4 C9
3Q26-3 A9
3Q26-4 A8
3Q28-1 A9
3Q28-2 A8
3Q28-3 A9
3Q28-4 A9
3Q34-1 A9
3Q34-2 A9
3Q34-3 A8
3Q34-4 A9
3Q35-1 H6
3Q35-2 H5
3Q35-3 H6
3Q35-4 H6
3Q36-1 H5
3Q36-2 H6
3Q36-3 H6
3Q36-4 H5
3Q37-1 H5
3Q37-2 H6
3Q37-3 H5
3Q37-4 H6
3Q38-1 I5
3Q38-2 I6
3Q38-3 H6
3Q38-4 H6
3Q39 I6
3Q40 I6
3Q41 I9
3Q44-1 B9
3Q44-2 B8
3Q44-3 B9
3Q44-4 B9
7V00-1 A6
7V00-4 G7
IH00 D4
IH01 D4
IH03 D4
IH04 E8
IH05 F8
IH06 D9
IH07 C9
IH08 C9
IH10 D4
IH11 D4
IH15 D4

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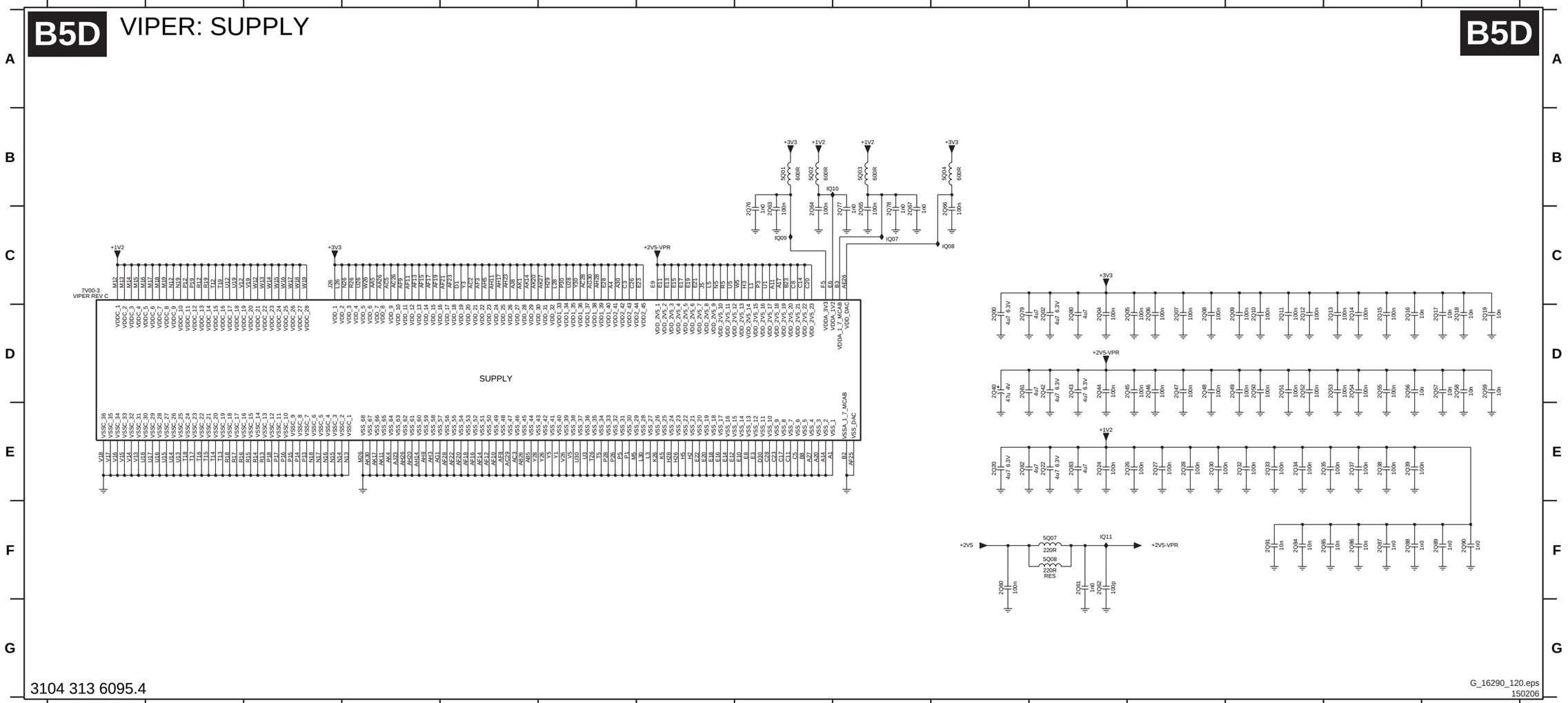
SSB (.4 Version) Viper: Supply

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G

B5D VIPER: SUPPLY **B5D**

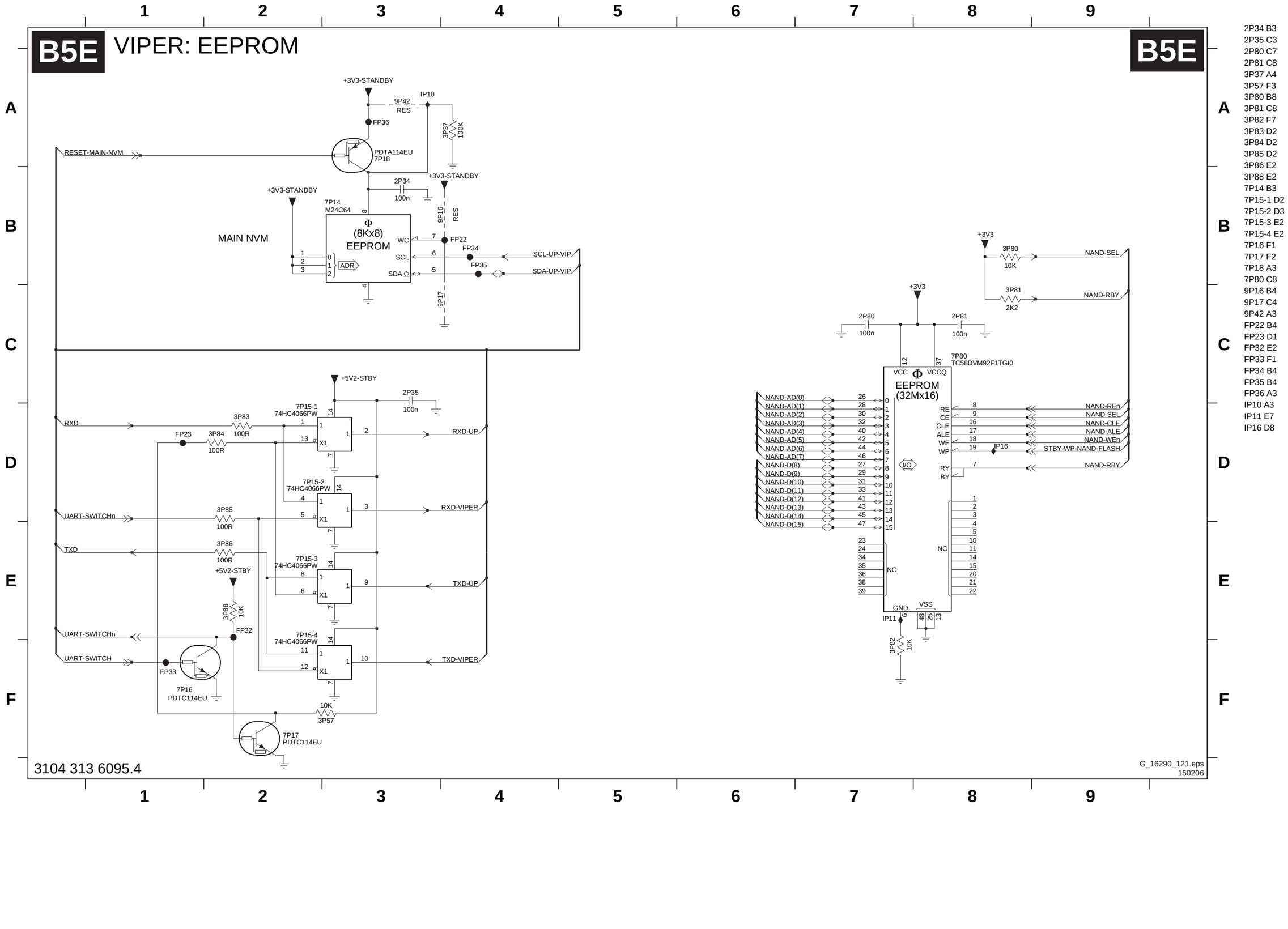


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SSB (.4 Version) Viper: EEPROM

B5E VIPER: EEPROM



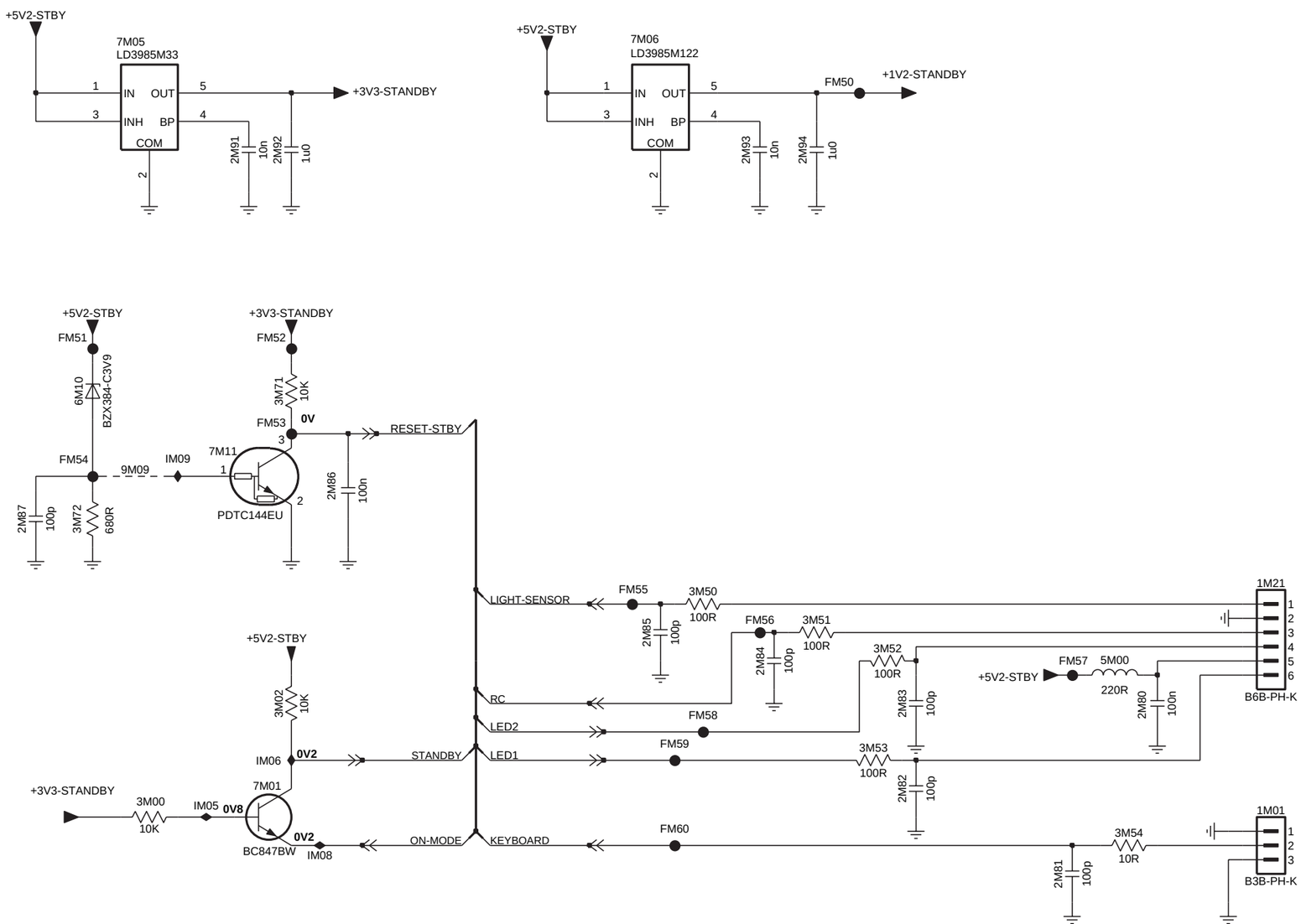
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2P34 B3
2P35 C3
2P80 C7
2P81 C8
3P37 A4
3P57 F3
3P80 B8
3P81 C8
3P82 F7
3P83 D2
3P84 D2
3P85 D2
3P86 E2
3P88 E2
7P14 B3
7P15-1 D2
7P15-2 D3
7P15-3 E2
7P15-4 E2
7P16 F1
7P17 F2
7P18 A3
7P80 C8
9P16 B4
9P17 C4
9P42 A3
FP22 B4
FP23 D1
FP32 E2
FP33 F1
FP34 B4
FP35 B4
FP36 A3
IP10 A3
IP11 E7
IP16 D8

SSB (.4 Version) Miscellaneous

B5F MISCELLANEOUS

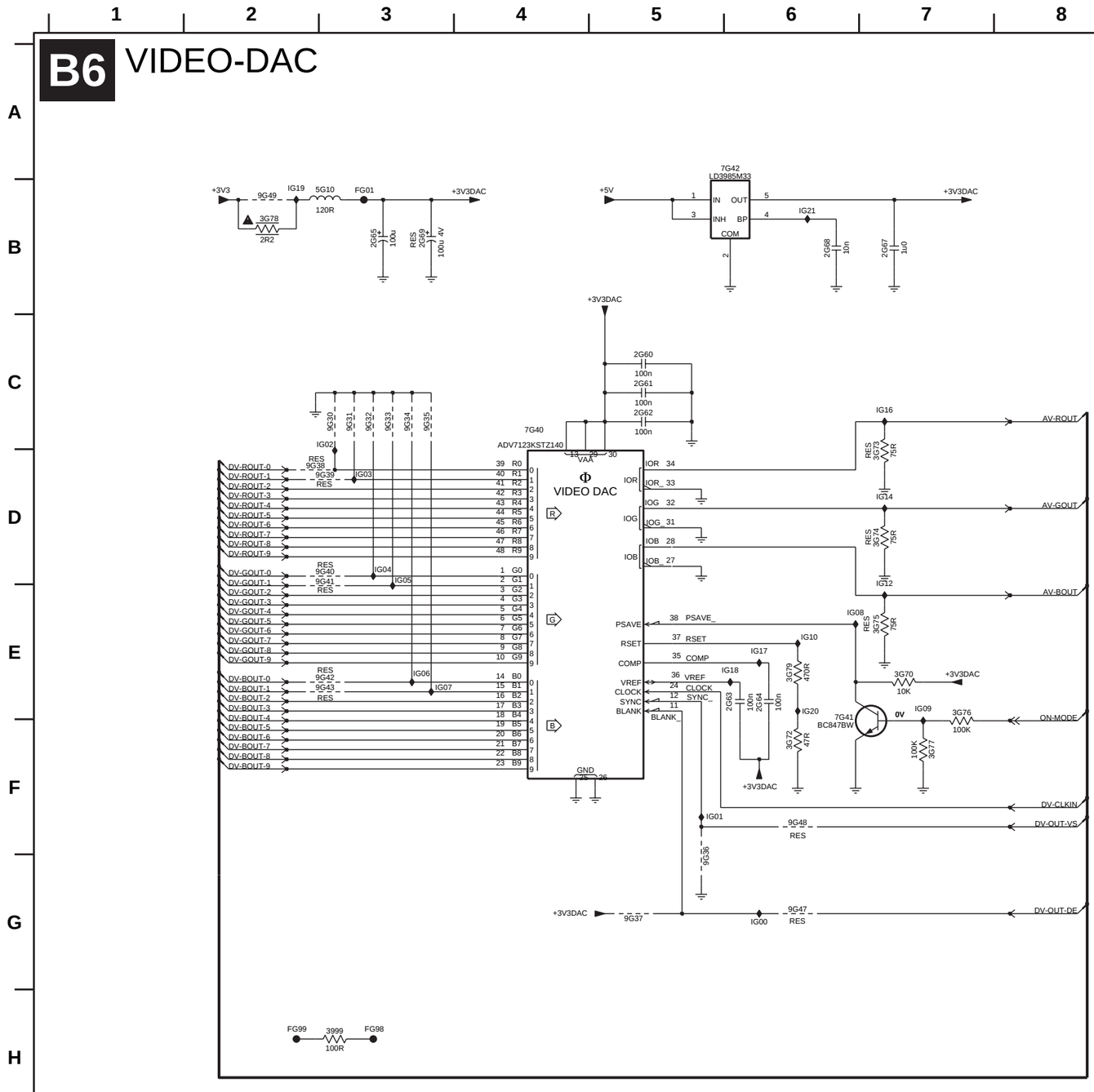


1M01 E7
1M21 D7
2M80 E7
2M81 F6
2M82 E5
2M83 E5
2M84 E5
2M85 D4
2M86 D3
2M87 D1
2M91 B2
2M92 B2
2M93 B5
2M94 B5
3M00 E2
3M02 E2
3M50 D4
3M51 D5
3M52 E5
3M53 E5
3M54 E7
3M71 C2
3M72 D1
5M00 E6
6M10 C1
7M01 E2
7M05 A1
7M06 A4
7M11 D2
9M09 D2
FM50 B5
FM51 C1
FM52 C2
FM53 C2
FM54 D1
FM55 D4
FM56 D5
FM57 E6
FM58 E4
FM59 E4
FM60 E4
IM05 E2
IM06 E2
IM08 F2
IM09 D2

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SSB (.4 Version) Video DAC

B6 VIDEO-DAC



2G60 C5
2G61 C5
2G62 C5
2G63 E6
2G64 E6
2G65 B3
2G67 B7
2G68 B6
2G69 B3
3999 H3
3G70 E7
3G72 F6
3G73 D7
3G74 D7
3G75 E7
3G76 E7
3G77 F7
3G78 B2
3G79 E6
5G10 B3
7G40 C4
7G41 F6
7G42 A6
9G30 C3
9G31 C3
9G32 C3
9G33 C3
9G34 C3
9G35 C3
9G36 G5
9G37 G5
9G38 D2
9G39 D3
9G40 D3
9G41 D3
9G42 E3
9G43 E3
9G47 G6
9G48 F6
9G49 B2
FG01 B3
FG98 H3
FG99 H2
IG00 G6
IG01 F5
IG02 C3
IG03 D3
IG04 D3
IG05 D3
IG06 E3
IG07 E3
IG08 E6
IG09 E7
IG10 E6
IG12 D7
IG14 D7
IG16 C7
IG17 E6
IG18 E6
IG19 B2
IG20 E6
IG21 B6
cG10 D10
cG11 D10
cG12 D10
cG13 D10
cG14 D10
cG15 D10
cG16 D10
cG17 D10
cG18 D10
cG19 D10
cG20 D10
cG21 E10
cG22 E10
cG23 E10
cG24 E10
cG25 E10
cG26 E10
cG27 E10
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cG41 F10
cG42 F10
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cG44 G10

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SSB (.4 Version) HDMI: Supply

B7A HDMI + SUPPLY

HDMI CONNECTOR 1

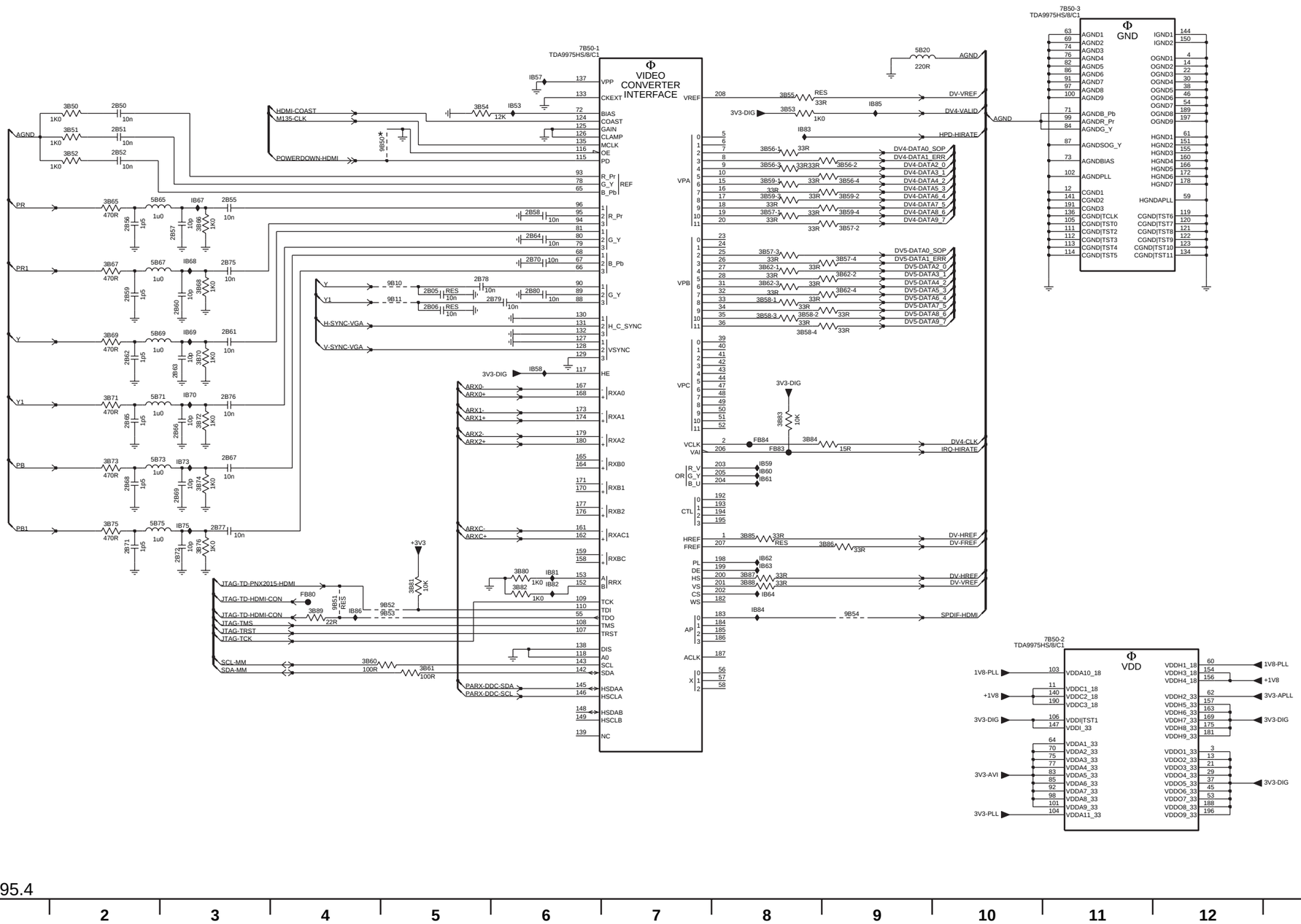
DDC NVM HDMI 1

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1B03 C4
1B04 C4
1B20 I5
1I06 B1
2B00 C4
2B01 C5
2B03 I4
2B04 I6
2B10 B10
2B11 C9
2B12 C11
2B13 C11
2B14 C12
2B15 C12
2B16 C12
2B17 C12
2B18 E13
2B19 E13
2B20 E13
2B21 E13
2B22 E11
2B23 E11
2B24 E12
2B25 E12
2B26 D10
2B27 D10
2B31 G9
2B32 F10
2B33 F11
2B35 F12
2B36 F12
2B37 F12
2B38 F13
2B39 F13
2B40 I10
2B41 I10
2B45 I9
2B46 G10
3B02 C6
3B03 C7
3B04 D5
3B05 D6
3B06 D6
3B07 D5
3B08 D6
3B17 H5
3B18 I6
3B19 I4
3B20 I4
5B00 C5
5B10 C9
5B11 D9
5B12 D9
5B17 B9
5B18 F10
6B20 I4
6B21 I4
7B02 D4
7B20 I5
7B25 F9
7B45 H10
9B00 C2
9B38 H10
FB04 D5
FB09 C2
FB10 C2
FB11 C2
FB12 C2
FB13 C2
FB14 D2
FB16 C10
FB17 B10
FB18 D10
FB19 D10
FB20 F10
FB21 F11
FB45 H10
IB00 C7
IB02 C6
IB11 C5
IB19 H5
IB20 I6

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SSB (.4 Version) HDMI: I/O + Control

B7B HDMI: I/O + CONTROL



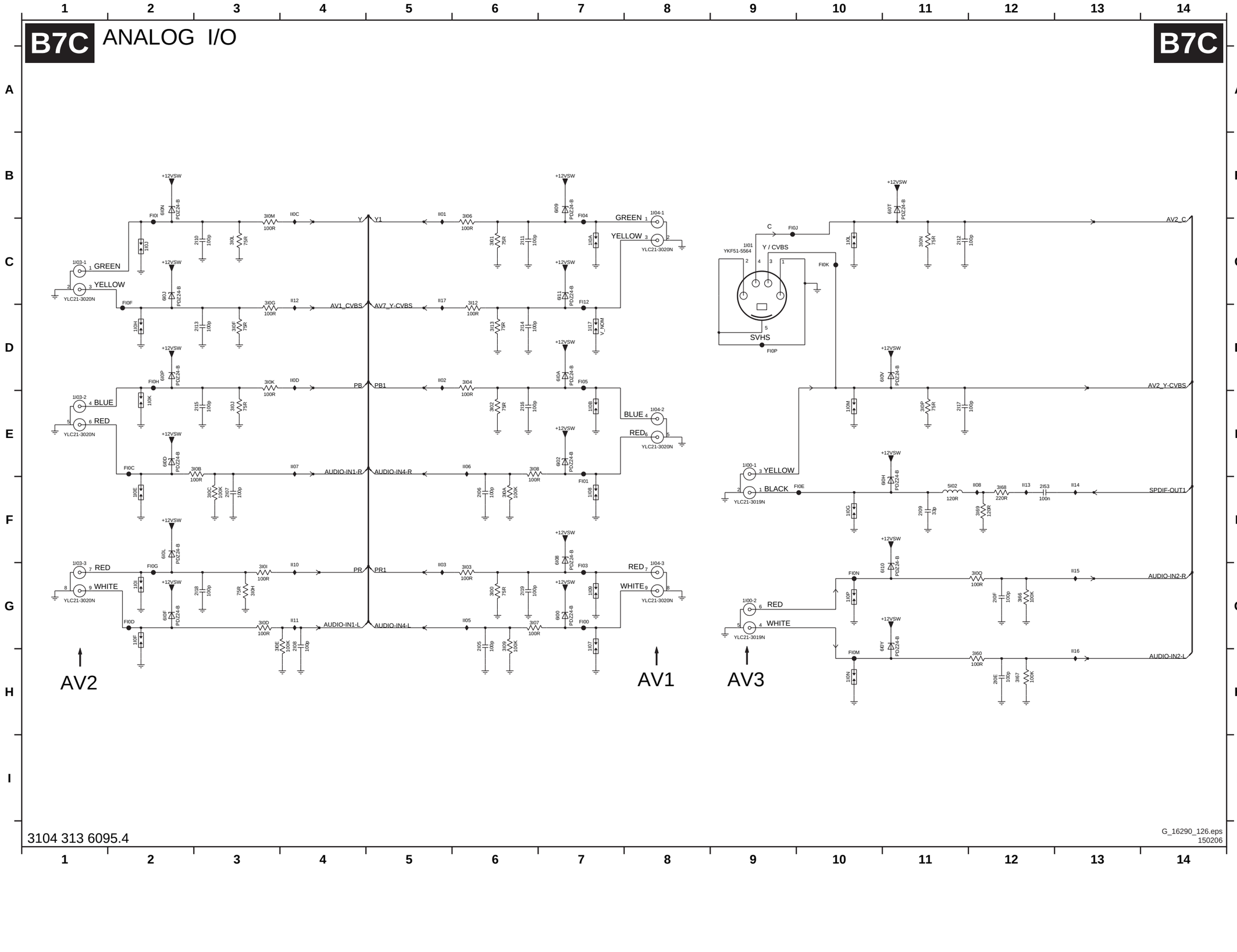
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2B05 D5 IB58 E6
2B06 D5 IB59 F8
2B50 C2 IB60 F8
2B51 C2 IB61 F8
2B52 C2 IB62 G8
2B55 C3 IB63 G8
2B56 D2 IB64 G8
2B57 D3 IB67 C3
2B58 D6 IB68 D3
2B59 D2 IB69 E3
2B60 D3 IB70 E3
2B61 E3 IB73 F3
2B62 E2 IB75 F3
2B63 E3 IB81 G6
2B64 D6 IB82 G6
2B65 E2 IB83 C8
2B66 F3 IB84 G8
2B67 F3 IB85 C9
2B68 F2 IB86 G4
2B69 F3
2B70 D6
2B71 G2
2B72 G3
2B75 D3
2B76 E3
2B77 F3
2B78 D5
2B79 D6
2B80 D6
3B50 C2
3B51 C2
3B52 C2
3B53 C8
3B54 C5
3B55 B8
3B56-1 C8
3B56-2 C9
3B56-3 C8
3B56-4 C9
3B57-1 D8
3B57-2 D9
3B57-3 D8
3B57-4 D9
3B58-1 D8
3B58-2 D8
3B58-3 D8
3B58-4 E8
3B59-1 C8
3B59-2 C9
3B59-3 C8
3B59-4 D9
3B60 H4
3B61 H5
3B62-1 D8
3B62-2 D9
3B62-3 D8
3B62-4 D9
3B65 C2
3B66 D3
3B67 D2
3B68 D3
3B69 E2
3B70 E3
3B71 E2
3B72 E3
3B73 F2
3B74 F3
3B75 F2
3B76 G3
3B80 G6
3B81 G5
3B82 G6
3B83 E8
3B84 F8
3B85 F8
3B86 G9
3B87 G8
3B88 G8
3B89 G4
5B20 B9
5B65 C2
5B67 D2
5B69 E2
5B71 E2
5B73 F2
5B75 F2
7B50-1 B6
7B50-2 G11
7B50-3 B11
9B10 D5
9B11 D5
9B50 C4
9B51 G4
9B52 G5
9B53 G5
9B54 G9
FB80 G4
FB83 F8
FB84 F8
IB53 C6
IB57 B6

SSB (.4 Version) Analog I/O

B7C ANALOG I/O **B7C**

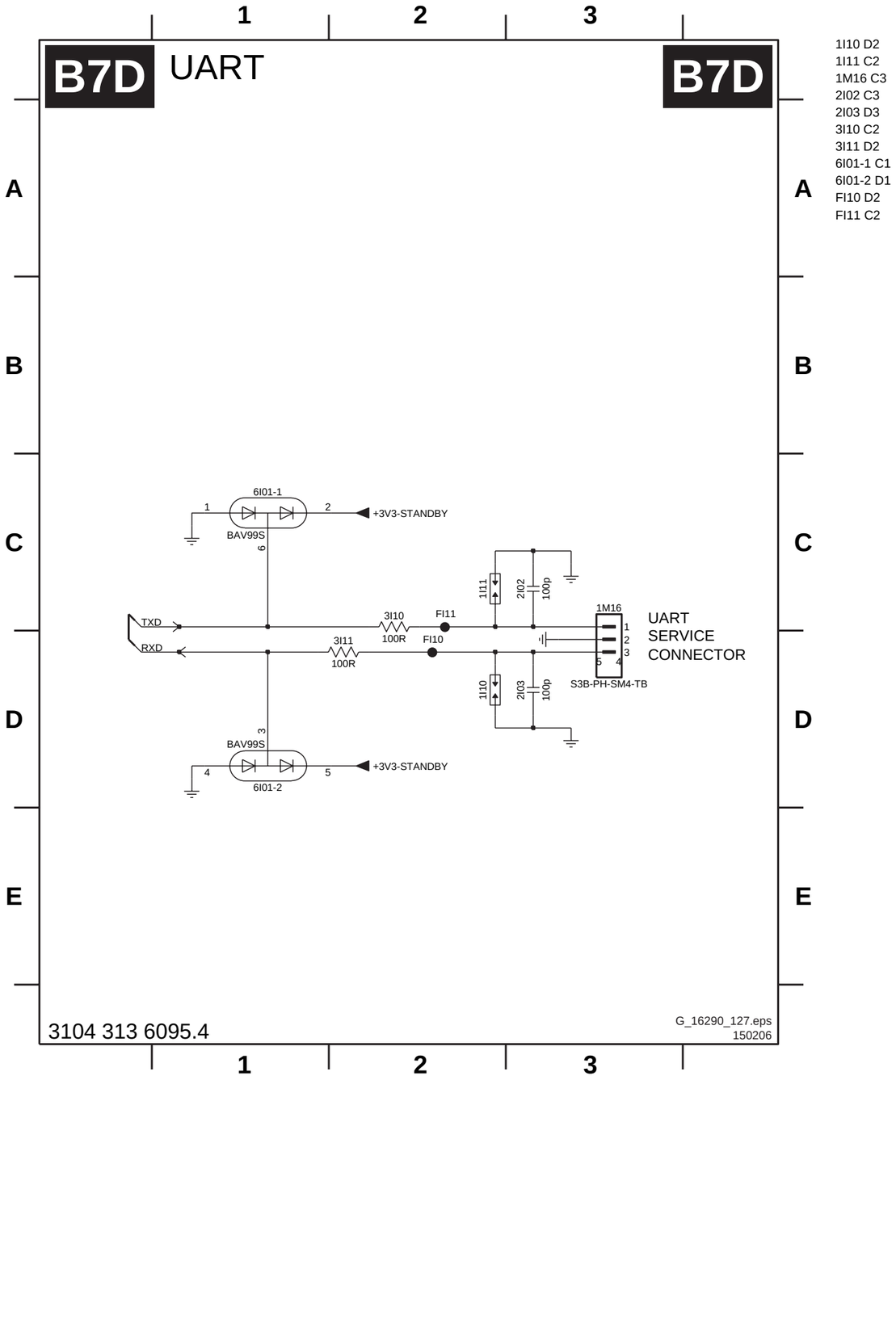


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1I03-1 C1
1I03-2 E1
1I03-3 G1
1I04-1 B8
1I04-2 E8
1I04-3 G8
1I07 G7
1I08 F7
1I09 G7
1I0A C7
1I0B E7
1I0E F2
1I0F G2
1I0G F10
1I0H D2
1I0I G2
1I0J C2
1I0K E2
1I0L C10
1I0M E10
1I0N H10
1I0P G10
1I17 D7
2I05 G6
2I06 F6
2I07 F3
2I08 G4
2I09 F11
2I0E H12
2I0F G12
2I10 C3
2I11 C6
2I12 C11
2I13 D3
2I14 D6
2I15 E3
2I16 E6
2I17 E11
2I18 G3
2I19 G6
2I53 F12
3I00 G6
3I01 C6
3I02 E6
3I03 G6
3I04 D6
3I06 B6
3I07 G6
3I08 E6
3I09 G6
3I0A F6
3I0B E3
3I0C F3
3I0D G3
3I0E G3
3I0F D3
3I0G C3
3I0H G3
3I0I G3
3I0J E3
3I0K D3
3I0L C3
3I0M B3
3I0N C11
3I0P E11
3I0Q G12
3I12 C6
3I13 D6
3I60 H12
3I66 G12
3I67 H12
3I68 F12
3I69 F12
5I02 F11
6I00 G7
6I02 E7
6I08 F7
6I09 B7
6I0A D7
6I0D E2
6I0F G2
6I0H F10
6I0J C2
6I0L F2
6I0N B2
6I0P D2
6I0T B11
6I0V D11
6I0Y G11
6I10 G11
6I11 C7
FI00 G7
FI01 F7
FI03 G7
FI04 B7
FI05 D7
FI0C E2
FI0D G2
FI0E F10
FI0F C2
FI0G G2
FI0H D2
FI0I B2
FI0J C9
FI0K C10
FI0M H10
FI0N G10
FI12 C7
II01 B5
II02 D5
II03 G5
II05 G6
II06 E6
II07 E4
II08 F12
II0C B4
II0D D4
II10 G4
II11 G4
II12 C4
II13 F12
II14 F13
II15 G13
II16 H13
II17 C5

SSB (.4 Version) UART



SRP List Explanation

Example

Net Name	*Diagram*
+12-15V	AP1 (4x)
+12-15V	AP4 (4x)
+12-15V	AP5 (12x)
+12-15V	AP6 (4x)
+12-15V	AP7 (8x)
+12V	AP1 (4x)
+12V_NF	AP1 (2x)
+12VÄL	AP1 (2x)
+25VLP	AP1 (4x)
+25VLP	AP2 (1x)
+3V3-STANDBY	AP5 (3x)
+400V-F	AP1 (2x)
+400V-F	AP2 (2x)
+400V-F	AP3 (2x)
+5V2	AP1 (6x)
+5V2	AP2 (1x)
+5V2-NF	AP1 (1x)
+5V2-NF	AP2 (1x)
+5V-SW	AP1 (6x)
+5V-SW	AP2 (1x)
+8V6	AP1 (3x)
+AUX	AP1 (2x)
+AUX	AP2 (1x)
+DC-F	AP1 (2x)
+DC-F	AP3 (2x)
+SUB-SPEAKER	AP5 (1x)
+SUB-SPEAKER	AP6 (2x)
-12-15V	AP1 (4x)
-12-15V	AP4 (6x)
-12-15V	AP5 (14x)
-12-15V	AP6 (6x)
-12-15V	AP7 (8x)
AL-OFF	AP1 (2x)
AUDIO-L	AP4 (1x)
AUDIO-L	AP5 (1x)
AUDIO-PROT	AP5 (3x)
AUDIO-R	AP4 (1x)
AUDIO-R	AP5 (1x)
AUDIO-SW	AP5 (1x)
AUDIO-SW	AP7 (1x)
BOOST	AP1 (2x)
CPROT	AP4 (2x)
CPROT	AP5 (1x)
CPROT-SW	AP5 (1x)
CPROT-SW	AP6 (2x)
-DC-F	AP1 (2x)
-DC-F	AP3 (2x)
DC-PROT	AP1 (1x)
DC-PROT	AP5 (2x)
DIM-CONTROL	AP1 (2x)
FEEDBACK+SW	AP6 (2x)
FEEDBACK-L	AP4 (2x)
FEEDBACK-R	AP4 (2x)
FEEDBACK-SW	AP6 (2x)
GND-AL	AP1 (2x)
GNDHA	AP1 (40x)
GNDHA	AP2 (20x)
GNDHA	AP3 (2x)
GNDHOT	AP3 (2x)
GND-L	AP1 (2x)
GND-L	AP4 (4x)
GND-L	AP5 (34x)
GND-LL	AP4 (7x)
GND-LL	AP5 (1x)
GND-LR	AP4 (7x)
GND-LR	AP5 (1x)
GND-LSW	AP5 (1x)
GND-LSW	AP6 (15x)
GND-S	AP1 (11x)
GND-SA	AP4 (8x)
GND-SA	AP5 (2x)
GND-SA	AP6 (8x)
GND-SA	AP7 (6x)
GNDscrew	AP3 (2x)
GNDscrew	AP5 (2x)
GND-SSB	AP5 (3x)
GND-SSP	AP1 (51x)
GND-SSP	AP2 (15x)
IN+SW	AP6 (2x)
IN-L	AP4 (2x)
IN-R	AP4 (2x)
IN-SW	AP6 (2x)
INV-MUTE	AP4 (1x)
INV-MUTE	AP5 (1x)
INV-MUTE	AP6 (1x)
LEFT-SPEAKER	AP4 (1x)
LEFT-SPEAKER	AP5 (1x)
MUTE	AP4 (2x)
MUTE	AP5 (1x)
MUTE	AP6 (2x)
ON-OFF	AP1 (3x)
OUT	AP6 (1x)
OUT	AP7 (2x)
OUTN	AP6 (1x)
OUTN	AP7 (1x)
POWER-GOOD	AP1 (2x)
POWER-OK-PLATFORM	AP1 (2x)
RIGHT-SPEAKER	AP4 (1x)
RIGHT-SPEAKER	AP5 (1x)
SOUND-ENABLE	AP5 (3x)
STANDBY	AP1 (5x)
STANDBY	AP2 (1x)
-SUB-SPEAKER	AP5 (1x)
-SUB-SPEAKER	AP6 (2x)
V-CLAMP	AP1 (1x)
V-CLAMP	AP3 (2x)

1.1. Introduction

SRP (Service Reference Protocol) is a software tool that creates a list with all references to signal lines. The list contains references to the signals within all schematics of a PWB. It replaces the text references currently printed next to the signal names in the schematics. These printed references are created manually and are therefore not guaranteed to be 100% correct. In addition, in the current crowded schematics there is often none or very little place for these references.
Some of the PWB schematics will use SRP while others will still use the manual references. Either there will be an SRP reference list for a schematic, or there will be printed references in the schematic.

1.2. Non-SRP Schematics

There are several different signals available in a schematic:

1.2.1. Power Supply Lines

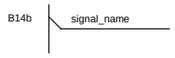
All power supply lines are available in the supply line overview (see chapter 6). In the schematics (see chapter 7) is not indicated where supplies are coming from or going to.
It is however indicated if a supply is incoming (created elsewhere), or outgoing (created or adapted in the current schematic).



Outgoing Incoming

1.2.2. Normal Signals

For normal signals, a schematic reference (e.g. B14b) is placed next to the signals.



1.2.3. Grounds

For normal and special grounds (e.g. GNDHOT or GND3V3 etc.), nothing is indicated.

1.3. SRP Schematics

SRP is a tool, which automatically creates a list with signal references, indicating on which schematic the signals are used.
A reference is created for all signals indicated with an SRP symbol, these symbols are:



Power supply line.



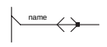
Stand alone signal or switching line (used as less as possible).



Signal line into a wire tree.



Switching line into a wire tree.



Bi-directional line (e.g. SDA) into a wire tree.



Signal line into a wire tree, its direction depends on the circuit (e.g. ingoing for PDP, outgoing for LCD sets).

Remarks:

- When there is a black dot on the "signal direction arrow" it is an SRP symbol, so there will be a reference to the signal name in the SRP list.
- All references to normal grounds (Ground symbols without additional text) are not listed in the reference list, this to keep it concise.
- Signals that are not used in multiple schematics, but only once or several times in the same schematic, are included in the SRP reference list, but only with one reference.

Additional Tip:

When using the PDF service manual file, you can very easily search for signal names and follow the signal over all the schematics. In Adobe PDF reader:

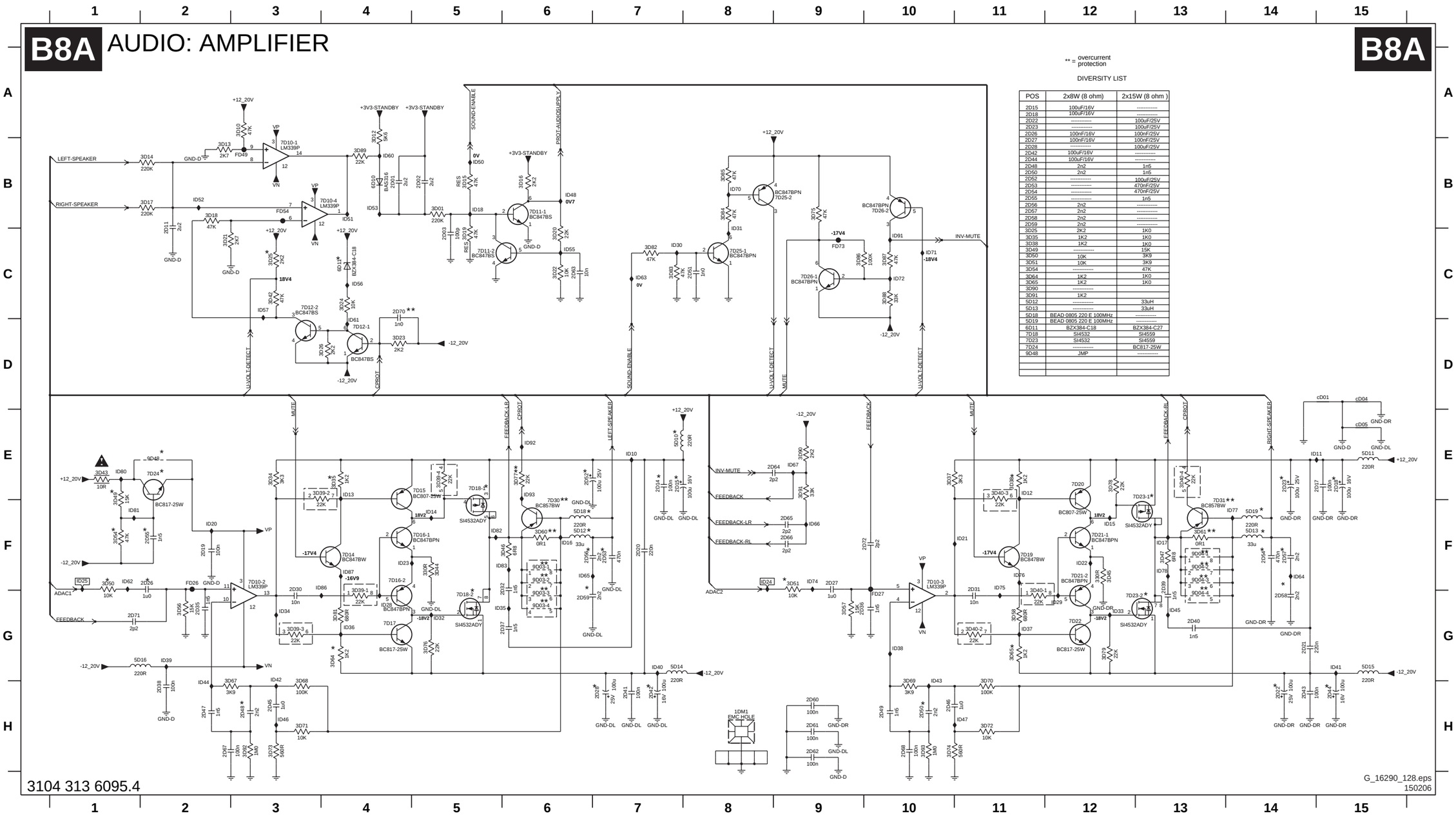
- Select the signal name you want to search for, with the "Select text" tool.
- Copy and paste the signal name in the "Search PDF" tool.
- Search for all occurrences of the signal name.
- Now you can quickly jump between the different occurrences and follow the signal over all schematics. It is advised to "zoom in" to e.g. 150% to see clearly, which text is selected. Then you can zoom out, to get an overview of the complete schematic.

PS. It is recommended to use at least Adobe PDF (reader) version 6.x, due to better search possibilities in this version.

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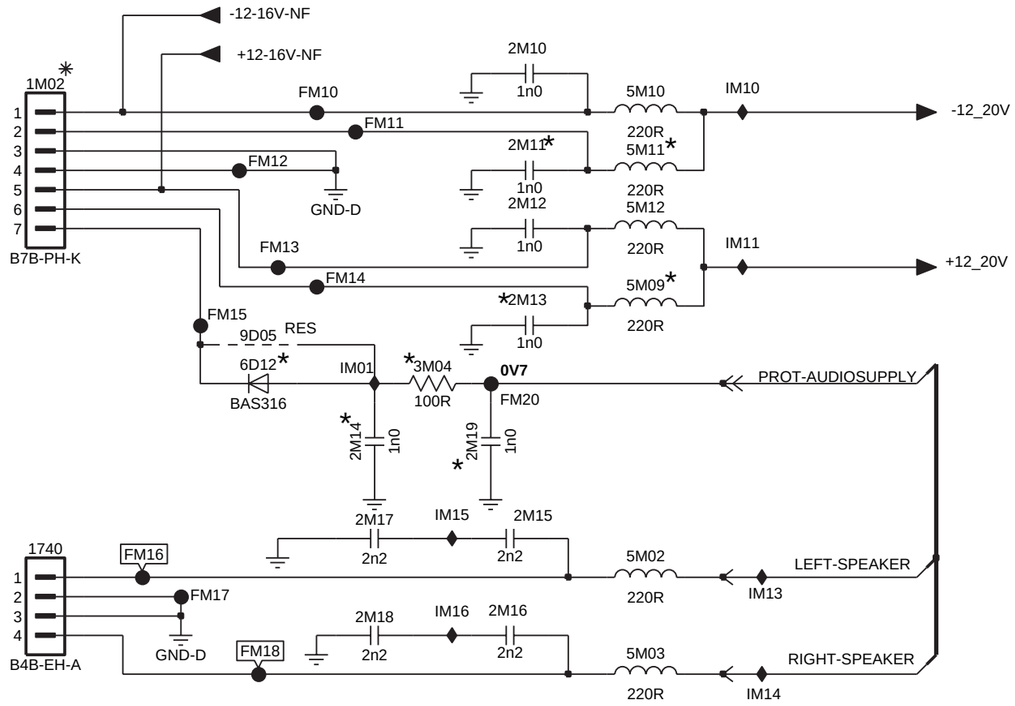
SSB (.4 Version) Audio: Amplifier

1DM1 H8	2D19 F2	2D31 G11	2D42 H7	2D51 C8	2D60 H9	2D70 C4	3D16 B6	3D25 C3	3D39-4 E5	3D46 F6	3D60 F6	3D72 H11	3D82 C7	3D91 E9	5D16 G2	7D11-1 B6	7D18-1 E5	7D24 E2	9D03-3 G6	FD49 B3	ID16 F6	ID28 G4	ID37 G11	ID46 H3	ID57 C3	ID70 B8	ID81 F1	cD04 D15
2D01 C4	2D20 F7	2D32 F6	2D43 H14	2D52 E6	2D61 H9	2D71 G1	3D17 B2	3D26 D3	3D40-1 G11	3D47 F13	3D61 F13	3D73 H3	3D83 C7	3D92 H3	5D18 F6	7D11-2 C5	7D18-2 G5	7D25-1 C8	9D03-4 G6	FD54 B3	ID17 F13	ID29 G12	ID38 G10	ID47 H11	ID60 B4	ID71 C10	cD05 E15	
2D02 C4	2D21 G14	2D35 G2	2D44 H15	2D53 F7	2D62 H9	2D72 F10	3D18 B2	3D34 E3	3D40-2 G11	3D49 E1	3D64 G4	3D74 H10	3D84 B8	3D93 H10	5D19 F14	7D12-1 D4	7D19 F11	7D25-2 B9	9D04-1 F13	FD73 C9	ID18 B5	ID30 C7	ID39 G2	ID48 B6	ID61 D4	ID72 C10	ID82 F5		
2D03 C5	2D22 H14	2D36 G9	2D45 H3	2D54 F14	2D63 C6	3D01 B5	3D19 C5	3D35 E4	3D40-3 E11	3D50 F1	3D65 G11	3D75 B9	3D85 B8	5D10 E7	6D10 B4	7D12-2 C3	7D20 E12	7D26-1 C9	9D04-2 F13	ID10 E7	ID20 F2	ID31 C8	ID40 G7	ID50 B5	ID62 F1	ID74 F9	ID86 F4		
2D11 B2	2D23 E14	2D37 G6	2D46 H10	2D55 F2	2D64 E9	3D10 A3	3D20 C6	3D37 E10	3D40-4 E13	3D51 F9	3D67 H3	3D76 G5	3D86 C9	5D11 E15	6D11 C4	7D14 F4	7D21-1 F12	7D26-2 B10	9D04-3 F13	ID11 E15	ID21 F5	ID32 G5	ID41 G15	ID51 B4	ID63 C7	ID75 F11	ID87 F4		
2D14 E7	2D26 F2	2D38 H2	2D47 H2	2D56 F6	2D65 F9	3D12 A4	3D21 C2	3D38 E11	3D42 C3	3D54 F1	3D68 H3	3D77 E6	3D87 C10	5D12 F6	7D10-1 B3	7D15 E5	7D21-2 F12	7D30 F6	9D04-4 G13	ID12 E11	ID22 F12	ID33 G12	ID42 G3	ID52 B2	ID64 F14	ID76 F11	ID91 C10		
2D15 E7	2D27 F9	2D39 F13	2D48 H3	2D57 F14	2D66 F9	3D13 B2	3D22 C6	3D39-1 G4	3D43 E1	3D56 G2	3D69 H10	3D78 E12	3D88 C10	5D13 F14	7D10-2 F3	7D16-1 F5	7D22 G12	7D31 F13	9D48 E2	ID13 E4	ID23 F4	ID34 G3	ID43 G10	ID53 B4	ID65 F6	ID77 F14	ID92 E6		
2D17 E15	2D28 H7	2D40 G13	2D49 H10	2D58 G14	2D67 H2	3D14 B2	3D23 D4	3D39-2 E4	3D44 F5	3D57 G9	3D70 H11	3D79 G12	3D89 B4	5D14 G7	7D10-3 F10	7D16-2 F4	7D23-1 E12	9D03-1 F6	FD26 F2	ID14 F5	ID24 F8	ID35 G5	ID44 H2	ID55 C6	ID66 F9	ID78 F13	ID93 E6		
2D18 E15	2D30 G3	2D41 H7	2D50 H10	2D59 G6	2D68 H10	3D15 B5	3D24 C4	3D39-3 G3	3D45 F12	3D58 G11	3D71 H3	3D81 G4	3D90 E9	5D15 G15	7D10-4 B3	7D17 G4	7D23-2 G12	9D03-2 F6	FD27 G10	ID15 F12	ID25 F1	ID36 G4	ID45 G13	ID56 C4	ID67 E9	ID80 E1	cD01 D15		

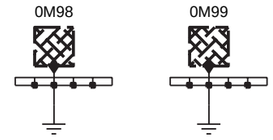


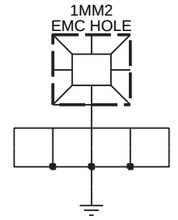
SSB (.4 Version) Audio: Connectors

B8B AUDIO: CONNECTORS



	2x8W (8 ohm)	2x15W (8 ohm)
2M11	----------	1nF
2M13	----------	1nF
2M14	----------	1nF
3M04	----------	100E
5M09	----------	220E 100MHz
5M11	----------	220E 100MHz





0M98 C6
0M99 C6
1740 C1
1M02 A1
1MM2 D6
2M10 A3
2M11 A3
2M12 B3
2M13 B3
2M14 C3
2M15 C3
2M16 C3
2M17 C3
2M18 C3
2M19 C3
3M04 B3
5M02 C4
5M03 C4
5M09 B4
5M10 A4
5M11 A4
5M12 B4
6D12 B2
9D05 B2
FM10 A2
FM11 A3
FM12 A2
FM13 B2
FM14 B2
FM15 B2
FM16 C2
FM17 C2
FM18 C2
FM20 B3
IM01 B3
IM10 A4
IM11 B4
IM13 C4
IM14 C4
IM15 C3
IM16 C3

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SSB (.4 Version) SRP List Part 1

Schematic	Netname
B08a (7x)	+12_20V
B08b (1x)	+12_20V
B01b (2x)	+12-16V-NF
B08b (2x)	+12-16V-NF
B01a (1x)	+12VS
B01b (1x)	+12VS
B01a (2x)	+12VSW
B01b (2x)	+12VSW
B02a (4x)	+12VSW
B02b (2x)	+12VSW
B03e (4x)	+12VSW
B04a (2x)	+12VSW
B04e (2x)	+12VSW
B04g (8x)	+12VSW
B07c (34x)	+12VSW
B01a (4x)	+1V2
B02a (2x)	+1V2
B04e (4x)	+1V2
B05d (8x)	+1V2
B02a (2x)	+1V2_ATSC
B02a (1x)	+1V2F
B04e (2x)	+1V2-STANDBY
B05f (1x)	+1V2-STANDBY
B07a (3x)	+1V8
B07b (2x)	+1V8
B01a (2x)	+2V5
B02a (2x)	+2V5
B04d (2x)	+2V5
B05d (2x)	+2V5
B02a (1x)	+2V5A
B02a (1x)	+2V5A-ADC
B02a (1x)	+2V5A-PLL
B02a (1x)	+2V5A-XTAL
B01a (2x)	+2V5D
B04d (4x)	+2V5-DDRPNX
B04f (1x)	+2V5-DDRPNX
B02a (1x)	+2V5D-PLL
B02a (1x)	+2V5F
B05b (7x)	+2V5-VPR
B05d (3x)	+2V5-VPR
B01a (2x)	+3V3
B01b (4x)	+3V3
B02a (10x)	+3V3
B04e (4x)	+3V3
B04g (6x)	+3V3
B05a (42x)	+3V3
B05c (2x)	+3V3
B05d (8x)	+3V3
B05e (4x)	+3V3
B06 (2x)	+3V3
B07a (10x)	+3V3
B07b (2x)	+3V3
B07a (2x)	+3V3-AV
B06 (6x)	+3V3DAC
B02a (4x)	+3V3F
B03a (2x)	+3V3-STANDBY
B04e (2x)	+3V3-STANDBY
B04g (2x)	+3V3-STANDBY
B05e (6x)	+3V3-STANDBY
B05f (6x)	+3V3-STANDBY
B07d (4x)	+3V3-STANDBY
B08a (6x)	+3V3-STANDBY
B01b (2x)	+3V3-UART
B01b (4x)	+5V
B02a (2x)	+5V
B03a (6x)	+5V
B03b (12x)	+5V
B03c (2x)	+5V
B03e (4x)	+5V
B04e (4x)	+5V
B04g (4x)	+5V
B05a (4x)	+5V
B06 (2x)	+5V
B07a (2x)	+5V
B01b (8x)	+5V2-STBY
B03e (4x)	+5V2-STBY
B04a (2x)	+5V2-STBY
B05e (4x)	+5V2-STBY
B05f (8x)	+5V2-STBY
B03c (3x)	+5VaM
B03c (2x)	+5VbM
B02b (7x)	+5VTUN
B03c (2x)	+5VTUN
B03d (1x)	+5VTUN
B03d (1x)	+8V-AUD
B03e (1x)	+8V-AUD
B08a (8x)	-12_20V
B08b (1x)	-12_20V
B01b (2x)	-12-16V-NF
B08b (2x)	-12-16V-NF
B07a (1x)	1V8-PLL
B07b (2x)	1V8-PLL
B07a (1x)	3V3-APLL
B07b (1x)	3V3-APLL
B07a (2x)	3V3-AVI
B07b (1x)	3V3-AVI
B07a (3x)	3V3-DIG
B07b (6x)	3V3-DIG
B07a (1x)	3V3-PLL
B07b (1x)	3V3-PLL
B04a (1x)	ADAC1
B08a (1x)	ADAC1
B04a (1x)	ADAC2
B08a (1x)	ADAC2
B03e (1x)	ADAC7
B04a (1x)	ADAC7
B03e (1x)	ADAC8
B04a (1x)	ADAC8
B07a (3x)	AIN-5V
B04e (2x)	ALE
B03e (1x)	A-PLOP
B04a (1x)	A-PLOP
B05a (1x)	A-PLOP
B07a (1x)	ARX0-
B07b (1x)	ARX0-
B07a (1x)	ARX0+
B07b (1x)	ARX0+
B07a (1x)	ARX1-
B07b (1x)	ARX1-
B07a (1x)	ARX1+
B07b (1x)	ARX1+
B07a (1x)	ARX2-
B07b (1x)	ARX2-
B07a (1x)	ARX2+
B07b (1x)	ARX2+
B07a (1x)	ARXC-
B07b (1x)	ARXC-
B07a (1x)	ARXC+
B07b (1x)	ARXC+
B07a (2x)	ARX-DDC-SCL
B07a (2x)	ARX-DDC-SDA
B07a (2x)	ARX-HOTPLUG
B03a (1x)	AUDIO-HDPH-L-AP
B03e (1x)	AUDIO-HDPH-L-AP
B03a (1x)	AUDIO-HDPH-R-AP
B03e (1x)	AUDIO-HDPH-R-AP
B03d (1x)	AUDIO-IN1-L
B07c (1x)	AUDIO-IN1-L
B03d (1x)	AUDIO-IN1-R
B07c (1x)	AUDIO-IN1-R
B03d (1x)	AUDIO-IN2-L
B07c (1x)	AUDIO-IN2-L
B03d (1x)	AUDIO-IN2-R
B07c (1x)	AUDIO-IN2-R
B03a (1x)	AUDIO-IN3-L
B03d (1x)	AUDIO-IN3-L
B03a (1x)	AUDIO-IN3-R
B03d (1x)	AUDIO-IN3-R
B03d (1x)	AUDIO-IN4-L
B07c (1x)	AUDIO-IN4-L
B03d (1x)	AUDIO-IN4-R
B07c (1x)	AUDIO-IN4-R
B03a (1x)	AUDIO-IN5-L
B03d (1x)	AUDIO-IN5-L
B03a (1x)	AUDIO-IN5-R
B03d (1x)	AUDIO-IN5-R
B03a (1x)	AUDIO-OUT1-L
B03d (1x)	AUDIO-OUT1-L
B03a (1x)	AUDIO-OUT1-R
B03d (1x)	AUDIO-OUT1-R
B02a (1x)	AUX-IF-AGC
B02b (1x)	AUX-IF-AGC
B03a (1x)	AV1_CVBS
B07c (1x)	AV1_CVBS
B03a (1x)	AV1-AV6_FBL-HSYNC
B04a (1x)	AV1-AV6_FBL-HSYNC
B03a (1x)	AV2_C
B07c (1x)	AV2_C
B04a (2x)	AV2_FBL
B03a (1x)	AV2_Y-CVBS
B07c (1x)	AV2_Y-CVBS
B04a (2x)	AV6_VSYNC
B03a (1x)	AV7_Y-CVBS
B07c (1x)	AV7_Y-CVBS
B04g (1x)	AV-BOUT
B06 (1x)	AV-BOUT
B04g (1x)	AV-GOUT
B06 (1x)	AV-GOUT
B04g (1x)	AV-ROUT
B06 (1x)	AV-ROUT
B01b (1x)	BACKLIGHT-CNTRL-OUT
B04g (1x)	BACKLIGHT-CNTRL-OUT
B04e (1x)	BACKLIGHT-CONTROL
B04g (1x)	BACKLIGHT-CONTROL
B05c (1x)	BACKLIGHT-CONTROL
B02a (1x)	CHDEC-CLK
B05a (1x)	CHDEC-CLK
B05c (1x)	CHDEC-CLK
B03b (1x)	CLK-MPIF
B04a (1x)	CLK-MPIF
B08a (3x)	CPROT
B04g (1x)	CTRL1-VIPER
B05c (1x)	CTRL1-VIPER
B04e (1x)	CTRL4-STBY
B04g (1x)	CTRL4-STBY
B04g (1x)	CTRL4-VIPER
B05a (2x)	CTRL4-VIPER
B04g (2x)	CTRL-DISP1
B04g (2x)	CTRL-DISP2
B04g (2x)	CTRL-DISP3
B04g (2x)	CTRL-DISP4
B03a (2x)	CVBS-IN
B03a (1x)	CVBSOUTIF-MAIN
B03c (1x)	CVBSOUTIF-MAIN
B03a (1x)	DATA1N-MAIN
B04a (1x)	DATA1N-MAIN
B03a (1x)	DATA1P-MAIN
B04a (1x)	DATA1P-MAIN
B03a (1x)	DATA2N-MAIN
B04a (1x)	DATA2N-MAIN
B03a (1x)	DATA2P-MAIN
B04a (1x)	DATA2P-MAIN
B03a (1x)	DATA3N-MAIN
B04a (1x)	DATA3N-MAIN
B03a (1x)	DATA3P-MAIN
B04a (1x)	DATA3P-MAIN
B04e (2x)	DEBUG-BREAK
B05a (2x)	DEBUG-BREAK
B04e (2x)	DETECT-12V
B04e (2x)	DETECT-1V2
B04e (2x)	DETECT-3V3
B04e (2x)	DETECT-5V
B04e (2x)	DETECT-8V6
B03a (1x)	DMMI_B-PB-IN
B03a (1x)	DMMI_G-Y-IN
B03a (1x)	DMMI_R-PR-IN
B03d (1x)	DSNDL1
B04a (1x)	DSNDL1
B03d (1x)	DSNDR1
B04a (1x)	DSNDR1
B02a (1x)	DV1F-CLK
B05c (1x)	DV1F-CLK
B02a (1x)	DV1F-DATA0
B05c (1x)	DV1F-DATA0
B02a (1x)	DV1F-DATA1
B05c (1x)	DV1F-DATA1
B02a (1x)	DV1F-DATA2
B05c (1x)	DV1F-DATA2
B02a (1x)	DV1F-DATA3
B05c (1x)	DV1F-DATA3
B02a (1x)	DV1F-DATA4
B05c (1x)	DV1F-DATA4
B02a (1x)	DV1F-DATA5
B05c (1x)	DV1F-DATA5
B02a (1x)	DV1F-DATA6
B05c (1x)	DV1F-DATA6
B02a (1x)	DV1F-DATA7
B05c (1x)	DV1F-DATA7
B02a (1x)	DV1F-DATA8_ERR
B05c (1x)	DV1F-DATA8_ERR
B02a (1x)	DV1F-DATA9_SOP
B05c (1x)	DV1F-DATA9_SOP
B02a (1x)	DV1F-VALID
B05c (2x)	DV1F-VALID
B04b (1x)	DV2A-CLK
B05c (1x)	DV2A-CLK
B05c (2x)	DV2A-VALID
B04b (1x)	DV3F-CLK
B05c (1x)	DV3F-CLK
B04b (1x)	DV3F-DATA0_SOP
B05c (1x)	DV3F-DATA0_SOP
B04b (1x)	DV3F-DATA1_ERR
B05c (1x)	DV3F-DATA1_ERR
B04b (1x)	DV3F-DATA2_0
B05c (1x)	DV3F-DATA2_0
B04b (1x)	DV3F-DATA3_1
B05c (1x)	DV3F-DATA3_1
B04b (1x)	DV3F-DATA4_2
B05c (1x)	DV3F-DATA4_2
B04b (1x)	DV3F-DATA5_3
B05c (1x)	DV3F-DATA5_3
B04b (1x)	DV3F-DATA6_4
B05c (1x)	DV3F-DATA6_4
B04b (1x)	DV3F-DATA7_5
B05c (1x)	DV3F-DATA7_5
B04b (1x)	DV3F-DATA8_6
B05c (1x)	DV3F-DATA8_6
B04b (1x)	DV3F-DATA9_7
B05c (1x)	DV3F-DATA9_7
B04b (1x)	DV3F-VALID
B05c (2x)	DV3F-VALID
B04b (1x)	DV4-CLK
B07b (1x)	DV4-CLK
B04b (1x)	DV4-DATA0_SOP
B07b (1x)	DV4-DATA0_SOP
B04b (1x)	DV4-DATA1_ERR
B07b (1x)	DV4-DATA1_ERR
B04b (1x)	DV4-DATA2_0
B07b (1x)	DV4-DATA2_0
B04b (1x)	DV4-DATA3_1
B07b (1x)	DV4-DATA3_1
B04b (1x)	DV4-DATA4_2
B07b (1x)	DV4-DATA4_2
B04b (1x)	DV4-DATA5_3
B07b (1x)	DV4-DATA5_3
B04b (1x)	DV4-DATA6_4
B07b (1x)	DV4-DATA6_4
B04b (1x)	DV4-DATA7_5
B07b (1x)	DV4-DATA7_5
B04b (1x)	DV4-DATA8_6
B07b (1x)	DV4-DATA8_6
B04b (1x)	DV4-DATA9_7
B07b (1x)	DV4-DATA9_7
B04b (1x)	DV4-VALID
B07b (1x)	DV4-VALID
B04b (1x)	DV5-DATA0_SOP
B07b (1x)	DV5-DATA0_SOP
B04b (1x)	DV5-DATA1_ERR
B07b (1x)	DV5-DATA1_ERR
B04b (1x)	DV5-DATA2_0
B07b (1x)	DV5-DATA2_0
B04b (1x)	DV5-DATA3_1
B07b (1x)	DV5-DATA3_1
B04b (1x)	DV5-DATA4_2
B07b (1x)	DV5-DATA4_2
B04b (1x)	DV5-DATA5_3
B07b (1x)	DV5-DATA5_3
B04b (1x)	DV5-DATA6_4
B07b (1x)	DV5-DATA6_4
B04b (1x)	DV5-DATA7_5
B07b (1x)	DV5-DATA7_5
B04b (1x)	DV5-DATA8_6
B07b (1x)	DV5-DATA8_6
B04b (1x)	DV5-DATA9_7
B07b (1x)	DV5-DATA9_7
B05c (1x)	DV-BOUT-0
B06 (2x)	DV-BOUT-0
B05c (1x)	DV-BOUT-1
B06 (2x)	DV-BOUT-1
B05c (1x)	DV-BOUT-2
B06 (2x)	DV-BOUT-2
B05c (1x)	DV-BOUT-3
B06 (2x)	DV-BOUT-3
B05c (1x)	DV-BOUT-4
B06 (2x)	DV-BOUT-4
B05c (1x)	DV-BOUT-5
B06 (2x)	DV-BOUT-5
B05c (1x)	DV-BOUT-6
B06 (2x)	DV-BOUT-6
B05c (1x)	DV-BOUT-7
B06 (2x)	DV-BOUT-7
B05c (1x)	DV-BOUT-8
B06 (2x)	DV-BOUT-8
B05c (1x)	DV-BOUT-9
B06 (2x)	DV-BOUT-9
B05c (1x)	DV-CLKIN
B06 (2x)	DV-CLKIN
B04b (1x)	DV-FREF
B07b (1x)	DV-FREF
B05c (1x)	DV-GOUT-0
B06 (2x)	DV-GOUT-0
B05c (1x)	DV-GOUT-1
B06 (2x)	DV-GOUT-1
B05c (1x)	DV-GOUT-2
B06 (2x)	DV-GOUT-2
B05c (1x)	DV-GOUT-3
B06 (2x)	DV-GOUT-3
B05c (1x)	DV-GOUT-4
B06 (2x)	DV-GOUT-4
B05c (1x)	DV-GOUT-5
B06 (2x)	DV-GOUT-5
B05c (1x)	DV-GOUT-6
B06 (2x)	DV-GOUT-6
B05c (1x)	DV-GOUT-7
B06 (2x)	DV-GOUT-7
B05c (1x)	DV-GOUT-8
B06 (2x)	DV-GOUT-8
B05c (1x)	DV-GOUT-9
B06 (2x)	DV-GOUT-9
B04b (1x)	DV-HREF
B07b (2x)	DV-HREF
B05c (1x)	DV-OUT-DE
B06 (2x)	DV-OUT-DE
B05c (1x)	DV-OUT-FFIELD
B06 (1x)	DV-OUT-FFIELD
B05c (1x)	DV-OUT-HS
B06 (1x)	DV-OUT-HS
B05c (1x)	DV-OUT-VS
B06 (2x)	DV-OUT-VS
B05c (1x)	DV-ROUT-0
B06 (2x)	DV-ROUT-0
B05c (1x)	DV-ROUT-1
B06 (2x)	DV-ROUT-1
B05c (1x)	DV-ROUT-2
B06 (2x)	DV-ROUT-2
B05c (1x)	DV-ROUT-3
B06 (2x)	DV-ROUT-3
B05c (1x)	DV-ROUT-4
B06 (2x)	DV-ROUT-4
B05c (1x)	DV-ROUT-5
B06 (2x)	DV-ROUT-5
B05c (1x)	DV-ROUT-6
B06 (2x)	DV-ROUT-6
B05c (1x)	DV-ROUT-7
B06 (2x)	DV-ROUT-7
B05c (1x)	DV-ROUT-8
B06 (2x)	DV-ROUT-8
B05c (1x)	DV-ROUT-9
B06 (2x)	DV-ROUT-9
B04b (1x)	DV-VREF
B07b (2x)	DV-VREF
B04e (2x)	EA
B01b (1x)	EJTAG-DETECT
B04e (2x)	EJTAG-DETECT
B01b (1x)	EJTAG-TCK
B05a (1x)	EJTAG-TCK
B01b (1x)	EJTAG-TDI
B05a (1x)	EJTAG-TDI
B01b (1x)	EJTAG-TDO
B05a (1x)	EJTAG-TDO
B01b (1x)	EJTAG-TMS
B05a (1x)	EJTAG-TMS
B01a (1x)	ENABLE-1V2
B04e (2x)	ENABLE-1V2
B01a (1x)	ENABLE-3V3
B04e (2x)	ENABLE-3V3
B02a (1x)	FAT-ADC-INN
B02b (1x)	FAT-ADC-INN
B02a (1x)	FAT-ADC-INP
B02b (1x)	FAT-ADC-INP
B02a (1x)	FAT-IF-AGC
B02b (1x)	FAT-IF-AGC
B08a (3x)	FEEDBACK
B08a (2x)	FEEDBACK-LR
B08a (2x)	FEEDBACK-RL
B02a (1x)	FM-TRAP
B02b (1x)	FM-TRAP
B03a (2x)	FRONT_C
B03a (2x)	FRONT_Y-CVBS
B04e (2x)	FRONT-DETECT
B01b (1x)	GLINK-RXD
B04g (1x)	GLINK-RXD
B05a (1x)	GLINK-RXD
B01b (1x)	GLINK-TXD
B04g (1x)	GLINK-TXD
B05a (1x)	GLINK-TXD
B01b (1x)	GND-D
B08a (16x)	GND-D
B08b (4x)	GND-D
B08a (11x)	GND-DL
B08a (11x)	GND-DR
B01a (15x)	GND-SIG
B03a (1x)	H_SYNC_IN
B05a (1x)	HDMI-COAST
B07b (1x)	HDMI-COAST
B03a (1x)	HP-DET-R-DC
B05a (1x)	HPD-HIRATE
B07a (1x)	HPD-HIRATE
B07b (1x)	HPD-HIRATE
B07b (1x)	H-SYNC-VGA
B03a (1x)	HV-PRM-MAIN
B04a (1x)	HV-PRM-MAIN
B02a (1x)	I2C-SCL-TUNER
B02b (1x)	I2C-SCL-TUNER
B02a (1x)	I2C-SDA-TUNER
B02b (1x)	I2C-SDA-TUNER
B04a (1x)	I2S-BCLK-MAIN
B05c (1x)	I2S-BCLK-MAIN
B04a (1x)	I2S-MAIN-D
B05c (1x)	I2S-MAIN-D
B04a (1x)	I2S-MAIN-ND
B05c (1x)	I2S-MAIN-ND
B04a (1x)	I2S-MCH-CSW
B05c (1x)	I2S-MCH-CSW
B04a (1x)	I2S-MCH-LR
B05c (1x)	I2S-MCH-LR
B04a (1x)	I2S-MCH-SLR
B05c (1x)	I2S-MCH-SLR
B04a (1x)	I2S-SUB-D
B05c (1x)	I2S-SUB-D
B04a (1x)	I2S-WS-MAIN
B05c (1x)	I2S-WS-MAIN
B02b (1x)	IF-ANA
B03c (1x)	IF-ANA
B08a (2x)	INV-MUTE
B04e (1x)	IRQ-AVIP
B05a (1x)	IRQ-AVIP
B02a (1x)	IRQ-FE-MAIN
B05a (1x)	IRQ-FE-MAIN
B04e (1x)	IRQ-HD1
B05a (2x)	IRQ-HD1
B04e (1x)	IRQ-HD2
B05a (2x)	IRQ-HD2
B04e (1x)	IRQ-HIRATE
B05a (2x)	IRQ-HIRATE
B07b (1x)	IRQ-HIRATE
B05a (2x)	IRQ-MAIN
B03b (1x)	IRQ-MPIF
B05a (1x)	IRQ-MPIF
B03a (1x)	ITV-IR-SW-RESET
B04e (1x)	JTAG-TCK
B05a (2x)	JTAG-TCK
B07b (1x)	JTAG-TCK
B05a (3x)	JTAG-TD-CON-VIPER
B07b (2x)	JTAG-TD-HDMI-CON
B04e (1x)	JTAG-TD-PNX2015-HDMI
B07b (1x)	JTAG-TD-PNX2015-HDMI
B04e (1x)	JTAG-TD-VIPER-PNX2015
B05a (2x)	JTAG-TD-VIPER-PNX2015
B04e (1x)	JTAG-TMS
B05a (3x)	JTAG-TMS
B07b (1x)	JTAG-TMS
B01b (1x)	JTAG-TRST
B04e (1x)	JTAG-TRST

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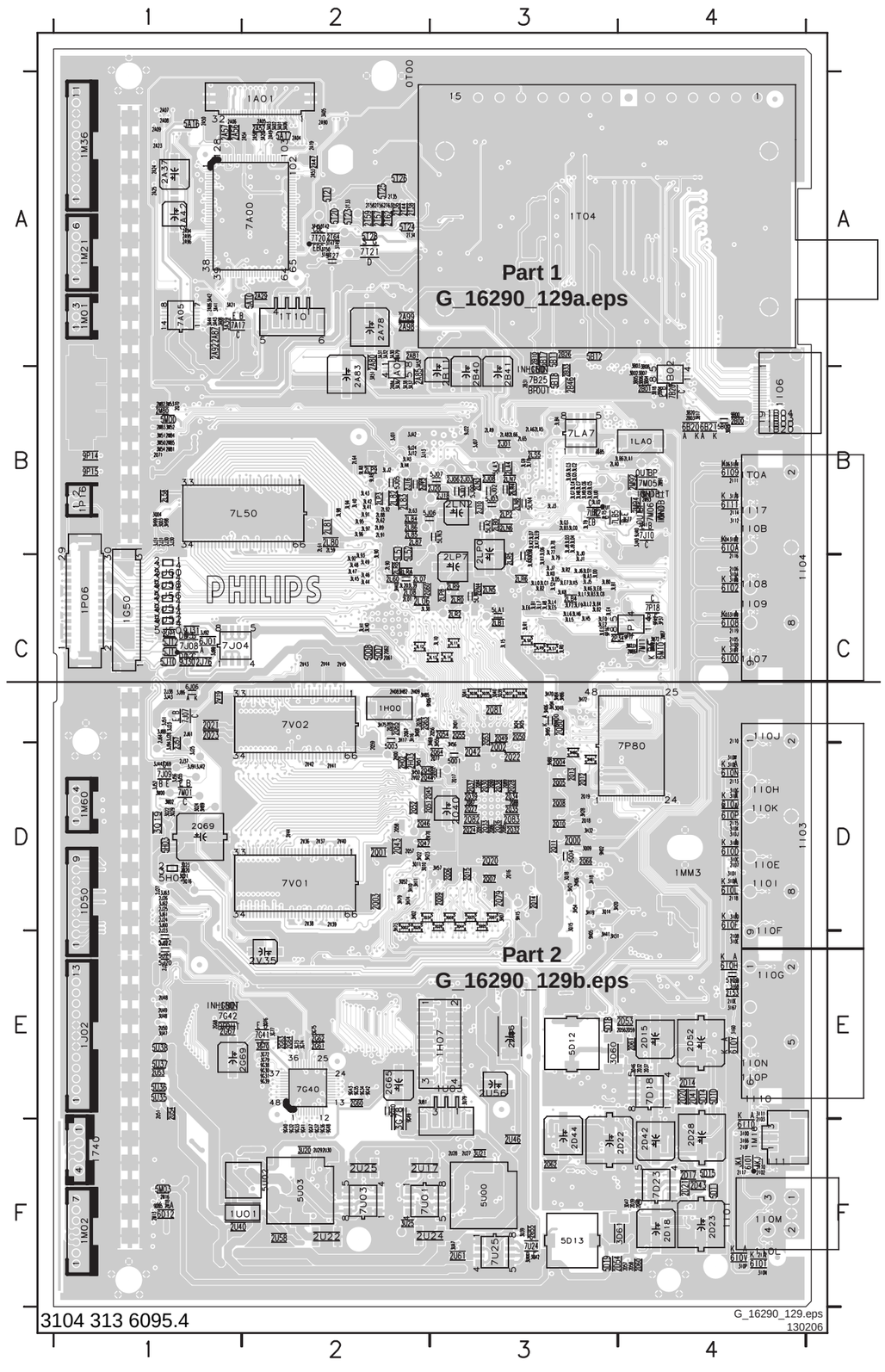
SSB (.4 Version) SRP List Part 2

Schematic	Netname
B05a (2x)	JTAG-TRST
B07b (1x)	JTAG-TRST
B04e (2x)	KEYBOARD
B05f (1x)	KEYBOARD
B04e (2x)	LAMP-ON
B04g (1x)	LAMP-ON
B01b (1x)	LAMP-ON-OUT
B04g (1x)	LAMP-ON-OUT
B04e (2x)	LED1
B05f (1x)	LED1
B04e (2x)	LED2
B05f (1x)	LED2
B08a (2x)	LEFT-SPEAKER
B08b (1x)	LEFT-SPEAKER
B04e (1x)	LIGHT-SENSOR
B05f (1x)	LIGHT-SENSOR
B04f (3x)	LVDS-3V3
B05a (1x)	M135-CLK
B07b (1x)	M135-CLK
B04e (1x)	M27-PNX
B05a (1x)	M27-PNX
B05b (3x)	MM_A0
B05b (3x)	MM_A1
B05b (3x)	MM_A10
B05b (3x)	MM_A11
B05b (3x)	MM_A12
B05b (3x)	MM_A2
B05b (3x)	MM_A3
B05b (3x)	MM_A4
B05b (3x)	MM_A5
B05b (3x)	MM_A6
B05b (3x)	MM_A7
B05b (3x)	MM_A8
B05b (3x)	MM_A9
B05b (3x)	MM_BA0
B05b (3x)	MM_BA1
B05b (3x)	MM_CAS
B05b (3x)	MM_CKE
B05b (3x)	MM_CLK_N
B05b (3x)	MM_CLK_P
B05b (3x)	MM_CS0
B05b (2x)	MM_DATA_0
B05b (2x)	MM_DATA_1
B05b (2x)	MM_DATA_10
B05b (2x)	MM_DATA_11
B05b (2x)	MM_DATA_12
B05b (2x)	MM_DATA_13
B05b (2x)	MM_DATA_14
B05b (2x)	MM_DATA_15
B05b (2x)	MM_DATA_16
B05b (2x)	MM_DATA_17
B05b (2x)	MM_DATA_18
B05b (2x)	MM_DATA_19
B05b (2x)	MM_DATA_2
B05b (2x)	MM_DATA_20
B05b (2x)	MM_DATA_21
B05b (2x)	MM_DATA_22
B05b (2x)	MM_DATA_23
B05b (2x)	MM_DATA_24
B05b (2x)	MM_DATA_25
B05b (2x)	MM_DATA_26
B05b (2x)	MM_DATA_27
B05b (2x)	MM_DATA_28
B05b (2x)	MM_DATA_29
B05b (2x)	MM_DATA_3
B05b (2x)	MM_DATA_30
B05b (2x)	MM_DATA_31
B05b (2x)	MM_DATA_4
B05b (2x)	MM_DATA_5
B05b (2x)	MM_DATA_6
B05b (2x)	MM_DATA_7
B05b (2x)	MM_DATA_8
B05b (2x)	MM_DATA_9
B05b (2x)	MM_DQM_0
B05b (2x)	MM_DQM_1
B05b (2x)	MM_DQM_2
B05b (2x)	MM_DQM_3
B05b (2x)	MM_DQS0
B05b (2x)	MM_DQS1
B05b (2x)	MM_DQS2
B05b (2x)	MM_DQS3
B05b (3x)	MM_RAS
B05b (3x)	MM_WE
B04b (1x)	MP-BOUT-0
B06 (1x)	MP-BOUT-0
B04b (1x)	MP-BOUT-1
B06 (1x)	MP-BOUT-1
B04b (1x)	MP-BOUT-2
B06 (1x)	MP-BOUT-2
B04b (1x)	MP-BOUT-3
B06 (1x)	MP-BOUT-3
B04b (1x)	MP-BOUT-4
B06 (1x)	MP-BOUT-4
B04b (1x)	MP-BOUT-5
B06 (1x)	MP-BOUT-5
B04b (1x)	MP-BOUT-6
B06 (1x)	MP-BOUT-6
B04b (1x)	MP-BOUT-7
B06 (1x)	MP-BOUT-7
B04b (1x)	MP-BOUT-8
B06 (1x)	MP-BOUT-8
B04b (1x)	MP-BOUT-9
B06 (1x)	MP-BOUT-9
B04b (1x)	MP-CLKOUT
B06 (1x)	MP-CLKOUT
B04b (1x)	MP-GOUT-0
B06 (1x)	MP-GOUT-0
B04b (1x)	MP-GOUT-1
B06 (1x)	MP-GOUT-1
B04b (1x)	MP-GOUT-2
B06 (1x)	MP-GOUT-2
B04b (1x)	MP-GOUT-3
B06 (1x)	MP-GOUT-3
B04b (1x)	MP-GOUT-4
B06 (1x)	MP-GOUT-4
B04b (1x)	MP-GOUT-5
B06 (1x)	MP-GOUT-5
B04b (1x)	MP-GOUT-6
B06 (1x)	MP-GOUT-6
B04b (1x)	MP-GOUT-7
B06 (1x)	MP-GOUT-7
B04b (1x)	MP-GOUT-8
B06 (1x)	MP-GOUT-8
B04b (1x)	MP-GOUT-9
B06 (1x)	MP-GOUT-9
B04b (1x)	MP-OUT-DE
B06 (1x)	MP-OUT-DE
B04b (1x)	MP-OUT-FFIELD
B06 (1x)	MP-OUT-FFIELD
B04b (1x)	MP-OUT-HS
B04g (1x)	MP-OUT-HS
B06 (1x)	MP-OUT-HS
B04b (1x)	MP-OUT-VS
B04g (1x)	MP-OUT-VS
B06 (1x)	MP-OUT-VS
B04b (1x)	MP-ROUT-0
B06 (1x)	MP-ROUT-0
B04b (1x)	MP-ROUT-1
B06 (1x)	MP-ROUT-1
B04b (1x)	MP-ROUT-2
B06 (1x)	MP-ROUT-2
B04b (1x)	MP-ROUT-3
B06 (1x)	MP-ROUT-3
B04b (1x)	MP-ROUT-4
B06 (1x)	MP-ROUT-4
B04b (1x)	MP-ROUT-5
B06 (1x)	MP-ROUT-5
B04b (1x)	MP-ROUT-6
B06 (1x)	MP-ROUT-6
B04b (1x)	MP-ROUT-7
B06 (1x)	MP-ROUT-7
B04b (1x)	MP-ROUT-8
B06 (1x)	MP-ROUT-8
B04b (1x)	MP-ROUT-9
B06 (1x)	MP-ROUT-9
B08a (3x)	MUTE
B05a (1x)	NAND-AD(0)
B05e (1x)	NAND-AD(0)
B05a (1x)	NAND-AD(1)
B05e (1x)	NAND-AD(1)
B05a (1x)	NAND-AD(2)
B05e (1x)	NAND-AD(2)
B05a (1x)	NAND-AD(3)
B05e (1x)	NAND-AD(3)
B05a (1x)	NAND-AD(4)
B05e (1x)	NAND-AD(4)
B05a (1x)	NAND-AD(5)
B05e (1x)	NAND-AD(5)
B05a (1x)	NAND-AD(6)
B05e (1x)	NAND-AD(6)
B05a (1x)	NAND-AD(7)
B05e (1x)	NAND-AD(7)
B05a (1x)	NAND-ALE
B05e (1x)	NAND-ALE
B05a (1x)	NAND-CLE
B05e (1x)	NAND-CLE
B05a (1x)	NAND-D(10)
B05e (1x)	NAND-D(10)
B05a (1x)	NAND-D(11)
B05e (1x)	NAND-D(11)
B05a (1x)	NAND-D(12)
B05e (1x)	NAND-D(12)
B05a (1x)	NAND-D(13)
B05e (1x)	NAND-D(13)
B05a (1x)	NAND-D(14)
B05e (1x)	NAND-D(14)
B05a (1x)	NAND-D(15)
B05e (1x)	NAND-D(15)
B05a (2x)	NAND-D(8)
B05e (1x)	NAND-D(8)
B05a (1x)	NAND-D(9)
B05e (1x)	NAND-D(9)
B05a (1x)	NAND-RBY
B05e (2x)	NAND-RBY
B05a (1x)	NAND-REn
B05e (1x)	NAND-REn
B05a (1x)	NAND-SEL
B05e (2x)	NAND-SEL
B05a (1x)	NAND-WEn
B05e (1x)	NAND-WEn
B04e (2x)	ON-MODE
B04g (1x)	ON-MODE
B05f (1x)	ON-MODE
B06 (1x)	ON-MODE
B04e (1x)	P0_6
B04e (2x)	P3_2
B04e (2x)	P4_4
B04e (1x)	P50
B04e (2x)	P50-HDMI
B07a (1x)	P50-HDMI
B07a (1x)	PARX-DDC-SCL
B07b (1x)	PARX-DDC-SCL
B07a (1x)	PARX-DDC-SDA
B07b (1x)	PARX-DDC-SDA
B07b (1x)	PB
B07c (1x)	PB
B07b (1x)	PB1
B07c (1x)	PB1
B05a (2x)	PCI-CLK-VPR
B05a (2x)	PCI-INTA
B05a (2x)	PCI-REQ
B05a (2x)	PCI-REQ-A
B05a (2x)	PCI-REQ-B
B04f (2x)	PLL-1V2
B04f (2x)	PLL-3V3
B05a (2x)	PLL-OUT
B04d (2x)	PNX-MA-0
B04d (2x)	PNX-MA-1
B04d (2x)	PNX-MA-10
B04d (2x)	PNX-MA-11
B04d (2x)	PNX-MA-12
B04d (2x)	PNX-MA-2
B04d (2x)	PNX-MA-3
B04d (2x)	PNX-MA-4
B04d (2x)	PNX-MA-5
B04d (2x)	PNX-MA-6
B04d (2x)	PNX-MA-7
B04d (2x)	PNX-MA-8
B04d (2x)	PNX-MA-9
B04d (2x)	PNX-MBA0
B04d (2x)	PNX-MBA1
B04d (2x)	PNX-MCAS
B04d (2x)	PNX-MCKE
B04d (2x)	PNX-MCLK-N
B04d (2x)	PNX-MCLK-P
B04d (2x)	PNX-MCS-0
B04d (2x)	PNX-MDATA-0
B04d (2x)	PNX-MDATA-1
B04d (2x)	PNX-MDATA-10
B04d (2x)	PNX-MDATA-11
B04d (2x)	PNX-MDATA-12
B04d (2x)	PNX-MDATA-13
B04d (2x)	PNX-MDATA-14
B04d (2x)	PNX-MDATA-15
B04d (2x)	PNX-MDATA-2
B04d (2x)	PNX-MDATA-3
B04d (2x)	PNX-MDATA-4
B04d (2x)	PNX-MDATA-5
B04d (2x)	PNX-MDATA-6
B04d (2x)	PNX-MDATA-7
B04d (2x)	PNX-MDATA-8
B04d (2x)	PNX-MDATA-9
B04d (2x)	PNX-MDQM-0
B04d (2x)	PNX-MDQM-1
B04d (2x)	PNX-MDQS-0
B04d (2x)	PNX-MDQS-1
B04d (2x)	PNX-MRAS
B04d (2x)	PNX-MWE
B01b (1x)	POD-MODE
B04e (2x)	POD-MODE
B03a (1x)	POWER-DOWN_BOLT-ON
B05a (1x)	POWERDOWN-HDMI
B07b (1x)	POWERDOWN-HDMI
B04e (3x)	POWER-OK-DISPLAY
B07b (1x)	PR
B07c (1x)	PR
B07b (1x)	PR1
B07c (1x)	PR1
B04e (1x)	PROT-AUDIOSUPPLY
B08a (1x)	PROT-AUDIOSUPPLY
B08b (1x)	PROT-AUDIOSUPPLY
B04e (2x)	PSEN
B03a (1x)	RC
B04e (2x)	RC
B05f (1x)	RC
B04a (1x)	RESET-AUDIO
B04e (2x)	RESET-AUDIO
B02a (1x)	RESET-FE-MAIN
B05a (2x)	RESET-FE-MAIN
B04e (2x)	RESET-MAIN-NVM
B05e (1x)	RESET-MAIN-NVM
B04e (3x)	RESET-MIPS
B05a (1x)	RESET-MIPS
B04e (3x)	RESET-PNX2015
B04e (1x)	RESET-STBY
B05f (1x)	RESET-STBY
B01b (1x)	RESET-SYSTEM
B04e (2x)	RESET-SYSTEM
B05a (1x)	RESET-SYSTEM
B08a (2x)	RIGHT-SPEAKER
B08b (1x)	RIGHT-SPEAKER
B01b (1x)	RXD
B05e (1x)	RXD
B07d (1x)	RXD
B04e (1x)	RXD-UP
B05e (1x)	RXD-UP
B05a (1x)	RXD-VIPER
B05e (1x)	RXD-VIPER
B02a (1x)	SCL-DMA
B03a (1x)	SCL-DMA
B03b (1x)	SCL-DMA
B04e (3x)	SCL-DMA
B05a (2x)	SCL-DMA
B05a (2x)	SCL-I2C4
B04g (1x)	SCL-I2C4
B05a (2x)	SCL-MM
B07b (1x)	SCL-MM
B04e (2x)	SCL-UP-SW
B04e (2x)	SCL-UP-VIP
B05a (1x)	SCL-UP-VIP
B05e (1x)	SCL-UP-VIP
B03a (1x)	SC-STANDBY
B02a (1x)	SDA-DMA
B03a (1x)	SDA-DMA
B03b (1x)	SDA-DMA
B04e (3x)	SDA-DMA
B05a (2x)	SDA-DMA
B04g (1x)	SDA-I2C4
B05a (2x)	SDA-I2C4
B05a (2x)	SDA-MM
B07b (1x)	SDA-MM
B04e (2x)	SDA-UP-SW
B04e (2x)	SDA-UP-VIP
B05a (1x)	SDA-UP-VIP
B05e (1x)	SDA-UP-VIP
B04e (3x)	SDM
B05a (1x)	SOUND-ENABLE
B08a (2x)	SOUND-ENABLE
B05a (2x)	SOUND-ENABLE-VPR
B05c (1x)	SPDIF-HDMI
B07b (1x)	SPDIF-HDMI
B05c (1x)	SPDIF-OUT1
B07c (1x)	SPDIF-OUT1
B04e (2x)	SPI-CLK
B04e (2x)	SPI-CSB
B04e (2x)	SPI-PROG
B04e (2x)	SPI-SDI
B04e (2x)	SPI-SDO
B04e (3x)	SPI-WP
B01b (1x)	STANDBY
B05f (1x)	STANDBY
B04e (2x)	STBY-WP-NAND-FLASH
B05e (1x)	STBY-WP-NAND-FLASH
B03a (1x)	STROBE1N-MAIN
B04a (1x)	STROBE1N-MAIN
B03a (1x)	STROBE1P-MAIN
B04a (1x)	STROBE1P-MAIN
B03a (1x)	STROBE2N-MAIN
B04a (1x)	STROBE2N-MAIN
B03a (1x)	STROBE2P-MAIN
B04a (1x)	STROBE2P-MAIN
B03a (1x)	STROBE3N-MAIN
B04a (1x)	STROBE3N-MAIN
B03a (1x)	STROBE3P-MAIN
B04a (1x)	STROBE3P-MAIN
B01a (1x)	SUPPLY-FAULT
B04e (2x)	SUPPLY-FAULT
B04e (2x)	TEMP-SENSOR
B04c (1x)	TUN-VIPER-RX-BUSY
B05c (1x)	TUN-VIPER-RX-BUSY
B04c (1x)	TUN-VIPER-RX-CLKP
B05c (1x)	TUN-VIPER-RX-CLKP
B04c (1x)	TUN-VIPER-RX-DATA0
B05c (1x)	TUN-VIPER-RX-DATA0
B04c (1x)	TUN-VIPER-RX-DATA1
B05c (1x)	TUN-VIPER-RX-DATA1
B04c (1x)	TUN-VIPER-RX-DATA10
B05c (1x)	TUN-VIPER-RX-DATA10
B04c (1x)	TUN-VIPER-RX-DATA11
B05c (1x)	TUN-VIPER-RX-DATA11
B04c (1x)	TUN-VIPER-RX-DATA12
B05c (1x)	TUN-VIPER-RX-DATA12
B04c (1x)	TUN-VIPER-RX-DATA13
B05c (1x)	TUN-VIPER-RX-DATA13
B04c (1x)	TUN-VIPER-RX-DATA14
B05c (1x)	TUN-VIPER-RX-DATA14
B04c (1x)	TUN-VIPER-RX-DATA15
B05c (1x)	TUN-VIPER-RX-DATA15
B04c (1x)	TUN-VIPER-RX-DATA2
B05c (1x)	TUN-VIPER-RX-DATA2
B04c (1x)	TUN-VIPER-RX-DATA3
B05c (1x)	TUN-VIPER-RX-DATA3
B04c (1x)	TUN-VIPER-RX-DATA4
B05c (1x)	TUN-VIPER-RX-DATA4
B04c (1x)	TUN-VIPER-RX-DATA5
B05c (1x)	TUN-VIPER-RX-DATA5
B04c (1x)	TUN-VIPER-RX-DATA6
B05c (1x)	TUN-VIPER-RX-DATA6
B04c (1x)	TUN-VIPER-RX-DATA7
B05c (1x)	TUN-VIPER-RX-DATA7
B04c (1x)	TUN-VIPER-RX-DATA8
B05c (1x)	TUN-VIPER-RX-DATA8
B04c (1x)	TUN-VIPER-RX-DATA9
B05c (1x)	TUN-VIPER-RX-DATA9
B04c (1x)	TUN-VIPER-TX-BUSY
B05c (1x)	TUN-VIPER-TX-BUSY
B04c (1x)	TUN-VIPER-TX-CLKN
B05c (1x)	TUN-VIPER-TX-CLKN
B04c (1x)	TUN-VIPER-TX-CLKP
B05c (1x)	TUN-VIPER-TX-CLKP
B04c (1x)	TUN-VIPER-TX-DATA0
B05c (1x)	TUN-VIPER-TX-DATA0
B04c (1x)	TUN-VIPER-TX-DATA1
B05c (1x)	TUN-VIPER-TX-DATA1
B04c (1x)	TUN-VIPER-TX-DATA10
B05c (1x)	TUN-VIPER-TX-DATA10
B04c (1x)	TUN-VIPER-TX-DATA11
B05c (1x)	TUN-VIPER-TX-DATA11
B04c (1x)	TUN-VIPER-TX-DATA12
B05c (1x)	TUN-VIPER-TX-DATA12
B04c (1x)	TUN-VIPER-TX-DATA13
B05c (1x)	TUN-VIPER-TX-DATA13
B04c (1x)	TUN-VIPER-TX-DATA14
B05c (1x)	TUN-VIPER-TX-DATA14
B04c (1x)	TUN-VIPER-TX-DATA15
B05c (1x)	TUN-VIPER-TX-DATA15
B04c (1x)	TUN-VIPER-TX-DATA2
B05c (1x)	TUN-VIPER-TX-DATA2
B04c (1x)	TUN-VIPER-TX-DATA3
B05c (1x)	TUN-VIPER-TX-DATA3
B04c (1x)	TUN-VIPER-TX-DATA4
B05c (1x)	TUN-VIPER-TX-DATA4
B04c (1x)	TUN-VIPER-TX-DATA5
B05c (1x)	TUN-VIPER-TX-DATA5
B04c (1x)	TUN-VIPER-TX-DATA6
B05c (1x)	TUN-VIPER-TX-DATA6
B04c (1x)	TUN-VIPER-TX-DATA7
B05c (1x)	TUN-VIPER-TX-DATA7
B04c (1x)	TUN-VIPER-TX-DATA8
B05c (1x)	TUN-VIPER-TX-DATA8
B04c (1x)	TUN-VIPER-TX-DATA9
B05c (1x)	TUN-VIPER-TX-DATA9
B01b (1x)	TXD
B05e (1x)	TXD
B07d (1x)	TXD
B04e (1x)	TXD-UP
B05e (1x)	TXD-UP
B05a (1x)	TXD-VIPER
B05e (1x)	TXD-VIPER
B04b (1x)	TXPNXA-
B04g (1x)	TXPNXA-
B04b (1x)	TXPNXA+
B04g (1x)	TXPNXA+
B04b (1x)	TXPNXB-
B04g (1x)	TXPNXB-
B04b (1x)	TXPNXB+
B04g (1x)	TXPNXB+
B04b (1x)	TXPNXC-
B04g (1x)	TXPNXC-
B04b (1x)	TXPNXC+
B04g (1x)	TXPNXC+
B04b (1x)	TXPNXCLK-
B04g (1x)	TXPNXCLK-
B04b (1x)	TXPNXCLK+
B04g (1x)	TXPNXCLK+
B04b (1x)	TXPNXD-
B04g (1x)	TXPNXD-
B04b (1x)	TXPNXD+
B04g (1x)	TXPNXD+
B04b (1x)	TXPNXE-
B04g (1x)	TXPNXE-
B04b (1x)	TXPNXE+
B04g (1x)	TXPNXE+
B04e (2x)	UART-SWITCH
B05e (1x)	UART-SWITCH
B05e (2x)	UART-SWITCHn
B04f (2x)	UP-3V3
B05a (2x)	USB1-DM
B05a (2x)	USB1-DP
B05a (3x)	USB-BUS-PW
B05a (3x)	USB-OVERCUR
B08a (3x)	U-VOLT-DETECT
B03a (1x)	V_SYNC_IN
B04g (2x)	VDISP
B08a (4x)	VN
B08a (4x)	VP
B03b (1x)	VREF-AUD
B03e (1x)	VREF-AUD
B03b (2x)	VREF-AUD-POS
B04a (28x)	VREF-AUD-POS
B04d (3x)	VREF-DDRPNX
B05b (2x)	VREFD-VPRDDR
B04c (2x)	VREF-PNX
B05c (1x)	VREF-PNX
B05b (2x)	VREF-VPRDDR
B07b (1x)	V-SYNC-VGA
B07b (2x)	Y
B07c (1x)	Y
B07b (2x)	Y1
B07c (1x)	Y1

3104 313 6095.3 & 4

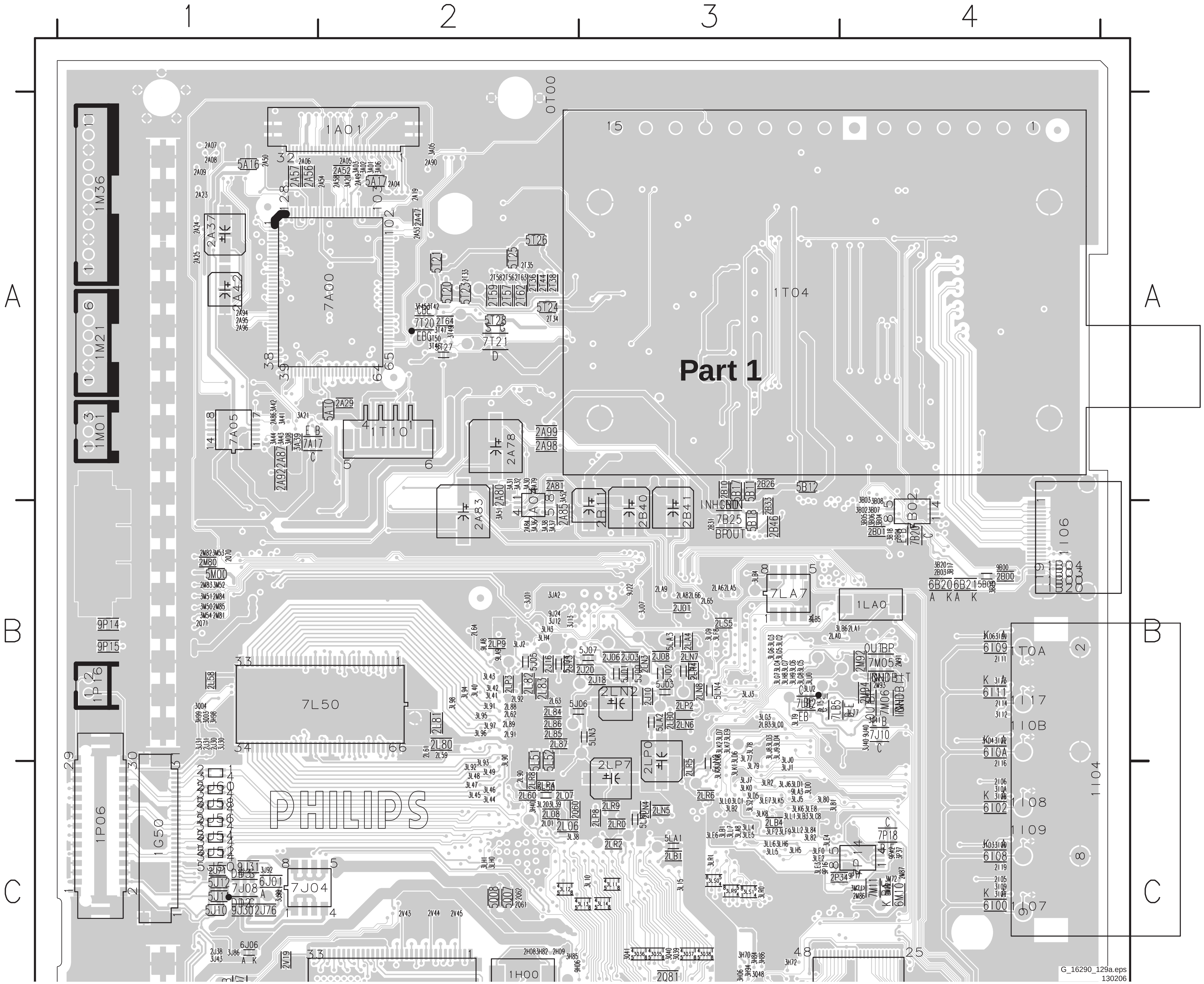
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Layout SSB (Top Side Overview)

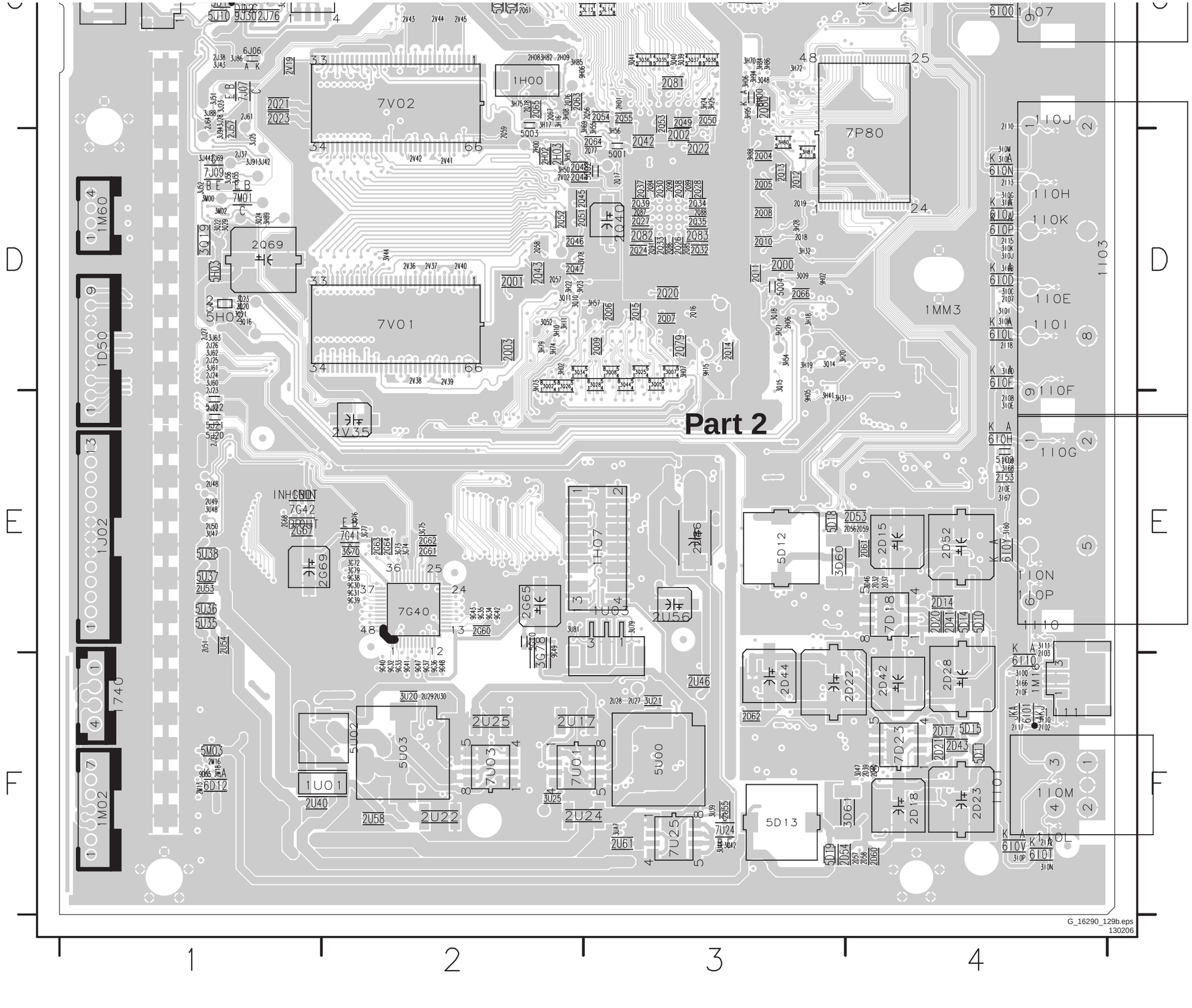


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1A01	A2	2G60	E2	2LN4	C3	2Q71	B1	3G72	E2	3J51	C1	3LJ1	C3	5A17	A2	7B02	B4
1D50	D1	2G61	E2	2LN5	C3	2Q76	C2	3G73	E2	3J52	D1	3LJ2	B2	5B00	B4	7B20	B4
1G50	C1	2G62	E2	2LN6	B3	2Q77	D3	3G74	E2	3J55	D1	3LJ3	B3	5B11	A3	7B25	B3
1H00	C2	2G63	E2	2LN7	B3	2Q78	C2	3G75	E2	3J56	D1	3LJ5	C3	5B12	A3	7D18	E4
1H07	E3	2G64	E2	2LN8	B3	2Q79	D3	3G76	E2	3J60	D1	3LJ6	C3	5B17	A3	7D23	F4
1I00	E4	2G65	E2	2LP0	B3	2Q80	C3	3G77	E2	3J61	D1	3LJ7	C3	5B18	B3	7G40	E2
1I01	F4	2G67	E1	2LP2	B3	2Q81	C3	3G78	F2	3J62	D1	3LJ8	B3	5D10	E4	7G41	E2
1I03	C4	2G68	E1	2LP3	B2	2Q82	D3	3G79	E2	3J63	D1	3LJ9	B3	5D11	F4	7G42	E1
1I04	C4	2G69	E2	2LP4	C2	2Q83	D3	3H02	D2	3J86	C1	3LK0	C3	5D12	E3	7J04	C2
1I06	B4	2H00	D2	2LP7	C2	2Q84	D3	3H06	C3	3J88	C1	3LK1	C3	5D13	F3	7J07	C1
1J02	E1	2H01	C3	2LP8	C3	2Q85	D3	3H07	D3	3J91	D1	3LK2	B3	5D14	E4	7J08	C1
1LA0	B4	2H02	D2	2LP9	B2	2Q86	D3	3H08	C2	3J92	C1	3LK3	C3	5D15	F4	7J09	D1
1M01	A1	2H03	D2	2LR0	C3	2Q87	D3	3H10	D2	3J94	D1	3LK5	C3	5D18	E3	7J10	C4
1M02	F1	2H06	D3	2LR2	C3	2Q88	D3	3H11	D2	3J99	C1	3LK6	C3	5D19	F3	7L50	B1
1M16	F4	2H08	C2	2LR4	B3	2Q89	D3	3H16	C2	3JA2	B2	3LK7	B3	5G10	E2	7LA7	B3
1M21	A1	2H09	C2	2LR5	C3	2Q90	D3	3H17	C2	3L10	C3	3LK8	C3	5H02	D1	7LB2	B3
1M36	A1	2I02	F4	2LR6	C3	2Q91	D3	3H18	D3	3L11	C3	3LL0	C3	5H03	D1	7LB5	B3
1M60	D1	2I03	F4	2LR8	C2	2T33	A2	3H19	D3	3L12	C2	3LL1	C3	5I02	E4	7M01	D1
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1T10	A2	2I08	E4	2M16	F1	2T38	A2	3H23	D2	3L20	C2	3LL6	C3	5J03	B3	7P14	C4
1U01	F1	2I09	E4	2M18	F1	2T44	A2	3H24	C3	3L38	C2	3LL7	C3	5J04	B2	7P18	C4
1U03	F3	2I0E	E4	2M80	B1	2T56	A2	3H25	C3	3L39	C2	3LR0	C3	5J05	B2	7P80	C4
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2A05	A2	2I10	C4	2M82	B1	2T58	A2	3H31	E3	3L41	B2	3LR2	C3	5J07	B3	7T21	A2
2A06	A1	2I11	B4	2M83	B1	2T59	A2	3H32	D3	3L42	B2	3LR9	C3	5J10	C1	7U01	F2
2A07	A1	2I12	F4	2M84	B1	2T62	A2	3H40	C2	3L43	B2	3LS0	C3	5J11	C1	7U03	F2
2A08	A1	2I13	D4	2M85	B1	2T63	A2	3H41	E3	3L44	C2	3LS1	C3	5J12	C1	7U24	F3
2A09	A1	2I14	B4	2M86	C4	2T64	A2	3H50	D2	3L45	C2	3LS2	C3	5J20	E1	7U25	F3
2A19	A2	2I15	D4	2M87	C4	2U17	F2	3H51	D2	3L46	C2	3LT5	B3	5J21	E1	7V01	D1
2A23	A1	2I16	C4	2M91	B4	2U22	F2	3H54	D3	3L47	C2	3LT7	B4	5J22	E1	7V02	C2
2A24	A1	2I17	F4	2M92	B4	2U24	F3	3H55	D3	3L48	C2	3LT9	B3	5J50	C1	9B00	B4
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2A52	A2	2J10	B3	2Q04	D3	2U48	E1	3H75	C2	3L84	C3	3M52	B1	5L52	B2	9G36	F2
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2A84	B2	2J27	D1	2Q15	D3	2V02	D2	3H95	C3	3LB1	C3	3Q08	D3	5Q01	D3	9H02	D3
2A85	B2	2J30	B1	2Q16	D3	2V19	C1	3H98	B1	3LB2	C3	3Q09	D3	5Q02	D3	9H05	E3
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2A90	A2	2J38	C1	2Q19	D3	2V37	D2	3I01	B4	3LB5	B3	3Q14	D3	5Q07	C2	9J22	B3
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2A95	A1	2J64	C1	2Q22	D3	2V40	D2	3I04	B4	3LC1	C3	3Q18	D3	5T21	A2	9J31	C1
2A96	A1	2J69	D1	2Q23	C1	2V41	D2	3I06	B4	3LC2	B3	3Q19	D1	5T23	A2	9J40	B4
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2A99	A2	2J76	C1	2Q26	D3	2V43	C2	3I08	C4	3LC4	B3	3Q21	D1	5T25	A2	9LA8	B2
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2B01	B4	2L06	C2	2Q28	D3	2V45	C2	3I0A	C4	3LC6	B3	3Q23	D1	5T27	A2	9M09	C4
2B03	B4	2L07	C2	2Q30	D3	3A01	A2	3I0B	D4	3LC7	B3	3Q24	D1	5T28	A2	9P14	B1
2B04	B4	2L08	C2	2Q32	D3	3A02	A2	3I0C	D4	3LC8	C3	3Q25	D3	5U00	F3	9P15	B1
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2B26	A3	2L60	C2	2Q35	D3	3A06	A2	3I0F	D4	3LD3	B3	3Q29	D1	5U35	E1	9P42	C4
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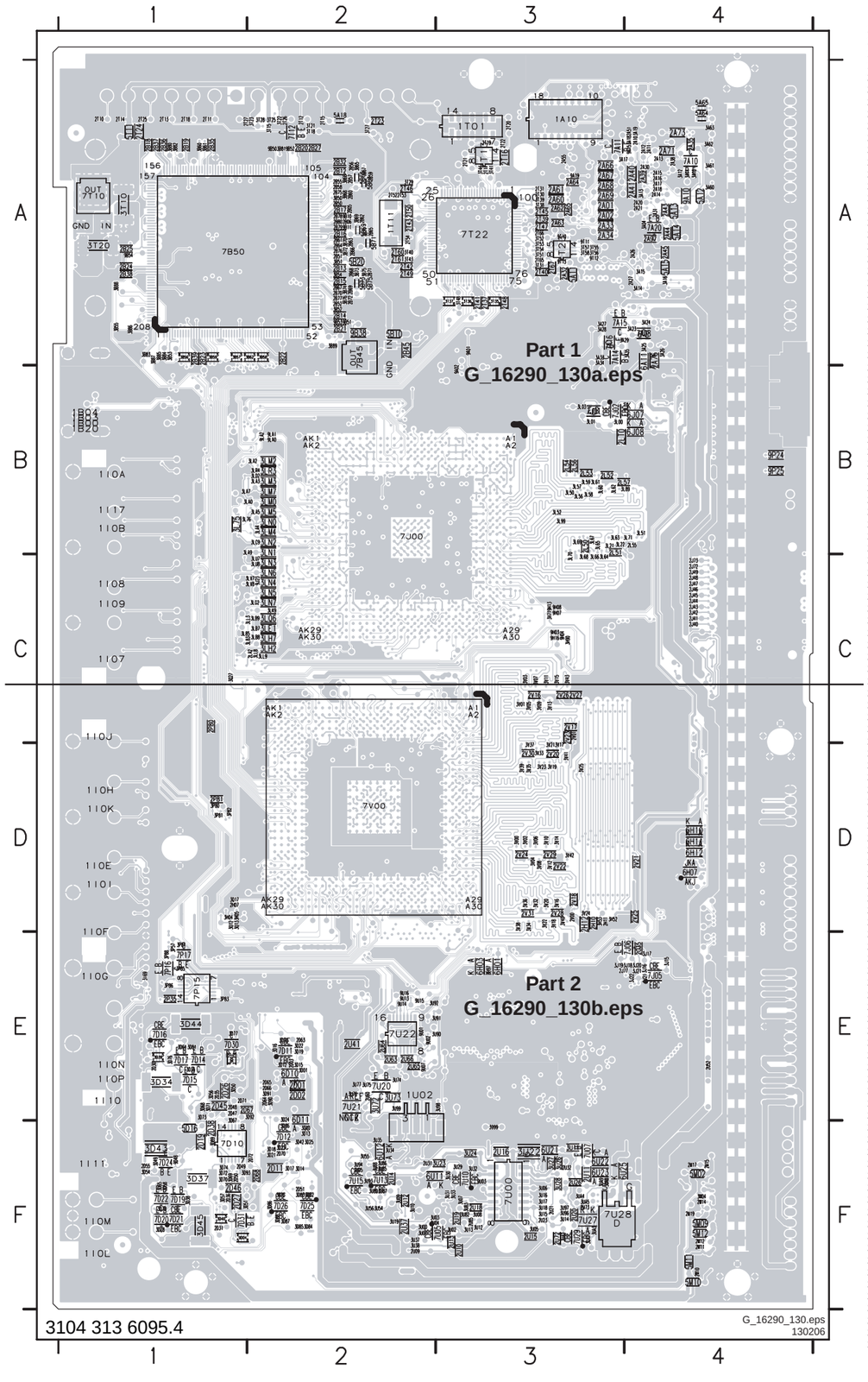
Layout SSB (Top Side Part 1)



Layout SSB (Top Side Part 2)

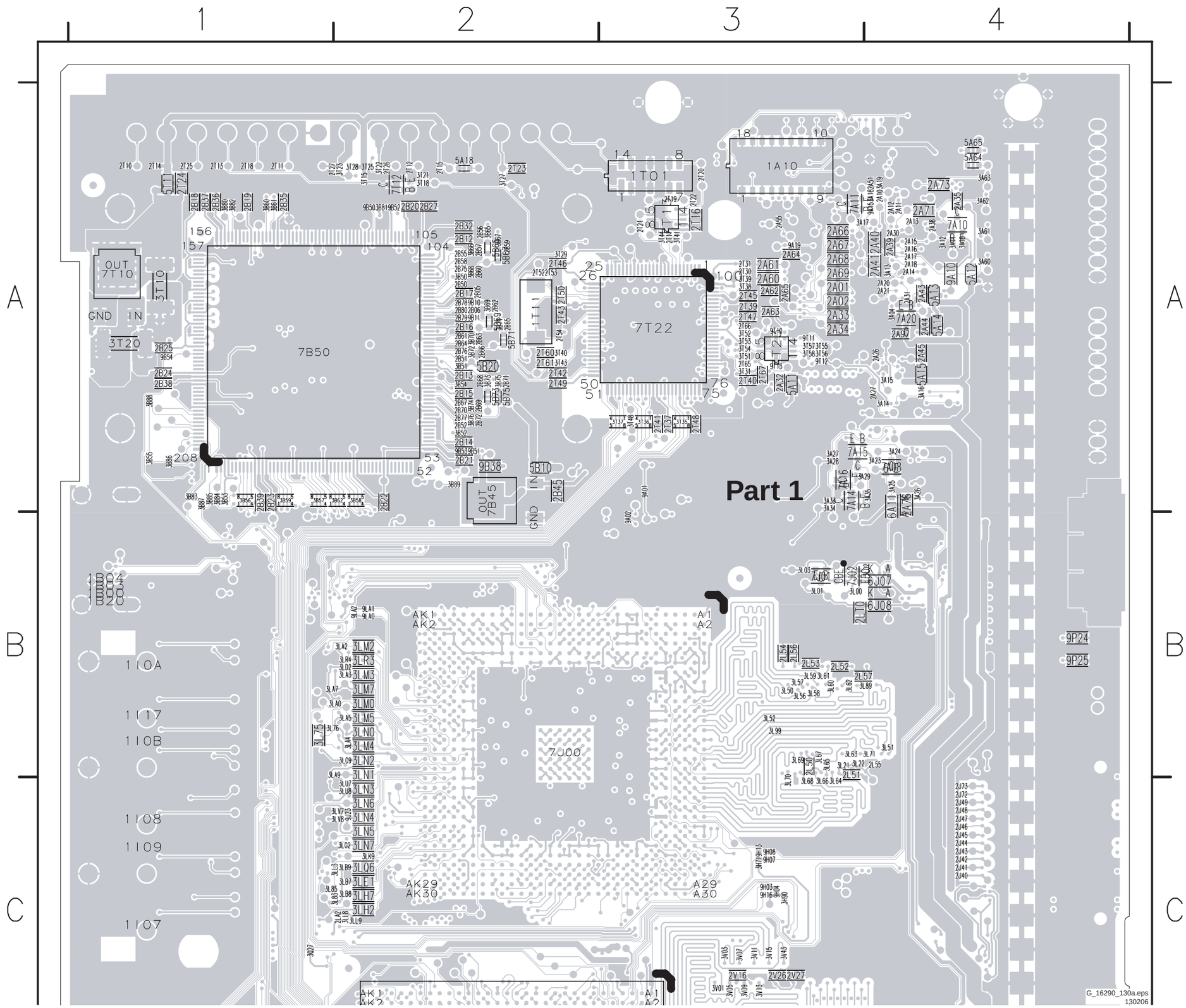


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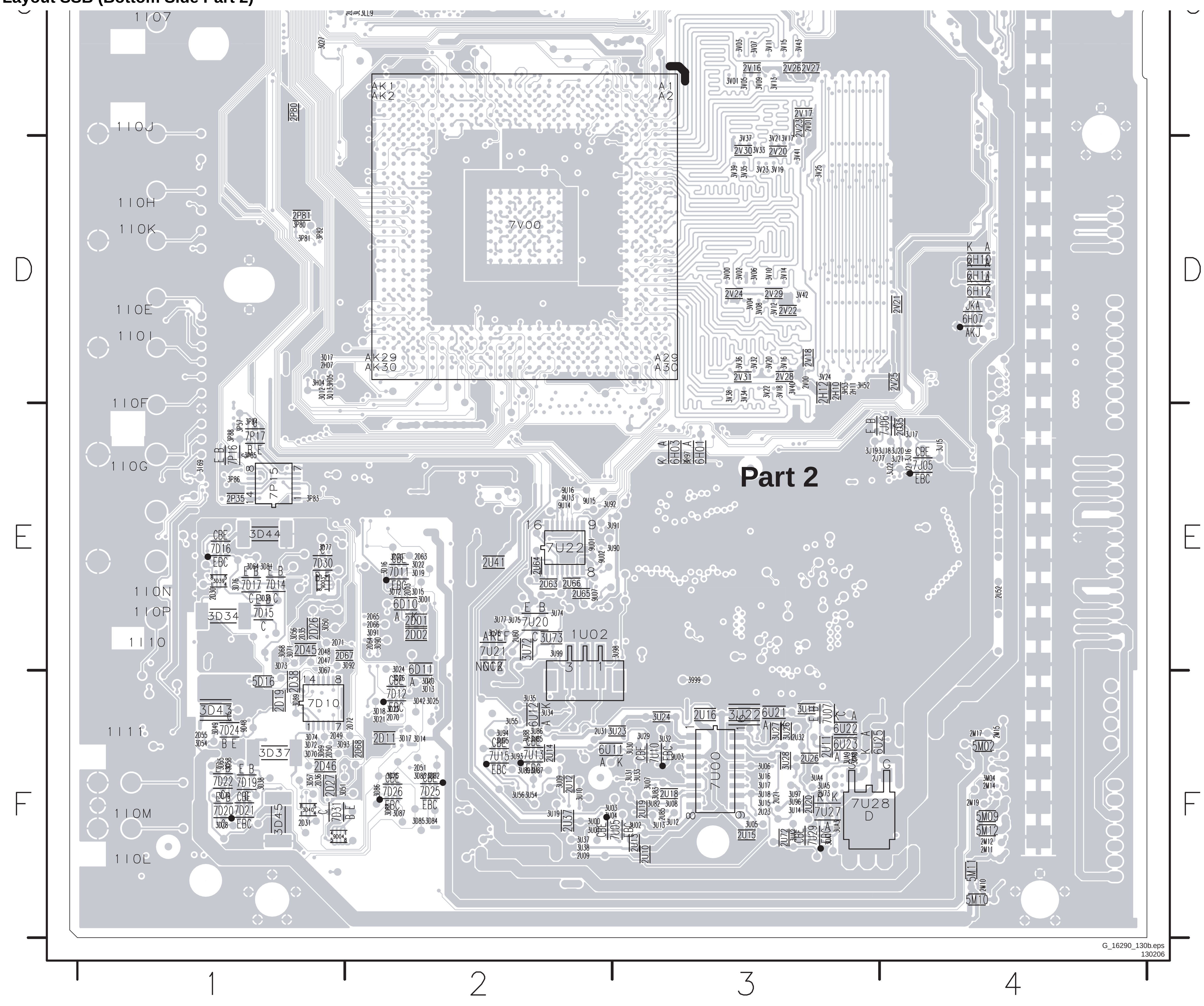


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Layout SSB (Bottom Side Part 1)

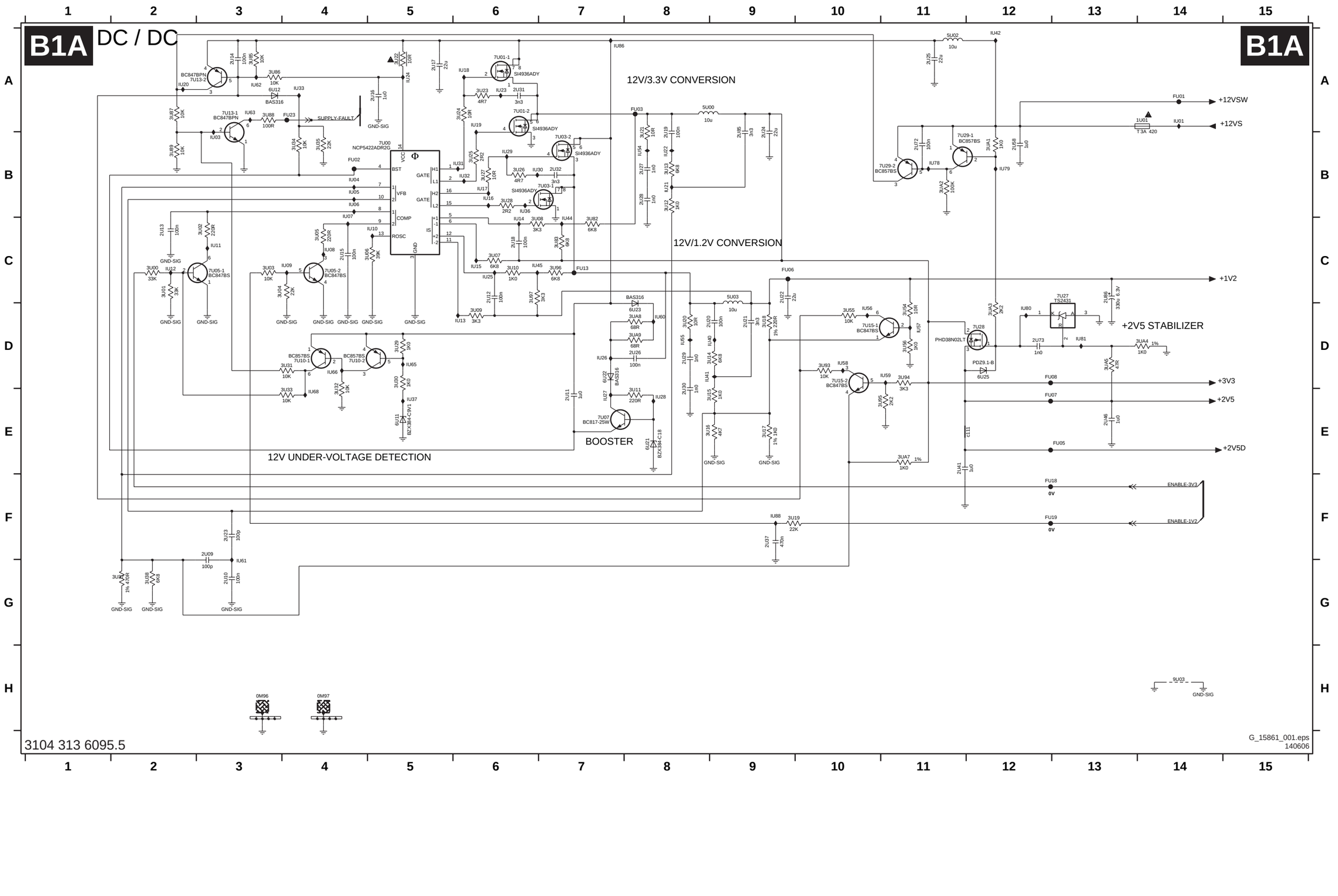


Layout SSB (Bottom Side Part 2)



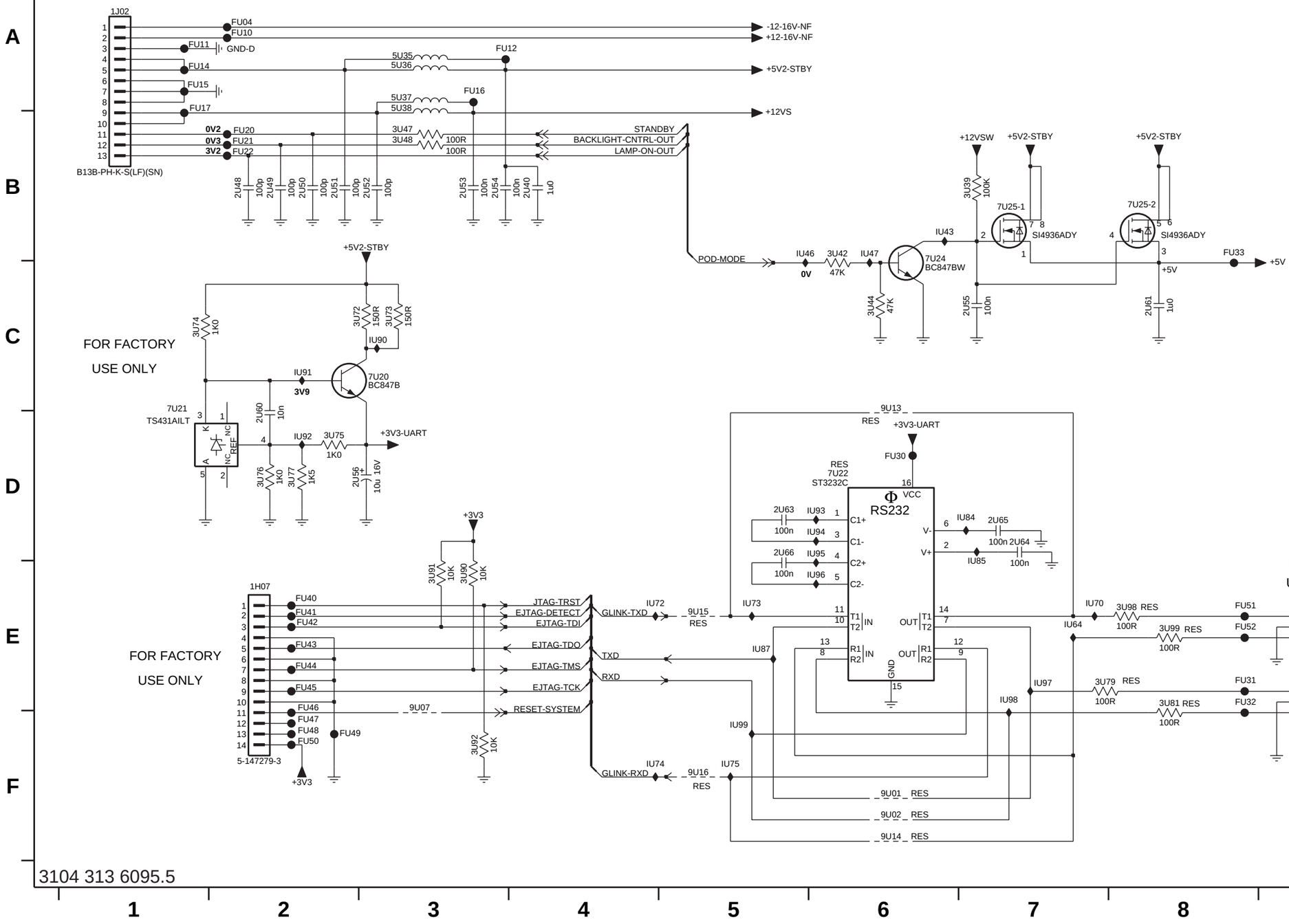
SSB (.5 Version) DC / DC

0M96 H3	2U13 C2	2U20 D9	2U27 B8	2U41 E11	3U00 C2	3U07 C6	3U14 D9	3U21 B8	3U28 B6	3U35 B4	3U83 C7	3U94 D11	3UA4 D14	5U03 C9	7U00 B5	7U07 E7	7U27 C13	FU03 A8	FU19 F12	IU07 B4	IU14 C6	IU21 B8	IU28 E8	IU37 E5	IU55 D8	IU62 A3	IU80 D12
0M97 H4	2U14 A3	2U21 D9	2U28 B8	2U46 E13	3U01 C2	3U08 C6	3U15 E9	3U22 A5	3U29 D5	3U37 G2	3U85 A3	3U95 E11	3UA5 D13	6U11 E5	7U01-1 A6	7U10-1 D4	7U28 D12	FU05 E13	FU23 A4	IU08 C4	IU15 C6	IU22 B8	IU29 B6	IU40 D8	IU56 D10	IU63 A3	IU81 D13
1U01 A14	2U15 C4	2U22 C9	2U29 D8	2U58 B12	3U02 C3	3U09 D6	3U16 E8	3U23 A6	3U30 D5	3U38 G2	3U86 A3	3U96 C7	3UA7 E11	6U12 A3	7U01-2 A6	7U10-2 D4	7U29-1 B12	FU06 C9	IU01 A14	IU09 C4	IU16 B6	IU23 A6	IU30 B6	IU41 D8	IU57 D11	IU65 D5	IU86 A7
2U09 F3	2U16 A5	2U23 F3	2U30 E8	2U72 B11	3U03 C3	3U10 C6	3U17 E9	3U24 A6	3U31 D4	3U54 D11	3U87 A2	3U97 C6	3UA8 D8	6U21 E8	7U03-1 B6	7U13-1 A3	7U29-2 B11	FU07 E12	IU03 B3	IU10 C5	IU17 B6	IU24 A5	IU31 B6	IU42 A12	IU58 D10	IU66 D4	IU88 F9
2U10 G3	2U17 A5	2U24 B9	2U31 A6	2U73 D12	3U04 C3	3U11 E8	3U18 D9	3U25 B6	3U32 E4	3U55 D10	3U88 A3	3UA1 B12	3UA9 D8	6U22 D7	7U03-2 B7	7U13-2 A3	9U03 H14	FU08 D12	IU04 B4	IU11 C3	IU18 A6	IU25 C6	IU32 B6	IU44 C7	IU59 D11	IU68 E4	c111 E11
2U11 E7	2U18 C6	2U25 A11	2U32 B7	2U85 B9	3U05 C4	3U12 B8	3U19 F9	3U26 B6	3U33 E4	3U56 D11	3U89 B2	3UA2 B11	5U00 A8	6U23 D8	7U05-1 C3	7U15-1 D10	FU01 A14	FU13 C7	IU05 B4	IU12 C2	IU19 A6	IU26 D7	IU33 A4	IU45 C6	IU60 D8	IU78 B11	
2U12 C6	2U19 B8	2U26 D8	2U37 F9	2U86 C13	3U06 C5	3U13 B8	3U20 D8	3U27 B6	3U34 B4	3U82 C7	3U93 D10	3UA3 D12	5U02 A11	6U25 D12	7U05-2 C4	7U15-2 D10	FU02 B4	FU18 F12	IU06 B4	IU13 D6	IU20 A2	IU27 E7	IU36 B6	IU54 B8	IU61 G3	IU79 B12	



SSB (.5 Version) Supply + RS232

B1B SUPPLY + RS232



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1H07 E2	FU46 E2
1J02 A1	FU47 F2
1U02 E9	FU48 F2
1U03 E9	FU49 F2
2U40 B4	FU50 F2
2U48 B2	FU51 E8
2U49 B2	FU52 E8
2U50 B2	IU43 B6
2U51 B2	IU46 B5
2U52 B3	IU47 B6
2U53 B3	IU64 E7
2U54 B3	IU70 E7
2U55 C7	IU72 E4
2U56 D2	IU73 E5
2U60 D2	IU74 F4
2U61 C8	IU75 F5
2U63 D5	IU84 D7
2U64 D7	IU85 D7
2U65 D7	IU87 E5
2U66 D5	IU90 C3
3U39 B7	IU91 C2
3U42 B6	IU92 D2
3U44 C6	IU93 D6
3U47 B3	IU94 D6
3U48 B3	IU95 D6
3U72 C3	IU96 E6
3U73 C3	IU97 E7
3U74 C1	IU98 E7
3U75 D2	IU99 F5
3U76 D2	
3U77 D2	
3U79 E7	
3U81 E8	
3U90 E3	
3U91 E3	
3U92 F3	
3U98 E8	
3U99 E8	
5U35 A3	
5U36 A3	
5U37 A3	
5U38 A3	
7U20 C3	
7U21 D1	
7U22 D6	
7U24 C6	
7U25-1 B7	
7U25-2 B8	
9U01 F6	
9U02 F6	
9U07 E3	
9U13 C6	
9U14 F6	
9U15 E5	
9U16 F5	
FU04 A2	
FU10 A2	
FU11 A1	
FU12 A3	
FU14 A1	
FU15 A1	
FU16 A3	
FU17 A1	
FU20 B2	
FU21 B2	
FU22 B2	
FU30 D6	
FU31 E8	
FU32 E8	
FU33 B8	
FU40 E2	
FU41 E2	
FU42 E2	
FU43 E2	
FU44 E2	
FU45 E2	

SSB (.5 Version) Chanel Decoder

B2A CHANNEL DECODER

B2A

5T20 220R FT20 +2V5D-PLL (2T30 10n)
5T21 220R FT21 +2V5A-PLL (2T31 10n)
+2V5 IT30 5T23 220R FT22 +2V5A (2T33 10n)
5T24 220R FT23 +2V5A-XTAL (2T34 10n)
5T25 220R FT24 +2V5A-ADC (2T35 10n)
5T26 220R FT25 +2V5F
+3V3 5T27 600R FT26 +3V3F
+1V2_ATSC 5T28 220R FT27 +1V2F

+12VSW 3T42 8K2 FT29 7T20-2 BC847BPN
+12VSW FT28 +1V2 7T21 SI2306DS
+3V3 3T46 47K IT47 7T20-1 BC847BPN IT45 3T45 47K IT46 IT48 3T47 1K0 IT49 3T49 47K IT50 +1V2_ATSC
3T50 47K
2T64 100n

CHDEC-CLK 2T52 10n RES IT38 1T11 25M14 IT34 2T53 33p 2T54 33p RES
7T22 NXT2004
IN OSC_XTAL OUT
VREF_N VREF_P INCM INP INN ADC IT31 IT37
FAT-ADC-INP 3T41 220R
FAT-ADC-INN 3T44 220R IT32
2T62 1u0 16V 2T63 10n
PDET_COMP_IN UC_EN POWER_RESET I2C_SLAVE_ADDR SCL SDA I2C GPIO BIAS_RES
+3V3F 3T48 4K7 IT33 3T51 100R 3T52 100R 3T53 1K0 3T54 1K0 2T65 68p 2T66 68p 3T31 4K7 RES
I2C ADRESS=24/26
RESET-FE-MAIN
IRQ-FE-MAIN
I2C-SDA-TUNER
I2C-SCL-TUNER
FM-TRAP

+2V5A +2V5A +2V5A +2V5A AVDD (2T37 100n, 2T38 100n, 2T39 100n, 2T40 100n, 2T41 100n)
+2V5A-ADC AVDD_ADC (2T42 100n, 2T43 100n, 2T44 100n)
+2V5A-PLL +2V5A-XTAL AVDD-PLL AVDD-OSC (2T46 100n, 2T45 100n, 2T36 100n 16V)
+1V2F ×8 VDD1.2 (2T47 100n, 2T48 100n, 2T49 100n, 2T50 100n)
+2V5F +2V5F VDD2.5
+3V3F ×8 VDD3.3
+2V5D-PLL DVDD_PLL
Φ VSB/QAM
AGND DGND DGND

OSC_CLK AT35
PDET_REF_OUT
IF AGC AUX RF (3T40 1K0, 3T43 1K0, 2T60 100n, 2T61 100n, IT01, FAT-IF-AGC, AUX-IF-AGC)
MPEG: ERR CLK PKT_SYNC DATA_EN (3T37-4 68R, 3T37-3 68R, 3T37-2 68R, 3T37-1 68R)
MPEG_DATA (3T35-1 68R, 3T35-2 68R, 3T35-3 68R, 3T35-4 68R, 3T36-1 68R, 3T36-2 68R, 3T36-3 68R, 3T36-4 68R)
SER_DATA
DV1F-DATA8_ERR DV1F-CLK DV1F-DATA9_SOP DV1F-VALID DV1F-DATA0 DV1F-DATA1 DV1F-DATA2 DV1F-DATA3 DV1F-DATA4 DV1F-DATA5 DV1F-DATA6 DV1F-DATA7

SDA-DMA SCL-DMA 9T11 9T12
9T10 9T13 IT40 IT41
+3V3F 2T67* 100n
+3V3 3T55* 4K7 +3V3 3T56* 4K7
7T23* PCA9515ADP VCC SDA0 SDA1 SCL0 SCL1 EN GND NC
IT51 IT52 IT53 IT54 3T57 100R 3T58 100R
1T10 +5V B4B-PH-SM4-TBT(LF) RES
3T38 33K IT36 3T39 33K

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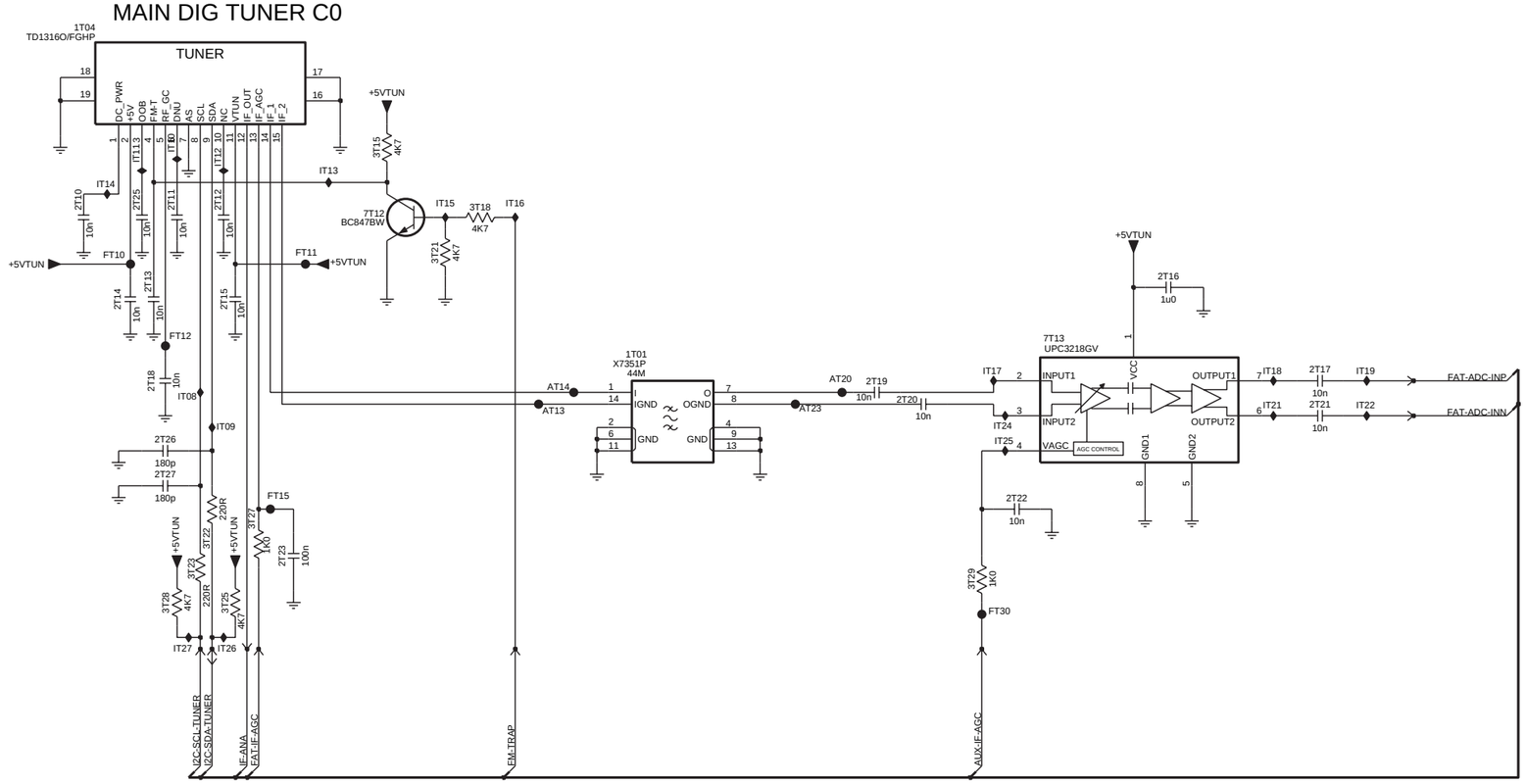
1T10 H1 IT30 B1
1T11 E6 IT31 E7
2T30 A2 IT32 F7
2T31 B2 IT33 F6
2T33 B2 IT34 E6
2T34 C2 IT36 G8
2T35 D2 IT37 E7
2T36 D8 IT38 E6
2T37 D6 IT40 G6
2T38 D6 IT41 I5
2T39 D6 IT45 F1
2T40 D6 IT46 F2
2T41 D7 IT47 F1
2T42 D7 IT48 F2
2T43 D7 IT49 F2
2T44 D7 IT50 F3
2T45 D8 IT51 H4
2T46 D7 IT52 I2
2T47 D11 IT53 I3
2T48 D12 IT54 I4
2T49 D12
2T50 D12
2T52 E5
2T53 E6
2T54 E6
2T56 E7
2T57 E7
2T58 E6
2T59 E7
2T60 E12
2T61 F12
2T62 F7
2T63 F7
2T64 G2
2T65 G7
2T66 G7
2T67 H5
3T31 G5
3T35-1 G11
3T35-2 G12
3T35-3 G11
3T35-4 G12
3T36-1 G11
3T36-2 G12
3T36-3 G11
3T36-4 G12
3T37-1 F12
3T37-2 F12
3T37-3 F12
3T37-4 F12
3T38 G7
3T39 H7
3T40 F11
3T41 F7
3T42 F2
3T43 F11
3T44 F7
3T45 F1
3T46 F1
3T47 F2
3T48 F6
3T49 F3
3T50 F1
3T51 F6
3T52 F7
3T53 G6
3T54 G6
3T55 H2
3T56 H3
3T57 I3
3T58 I4
5T20 A2
5T21 B2
5T23 B2
5T24 C2
5T25 C2
5T26 D2
5T27 D2
5T28 E2
7T20-1 F1
7T20-2 F2
7T21 F3
7T22 E8
7T23 H4
9T10 G5
9T11 H3
9T12 H3
9T13 I5
AT35 E11
FT20 A2
FT21 B2
FT22 B2
FT23 C2
FT24 C2
FT25 D2
FT26 D2
FT27 E2
FT28 F3
FT29 F2
IT01 F12

SSB (.5 Version) Main Tuner

B2B MAIN TUNER

B2B

MAIN DIG TUNER C0



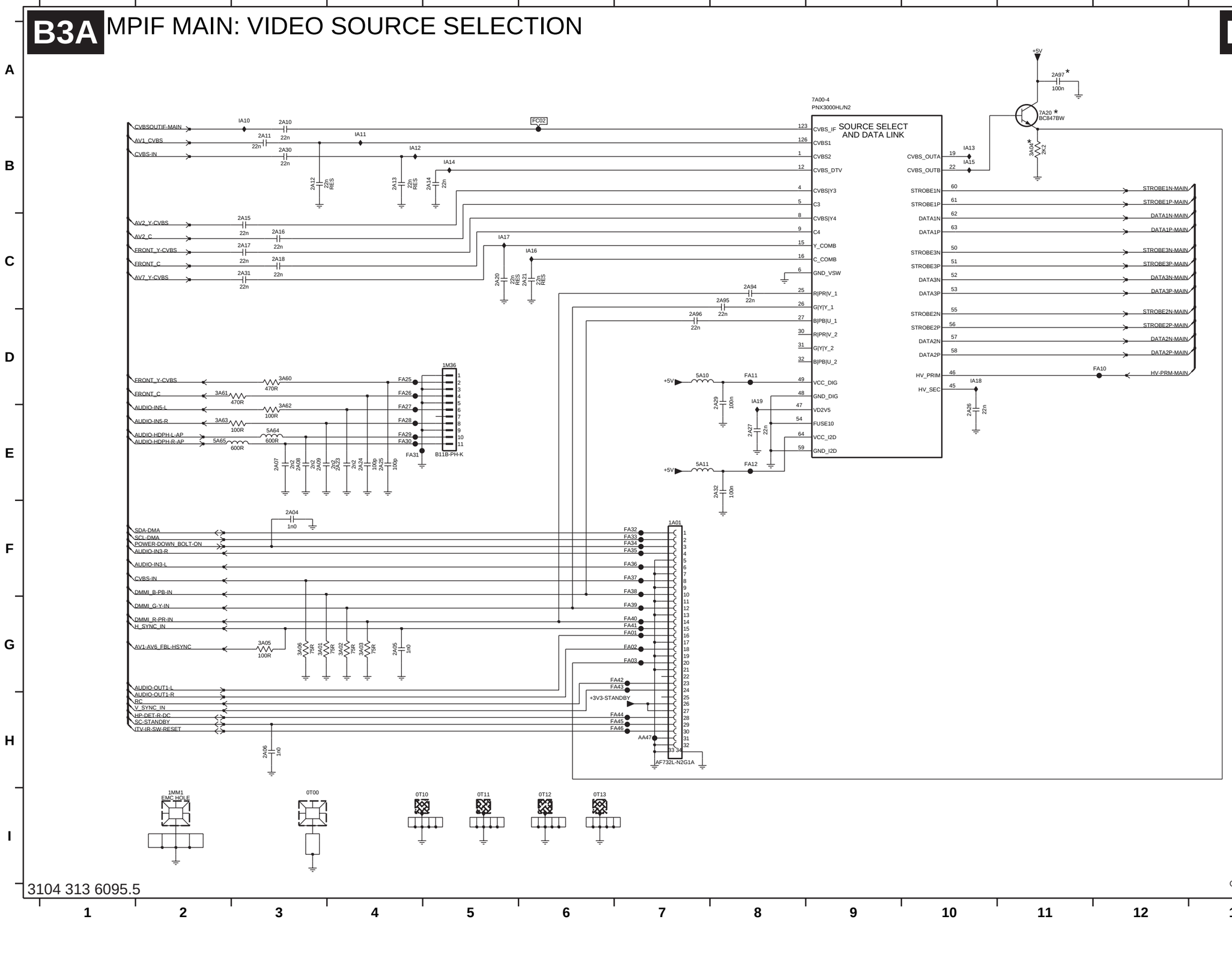
1T01 D5
1T04 B1
2T10 C1
2T11 C2
2T12 C2
2T13 C2
2T14 D2
2T15 D2
2T16 C8
2T17 D9
2T18 D2
2T19 D6
2T20 D6
2T21 D9
2T22 E7
2T23 E3
2T24 D12
2T25 C2
2T26 D2
2T27 E2
3T10 C12
3T15 C3
3T18 C4
3T20 C11
3T21 C4
3T22 E2
3T23 E2
3T25 E2
3T27 E2
3T28 E2
3T29 E7
5T11 C12
7T10 C11
7T12 C3
7T13 D7
AT13 D4
AT14 D4
AT20 D6
AT23 D6
FT10 C2
FT11 C3
FT12 D2
FT15 E3
FT30 E7
IT08 D2
IT09 D2
IT10 C2
IT11 C2
IT12 C2
IT13 C3
IT14 C1
IT15 C4
IT16 C4
IT17 D7
IT18 D9
IT19 D9
IT21 D9
IT22 D9
IT24 D7
IT25 D7
IT26 F2
IT27 F2
IT60 C11
IT61 C11
IT62 C12

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SSB (.5 Version) MPIF Main: Video Source Selection

B3A MPIF MAIN: VIDEO SOURCE SELECTION



0T00 I3
0T10 I4
0T11 I5
0T12 I6
0T13 I6
1A01 F7
1M36 D5
1MM1 I2
2A04 F3
2A05 G4
2A06 H3
2A07 E3
2A08 E3
2A09 E3
2A10 B3
2A11 B3
2A12 B3
2A13 B4
2A14 B5
2A15 C3
2A16 C3
2A17 C3
2A18 C3
2A20 C5
2A21 C6
2A23 E4
2A24 E4
2A25 E4
2A26 E10
2A27 E8
2A29 D8
2A30 B3
2A31 C3
2A32 E8
2A94 C8
2A95 C8
2A96 D7
2A97 A11
3A01 G3
3A02 G4
3A03 G4
3A04 B11
3A05 G3
3A06 G3
3A60 D3
3A61 D2
3A62 E3
3A63 E2
5A10 D7
5A11 E7
5A64 E3
5A65 E2
7A00-4 A9
7A20 A11
AA47 H7
FA01 G7
FA02 G7
FA03 G7
FA10 D12
FA11 D8
FA12 E8
FA25 D4
FA26 D4
FA27 E4
FA28 E4
FA29 E4
FA30 E4
FA31 E4
FA32 F7
FA33 F7
FA34 F7
FA35 F7
FA36 F7
FA37 F7
FA38 F7
FA39 G7
FA40 G7
FA41 G7
FA42 G7
FA43 G7
FA44 H7
FA45 H7
FA46 H7
FC02 B6
IA10 B3
IA11 B4
IA12 B4
IA13 B10
IA14 B5
IA15 B10
IA16 C6
IA17 C5
IA18 D10
IA19 D8

SSB (.5 Version) MPIF Main: Supply

B3B MPIF MAIN: SUPPLY

B3B

7A00-3
PNX3000HL/N2

MPIF-SUPPLY
E/W & CONTROL

VOUTO 2
VAUDS 3
VDEFLO 20
VDEFLS 21
RREF 13
BGDEC 7
FUSE9 33
FUSE8 10
FUSE7 23
GND_FILT 11
GND_RGB 29
GND_VADC 34
VCC_FILT 14
VCC_RGB 28
VCC_VADC 35
TESTPIN3 18
TESTPIN2 24
EWVIN 36
REW 38
EWIOUT 37
SCL 44
SDA 43
IRQ 42
XREF 40
ADR 39
FUSE6 41

IA20 3V9
7A10 BC847BW
IA21 3V2
9A10
IA22
IA23 1V4
IA24
IA25
IA26
IA27
IA28
IA29
IA30
AC40

FA13 5A12 220R +5V
FA14 3V2 VREF-AUD-POS
VREF-AUD
FA15 5A13 220R +5V
FA16 5A14 220R +5V
FA17 5A15 220R +5V

2A35 100n
2A37 100u 4V
2A38 1n0
2A39 100n
2A40 1u0
2A41 1u0
2A42 10u 16V
2A43 100n
2A44 100n
2A45 100n

3A10 560R
3A11 1K2
3A12 1K2
3A13 47K
3A14 100R
3A15 100R
3A16 10K RES
3A21 470R

SCL-DMA
SDA-DMA
IRQ-MPIF
CLK-MPIF

2A35 A6
2A37 B6
2A38 B5
2A39 C4
2A40 C4
2A41 C4
2A42 D6
2A43 D6
2A44 E5
2A45 E4
3A10 B5
3A11 B5
3A12 B5
3A13 C4
3A14 F4
3A15 F4
3A16 E5
3A21 F6
5A12 A6
5A13 D7
5A14 D5
5A15 E4
7A00-3 B2
7A10 A5
9A10 A6
AC40 F6
FA13 A6
FA14 A7
FA15 D6
FA16 D5
FA17 E4
IA20 A5
IA21 A6
IA22 B5
IA23 B5
IA24 C4
IA25 C4
IA26 E3
IA27 E3
IA28 F3
IA29 F3
IA30 F6

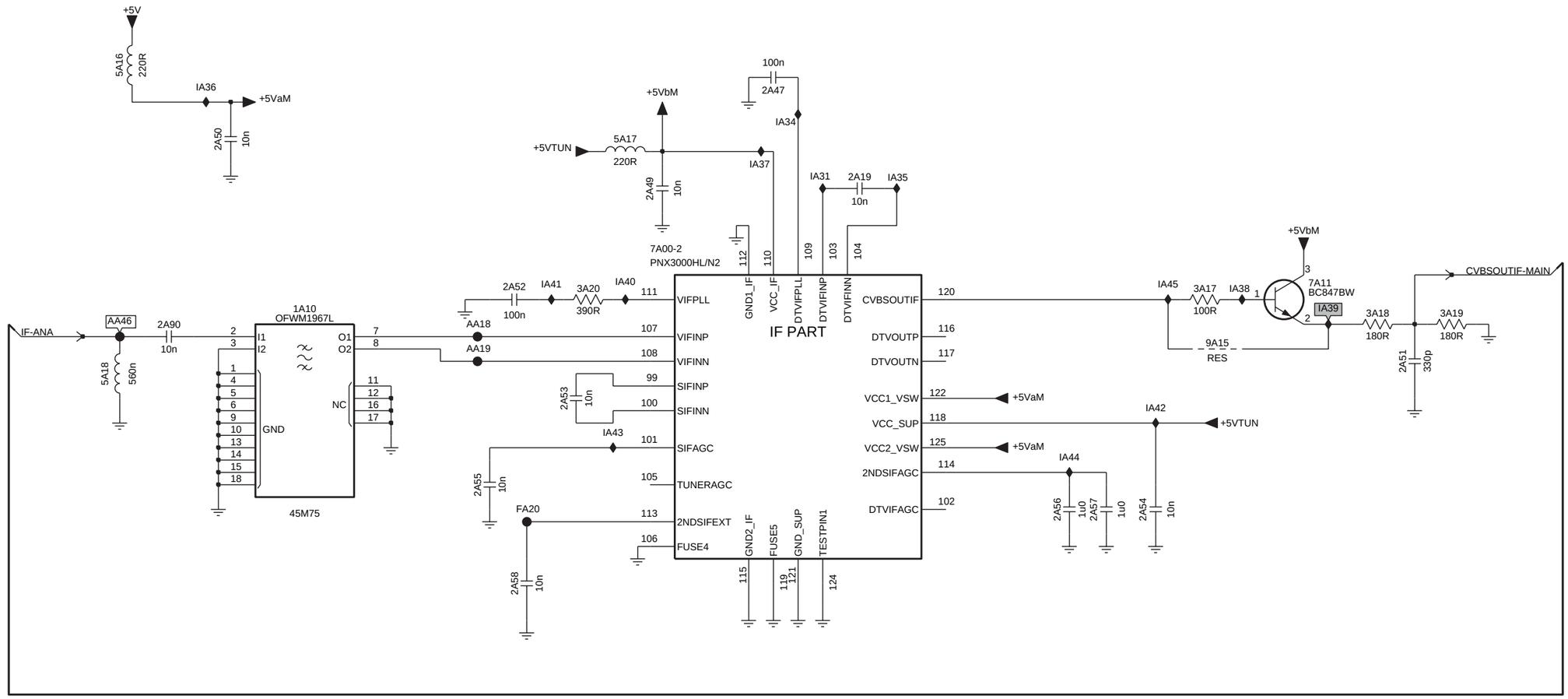
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SSB (.5 Version) MPIF Main: IF & SAW Filter

B3C MPIF MAIN: IF + SAW FILTER

B3C



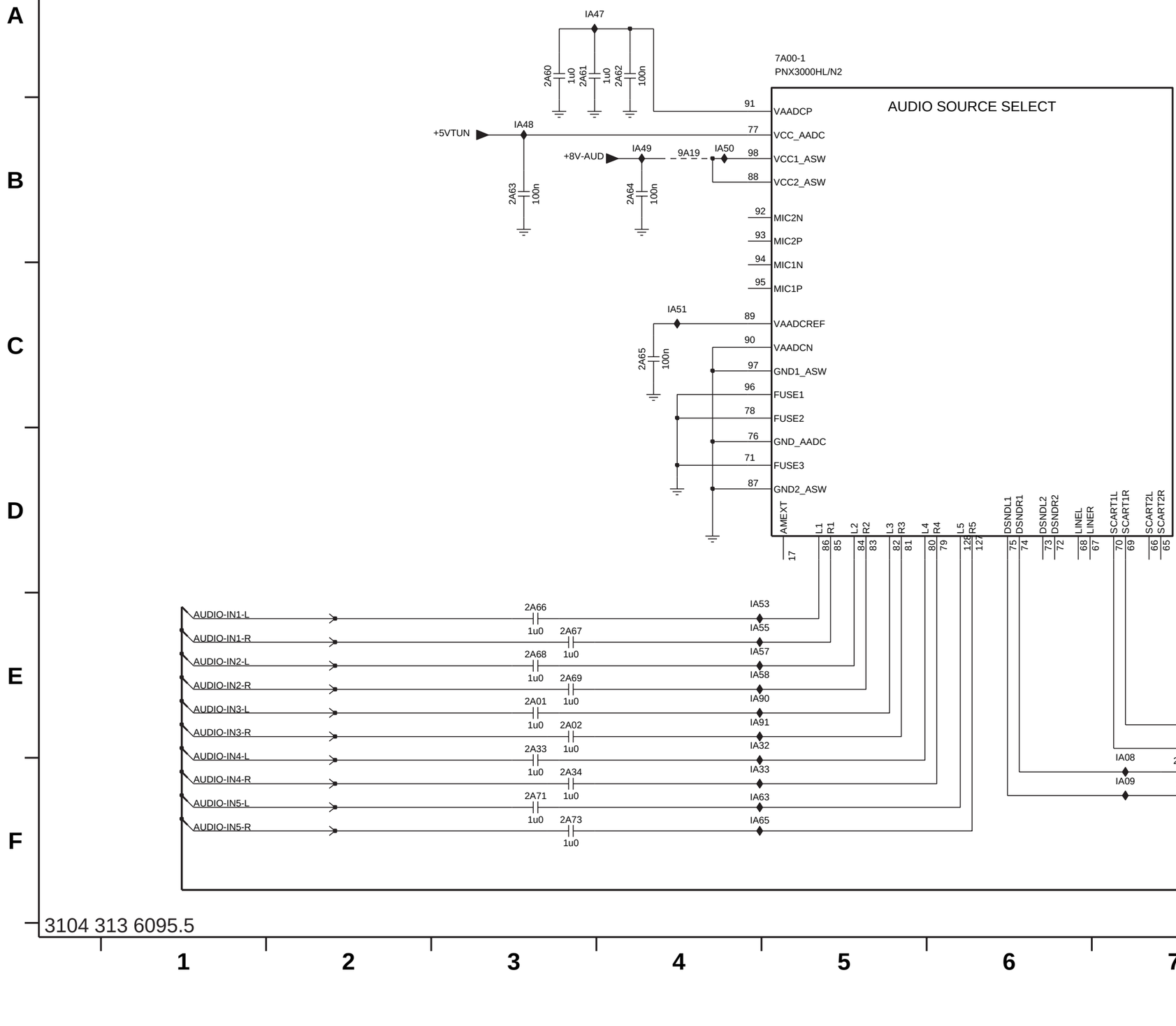
1A10 C2
2A19 B5
2A47 B5
2A49 B4
2A50 B2
2A51 C9
2A52 C3
2A53 C4
2A54 D7
2A55 D3
2A56 D7
2A57 D7
2A58 E3
2A90 C1
3A17 C7
3A18 C8
3A19 C9
3A20 C4
5A16 B1
5A17 B4
5A18 C1
7A00-2 C4
7A11 C8
9A15 C7
AA18 C3
AA19 C3
AA46 C1
FA20 D3
IA31 B5
IA34 B5
IA35 B6
IA36 B2
IA37 B5
IA38 C8
IA39 C8
IA40 C4
IA41 C4
IA42 D7
IA43 D4
IA44 D7
IA45 C7

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SSB (.5 Version) MPIF Main: Audio Source Selection

B3D MPIF MAIN: AUDIO SOURCE SELECTION



2A01 E3
2A02 E3
2A33 E3
2A34 F3
2A60 A3
2A61 A3
2A62 A4
2A63 B3
2A64 B4
2A65 C4
2A66 E3
2A67 E3
2A68 E3
2A69 E3
2A71 F3
2A73 F3
2A98 F7
2A99 F7
7A00-1 A5
9A19 B4
IA01 F8
IA02 F8
IA08 E7
IA09 F7
IA32 E4
IA33 F4
IA47 A3
IA48 B3
IA49 B4
IA50 B4
IA51 C4
IA53 E4
IA55 E4
IA57 E4
IA58 E4
IA63 F4
IA65 F4
IA90 E4
IA91 E4

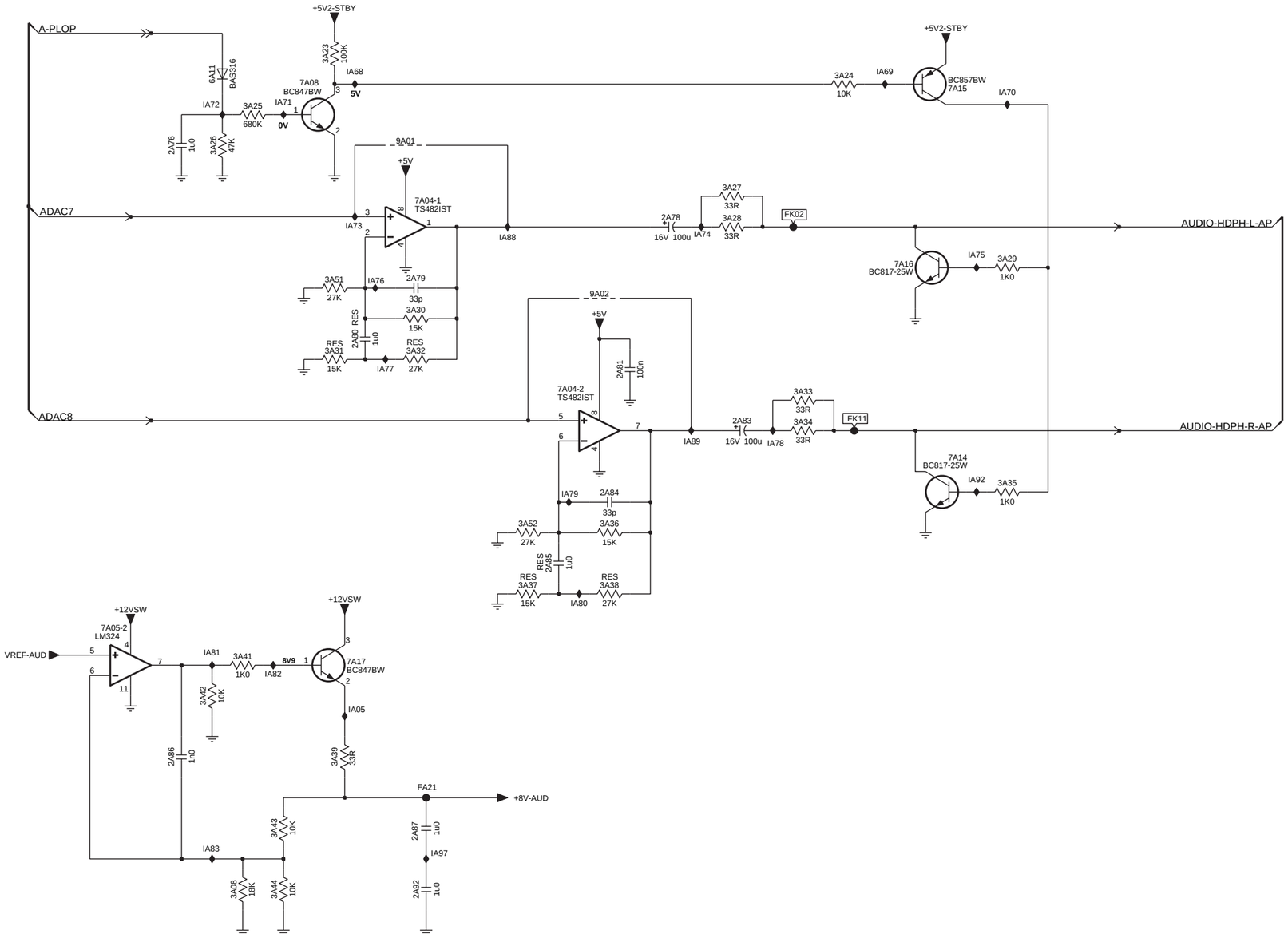
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SSB (.5 Version) MPIF Main: Audio Amplifier

B3E MPIF MAIN: AUDIO AMPLIFIER

B3E



2A76 B2
2A78 C5
2A79 C4
2A80 C3
2A81 D5
2A83 D6
2A84 E5
2A85 E5
2A86 F2
2A87 G4
2A92 G4
3A08 G2
3A23 A3
3A24 B7
3A25 B3
3A26 B2
3A27 B6
3A28 C6
3A29 C8
3A30 C4
3A31 D3
3A32 D4
3A33 D6
3A34 D6
3A35 D8
3A36 E5
3A37 E4
3A38 E5
3A39 F3
3A41 F2
3A42 F2
3A43 G3
3A44 G3
3A51 C3
3A52 E4
6A11 B2
7A04-1 C4
7A04-2 D5
7A05-2 E1
7A08 B3
7A14 D8
7A15 B7
7A16 C7
7A17 F3
9A01 B4
9A02 C5
FA21 G4
FK02 C6
FK11 D7
IA05 F3
IA68 B3
IA69 B7
IA70 B8
IA71 B3
IA72 B2
IA73 C3
IA74 C6
IA75 C8
IA76 C3
IA77 D3
IA78 D6
IA79 E5
IA80 E5
IA81 F2
IA82 F3
IA83 G2
IA88 C4
IA89 D6
IA92 D8
IA97 G4

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SSB (.5 Version) PNX2015: Audio / Video

B4A PNX2015: AUDIO / VIDEO

B4A

VREF-AUD-POS
2J01 100n
7J00-7 PNX2015
AUDIO / VIDEO
ADAC_CLK Y5
ADAC1 AH1 ADAC1N AH2 ADAC1P AH3 2LA5 3n3
ADAC2 AG1 ADAC2N AG2 ADAC2P AG3 2LA6 3n3
ADAC3 AF1 ADAC3N AF2 ADAC3P AG4
ADAC4 AE1 ADAC4N AE2 ADAC4P AB5
ADAC5 AD1 ADAC5N AD2 ADAC5P AB4
ADAC6 AC1 ADAC6N AC2 ADAC6P AB3
ADAC7 AB1 ADAC7N AB2 ADAC7P AA4 2LA8 3n3
ADAC8 AA1 ADAC8N AA2 ADAC8P AA3 2LA9 3n3
ADAC9 AF3 ADAC9N AF4 ADAC9P AF5 2L65 3n3
ADAC10 AE3 ADAC10N AE4 ADAC10P AE5 2L66 3n3
ADAC11 AD3 ADAC11N AD4 ADAC11P AD5
ADAC12 AC3 ADAC12N AC4 ADAC12P AC5
I2S_IN_SD1 U2
I2S_IN_SD2 U3
I2S_IN_SD3 U4
I2S_IN_SD4 V4
I2S_IN_SD5 V5
I2S_IN_SD6 W5
I2S_SCK_SYS V2
I2S_WS_SYS V3
MPIF_CLK M4
I2S_SCK_XTRA U1
I2S_WS_XTRA U5
AVP1_DLK_VDDA N5
AVP1_DLK_VDDD M5
AVP1_DLK_VSSA P5
AVP1_DLK_VSSD R5
AVP1_DLK1DN R2 DATA1N-MAIN
AVP1_DLK1DP R1 DATA1P-MAIN
AVP1_DLK1SN R4 STROBE1N-MAIN
AVP1_DLK1SP R3 STROBE1P-MAIN
AVP1_DLK2DN P2 DATA2N-MAIN
AVP1_DLK2DP P1 DATA2P-MAIN
AVP1_DLK2SN P4 STROBE2N-MAIN
AVP1_DLK2SP P3 STROBE2P-MAIN
AVP1_DLK3DN N2 DATA3N-MAIN
AVP1_DLK3DP N1 DATA3P-MAIN
AVP1_DLK3SN N4 STROBE3N-MAIN
AVP1_DLK3SP N3 STROBE3P-MAIN
AVP1_DTC_CLVSS T6
AVP1_DTC_VDD3 T3
AVP1_DTC_VDDA T4
AVP1_DTC_VSSA T5
AVP1_HSYNCFBL1 T1
AVP1_HSYNCFBL2 T2
AVP1_HVINFO1 M3
AVP1_VSYNC1 M1
AVP1_VSYNC2 M2
AVP2_DLK_VDDA H5
AVP2_DLK_VDDD G6
AVP2_DLK_VSSA J5
AVP2_DLK_VSSD K5
AVP2_DLK1DN K2
AVP2_DLK1DP K1
AVP2_DLK1SN K4
AVP2_DLK1SP K3
AVP2_DLK2DN J2
AVP2_DLK2DP J1
AVP2_DLK2SN J4
AVP2_DLK2SP J3
AVP2_DLK3DN H2
AVP2_DLK3DP H1
AVP2_DLK3SN H4
AVP2_DLK3SP H3
AVP2_DTC_CLVSS K6
AVP2_DTC_VDD3 L3
AVP2_DTC_VDDA L4
AVP2_DTC_VSSA L5
AVP2_HSYNCFBL1 L1 3JA2 120R
AVP2_HSYNCFBL2 L2 AV2_FBL
AVP2_HVINFO1 G3
AVP2_VSYNC1 G1 3J01 120R
AVP2_VSYNC2 G2 AV6_VSYNC
I2S_OUT_SCK Y2
I2S_OUT_SD1 W1
I2S_OUT_SD2 W2
I2S_OUT_SD3 V1
I2S_OUT_SD4 W3 3J07 68R I2S-MAIN-ND
I2S_OUT_SD5 W4
I2S_OUT_SD6 Y4
I2S_OUT_WS Y3
9J22
9J24 *
AV1-AV6_FBL-HSYNC
AV2_FBL
HV-PRM-MAIN
AV6_VSYNC
3J13 120R
3J12 120R
IJ00 IJ01 IJ02 IJ03 IJ04 IJ05 IJ06 IJ07
2J03 2J06 2J08 2J10 2J13 2J16 2J18 2J20 100n
5J00 5J01 5J02 5J03 5J04 5J05 5J06 5J07 120R
+1V2 +3V3
0E02 0E03
+12VSW +5V2-STBY
IJ53 IJ54
6J07 BAS316
6J08 BAT54 COL
IJ09 11V3
2L70 1u0
3L01 100K 3L00 100K
IJ55
RESET-AUDIO FLA8 3L03 470K IJ11 0V
7J01 BC847BW
IJ25 11V1 3L02 10K IJ26
BC847BPN 7J02-2
IJ27 0V
7J02-1 BC847BPN
A-PLOP

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0E02 F5
0E03 F5
2J01 A1
2J03 A6
2J06 B6
2J08 B6
2J10 C6
2J13 E6
2J16 E6
2J18 E6
2J20 F6
2L65 D1
2L66 D1
2LA5 B1
2LA6 B1
2LA8 C1
2LA9 D1
2LT0 E9
3J01 E4
3J07 F4
3J12 C4
3J13 C4
3JA2 E4
3L00 E9
3L01 E8
3L02 E9
3L03 E8
5J00 A6
5J01 B6
5J02 B6
5J03 C6
5J04 D6
5J05 E6
5J06 E6
5J07 F6
6J07 D9
6J08 D9
7J00-7 A3
7J01 E8
7J02-1 F9
7J02-2 E9
9J22 C4
9J24 C5
FLA8 E7
IJ00 A5
IJ01 B5
IJ02 B5
IJ03 C5
IJ04 D6
IJ05 E6
IJ06 E6
IJ07 F6
IJ09 E9
IJ11 E8
IJ25 E9
IJ26 E9
IJ27 F8
IJ53 D9
IJ54 D9
IJ55 E8

SSB (.5 Version) PNX2015: DV I/O Interface

B4B PNX 2015: DV I/O INTERFACE

B4B

3LR0 D4
3LR1 C4
3LR9-1 D4
3LR9-2 E4
3LR9-3 D4
3LR9-4 D4
3LS0-2 D4
3LS0-3 D4
3LS0-4 E4
3LS1-1 D4
3LS1-2 D4
3LS1-3 E4
3LS1-4 E4
7J00-2 B7
7J00-4 B2
AJ10 D8

7J00-4
PNX2015
Φ
DV INPUT

DV4-CLK	AK8	DV_CLK		DV1_CLK	AD28
DV4-VALID	AH8	DV_VALID		DV1_VALID	AD29
DV4-DATA0_SOP	AG8	DV4_DATA_0		DV1_DATA0	AB27
DV4-DATA1_ERR	AK7	DV4_DATA_1		DV1_DATA1	AA30
DV4-DATA2_0	AJ7	DV4_DATA_2		DV1_DATA2	AA29
DV4-DATA3_1	AH7	DV4_DATA_3		DV1_DATA3	AA28
DV4-DATA4_2	AG7	DV4_DATA_4		DV1_DATA4	AB29
DV4-DATA5_3	AF7	DV4_DATA_5		DV1_DATA5	AB28
DV4-DATA6_4	AK6	DV4_DATA_6		DV1_DATA6	AC30
DV4-DATA7_5	AJ6	DV4_DATA_7		DV1_DATA7	AC28
DV4-DATA8_6	AH6	DV4_DATA_8		DV1_DATA8	AC27
DV4-DATA9_7	AG6	DV4_DATA_9		DV1_DATA9	AB30
DV5-DATA0_SOP	AF6	DV5_DATA_0		DV2_CLK	AF30
DV5-DATA1_ERR	AK5	DV5_DATA_1		DV2_VALID	AF27
DV5-DATA2_0	AH5	DV5_DATA_2			
DV5-DATA3_1	AG5	DV5_DATA_3		DV2_DATA0	AE30
DV5-DATA4_2	AK4	DV5_DATA_4		DV2_DATA1	AF28
DV5-DATA5_3	AJ4	DV5_DATA_5		DV2_DATA2	AD27
DV5-DATA6_4	AH4	DV5_DATA_6		DV2_DATA3	AD26
DV5-DATA7_5	AK3	DV5_DATA_7		DV2_DATA4	AD30
DV5-DATA8_6	AJ3	DV5_DATA_8		DV2_DATA5	AE26
DV5-DATA9_7	AK2	DV5_DATA_9		DV2_DATA6	AE27
				DV2_DATA7	AE28
				DV2_DATA8	AE29
				DV2_DATA9	AG27
DV-VREF	AJ9	DV_VREF			
DV-FREF	AK9	DV_FREF			
DV-HREF	AH9	DV_HREF			
				DV3_CLK	AK28
				DV3_VALID	AK30
				DV3_DATA0	AJ30
				DV3_DATA1	AH29
				DV3_DATA2	AG29
				DV3_DATA3	AG30
				DV3_DATA4	AH30
				DV3_DATA5	AG28
				DV3_DATA6	AH27
				DV3_DATA7	AJ28
				DV3_DATA8	AK29
				DV3_DATA9	AH28

DV2_CLK → 33R 3LR1 → DV2A-CLK
DV3_CLK → 33R 3LR0 → DV3F-CLK
DV3_VALID → 33R 3LS1-2 → DV3F-VALID
DV3_DATA0 → 33R 3LR9-4 → DV3F-DATA0_SOP
DV3_DATA1 → 33R 3LR9-3 → DV3F-DATA1_ERR
DV3_DATA2 → 33R 3LS0-3 → DV3F-DATA2_0
DV3_DATA3 → 33R 3LR9-1 → DV3F-DATA3_1
DV3_DATA4 → 33R 3LS1-1 → DV3F-DATA4_2
DV3_DATA5 → 33R 3LS0-2 → DV3F-DATA5_3
DV3_DATA6 → 33R 3LR9-2 → DV3F-DATA6_4
DV3_DATA7 → 33R 3LS1-3 → DV3F-DATA7_5
DV3_DATA8 → 33R 3LS1-4 → DV3F-DATA8_6
DV3_DATA9 → 33R 3LS0-4 → DV3F-DATA9_7

7J00-2
PNX2015
Φ
OUTPUT INTERFACE

MP-ROUT-0	A27	RIN0		LVDS_AN	B26
MP-ROUT-1	A28	RIN1		LVDS_AP	C26
MP-ROUT-2	A29	RIN2			
MP-ROUT-3	A30	RIN3			
MP-ROUT-4	B28	RIN4		LVDS_BN	A25
MP-ROUT-5	B30	RIN5		LVDS_BP	B25
MP-ROUT-6	C28	RIN6			
MP-ROUT-7	C29	RIN7		LVDS_CN	D25
MP-ROUT-8	C30	RIN8		LVDS_CP	E25
MP-ROUT-9	D27	RIN9			
				LVDS_DN	B24
MP-GOUT-0	D28	GIN0		LVDS_DP	C24
MP-GOUT-1	D29	GIN1			
MP-GOUT-2	D30	GIN2		LVDS_EN	E24
MP-GOUT-3	E27	GIN3		LVDS_EP	F24
MP-GOUT-4	E28	GIN4			
MP-GOUT-5	E30	GIN5			
MP-GOUT-6	F26	GIN6		LVDS_CLKN	C23
MP-GOUT-7	F27	GIN7		LVDS_CLKP	D23
MP-GOUT-8	F28	GIN8			
MP-GOUT-9	F29	GIN9		RGB_CLK_IN	J30
				RGB_UD	J27
MP-BOUT-0	F30	BIN0		RGB_HSYNC	J29
MP-BOUT-1	G26	BIN1		RGB_VSYNC	J28
MP-BOUT-2	G27	BIN2		RGB_DE	K26
MP-BOUT-3	G28	BIN3			
MP-BOUT-4	G29	BIN4			
MP-BOUT-5	G30	BIN5			
MP-BOUT-6	H27	BIN6			
MP-BOUT-7	H28	BIN7			
MP-BOUT-8	H30	BIN8			
MP-BOUT-9	J26	BIN9			

AJ10

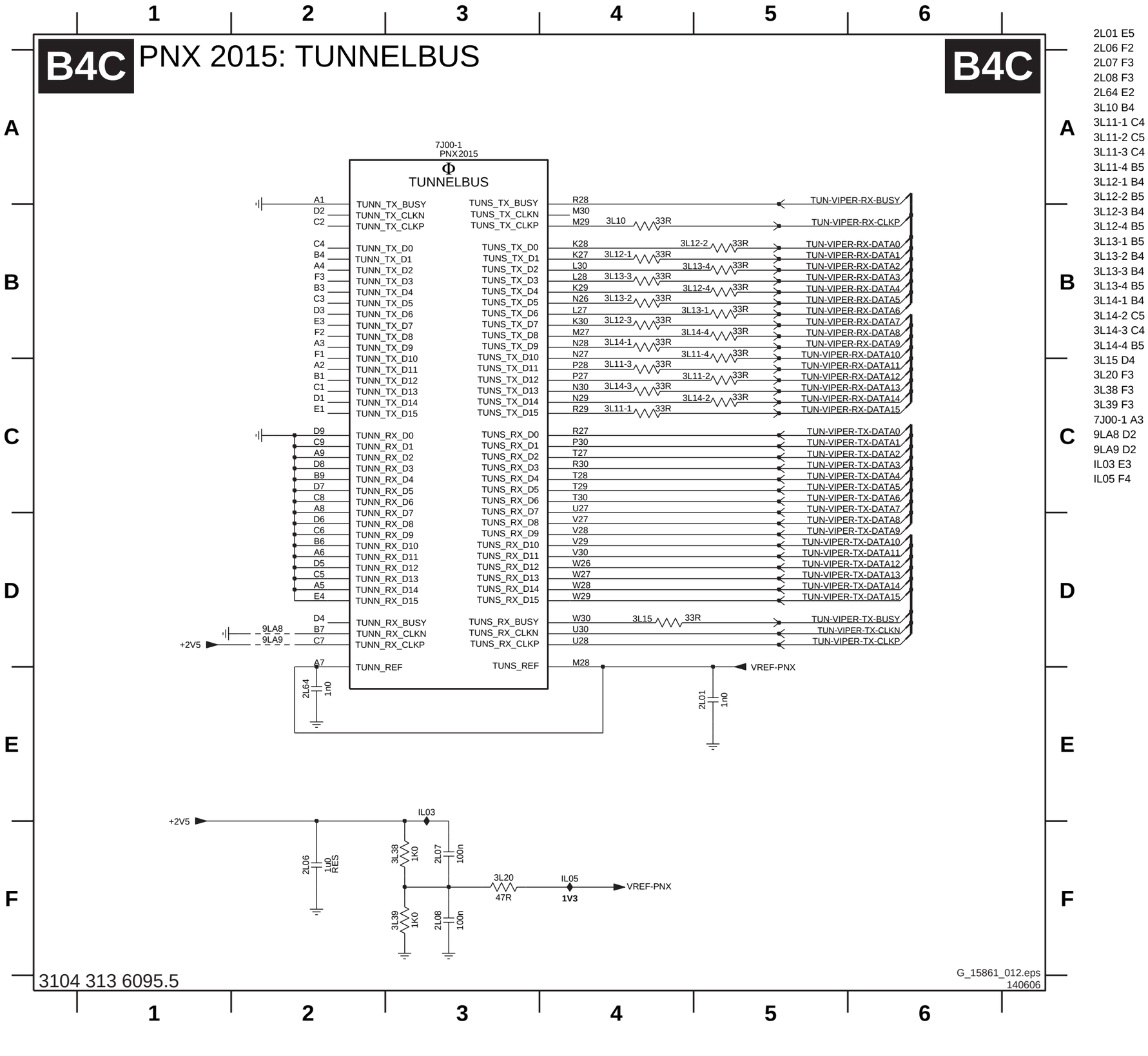
TXPNXA-	
TXPNXA+	
TXPNXB-	
TXPNXB+	
TXPNXC-	
TXPNXC+	
TXPNXD-	
TXPNXD+	
TXPNXE-	
TXPNXE+	
TXPNXCLK-	
TXPNXCLK+	
MP-CLKOUT	
MP-OUT-FFIELD	
MP-OUT-HS	
MP-OUT-VS	
MP-OUT-DE	

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SSB (.5 Version) PNX2015: Tunnelbus

B4C PNX 2015: TUNNELBUS



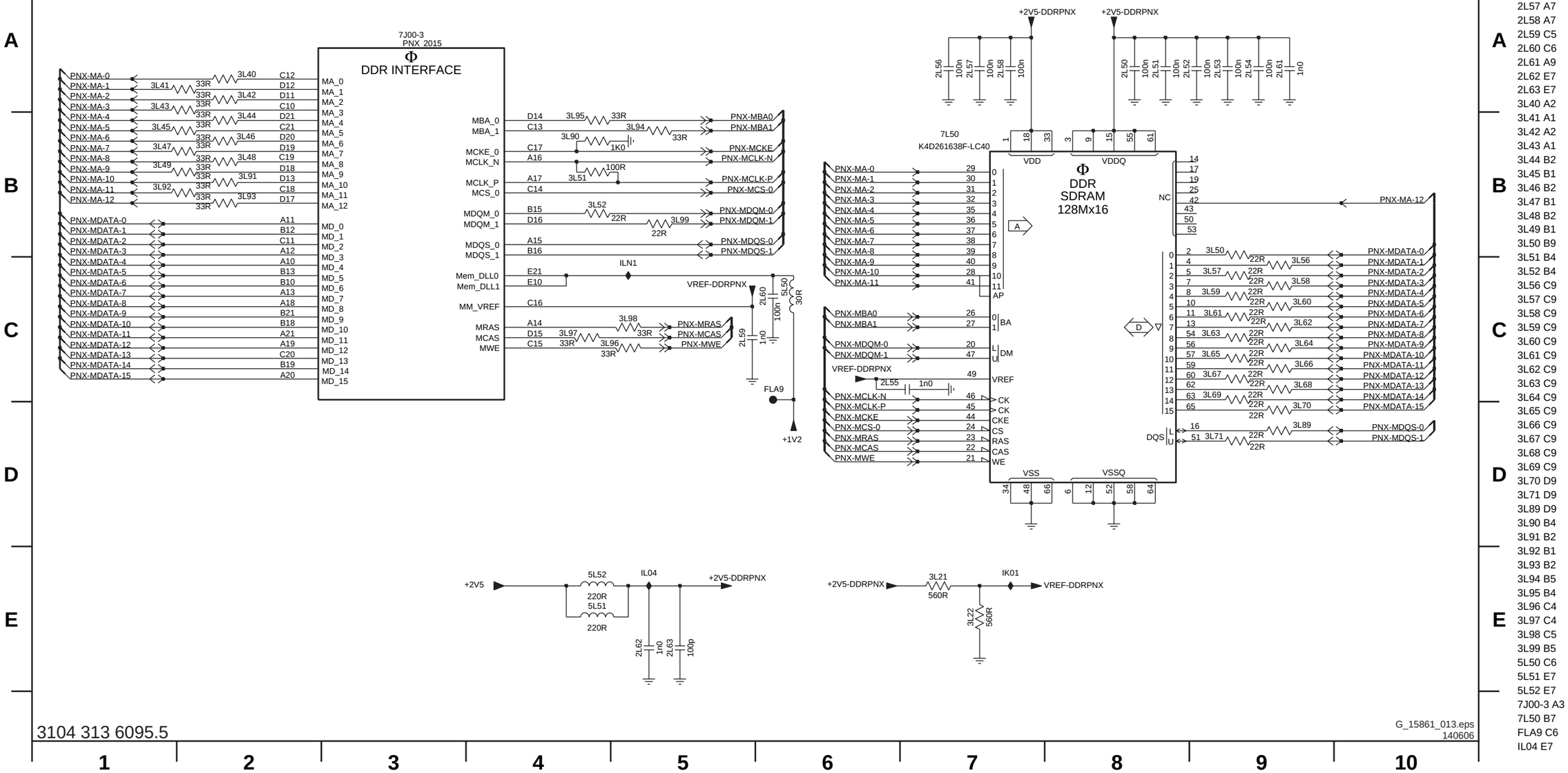
2L01 E5
2L06 F2
2L07 F3
2L08 F3
2L64 E2
3L10 B4
3L11-1 C4
3L11-2 C5
3L11-3 C4
3L11-4 B5
3L12-1 B4
3L12-2 B5
3L12-3 B4
3L12-4 B5
3L13-1 B5
3L13-2 B4
3L13-3 B4
3L13-4 B5
3L14-1 B4
3L14-2 C5
3L14-3 C4
3L14-4 B5
3L15 D4
3L20 F3
3L38 F3
3L39 F3
7J00-1 A3
9LA8 D2
9LA9 D2
IL03 E3
IL05 F4

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SSB (.5 Version) PNX2015: DDR Interface

B4D PNX 2015: DDR INTERFACE



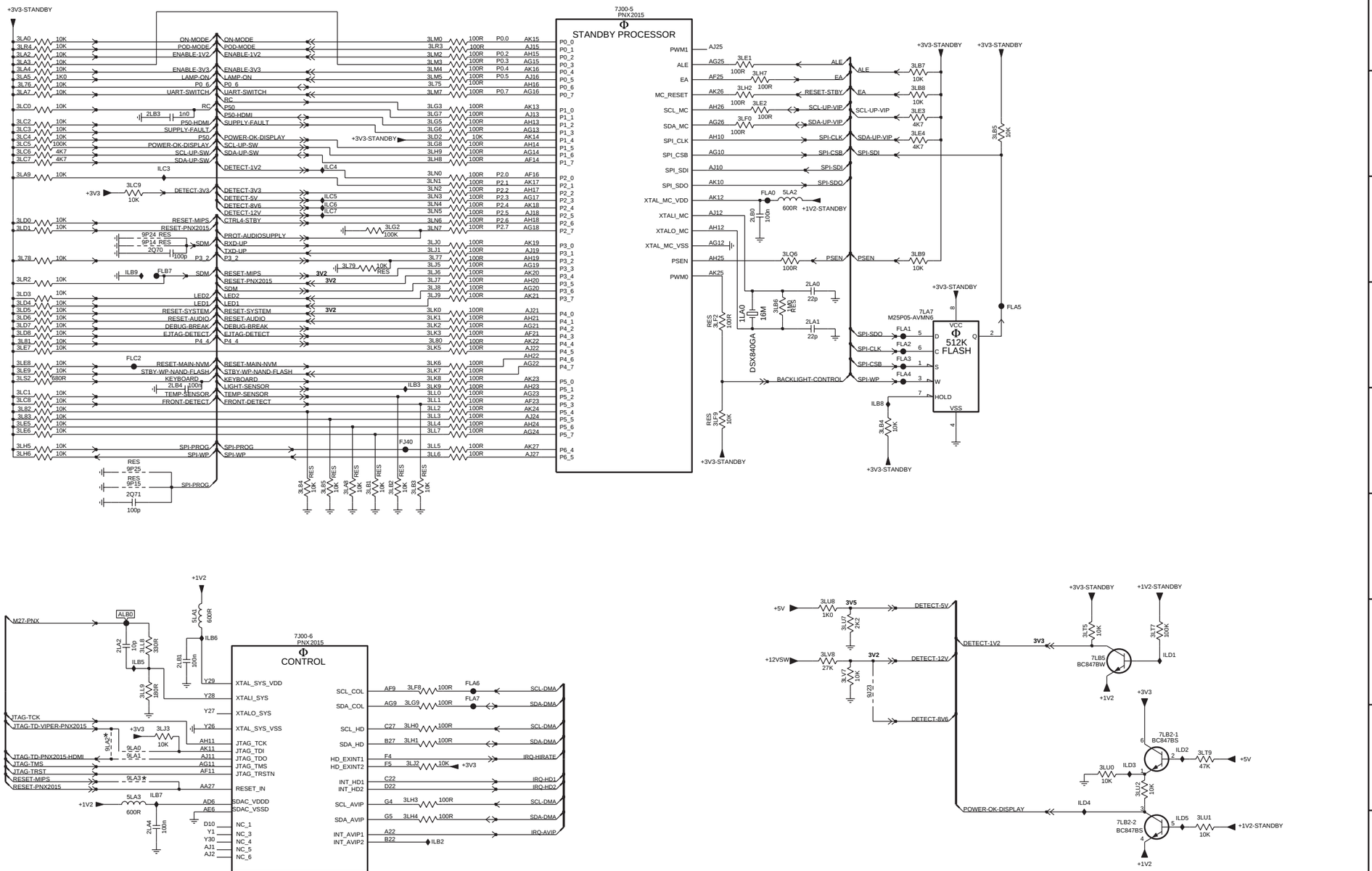
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2L50 A8
2L51 A8
2L52 A8
2L53 A9
2L54 A9
2L55 C6
2L56 A7
2L57 A7
2L58 A7
2L59 C5
2L60 C6
2L61 A9
2L62 E7
2L63 E7
3L40 A2
3L41 A1
3L42 A2
3L43 A1
3L44 B2
3L45 B1
3L46 B2
3L47 B1
3L48 B2
3L49 B1
3L50 B9
3L51 B4
3L52 B4
3L56 C9
3L57 C9
3L58 C9
3L59 C9
3L60 C9
3L61 C9
3L62 C9
3L63 C9
3L64 C9
3L65 C9
3L66 C9
3L67 C9
3L68 C9
3L69 C9
3L70 D9
3L71 D9
3L89 D9
3L90 B4
3L91 B2
3L92 B1
3L93 B2
3L94 B5
3L95 B4
3L96 C4
3L97 C4
3L98 C5
3L99 B5
5L50 C6
5L51 E7
5L52 E7
7J00-3 A3
7L50 B7
FLA9 C6
IL04 E7

SSB (.5 Version) PNX2015: Standby & Control

B4E PNX 2015: STANDBY & CONTROL



1LA0	D9	3LK5	D6
2LA0	D9	3LK6	D6
2LA1	D9	3LK7	D6
2LA2	G3	3LK8	D6
2LA4	I3	3LK9	E6
2LB0	C9	3LL0	E6
2LB1	G3	3LL1	E6
2LB3	B3	3LL2	E6
2LB4	D3	3LL3	E6
2Q70	C3	3LL4	E6
2Q71	F3	3LL5	E6
3L75	B6	3LL6	E6
3L76	B2	3LL7	E6
3L77	C6	3LL8	G3
3L78	C2	3LL9	G3
3L79	C5	3LM0	A6
3L80	D6	3LM2	A6
3L81	D2	3LM3	A6
3L82	E2	3LM4	B6
3L83	E2	3LM5	B6
3L84	E4	3LM7	B6
3L85	E5	3LN0	B6
3LA0	A2	3LN1	C6
3LA2	A2	3LN2	C6
3LA3	A2	3LN3	C6
3LA4	B2	3LN4	C6
3LA5	B2	3LN5	C6
3LA7	B2	3LN6	C6
3LA8	E5	3LN7	C6
3LA9	B2	3LQ6	C9
3LB1	E5	3LR2	C2
3LB2	E5	3LR3	A6
3LB3	E6	3LR4	A2
3LB4	E10	3LS2	D2
3LB5	B11	3LT5	G12
3LB6	D9	3LT7	G13
3LB7	A10	3LT9	H13
3LB8	B10	3LU0	H12
3LB9	C10	3LU1	I13
3LC0	B2	3LU2	H12
3LC1	E2	3LU7	G10
3LC2	B2	3LU8	G9
3LC3	B2	3LV7	G10
3LC4	B2	3LV8	G9
3LC5	B2	5LA1	G3
3LC6	B2	5LA2	C9
3LC7	B2	5LA3	H3
3LC8	E2	7J00-5	A8
3LC9	C3	7J00-6	G4
3LD0	C2	7LA7	D10
3LD1	C2	7LB2-1	H13
3LD2	B6	7LB2-2	I12
3LD3	D2	7LB5	G12
3LD4	D2	9J23	G10
3LD5	D2	9LA0	H3
3LD6	D2	9LA1	H3
3LD7	D2	9LA2	H3
3LD8	D2	9LA3	H3
3LE1	A9	9P14	C3
3LE2	B9	9P15	E3
3LE3	B10	9P24	C3
3LE4	B10	9P25	E3
3LE5	E2	ALB0	G3
3LE6	E2	FJ40	E5
3LE7	D2	FLA0	C9
3LE8	D2	FLA1	D10
3LE9	D2	FLA2	D10
3LF0	B9	FLA3	D10
3LF2	D8	FLA4	D10
3LF8	G6	FLA5	D11
3LF9	E8	FLA6	G6
3LG2	C5	FLA7	G6
3LG3	B6	FLB7	C3
3LG5	B6	FLC2	D3
3LG6	B6	ILB2	I6
3LG7	B6	ILB3	D6
3LG8	B6	ILB5	G3
3LG9	G5	ILB6	G4
3LH0	H5	ILB7	H3
3LH1	H5	ILB8	E10
3LH2	B9	ILB9	C3
3LH3	H5	ILC3	B3
3LH4	I5	ILC4	B5
3LH5	E2	ILC5	C5
3LH6	E2	ILC6	C5
3LH7	B9	ILC7	C5
3LH8	B6	ILD1	G13
3LH9	B6	ILD2	H13
3LJ0	C6	ILD3	H12
3LJ1	C6	ILD4	H12
3LJ2	H6	ILD5	I13
3LJ3	H3		
3LJ5	C6		
3LJ6	C6		
3LJ7	C6		
3LJ8	D6		
3LJ9	D6		
3LK0	D6		
3LK1	D6		
3LK2	D6		
3LK3	D6		

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SSB (.5 Version) PNX2015: Supply

B4F PNX 2015: SUPPLY

B4F

7J00-9
PNX2015
Φ
GND

B2	VSS_1	R16
B5	VSS_2	R17
B8	VSS_3	R18
B11	VSS_4	
B14	VSS_5	T13
B17	VSS_6	T14
B20	VSS_7	T15
B29	VSS_8	T16
C25	VSS_9	T17
D24	VSS_10	T18
D26	VSS_11	J6
E2	VSS_12	U6
E23	VSS_13	U13
E26	VSS_14	U14
E29	VSS_15	U15
H29	VSS_16	U16
L29	VSS_17	U17
N13	VSS_18	U18
N14	VSS_19	U29
N15	VSS_20	V13
N16	VSS_21	V14
N17	VSS_22	V15
N18	VSS_23	V16
P13	VSS_24	V17
P14	VSS_25	V18
P15	VSS_26	AC29
P16	VSS_27	AF29
P17	VSS_28	AJ5
P18	VSS_29	AJ8
U26	VSS_30	AJ14
U25	VSS_31	AJ17
P29	VSS_32	AJ20
R13	VSS_33	AJ23
R14	VSS_34	AJ26
R15	VSS_35	AJ29
	VSS_36	
	VSS_37	
	VSS_38	
	VSS_40	
	VSS_41	
	VSS_42	
	VSS_43	
	VSS_44	
	VSS_45	
	VSS_46	
	VSS_47	
	VSS_48	
	VSS_49	
	VSS_50	
	VSS_51	
	VSS_52	
	VSS_53	
	VSS_54	
	VSS_55	
	VSS_56	
	VSS_57	
	VSS_58	
	VSS_59	
	VSS_60	
	VSS_61	
	VSS_62	
	VSS_63	
	VSS_64	
	VSS_65	
	VSS_66	
	VSS_67	
	VSS_68	
	VSS_69	
	VSS_70	

7J00-8
PNX2015
Φ
SUPPLY

+1V2 → E9, E11, E12, E16, E17, F9, F10, F12, F16, F17, AA6, J25, K25, AB6, P6, R6, AB25, F22, F21, AA5, AE10, AE12, AF10, AF12, AF13, E20, E22, AA25 → C1V2_VDD_1 … C1V2_VDD_28

+2V5-DDRPNX, +2V5 → E5, E6, E7, E8, E13, E14, E15, E18, E19, F6, F7, F13, F14, F15, F18, F19, L26, M25, M26, N25, R26, P25, T26, R25 → P2V5VDD_1 … P2V5VDD_24

+3V3 → P3V3VDD_1 … P3V3VDD_9 (F25, G25, H26, M6, N6, V6, W6, AF8, AA26)

+1V2-STANDBY → P3V3VDD_11 … P3V3VDD_19 (AB26, AC26, AD25, AE7, AE13, AE14, AE24, AE25, AF26)

+3V3-STANDBY → SB1V2VDD_1 … SB1V2VDD_7 (AE15, AE16, AE17, AE18, AF15, AF17, AF18)

SB3V3VDD_1 … SB3V3VDD_5 (AE19, AE21, AE22, AF19, AF20)

VDD_LVDS_1 (A23), VDD_LVDS_2 (A24), VDD_LVDS_3 (A26), VDD_LVDS (B23) → LVDS-3V3

VDDA_SYS_PLL (AE9) → PLL-1V2
VCCA_LVDS_PLL (T25) → LVDS-3V3
VDDA_1_7_MCAB (V25) → +3V3
VCCA_U5PLL (P26) → PLL-3V3

ADC_VSSA (AF24), ADC3V3VDDA (AF22) → UP-3V3

AVDD_MCAB (V26) → +1V2
AVSS_MCAB (W25)

SDAC_3V3 (AK1) → ILN2 → 5LN4 600R

2LS5 100n

2L80 2u2, 2L81 2u2, 2L82 2u2, 2L83 2u2, 2L84 2u2, 2L85 100n, 2L86 100n, 2L87 100n, 2L88 100p, 2L89 1n0, 2L90 1n0, 2L91 1n0, 2L92 1n0

+3V3 → 2LN2 47u 4V, 2LN3 100n, 2LN4 100n, 2LN5 100n, 2LN6 100n, 2LN7 100n, 2LN8 100n

+1V2 → 2LP0 100u 4V, 2LP2 100n, 2LP3 100n, 2LP4 100n

+2V5 → 2LP7 100u 4V, 2LP8 100n, 2LP9 100n, 2LR0 100n

+3V3 → 5LN0 600R → ILN3 → PLL-3V3; 2LR2 100n

+1V2 → 5LN1 600R → ILN4 → PLL-1V2; 2LR4 100n

+3V3-STANDBY → 5LN2 600R → ILN5 → UP-3V3; 2LR5 100n, 2LR6 100n

+3V3 → 5LN3 600R → ILN6 → LVDS-3V3; 2LR8 100n, 2LR9 100n

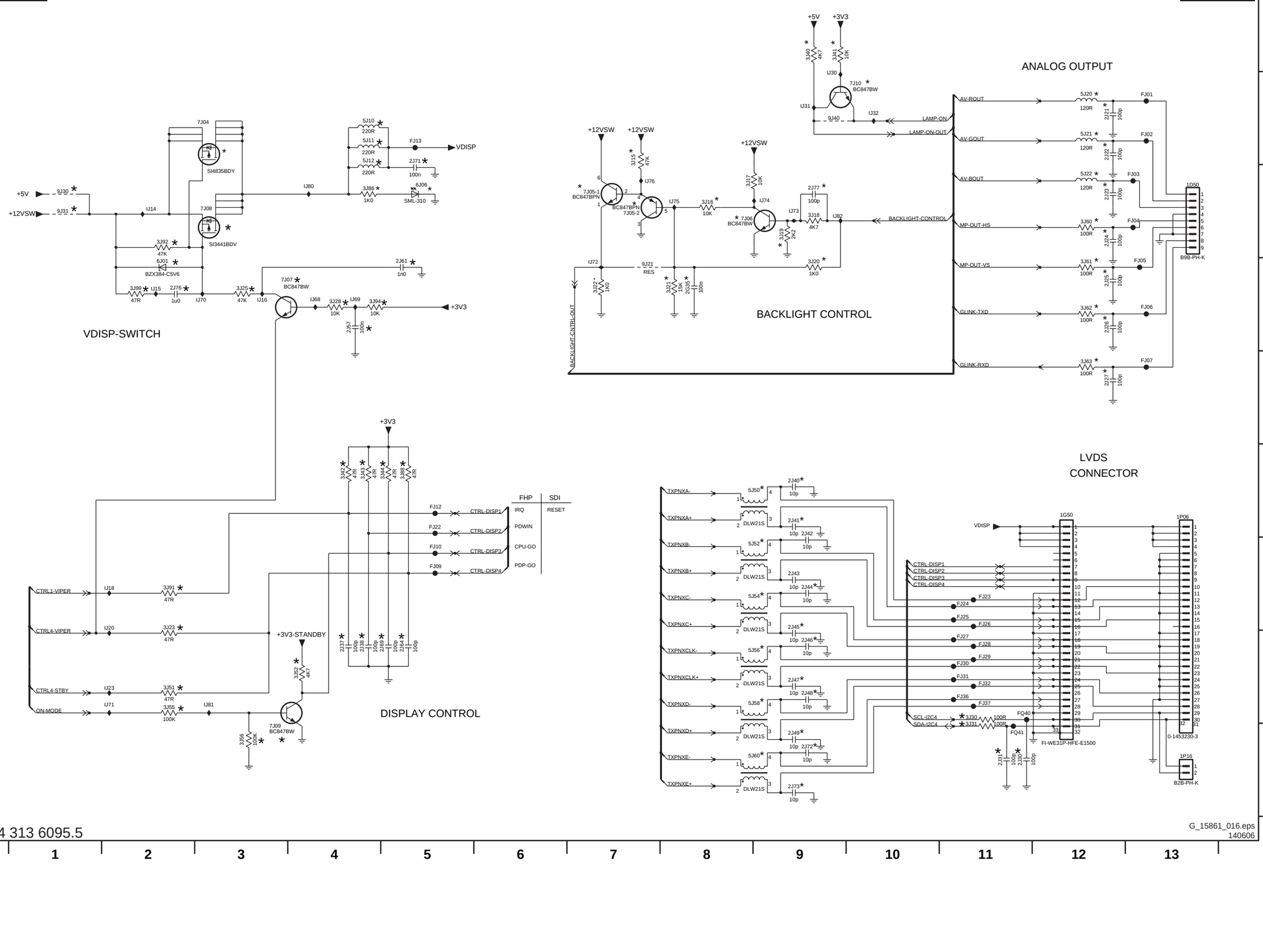
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2L89 E2
2L90 E2
2L91 E3
2L92 E3
2LN2 A7
2LN3 A7
2LN4 A7
2LN5 A8
2LN6 A8
2LN7 A8
2LN8 A8
2LP0 B7
2LP2 B8
2LP3 B8
2LP4 B8
2LP7 C8
2LP8 C8
2LP9 C8
2LR0 C8
2LR2 C8
2LR4 D8
2LR5 D8
2LR6 D8
2LR8 E8
2LR9 E8
2LS5 E6
5LN0 C7
5LN1 D7
5LN2 D7
5LN3 E7
5LN4 E6
7J00-8 A5
7J00-9 A2
ILN2 E6
ILN3 C8
ILN4 D8
ILN5 D8
ILN6 E8

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SSB (.5 Version) PNX2015: Display Interface

B4G VIPER/PNX 2015: DISPLAY INTERFACE



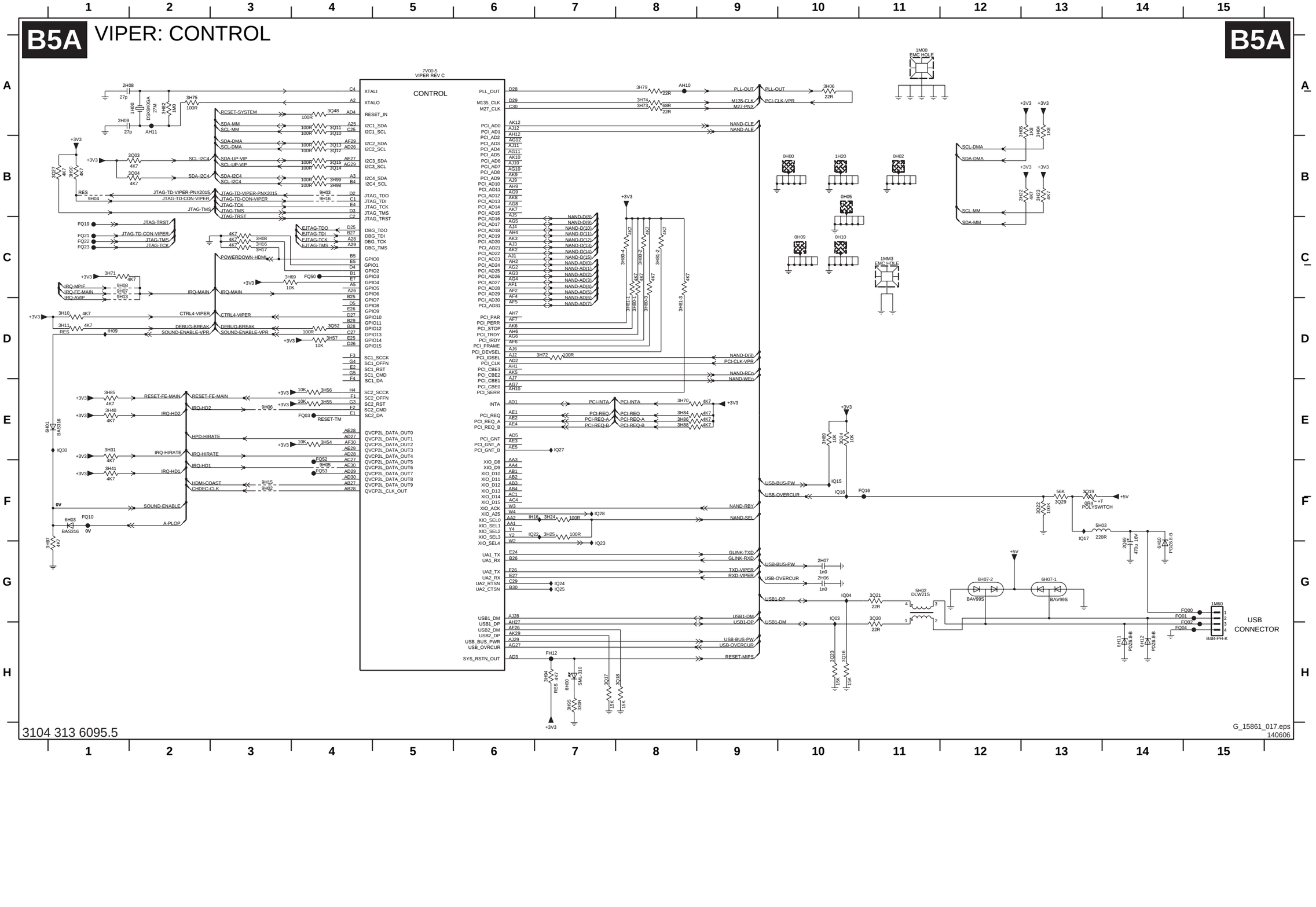
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1D50 C13 FJ10 G5
1G50 F12 FJ12 F5
1P06 F13 FJ13 B5
1P16 I13 FJ22 F5
2G35 D8 FJ23 G11
2J21 B12 FJ24 G11
2J22 B12 FJ25 G11
2J23 C12 FJ26 G11
2J24 C12 FJ27 H11
2J25 D12 FJ28 H11
2J26 D12 FJ29 H11
2J27 E12 FJ30 H11
2J30 I11 FJ31 H11
2J31 I11 FJ32 H11
2J37 H4 FJ36 H11
2J38 H4 FJ37 H11
2J40 F9 FQ40 H11
2J41 F9 FQ41 I11
2J42 F9 IJ14 C2
2J43 G9 IJ15 D2
2J44 G9 IJ16 D3
2J45 G9 IJ18 G2
2J46 H9 IJ20 G2
2J47 H9 IJ23 H2
2J48 H9 IJ30 B9
2J49 I9 IJ31 B9
2J57 D4 IJ32 B10
2J61 D5 IJ68 D4
2J64 H5 IJ69 D4
2J69 H5 IJ70 D3
2J71 B5 IJ71 H2
2J72 I9 IJ72 D7
2J73 I9 IJ73 C9
2J76 D2 IJ74 C9
2J77 C9 IJ75 C8
3J15 B7 IJ76 C7
3J16 C8 IJ80 C4
3J17 C8 IJ81 H3
3J18 C9 IJ82 C9
3J19 C9
3J20 D9
3J21 D8
3J22 D7
3J23 G2
3J25 D3
3J28 D4
3J30 H11
3J31 I11
3J40 A9
3J41 A9
3J42 F4
3J43 F4
3J44 F5
3J51 H2
3J52 H4
3J55 H2
3J56 I3
3J60 C12
3J61 D12
3J62 D12
3J63 E12
3J86 C4
3J88 F5
3J91 G2
3J92 C2
3J94 D4
3J99 D2
5J10 B4
5J11 B4
5J12 B4
5J20 B12
5J21 B12
5J22 C12
5J50 F9
5J52 G9
5J54 G9
5J56 H9
5J58 H9
5J60 I9
6J01 D2
6J06 C5
7J04 B3
7J05-1 C7
7J05-2 C7
7J06 C8
7J07 D4
7J08 C3
7J09 I3
7J10 B10
9J21 D7
9J30 C1
9J31 C1
9J40 B9
FJ01 B13
FJ02 B13
FJ03 C13
FJ04 C13
FJ05 D13
FJ06 D13
FJ07 E13
FJ09 G5

SSB (.5 Version) Viper: Control

0H00 B10	1H00 A2	2H06 G10	3H04 A13	3H11 D1	3H24 F7	3H54 E4	3H70 E8	3H75 A2	3H80-4 C8	3H84 E8	3H90 B1	3H99 B4	3Q12 B4	3Q17 H7	3Q22 F13	3Q48 A4	6H01 E1	6H11 H14	9H04 B1	9H13 C1	FH12 H7	FQ04 H14	FQ22 C1	IH09 D1	IQ16 F10	IQ25 G7
0H02 B11	1H20 B10	2H07 G10	3H05 A13	3H16 C3	3H25 F7	3H55 E4	3H71 C1	3H79 A8	3H81-1 D8	3H85 E1	3H94 H7	3Q03 B2	3Q13 B4	3Q18 H8	3Q23 H10	3Q52 D4	6H03 F1	6H12 H14	9H05 F4	9H15 F3	FQ00 G15	FQ10 F1	FQ23 C1	IH16 F6	IQ17 F13	IQ27 E7
0H05 B10	1M00 A11	2H08 A1	3H06 A10	3H17 C3	3H31 E1	3H56 E4	3H72 D7	3H80-1 D8	3H81-2 C8	3H86 E8	3H95 H7	3Q04 B2	3Q14 B4	3Q19 F13	3Q24 E10	5H02 G11	6H07-1 G13	7V00-5 A5	9H06 E3	9H16 B4	FQ01 G14	FQ16 F11	FQ50 C4	IQ03 G10	IQ22 F6	IQ28 F7
0H09 C10	1M60 G15	2H09 A1	3H08 C3	3H22 B13	3H40 E1	3H57 D4	3H73 A8	3H80-2 C8	3H81-3 D8	3H88 E8	3H97 G1	3Q10 A4	3Q15 B4	3Q20 G11	3Q27 B1	5H03 F13	6H07-2 G12	9H02 F3	9H07 C1	AH10 A8	FQ02 H15	FQ19 C1	FQ52 F4	IQ04 G10	IQ23 G7	IQ30 E1
0H10 C10	1MM3 C11	2Q69 G14	3H10 D1	3H23 B13	3H41 F1	3H69 C3	3H74 A8	3H80-3 D8	3H82 A2	3H89 E10	3H98 B4	3Q11 A4	3Q16 H10	3Q21 G11	3Q29 F13	6H00 H7	6H10 G14	9H03 B4	9H08 C1	AH11 A2	FQ03 E4	FQ21 C1	FQ53 F4	IQ15 F10	IQ24 G7	



SSB (.5 Version) Viper: Main Memory

B5B VIPER: MAIN MEMORY

B5B

7V00-2
VIPER REV C

DDR INTERFACE

SD RAM1

SD RAM2

7V01
MT46V32M16P-5B

7V02
MT46V32M16P-5B

DDR SDRAM 8Mx16

+2V5-VPR

VREF-VPRDDR

VREFD-VPRDDR

VREF-VPRDDR

IQ13

IQ14

RES 3V44 100R

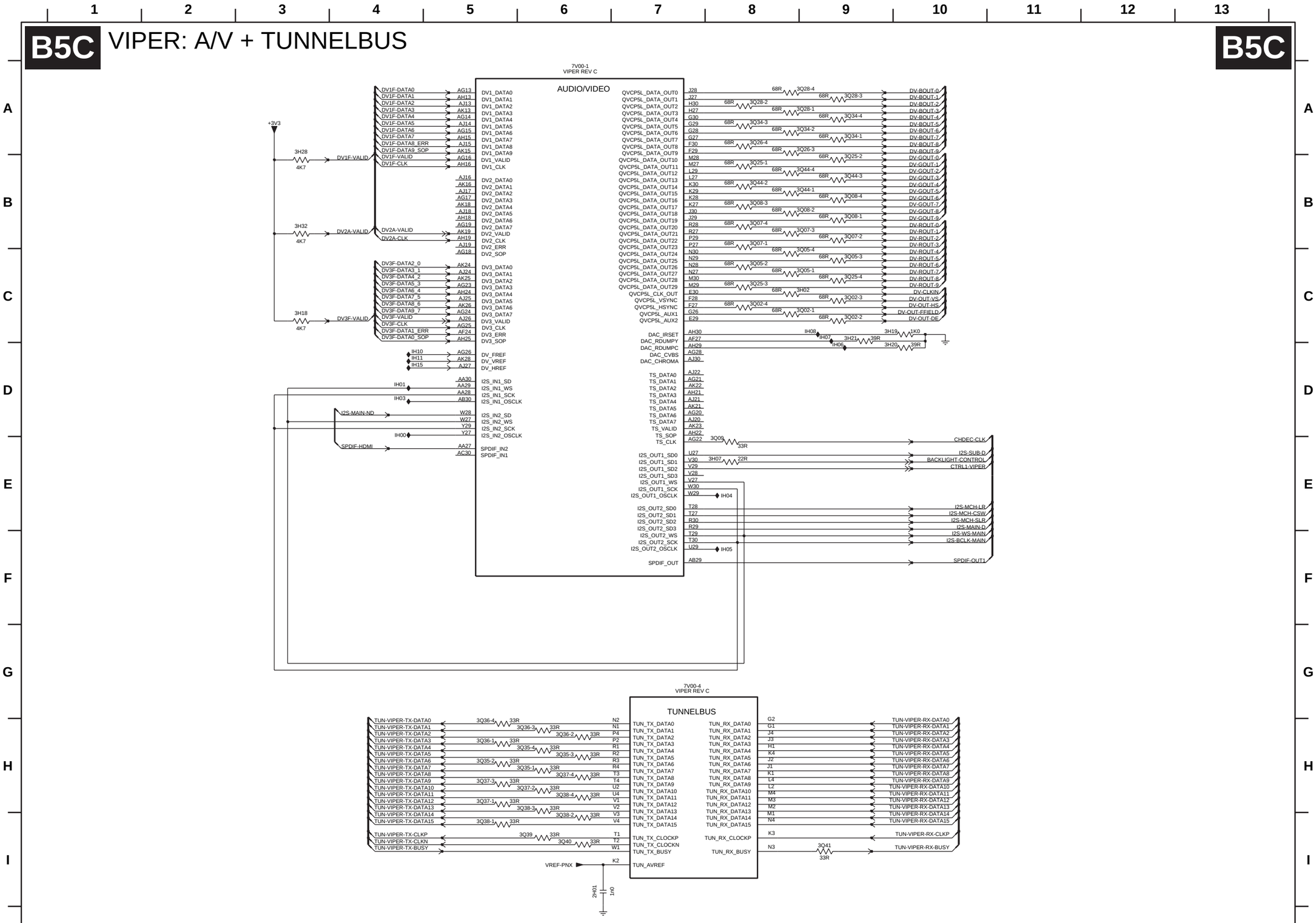
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2H00 H9
2H02 H8
2H03 H9
2H10 G8
2H11 G9
2H12 G9
2Q01 B9
2Q03 B9
2Q21 B14
2Q23 B14
2V00 D7
2V01 D14
2V02 C2
2V16 G11
2V17 G11
2V18 G11
2V19 G11
2V20 G12
2V21 G12
2V22 G12
2V23 G12
2V24 G12
2V25 G13
2V26 G13
2V27 G13
2V28 G13
2V29 G14
2V30 G14
2V31 G14
2V35 G14
2V36 B9
2V37 B10
2V38 B10
2V39 B10
2V40 B10
2V41 B11
2V42 B12
2V43 B12
2V44 B12
2V45 B12
3H51 H8
3H52 F8
3H53 G8
3V00 C10
3V01 C12
3V02 C9
3V03 C11
3V04 C10
3V05 C12
3V06 C9
3V07 C11
3V08 C10
3V09 C12
3V10 C9
3V11 C11
3V12 C10
3V13 C12
3V14 C9
3V15 C11
3V16 C10
3V17 C12
3V18 C9
3V19 C11
3V20 C10
3V21 C12
3V22 D9
3V23 D11
3V24 D7
3V25 D14
3V32 D10
3V33 D12
3V34 D9
3V35 D11
3V36 D10
3V37 D12
3V38 D9
3V39 D11
3V40 D9
3V41 D11
3V42 D9
3V43 D11
3V44 E3
3V78 E3
7V00-2 B4
7V01 B7
7V02 B12
IH20 D3
IQ13 F9
IQ14 G9

SSB (.5 Version) Viper: A/V + Tunnelbus

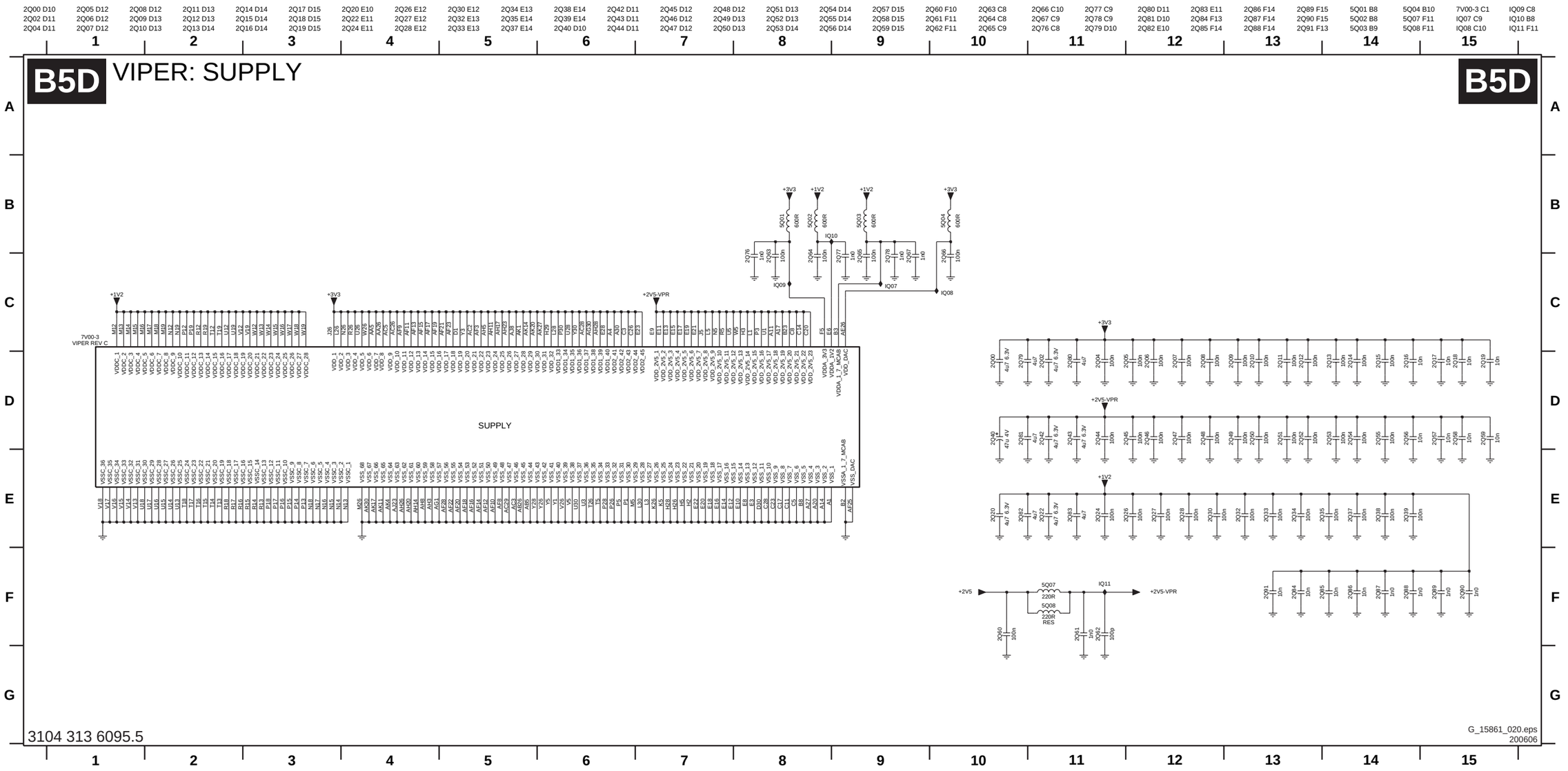
B5C VIPER: A/V + TUNNELBUS



2H01 I6
3H02 C9
3H07 E8
3H18 C3
3H19 C9
3H20 D9
3H21 C9
3H28 A3
3H32 B3
3Q02-1 C9
3Q02-2 C9
3Q02-3 C9
3Q02-4 C8
3Q05-1 C9
3Q05-2 C8
3Q05-3 C9
3Q05-4 B9
3Q07-1 B8
3Q07-2 B9
3Q07-3 B9
3Q07-4 B8
3Q08-1 B9
3Q08-2 B9
3Q08-3 B8
3Q08-4 B9
3Q09 E8
3Q25-1 B8
3Q25-2 A9
3Q25-3 C8
3Q25-4 C9
3Q26-3 A9
3Q26-4 A8
3Q28-1 A9
3Q28-2 A8
3Q28-3 A9
3Q28-4 A9
3Q34-1 A9
3Q34-2 A9
3Q34-3 A8
3Q34-4 A9
3Q35-1 H6
3Q35-2 H5
3Q35-3 H6
3Q35-4 H6
3Q36-1 H5
3Q36-2 H6
3Q36-3 H6
3Q36-4 H5
3Q37-1 H5
3Q37-2 H6
3Q37-3 H5
3Q37-4 H6
3Q38-1 I5
3Q38-2 I6
3Q38-3 H6
3Q38-4 H6
3Q39 I6
3Q40 I6
3Q41 I9
3Q44-1 B9
3Q44-2 B8
3Q44-3 B9
3Q44-4 B9
7V00-1 A6
7V00-4 G7
IH00 D4
IH01 D4
IH03 D4
IH04 E8
IH05 F8
IH06 D9
IH07 C9
IH08 C9
IH10 D4
IH11 D4
IH15 D4

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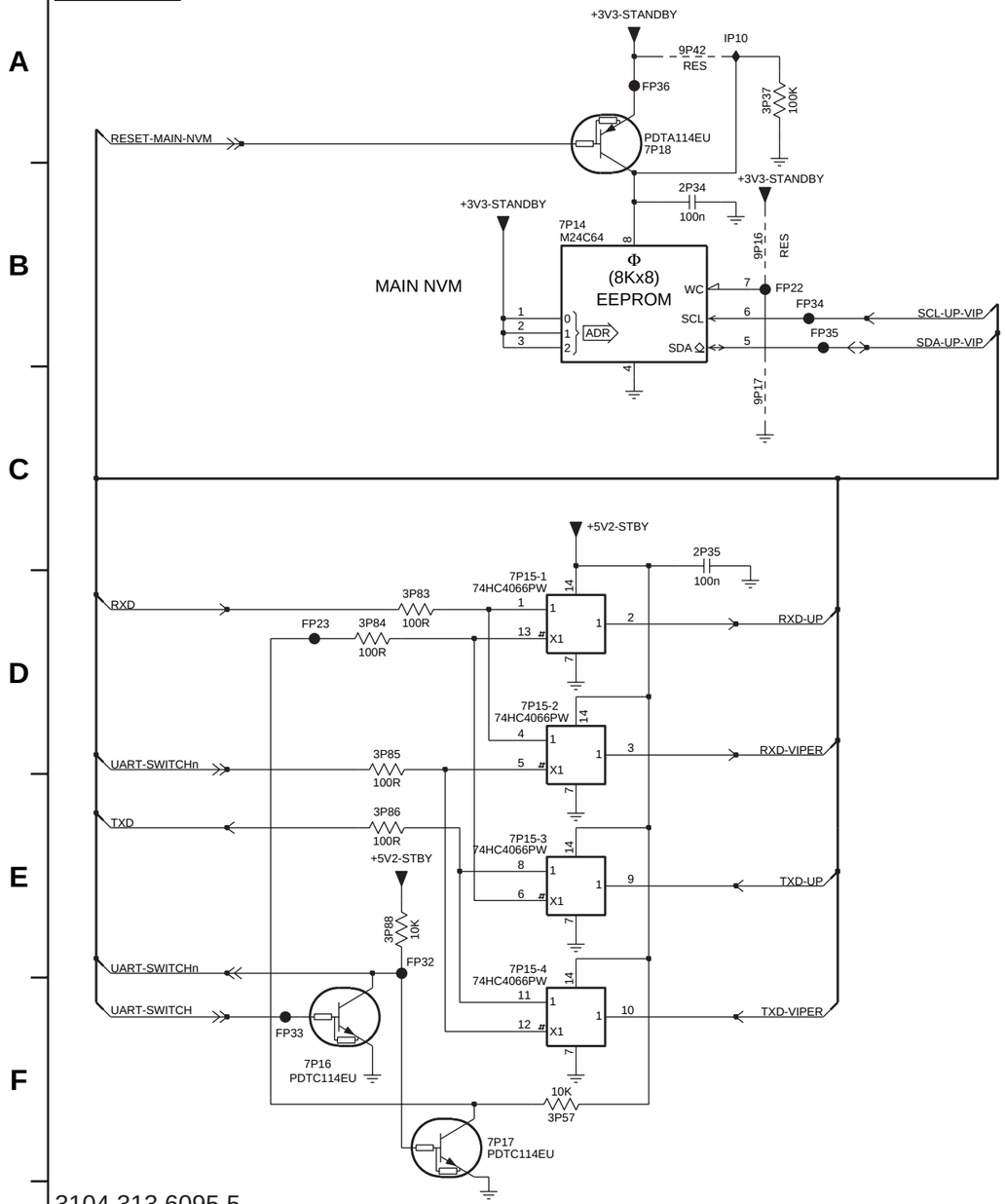
SSB (.5 Version) Viper: Supply

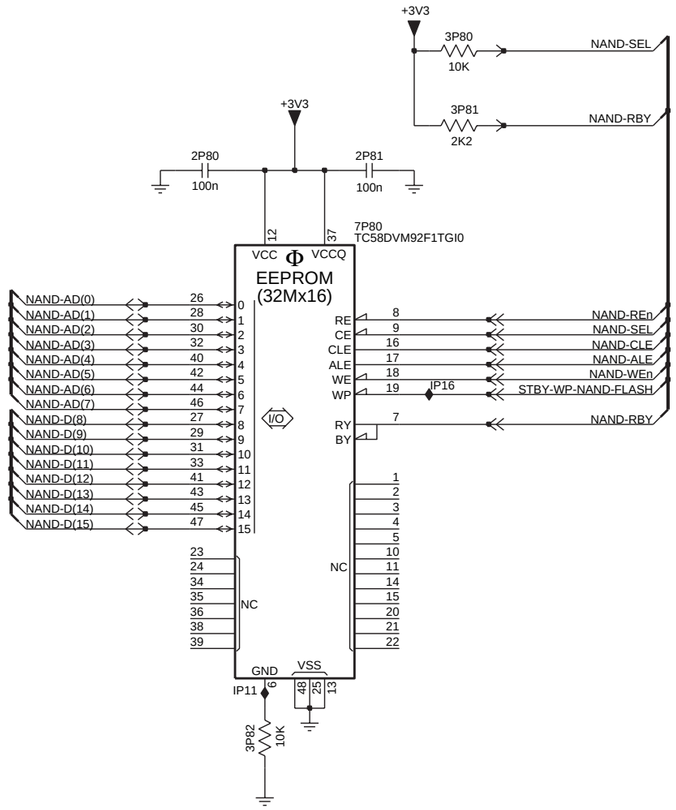


SSB (.5 Version) Viper: EEPROM

B5E VIPER: EEPROM

B5E





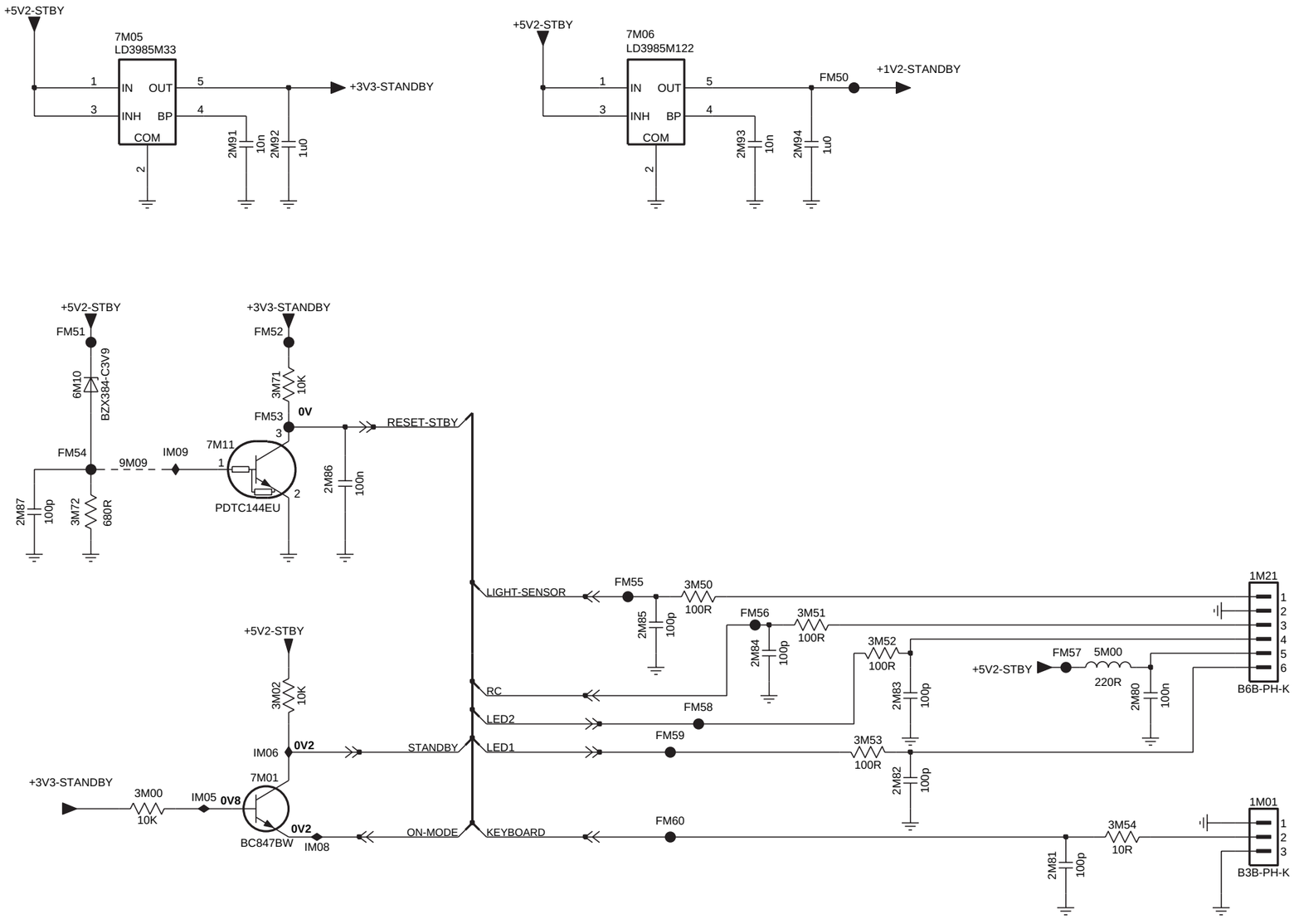
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2P35 C3
2P80 C7
2P81 C8
3P37 A4
3P57 F3
3P80 B8
3P81 C8
3P82 F7
3P83 D2
3P84 D2
3P85 D2
3P86 E2
3P88 E2
7P14 B3
7P15-1 D2
7P15-2 D3
7P15-3 E2
7P15-4 E2
7P16 F1
7P17 F2
7P18 A3
7P80 C8
9P16 B4
9P17 C4
9P42 A3
FP22 B4
FP23 D1
FP32 E2
FP33 F1
FP34 B4
FP35 B4
FP36 A3
IP10 A3
IP11 E7
IP16 D8

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SSB (.5 Version) Miscellaneous

B5F MISCELLANEOUS

B5F

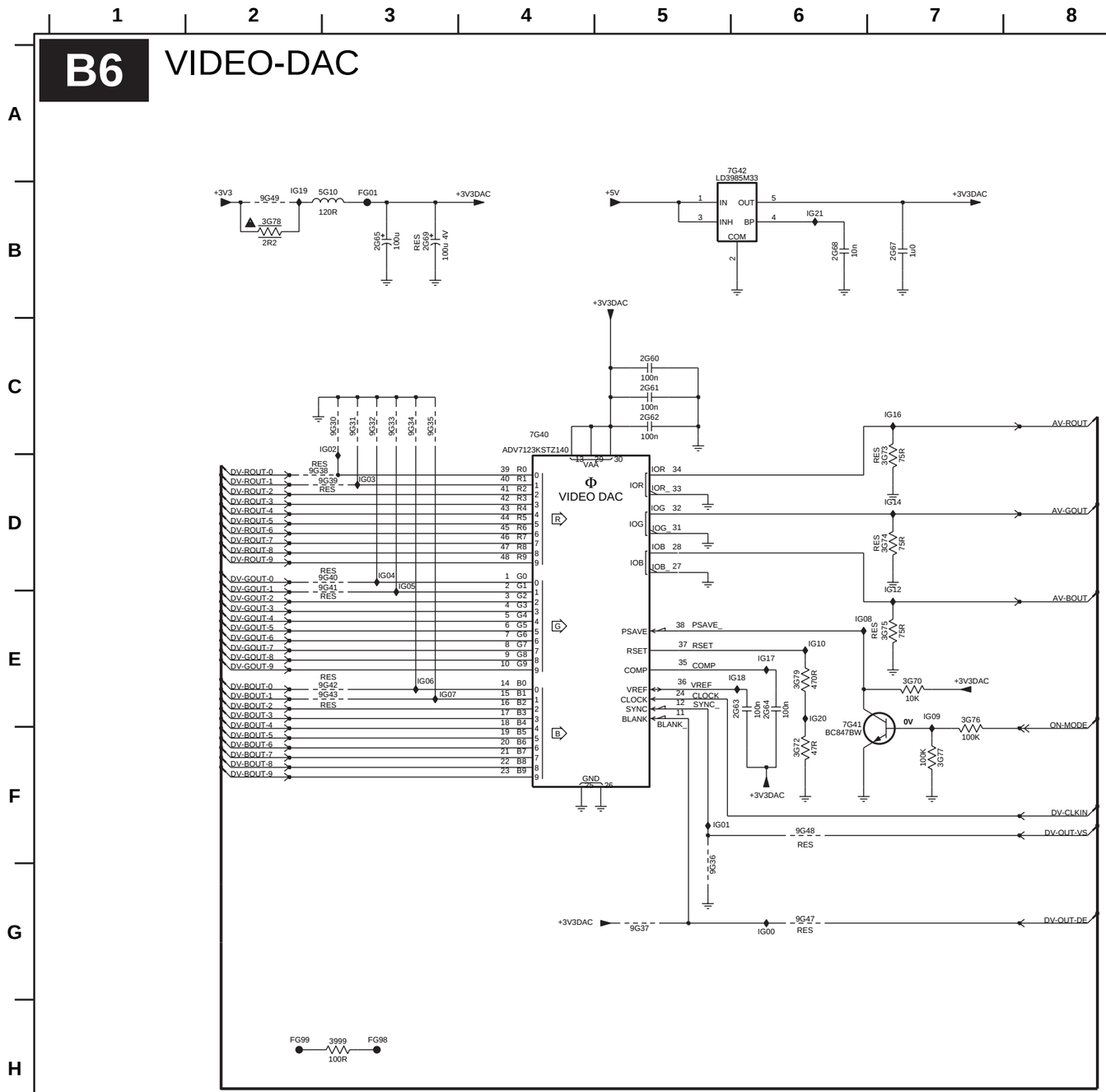


1M01 E7
1M21 D7
2M80 E7
2M81 F6
2M82 E5
2M83 E5
2M84 E5
2M85 D4
2M86 D3
2M87 D1
2M91 B2
2M92 B2
2M93 B5
2M94 B5
3M00 E2
3M02 E2
3M50 D4
3M51 D5
3M52 E5
3M53 E5
3M54 E7
3M71 C2
3M72 D1
5M00 E6
6M10 C1
7M01 E2
7M05 A1
7M06 A4
7M11 D2
9M09 D2
FM50 B5
FM51 C1
FM52 C2
FM53 C2
FM54 D1
FM55 D4
FM56 D5
FM57 E6
FM58 E4
FM59 E4
FM60 E4
IM05 E2
IM06 E2
IM08 F2
IM09 D2

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SSB (.5 Version) Video DAC

B6 VIDEO-DAC



2G60 C5
2G61 C5
2G62 C5
2G63 E6
2G64 E6
2G65 B3
2G67 B7
2G68 B6
2G69 B3
3999 H3
3G70 E7
3G72 F6
3G73 D7
3G74 D7
3G75 E7
3G76 E7
3G77 F7
3G78 B2
3G79 E6
5G10 B3
7G40 C4
7G41 F6
7G42 A6
9G30 C3
9G31 C3
9G32 C3
9G33 C3
9G34 C3
9G35 C3
9G36 G5
9G37 G5
9G38 D2
9G39 D3
9G40 D3
9G41 D3
9G42 E3
9G43 E3
9G47 G6
9G48 F6
9G49 B2
FG01 B3
FG98 H3
FG99 H2
IG00 G6
IG01 F5
IG02 C3
IG03 D3
IG04 D3
IG05 D3
IG06 E3
IG07 E3
IG08 E6
IG09 E7
IG10 E6
IG12 D7
IG14 D7
IG16 C7
IG17 E6
IG18 E6
IG19 B2
IG20 E6
IG21 B6
cG10 D10
cG11 D10
cG12 D10
cG13 D10
cG14 D10
cG15 D10
cG16 D10
cG17 D10
cG18 D10
cG19 D10
cG20 D10
cG21 E10
cG22 E10
cG23 E10
cG24 E10
cG25 E10
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cG44 G10

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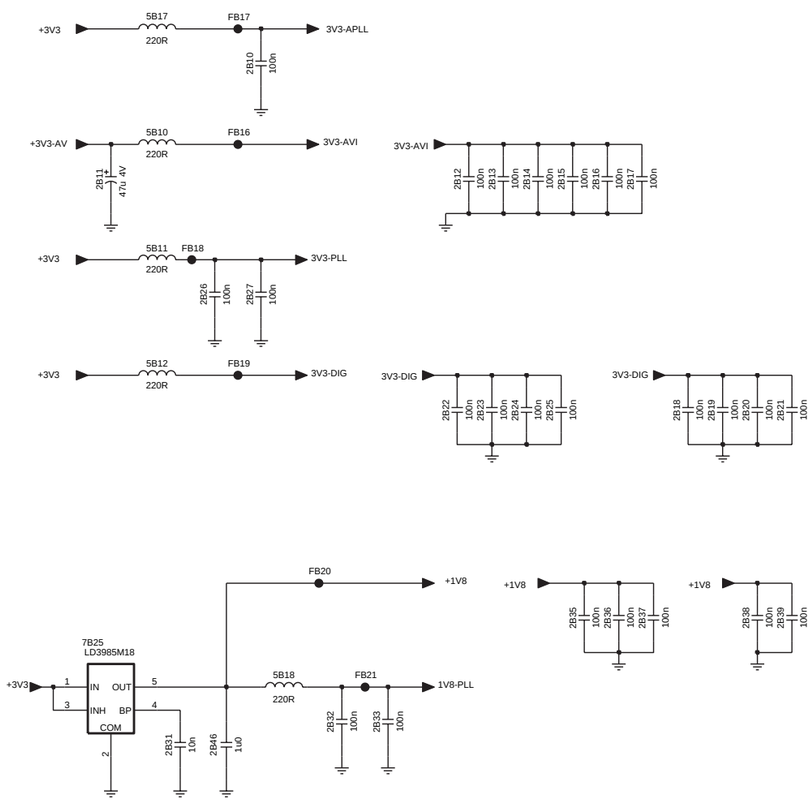
SSB (.5 Version) HDMI: Supply

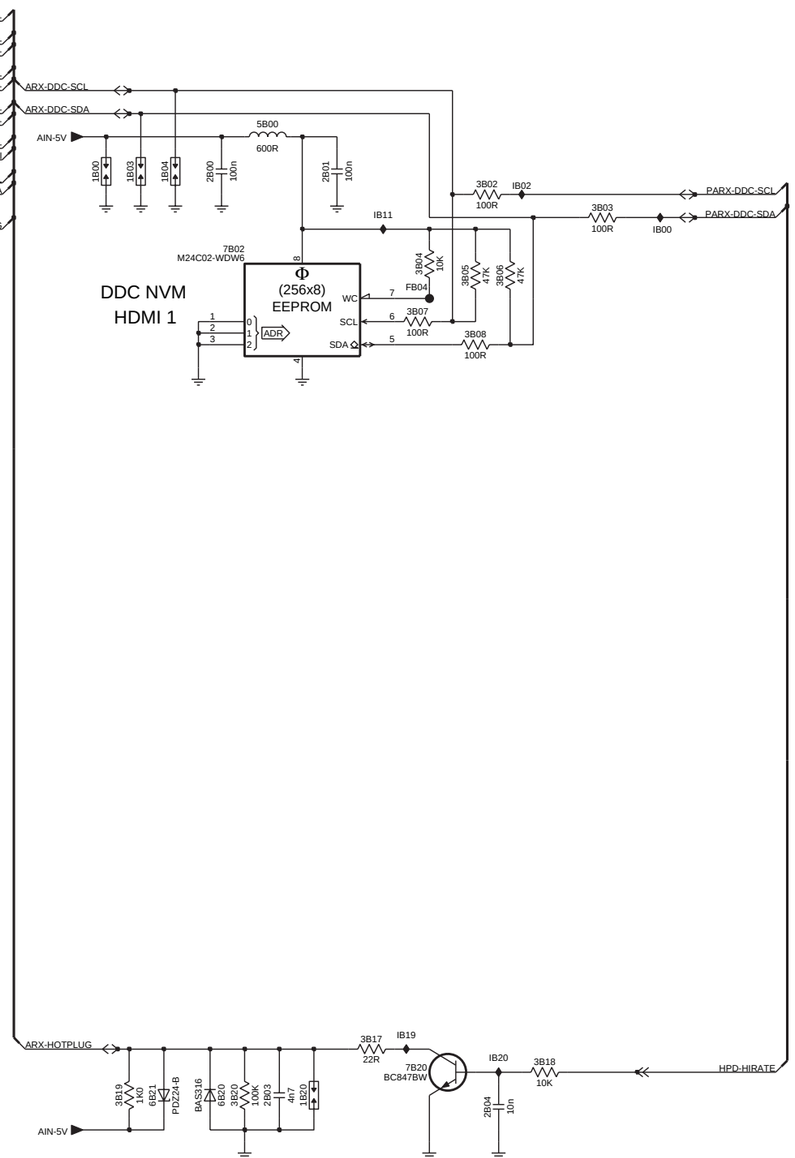
B7A HDMI + SUPPLY

B7A

HDMI CONNECTOR 1

DDC NVM HDMI 1



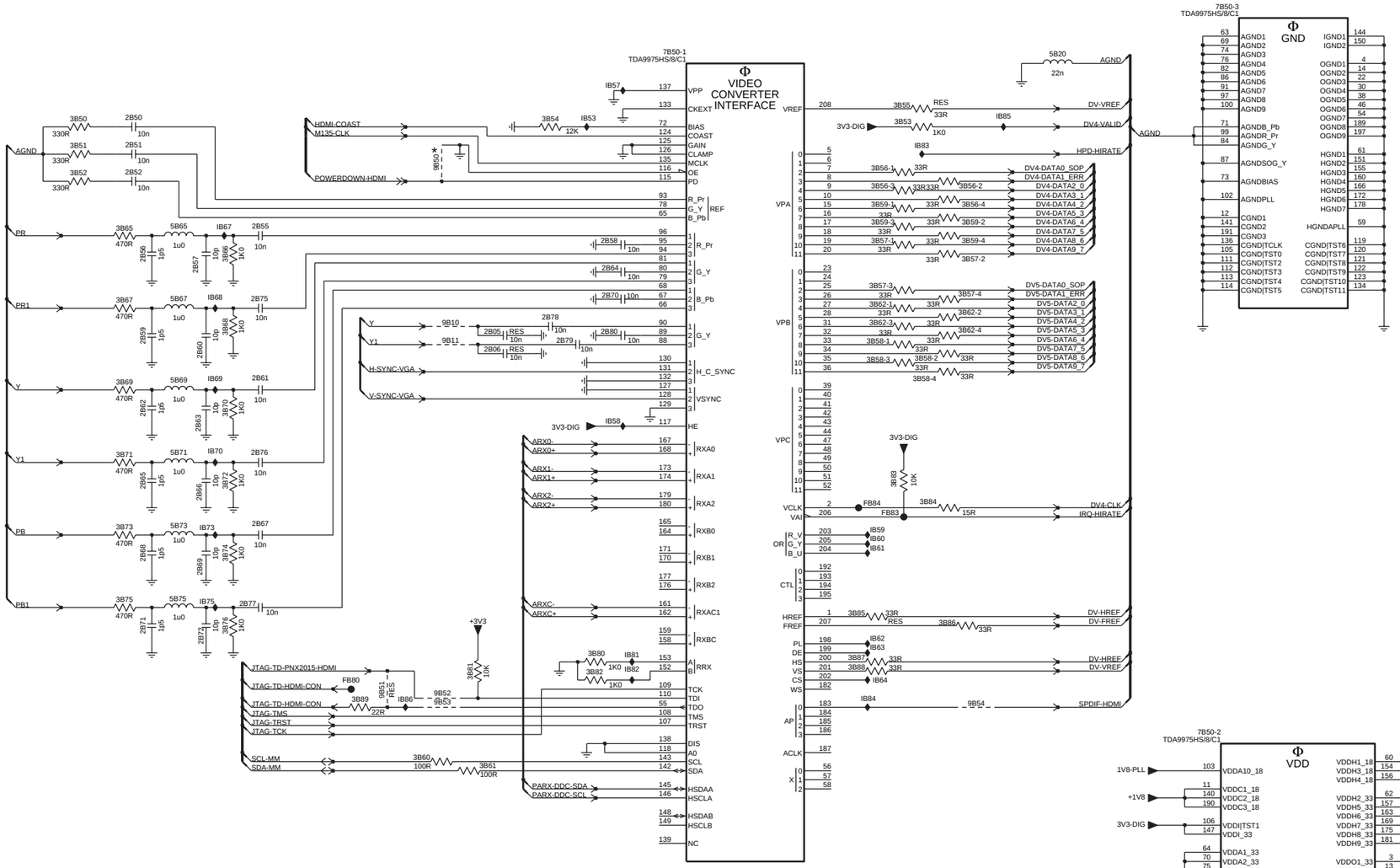


1B00 C3
1B03 C4
1B04 C4
1B20 I5
1I06 B1
2B00 C4
2B01 C5
2B03 I4
2B04 I6
2B10 B10
2B11 C9
2B12 C11
2B13 C11
2B14 C12
2B15 C12
2B16 C12
2B17 C12
2B18 E13
2B19 E13
2B20 E13
2B21 E13
2B22 E11
2B23 E11
2B24 E12
2B25 E12
2B26 D10
2B27 D10
2B31 G9
2B32 F10
2B33 F11
2B35 F12
2B36 F12
2B37 F12
2B38 F13
2B39 F13
2B40 I10
2B41 I10
2B45 I9
2B46 G10
3B02 C6
3B03 C7
3B04 D5
3B05 D6
3B06 D6
3B07 D5
3B08 D6
3B17 H5
3B18 I6
3B19 I4
3B20 I4
5B00 C5
5B10 C9
5B11 D9
5B12 D9
5B17 B9
5B18 F10
6B20 I4
6B21 I4
7B02 D4
7B20 I5
7B25 F9
7B45 H10
9B00 C2
9B38 H10
FB04 D5
FB09 C2
FB10 C2
FB11 C2
FB12 C2
FB13 C2
FB14 D2
FB16 C10
FB17 B10
FB18 D10
FB19 D10
FB20 F10
FB21 F11
FB45 H10
IB00 C7
IB02 C6
IB11 C5
IB19 H5
IB20 I6

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SSB (.5 Version) HDMI: I/O + Control

B7B HDMI: I/O + CONTROL



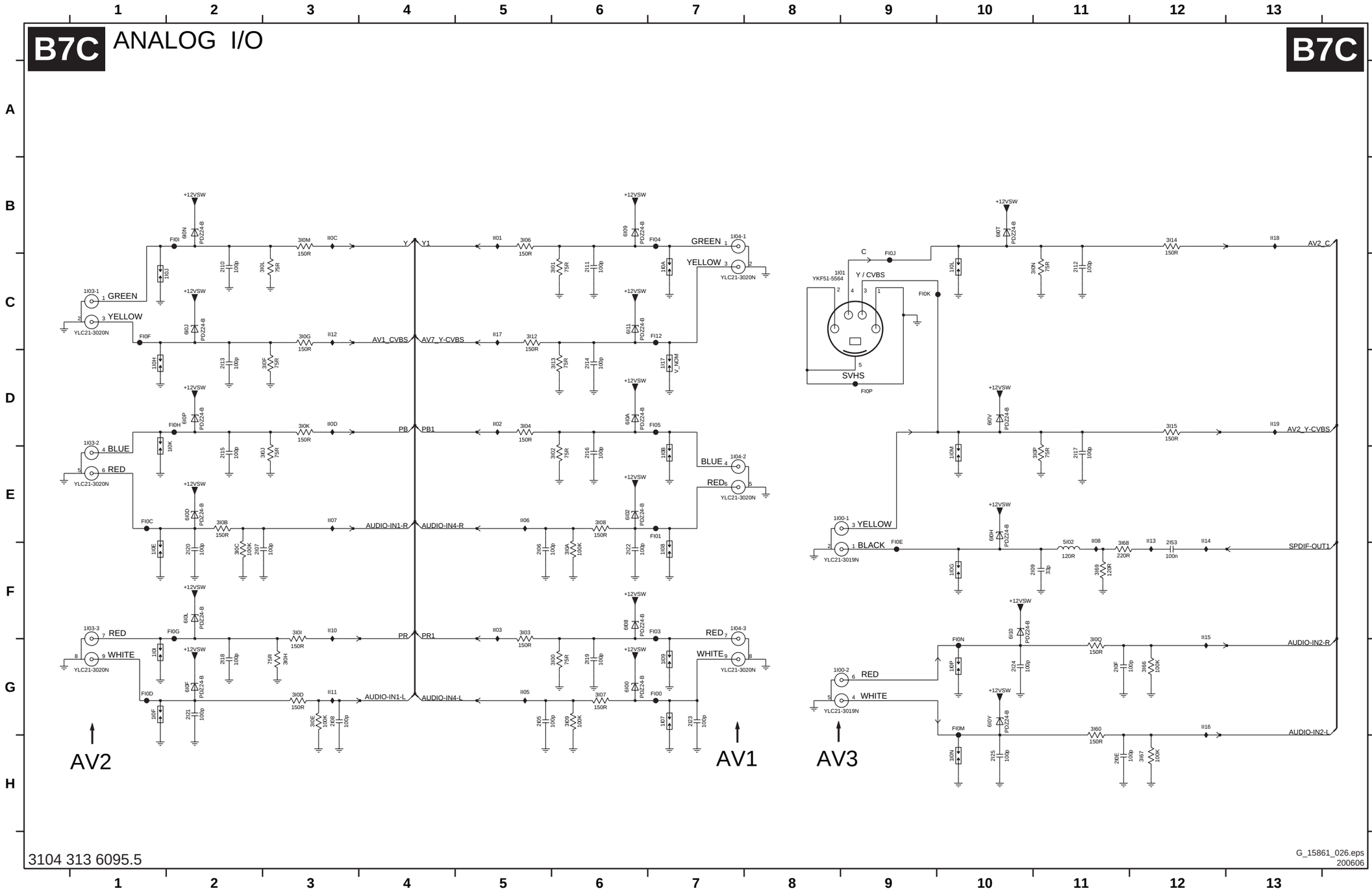
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2B05 D5
2B06 D5
2B50 C2
2B51 C2
2B52 C2
2B55 C3
2B56 D2
2B57 D3
2B58 D6
2B59 D2
2B60 D3
2B61 E3
2B62 E2
2B63 E3
2B64 D6
2B65 E2
2B66 F3
2B67 F3
2B68 F2
2B69 F3
2B70 D6
2B71 G2
2B72 G3
2B75 D3
2B76 E3
2B77 F3
2B78 D5
2B79 D6
2B80 D6
3B50 C2
3B51 C2
3B52 C2
3B53 C8
3B54 C5
3B55 B8
3B56-1 C8
3B56-2 C9
3B56-3 C8
3B56-4 C9
3B57-1 D8
3B57-2 D9
3B57-3 D8
3B57-4 D9
3B58-1 D8
3B58-2 D8
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3B58-4 E8
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3B59-2 C9
3B59-3 C8
3B59-4 D9
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3B61 H5
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3B65 C2
3B66 D3
3B67 D2
3B68 D3
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3B72 E3
3B73 F2
3B74 F3
3B75 F2
3B76 G3
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3B81 G5
3B82 G6
3B83 E8
3B84 F8
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5B75 F2
7B50-1 B6
7B50-2 G11
7B50-3 B11
9B10 D5
9B11 D5
9B50 C4
9B51 G4
9B52 G5
9B53 G5
9B54 G9
FB80 G4
FB83 F8
FB84 F8
IB53 C6
IB57 B6
IB58 E6
IB59 F8
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IB61 F8
IB62 G8
IB63 G8
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IB67 C3
IB68 G8
IB69 E3
IB70 E3
IB73 F3
IB75 F3
IB81 G6
IB82 G6
IB83 C8
IB84 G8
IB85 C9
IB86 G4

SSB (.5 Version) Analog I/O

B7C ANALOG I/O **B7C**

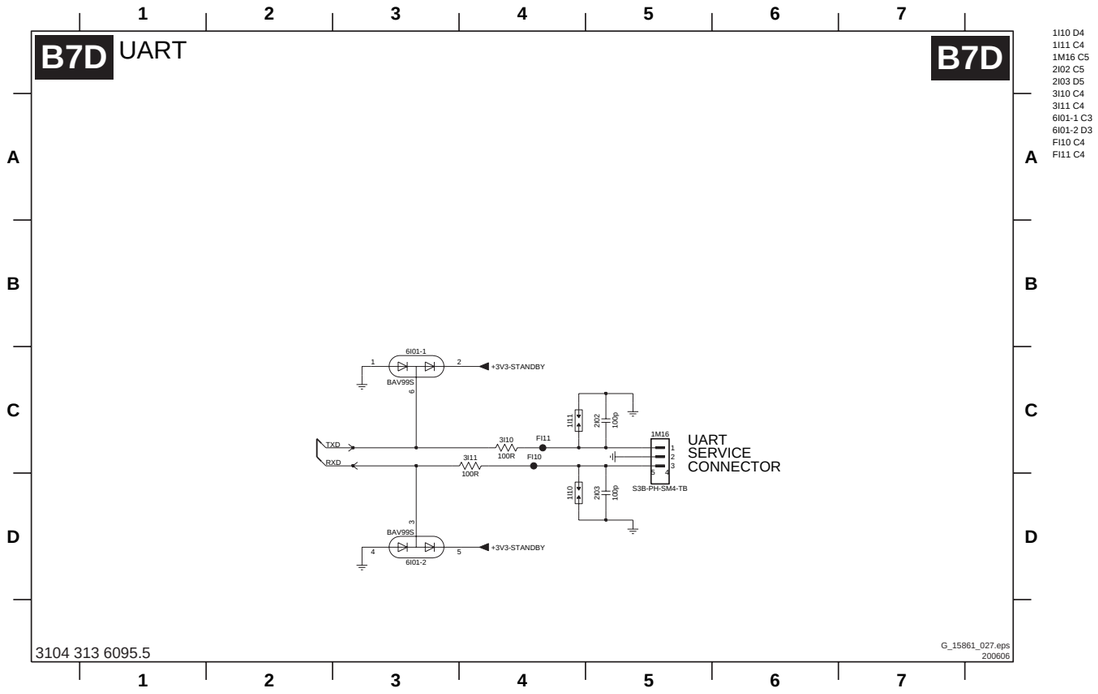


3104 313 6095.5

G_15861_026.eps
200606

1I00-1 E9
1I00-2 G9
1I01 C8
1I03-1 C1
1I03-2 D1
1I03-3 F1
1I04-1 B7
1I04-2 E7
1I04-3 F7
1I07 G7
1I08 F7
1I09 G7
1I0A C7
1I0B E7
1I0E F1
1I0F G1
1I0G F10
1I0H D1
1I0I G1
1I0J C1
1I0K E2
1I0L C10
1I0M E10
1I0N H10
1I0P G10
1I17 D7
2I05 G5
2I06 F5
2I07 F2
2I08 G3
2I09 F10
2I0E H11
2I0F G11
2I10 C2
2I11 C6
2I12 C11
2I13 D2
2I14 D6
2I15 E2
2I16 E6
2I17 E11
2I18 G2
2I19 G6
2I20 F2
2I21 G2
2I22 F6
2I23 G7
2I24 G10
2I25 H10
2I53 F12
3I00 G6
3I01 C6
3I02 E6
3I03 F5
3I04 D5
3I06 B5
3I07 G6
3I08 E6
3I09 G6
3I0A F6
3I0B E2
3I0C F2
3I0D G3
3I0E G3
3I0F D3
3I0G C3
3I0H G3
3I0I F3
3I0J E2
3I0K D3
3I0L C2
3I0M B3
3I0N C10
3I0P E11
3I0Q G11
3I12 C5
3I13 D6
3I14 B12
3I15 D12
3I60 G11
3I66 G12
3I67 H12
3I68 F11
3I69 F11
5I02 F11
6I00 G6
6I02 E6
6I08 F6
6I09 B6
6I0A D6
6I0D E2
6I0F G2
6I0H E10
6I0J C2
6I0L F2
6I0N B2
6I0P D2
6I0T B10
6I0V D10
6I0Y G10
6I10 F10
6I11 C6
FI00 G7
FI01 E7
FI03 F7
FI04 B7
FI05 D7
FI0C E1
FI0D G1
FI0E F9
FI0F C1
FI0G F2
FI0H D2
FI0I B2
FI0J C9
FI0K C9
FI0M G10
FI0N G10
FI0P D9
FI12 C7
II01 B5
II02 D5
II03 F5
II05 G5
II06 E5
II07 E3
II08 E11
II0C B3
II0D D3
II10 F3
II11 G3
II12 C3
II13 E12
II14 E12
II15 F12
II16 G12
II17 C5
II18 B13
II19 D13

SSB (.5 Version) UART



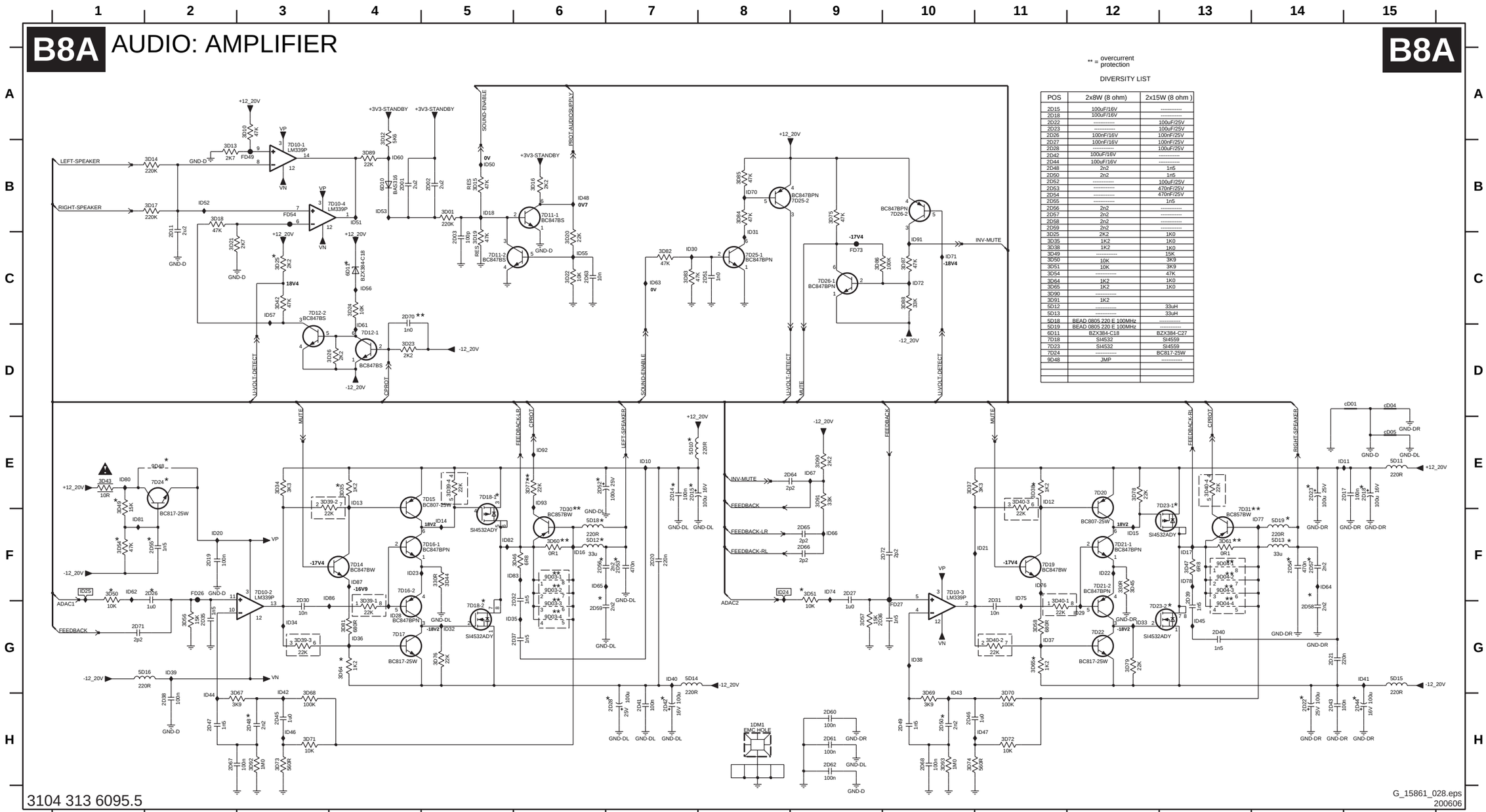
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6I01-1 C3
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FI11 C4

Personal Notes:

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131004

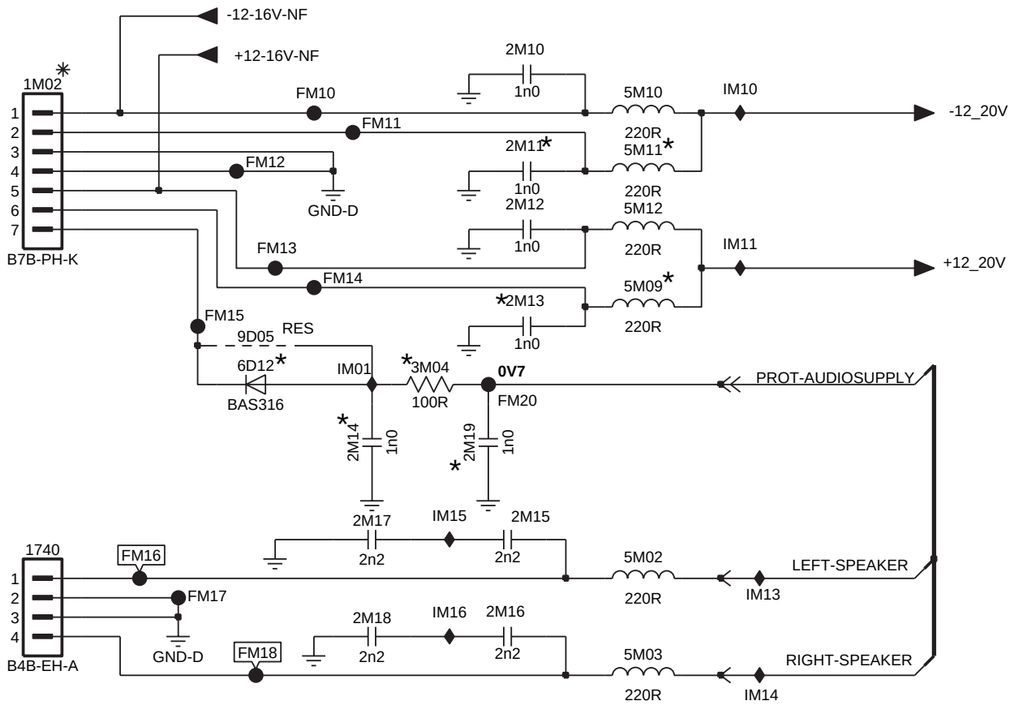
SSB (.5 Version) Audio: Amplifier

1DM1 H8	2D19 F2	2D31 G11	2D42 H7	2D51 C8	2D60 H9	2D70 C4	3D16 B6	3D25 C3	3D39-4 E5	3D46 F6	3D60 F6	3D72 H11	3D82 C7	3D91 E9	5D16 G2	7D11-1 B6	7D18-1 E5	7D24 E2	9D03-3 G6	FD49 B3	ID16 F6	ID28 G4	ID37 G11	ID46 H3	ID57 C3	ID70 B8	ID81 F1	cD04 D15
2D01 C4	2D20 F7	2D32 F6	2D43 H14	2D52 E6	2D61 H9	2D71 G1	3D17 B2	3D26 D3	3D40-1 G11	3D47 F13	3D61 F13	3D73 H3	3D83 C7	3D92 H3	5D18 F6	7D11-2 C5	7D18-2 G5	7D25-1 C8	9D03-4 G6	FD54 B3	ID17 F13	ID29 G12	ID38 G10	ID47 H11	ID60 B4	ID71 C10	ID82 F5	cD05 E15
2D02 C4	2D21 G14	2D35 G2	2D44 H15	2D53 F7	2D62 H9	2D72 F10	3D18 B2	3D34 E3	3D40-2 G11	3D49 E1	3D64 G4	3D74 H10	3D84 B8	3D93 H10	5D19 F14	7D12-1 D4	7D19 F11	7D25-2 B9	9D04-1 F13	FD73 C9	ID18 B5	ID30 C7	ID39 G2	ID48 B6	ID61 D4	ID72 C10	ID83 F5	
2D03 C5	2D22 H14	2D36 G9	2D45 H3	2D54 F14	2D63 C6	3D01 B5	3D19 C5	3D35 E4	3D40-3 E11	3D50 F1	3D65 G11	3D75 B9	3D85 B8	5D10 E7	6D10 B4	7D12-2 C3	7D20 E12	7D26-1 C9	9D04-2 F13	ID10 E7	ID20 F2	ID31 C8	ID40 G7	ID50 B5	ID62 F1	ID74 F9	ID86 F4	
2D11 B2	2D23 E14	2D37 G6	2D46 H10	2D55 F2	2D64 E9	3D10 A3	3D20 C6	3D37 E10	3D40-4 E13	3D51 F9	3D67 H3	3D76 G5	3D86 C9	5D11 E15	6D11 C4	7D14 F4	7D21-1 F12	7D26-2 B10	9D04-3 F13	ID11 E15	ID21 F11	ID32 G5	ID41 G15	ID51 B4	ID63 C7	ID75 F11	ID87 F4	
2D14 E7	2D26 F2	2D38 H2	2D47 H2	2D56 F6	2D65 F9	3D12 A4	3D21 C2	3D38 E11	3D42 C3	3D54 F1	3D68 H3	3D77 E6	3D87 C10	5D12 F6	7D10-1 B3	7D15 E5	7D21-2 F12	7D30 F6	9D04-4 G13	ID12 E11	ID22 F12	ID33 G12	ID42 G3	ID52 B2	ID64 F14	ID76 F11	ID91 C10	
2D15 E7	2D27 F9	2D39 F13	2D48 H3	2D57 F14	2D66 F9	3D13 B2	3D22 C6	3D39-1 G4	3D43 E1	3D56 G2	3D69 H10	3D78 E12	3D88 C10	5D13 F14	7D10-2 F3	7D16-1 F5	7D22 G12	7D31 F13	9D48 E2	ID13 E4	ID23 F4	ID34 G3	ID43 G10	ID53 B4	ID65 F6	ID77 F14	ID92 E6	
2D17 E15	2D28 H7	2D40 G13	2D49 H10	2D58 G14	2D67 H2	3D14 B2	3D23 D4	3D39-2 E4	3D44 F5	3D57 G9	3D70 H11	3D79 G12	3D89 B4	5D14 G7	7D10-3 F10	7D16-2 F4	7D23-1 E12	9D03-1 F6	FD26 F2	ID14 F5	ID24 F8	ID35 G5	ID44 H2	ID55 C6	ID66 F9	ID78 F13	ID93 E6	
2D18 E15	2D30 G3	2D41 H7	2D50 H10	2D59 G6	2D68 H10	3D15 B5	3D24 C4	3D39-3 G3	3D45 F12	3D58 G11	3D71 H3	3D81 G4	3D90 E9	5D15 G15	7D10-4 B3	7D17 G4	7D23-2 G12	9D03-2 F6	FD27 G10	ID15 F12	ID25 F1	ID36 G4	ID45 G13	ID56 C4	ID67 E9	ID80 E1	cD01 D15	

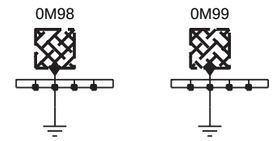


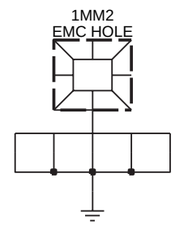
SSB (.5 Version) Audio: Connectors

B8B AUDIO: CONNECTORS



	2x8W (8 ohm)	2x15W (8 ohm)
2M11	----------	1nF
2M13	----------	1nF
2M14	----------	1nF
3M04	----------	100E
5M09	----------	220E 100MHz
5M11	----------	220E 100MHz





0M98 C6
0M99 C6
1740 C1
1M02 A1
1MM2 D6
2M10 A3
2M11 A3
2M12 B3
2M13 B3
2M14 C3
2M15 C3
2M16 C3
2M17 C3
2M18 C3
2M19 C3
3M04 B3
5M02 C4
5M03 C4
5M09 B4
5M10 A4
5M11 A4
5M12 B4
6D12 B2
9D05 B2
FM10 A2
FM11 A3
FM12 A2
FM13 B2
FM14 B2
FM15 B2
FM16 C2
FM17 C2
FM18 C2
FM20 B3
IM01 B3
IM10 A4
IM11 B4
IM13 C4
IM14 C4
IM15 C3
IM16 C3

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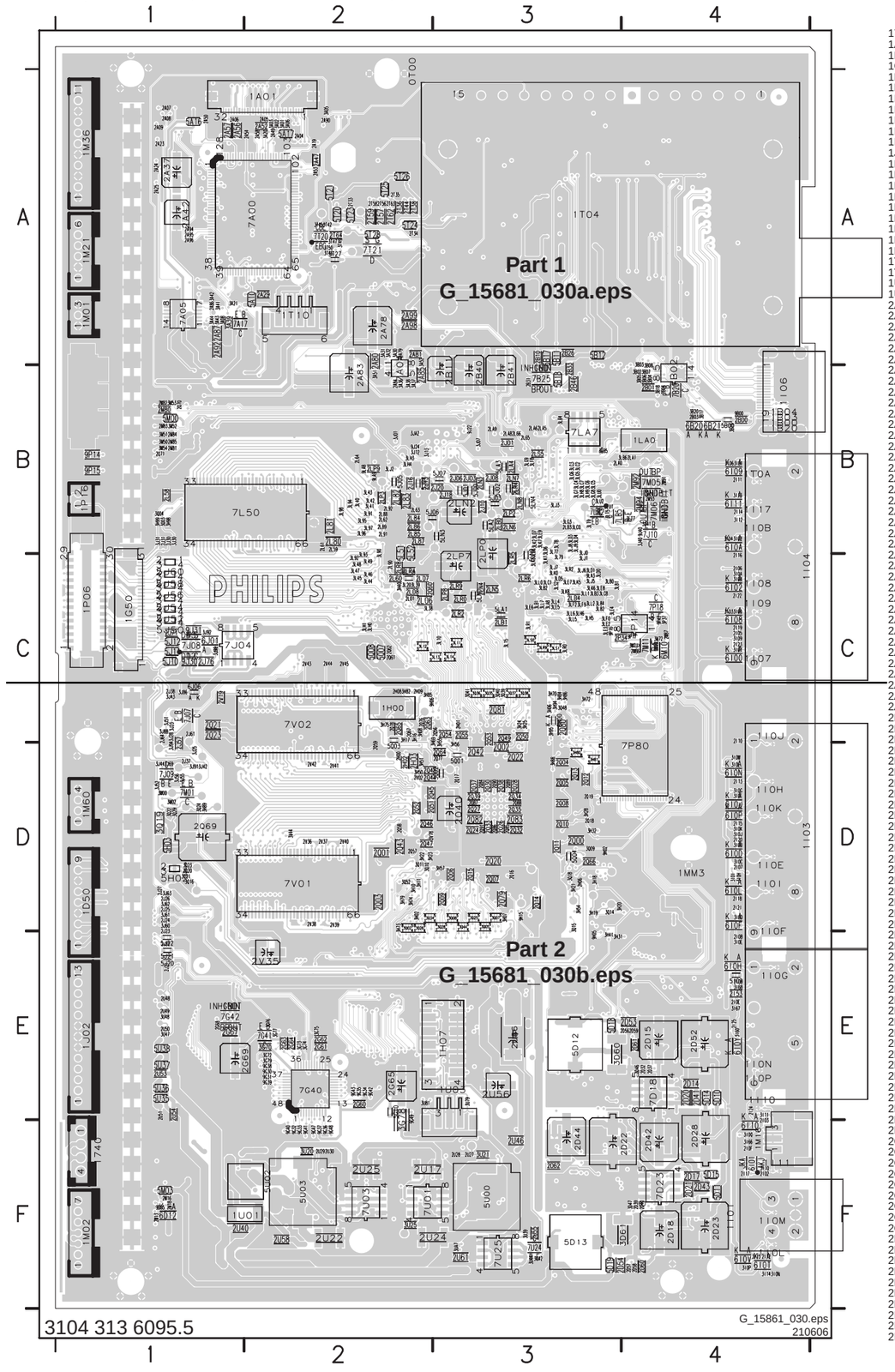
SSB (.SSB (.5 Version) SRP List

Netname	Diagram
+12_20V	B08a (7x)
+12_20V	B08b (1x)
+12-16V-NF	B01b (2x)
+12-16V-NF	B08b (2x)
+12VS	B01a (1x)
+12VS	B01b (1x)
+12VSW	B01a (2x)
+12VSW	B01b (2x)
+12VSW	B02a (4x)
+12VSW	B02b (2x)
+12VSW	B03e (4x)
+12VSW	B04a (2x)
+12VSW	B04e (2x)
+12VSW	B04g (8x)
+12VSW	B07c (34x)
+1V2	B01a (4x)
+1V2	B02a (2x)
+1V2	B04e (4x)
+1V2	B05d (8x)
+1V2_ATSC	B02a (2x)
+1V2F	B02a (1x)
+1V2-STANDBY	B04e (2x)
+1V2-STANDBY	B05f (1x)
+1V8	B07a (3x)
+1V8	B07b (2x)
+2V5	B01a (2x)
+2V5	B02a (2x)
+2V5	B04d (2x)
+2V5	B05d (2x)
+2V5A	B02a (1x)
+2V5A-ADC	B02a (1x)
+2V5A-PLL	B02a (1x)
+2V5A-XTAL	B02a (1x)
+2V5D	B01a (2x)
+2V5-DDRPNX	B04d (4x)
+2V5-DDRPNX	B04f (1x)
+2V5D-PLL	B02a (1x)
+2V5F	B02a (1x)
+2V5-VPR	B05b (7x)
+2V5-VPR	B05d (3x)
+3V3	B01a (2x)
+3V3	B01b (4x)
+3V3	B02a (10x)
+3V3	B04e (4x)
+3V3	B04g (6x)
+3V3	B05a (42x)
+3V3	B05c (2x)
+3V3	B05d (8x)
+3V3	B05e (4x)
+3V3	B06 (2x)
+3V3	B07a (10x)
+3V3	B07b (2x)
+3V3-AV	B07a (2x)
+3V3DAC	B06 (6x)
+3V3F	B02a (4x)
+3V3-STANDBY	B03a (2x)
+3V3-STANDBY	B04e (2x)
+3V3-STANDBY	B04g (2x)
+3V3-STANDBY	B05e (6x)
+3V3-STANDBY	B05f (6x)
+3V3-STANDBY	B07d (4x)
+3V3-STANDBY	B08a (6x)
+3V3-UART	B01b (2x)
+5V	B01b (4x)
+5V	B02a (2x)
+5V	B03a (6x)
+5V	B03b (12x)
+5V	B03c (2x)
+5V	B03e (4x)
+5V	B04e (4x)
+5V	B04g (4x)
+5V	B05a (4x)
+5V	B06 (2x)
+5V	B07a (2x)
+5V2-STBY	B01b (8x)
+5V2-STBY	B03e (4x)
+5V2-STBY	B04a (2x)
+5V2-STBY	B05e (4x)
+5V2-STBY	B05f (8x)
+5VaM	B03c (3x)
+5VbM	B03c (2x)
+5VTUN	B02b (7x)
+5VTUN	B03c (2x)
+5VTUN	B03d (1x)
+8V-AUD	B03d (1x)
+8V-AUD	B03e (1x)
-12_20V	B08a (8x)
-12_20V	B08b (1x)
-12-16V-NF	B01b (2x)
-12-16V-NF	B08b (2x)
1V8-PLL	B07a (1x)
1V8-PLL	B07b (2x)
3V3-APLL	B07a (1x)
3V3-APLL	B07b (1x)
3V3-AVI	B07a (2x)
3V3-AVI	B07b (1x)
3V3-DIG	B07a (3x)
3V3-DIG	B07b (6x)
3V3-PLL	B07a (1x)
3V3-PLL	B07b (1x)
ADAC1	B04a (1x)
ADAC1	B08a (1x)
ADAC2	B04a (1x)
ADAC2	B08a (1x)
ADAC7	B03e (1x)
ADAC7	B04a (1x)
ADAC8	B03e (1x)
ADAC8	B04a (1x)
AIN-5V	B07a (3x)
ALE	B04e (2x)
A-PLOP	B03e (1x)
A-PLOP	B04a (1x)
A-PLOP	B05a (1x)
ARX0-	B07a (1x)
ARX0-	B07b (1x)
ARX0+	B07a (1x)
ARX0+	B07b (1x)
ARX1-	B07a (1x)
ARX1-	B07b (1x)
ARX1+	B07a (1x)
ARX1+	B07b (1x)
ARX2-	B07a (1x)
ARX2-	B07b (1x)
ARX2+	B07a (1x)
ARX2+	B07b (1x)
ARXC-	B07a (1x)
ARXC-	B07b (1x)
ARXC+	B07a (1x)
ARXC+	B07b (1x)
ARX-DDC-SCL	B07a (2x)
ARX-DDC-SDA	B07a (2x)
ARX-HOTPLUG	B07a (2x)
AUDIO-HDPH-L-AP	B03a (1x)
AUDIO-HDPH-L-AP	B03e (1x)
AUDIO-HDPH-R-AP	B03a (1x)
AUDIO-HDPH-R-AP	B03e (1x)
AUDIO-IN1-L	B03d (1x)
AUDIO-IN1-L	B07c (1x)
AUDIO-IN1-R	B03d (1x)
AUDIO-IN1-R	B07c (1x)
AUDIO-IN2-L	B03d (1x)
AUDIO-IN2-L	B07c (1x)
AUDIO-IN2-R	B03d (1x)
AUDIO-IN2-R	B07c (1x)
AUDIO-IN3-L	B03a (1x)
AUDIO-IN3-L	B03d (1x)
AUDIO-IN3-R	B03a (1x)
AUDIO-IN3-R	B03d (1x)
AUDIO-IN4-L	B03d (1x)
AUDIO-IN4-L	B07c (1x)
AUDIO-IN4-R	B03d (1x)
AUDIO-IN4-R	B07c (1x)
AUDIO-IN5-L	B03a (1x)
AUDIO-IN5-L	B03d (1x)
AUDIO-IN5-R	B03a (1x)
AUDIO-IN5-R	B03d (1x)
AUDIO-OUT1-L	B03a (1x)
AUDIO-OUT1-L	B03d (1x)
AUDIO-OUT1-R	B03a (1x)
AUDIO-OUT1-R	B03d (1x)
AUX-IF-AGC	B02a (1x)
AUX-IF-AGC	B02b (1x)
AV1_CVBS	B03a (1x)
AV1_CVBS	B07c (1x)
AV1-AV6_FBL-HSYNC	B03a (1x)
AV1-AV6_FBL-HSYNC	B04a (1x)
AV2_C	B03a (1x)
AV2_C	B07c (1x)
AV2_FBL	B04a (2x)
AV2_Y-CVBS	B03a (1x)
AV2_Y-CVBS	B07c (1x)
AV6_VSYNC	B04a (2x)
AV7_Y-CVBS	B03a (1x)
AV7_Y-CVBS	B07c (1x)
AV-BOUT	B04g (1x)
AV-BOUT	B06 (1x)
AV-GOUT	B04g (1x)
AV-GOUT	B06 (1x)
AV-ROUT	B04g (1x)
AV-ROUT	B06 (1x)
BACKLIGHT-CNTRL-OUT	B01b (1x)
BACKLIGHT-CNTRL-OUT	B04g (1x)
BACKLIGHT-CONTROL	B04e (1x)
BACKLIGHT-CONTROL	B04g (1x)
BACKLIGHT-CONTROL	B05c (1x)
CHDEC-CLK	B02a (1x)
CHDEC-CLK	B05a (1x)
CHDEC-CLK	B05c (1x)
CLK-MPIF	B03b (1x)
CLK-MPIF	B04a (1x)
CPROT	B08a (3x)
CTRL1-VIPER	B04g (1x)
CTRL1-VIPER	B05c (1x)
CTRL4-STBY	B04e (1x)
CTRL4-STBY	B04g (1x)
CTRL4-VIPER	B04g (1x)
CTRL4-VIPER	B05a (2x)
CTRL-DISP1	B04g (2x)
CTRL-DISP2	B04g (2x)
CTRL-DISP3	B04g (2x)
CTRL-DISP4	B04g (2x)
CVBS-IN	B03a (2x)
CVBSOUTIF-MAIN	B03a (1x)
CVBSOUTIF-MAIN	B03c (1x)
DATA1N-MAIN	B03a (1x)
DATA1N-MAIN	B04a (1x)
DATA1P-MAIN	B03a (1x)
DATA1P-MAIN	B04a (1x)
DATA2N-MAIN	B03a (1x)
DATA2N-MAIN	B04a (1x)
DATA2P-MAIN	B03a (1x)
DATA2P-MAIN	B04a (1x)
DATA3N-MAIN	B03a (1x)
DATA3N-MAIN	B04a (1x)
DATA3P-MAIN	B03a (1x)
DATA3P-MAIN	B04a (1x)
DEBUG-BREAK	B04e (2x)
DEBUG-BREAK	B05a (2x)
DETECT-12V	B04e (2x)
DETECT-1V2	B04e (2x)
DETECT-3V3	B04e (2x)
DETECT-5V	B04e (2x)
DETECT-8V6	B04e (2x)
DMMI_B-PB-IN	B03a (1x)
DMMI_G-Y-IN	B03a (1x)
DMMI_R-PR-IN	B03a (1x)
DSNDL1	B03d (1x)
DSNDL1	B04a (1x)
DSNDR1	B03d (1x)
DSNDR1	B04a (1x)
DV1F-CLK	B02a (1x)
DV1F-CLK	B05c (1x)
DV1F-DATA0	B02a (1x)
DV1F-DATA0	B05c (1x)
DV1F-DATA1	B02a (1x)
DV1F-DATA1	B05c (1x)
DV1F-DATA2	B02a (1x)
DV1F-DATA2	B05c (1x)
DV1F-DATA3	B02a (1x)
DV1F-DATA3	B05c (1x)
DV1F-DATA4	B02a (1x)
DV1F-DATA4	B05c (1x)
DV1F-DATA5	B02a (1x)
DV1F-DATA5	B05c (1x)
DV1F-DATA6	B02a (1x)
DV1F-DATA6	B05c (1x)
DV1F-DATA7	B02a (1x)
DV1F-DATA7	B05c (1x)
DV1F-DATA8_ERR	B02a (1x)
DV1F-DATA8_ERR	B05c (1x)
DV1F-DATA9_SOP	B02a (1x)
DV1F-DATA9_SOP	B05c (1x)
DV1F-VALID	B02a (1x)
DV1F-VALID	B05c (2x)
DV2A-CLK	B04b (1x)
DV2A-CLK	B05c (1x)
DV2A-VALID	B05c (2x)
DV3F-CLK	B04b (1x)
DV3F-CLK	B05c (1x)
DV3F-DATA0_SOP	B04b (1x)
DV3F-DATA0_SOP	B05c (1x)
DV3F-DATA1_ERR	B04b (1x)
DV3F-DATA1_ERR	B05c (1x)
DV3F-DATA2_0	B04b (1x)
DV3F-DATA2_0	B05c (1x)
DV3F-DATA3_1	B04b (1x)
DV3F-DATA3_1	B05c (1x)
DV3F-DATA4_2	B04b (1x)
DV3F-DATA4_2	B05c (1x)
DV3F-DATA5_3	B04b (1x)
DV3F-DATA5_3	B05c (1x)
DV3F-DATA6_4	B04b (1x)
DV3F-DATA6_4	B05c (1x)
DV3F-DATA7_5	B04b (1x)
DV3F-DATA7_5	B05c (1x)
DV3F-DATA8_6	B04b (1x)
DV3F-DATA8_6	B05c (1x)
DV3F-DATA9_7	B04b (1x)
DV3F-DATA9_7	B05c (1x)
DV3F-VALID	B04b (1x)
DV3F-VALID	B05c (2x)
DV4-CLK	B04b (1x)
DV4-CLK	B07b (1x)
DV4-DATA0_SOP	B04b (1x)
DV4-DATA0_SOP	B07b (1x)
DV4-DATA1_ERR	B04b (1x)
DV4-DATA1_ERR	B07b (1x)
DV4-DATA2_0	B04b (1x)
DV4-DATA2_0	B07b (1x)
DV4-DATA3_1	B04b (1x)
DV4-DATA3_1	B07b (1x)
DV4-DATA4_2	B04b (1x)
DV4-DATA4_2	B07b (1x)
DV4-DATA5_3	B04b (1x)
DV4-DATA5_3	B07b (1x)
DV4-DATA6_4	B04b (1x)
DV4-DATA6_4	B07b (1x)
DV4-DATA7_5	B04b (1x)
DV4-DATA7_5	B07b (1x)
DV4-DATA8_6	B04b (1x)
DV4-DATA8_6	B07b (1x)
DV4-DATA9_7	B04b (1x)
DV4-DATA9_7	B07b (1x)
DV4-VALID	B04b (1x)
DV4-VALID	B07b (1x)
DV5-DATA0_SOP	B04b (1x)
DV5-DATA0_SOP	B07b (1x)
DV5-DATA1_ERR	B04b (1x)
DV5-DATA1_ERR	B07b (1x)
DV5-DATA2_0	B04b (1x)
DV5-DATA2_0	B07b (1x)
DV5-DATA3_1	B04b (1x)
DV5-DATA3_1	B07b (1x)
DV5-DATA4_2	B04b (1x)
DV5-DATA4_2	B07b (1x)
DV5-DATA5_3	B04b (1x)
DV5-DATA5_3	B07b (1x)
DV5-DATA6_4	B04b (1x)
DV5-DATA6_4	B07b (1x)
DV5-DATA7_5	B04b (1x)
DV5-DATA7_5	B07b (1x)
DV5-DATA8_6	B04b (1x)
DV5-DATA8_6	B07b (1x)
DV5-DATA9_7	B04b (1x)
DV5-DATA9_7	B07b (1x)
DV-BOUT-0	B05c (1x)
DV-BOUT-0	B06 (2x)
DV-BOUT-1	B05c (1x)
DV-BOUT-1	B06 (2x)
DV-BOUT-2	B05c (1x)
DV-BOUT-2	B06 (2x)
DV-BOUT-3	B05c (1x)
DV-BOUT-3	B06 (2x)
DV-BOUT-4	B05c (1x)
DV-BOUT-4	B06 (2x)
DV-BOUT-5	B05c (1x)
DV-BOUT-5	B06 (2x)
DV-BOUT-6	B05c (1x)
DV-BOUT-6	B06 (2x)
DV-BOUT-7	B05c (1x)
DV-BOUT-7	B06 (2x)
DV-BOUT-8	B05c (1x)
DV-BOUT-8	B06 (2x)
DV-BOUT-9	B05c (1x)
DV-BOUT-9	B06 (2x)
DV-CLKIN	B05c (1x)
DV-CLKIN	B06 (2x)
DV-FREF	B04b (1x)
DV-FREF	B07b (1x)
DV-GOUT-0	B05c (1x)
DV-GOUT-0	B06 (2x)
DV-GOUT-1	B05c (1x)
DV-GOUT-1	B06 (2x)
DV-GOUT-2	B05c (1x)
DV-GOUT-2	B06 (2x)
DV-GOUT-3	B05c (1x)
DV-GOUT-3	B06 (2x)
DV-GOUT-4	B05c (1x)
DV-GOUT-4	B06 (2x)
DV-GOUT-5	B05c (1x)
DV-GOUT-5	B06 (2x)
DV-GOUT-6	B05c (1x)
DV-GOUT-6	B06 (2x)
DV-GOUT-7	B05c (1x)
DV-GOUT-7	B06 (2x)
DV-GOUT-8	B05c (1x)
DV-GOUT-8	B06 (2x)
DV-GOUT-9	B05c (1x)
DV-GOUT-9	B06 (2x)
DV-HREF	B04b (1x)
DV-HREF	B07b (2x)
DV-OUT-DE	B05c (1x)
DV-OUT-DE	B06 (2x)
DV-OUT-FFIELD	B05c (1x)
DV-OUT-FFIELD	B06 (1x)
DV-OUT-HS	B05c (1x)
DV-OUT-HS	B06 (1x)
DV-OUT-VS	B05c (1x)
DV-OUT-VS	B06 (2x)
DV-ROUT-0	B05c (1x)
DV-ROUT-0	B06 (2x)
DV-ROUT-1	B05c (1x)
DV-ROUT-1	B06 (2x)
DV-ROUT-2	B05c (1x)
DV-ROUT-2	B06 (2x)
DV-ROUT-3	B05c (1x)
DV-ROUT-3	B06 (2x)
DV-ROUT-4	B05c (1x)
DV-ROUT-4	B06 (2x)
DV-ROUT-5	B05c (1x)
DV-ROUT-5	B06 (2x)
DV-ROUT-6	B05c (1x)
DV-ROUT-6	B06 (2x)
DV-ROUT-7	B05c (1x)
DV-ROUT-7	B06 (2x)
DV-ROUT-8	B05c (1x)
DV-ROUT-8	B06 (2x)
DV-ROUT-9	B05c (1x)
DV-ROUT-9	B06 (2x)
DV-VREF	B04b (1x)
DV-VREF	B07b (2x)
EA	B04e (2x)
EJTAG-DETECT	B01b (1x)
EJTAG-DETECT	B04e (2x)
EJTAG-TCK	B01b (1x)
EJTAG-TCK	B05a (1x)
EJTAG-TDI	B01b (1x)
EJTAG-TDI	B05a (1x)
EJTAG-TDO	B01b (1x)
EJTAG-TDO	B05a (1x)
EJTAG-TMS	B01b (1x)
EJTAG-TMS	B05a (1x)
ENABLE-1V2	B01a (1x)
ENABLE-1V2	B04e (2x)
ENABLE-3V3	B01a (1x)
ENABLE-3V3	B04e (2x)
FAT-ADC-INN	B02a (1x)
FAT-ADC-INN	B02b (1x)
FAT-ADC-INP	B02a (1x)
FAT-ADC-INP	B02b (1x)
FAT-IF-AGC	B02a (1x)
FAT-IF-AGC	B02b (1x)
FEEDBACK	B08a (3x)
FEEDBACK-LR	B08a (2x)
FEEDBACK-RL	B08a (2x)
FM-TRAP	B02a (1x)
FM-TRAP	B02b (1x)
FRONT_C	B03a (2x)
FRONT_Y-CVBS	B03a (2x)
FRONT-DETECT	B04e (2x)
GLINK-RXD	B01b (1x)
GLINK-RXD	B04g (1x)
GLINK-RXD	B05a (1x)
GLINK-TXD	B01b (1x)
GLINK-TXD	B04g (1x)
GLINK-TXD	B05a (1x)
GND-D	B01b (1x)
GND-D	B08a (16x)
GND-D	B08b (4x)
GND-DL	B08a (11x)
GND-DR	B08a (11x)
GND-SIG	B01a (15x)
H_SYNC_IN	B03a (1x)
HDMI-COAST	B05a (1x)
HDMI-COAST	B07b (1x)
HP-DET-R-DC	B03a (1x)
HPD-HIRATE	B05a (1x)
HPD-HIRATE	B07a (1x)
HPD-HIRATE	B07b (1x)
H-SYNC-VGA	B07b (1x)
HV-PRM-MAIN	B03a (1x)
HV-PRM-MAIN	B04a (1x)
I2C-SCL-TUNER	B02a (1x)
I2C-SCL-TUNER	B02b (1x)
I2C-SDA-TUNER	B02a (1x)
I2C-SDA-TUNER	B02b (1x)
I2S-BCLK-MAIN	B04a (1x)
I2S-BCLK-MAIN	B05c (1x)
I2S-MAIN-D	B04a (1x)
I2S-MAIN-D	B05c (1x)
I2S-MAIN-ND	B04a (1x)
I2S-MAIN-ND	B05c (1x)
I2S-MCH-CSW	B04a (1x)
I2S-MCH-CSW	B05c (1x)
I2S-MCH-LR	B04a (1x)
I2S-MCH-LR	B05c (1x)
I2S-MCH-SLR	B04a (1x)
I2S-MCH-SLR	B05c (1x)
I2S-SUB-D	B04a (1x)
I2S-SUB-D	B05c (1x)
I2S-WS-MAIN	B04a (1x)
I2S-WS-MAIN	B05c (1x)
IF-ANA	B02b (1x)
IF-ANA	B03c (1x)
INV-MUTE	B08a (2x)
IRQ-AVIP	B04e (1x)
IRQ-AVIP	B05a (1x)
IRQ-FE-MAIN	B02a (1x)
IRQ-FE-MAIN	B05a (1x)
IRQ-HD1	B04e (1x)
IRQ-HD1	B05a (2x)
IRQ-HD2	B04e (1x)
IRQ-HD2	B05a (2x)
IRQ-HIRATE	B04e (1x)
IRQ-HIRATE	B05a (2x)
IRQ-HIRATE	B07b (1x)
IRQ-MAIN	B05a (2x)
IRQ-MPIF	B03b (1x)
IRQ-MPIF	B05a (1x)
ITV-IR-SW-RESET	B03a (1x)
JTAG-TCK	B04e (1x)
JTAG-TCK	B05a (2x)
JTAG-TCK	B07b (1x)
JTAG-TD-CON-VIPER	B05a (3x)
JTAG-TD-HDMI-CON	B07b (2x)
JTAG-TD-PNX2015-HDMI	B04e (1x)
JTAG-TD-PNX2015-HDMI	B07b (1x)
JTAG-TD-VIPER-PNX2015	B04e (1x)
JTAG-TD-VIPER-PNX2015	B05a (2x)
JTAG-TMS	B04e (1x)
JTAG-TMS	B05a (3x)
JTAG-TMS	B07b (1x)
JTAG-TRST	B01b (1x)
JTAG-TRST	B04e (1x)
JTAG-TRST	B05a (2x)
JTAG-TRST	B07b (1x)
KEYBOARD	B04e (2x)
KEYBOARD	B05f (1x)
LAMP-ON	B04e (2x)
LAMP-ON	B04g (1x)
LAMP-ON-OUT	B01b (1x)
LAMP-ON-OUT	B04g (1x)
LED1	B04e (2x)
LED1	B05f (1x)
LED2	B04e (2x)
LED2	B05f (1x)
LEFT-SPEAKER	B08a (2x)
LEFT-SPEAKER	B08b (1x)
LIGHT-SENSOR	B04e (1x)
LIGHT-SENSOR	B05f (1x)
LVDS-3V3	B04f (3x)
M135-CLK	B05a (1x)
M135-CLK	B07b (1x)
M27-PNX	B04e (1x)
M27-PNX	B05a (1x)
MM_A0	B05b (3x)
MM_A1	B05b (3x)
MM_A10	B05b (3x)
MM_A11	B05b (3x)
MM_A12	B05b (3x)
MM_A2	B05b (3x)
MM_A3	B05b (3x)
MM_A4	B05b (3x)
MM_A5	B05b (3x)
MM_A6	B05b (3x)
MM_A7	B05b (3x)
MM_A8	B05b (3x)
MM_A9	B05b (3x)
MM_BA0	B05b (3x)
MM_BA1	B05b (3x)
MM_CAS	B05b (3x)
MM_CKE	B05b (3x)
MM_CLK_N	B05b (3x)
MM_CLK_P	B05b (3x)
MM_CS0	B05b (3x)
MM_DATA_0	B05b (2x)
MM_DATA_1	B05b (2x)
MM_DATA_10	B05b (2x)
MM_DATA_11	B05b (2x)
MM_DATA_12	B05b (2x)
MM_DATA_13	B05b (2x)
MM_DATA_14	B05b (2x)
MM_DATA_15	B05b (2x)
MM_DATA_16	B05b (2x)
MM_DATA_17	B05b (2x)
MM_DATA_18	B05b (2x)
MM_DATA_19	B05b (2x)
MM_DATA_2	B05b (2x)
MM_DATA_20	B05b (2x)
MM_DATA_21	B05b (2x)
MM_DATA_22	B05b (2x)
MM_DATA_23	B05b (2x)
MM_DATA_24	B05b (2x)
MM_DATA_25	B05b (2x)
MM_DATA_26	B05b (2x)
MM_DATA_27	B05b (2x)
MM_DATA_28	B05b (2x)
MM_DATA_29	B05b (2x)
MM_DATA_3	B05b (2x)
MM_DATA_30	B05b (2x)
MM_DATA_31	B05b (2x)
MM_DATA_4	B05b (2x)
MM_DATA_5	B05b (2x)
MM_DATA_6	B05b (2x)
MM_DATA_7	B05b (2x)
MM_DATA_8	B05b (2x)
MM_DATA_9	B05b (2x)
MM_DQM_0	B05b (2x)
MM_DQM_1	B05b (2x)
MM_DQM_2	B05b (2x)
MM_DQM_3	B05b (2x)
MM_DQS0	B05b (2x)
MM_DQS1	B05b (2x)
MM_DQS2	B05b (2x)
MM_DQS3	B05b (2x)
MM_RAS	B05b (3x)
MM_WE	B05b (3x)
MP-BOUT-0	B04b (1x)
MP-BOUT-0	B06 (1x)
MP-BOUT-1	B04b (1x)
MP-BOUT-1	B06 (1x)
MP-BOUT-2	B04b (1x)
MP-BOUT-2	B06 (1x)
MP-BOUT-3	B04b (1x)
MP-BOUT-3	B06 (1x)
MP-BOUT-4	B04b (1x)
MP-BOUT-4	B06 (1x)
MP-BOUT-5	B04b (1x)
MP-BOUT-5	B06 (1x)
MP-BOUT-6	B04b (1x)
MP-BOUT-6	B06 (1x)
MP-BOUT-7	B04b (1x)
MP-BOUT-7	B06 (1x)
MP-BOUT-8	B04b (1x)
MP-BOUT-8	B06 (1x)
MP-BOUT-9	B04b (1x)
MP-BOUT-9	B06 (1x)
MP-CLKOUT	B04b (1x)
MP-CLKOUT	B06 (1x)
MP-GOUT-0	B04b (1x)
MP-GOUT-0	B06 (1x)
MP-GOUT-1	B04b (1x)
MP-GOUT-1	B06 (1x)
MP-GOUT-2	B04b (1x)
MP-GOUT-2	B06 (1x)
MP-GOUT-3	B04b (1x)
MP-GOUT-3	B06 (1x)
MP-GOUT-4	B04b (1x)
MP-GOUT-4	B06 (1x)
MP-GOUT-5	B04b (1x)
MP-GOUT-5	B06 (1x)
MP-GOUT-6	B04b (1x)
MP-GOUT-6	B06 (1x)
MP-GOUT-7	B04b (1x)
MP-GOUT-7	B06 (1x)
MP-GOUT-8	B04b (1x)
MP-GOUT-8	B06 (1x)
MP-GOUT-9	B04b (1x)
MP-GOUT-9	B06 (1x)
MP-OUT-DE	B04b (1x)
MP-OUT-DE	B06 (1x)
MP-OUT-FFIELD	B04b (1x)
MP-OUT-FFIELD	B06 (1x)
MP-OUT-HS	B04b (1x)
MP-OUT-HS	B04g (1x)
MP-OUT-HS	B06 (1x)
MP-OUT-VS	B04b (1x)
MP-OUT-VS	B04g (1x)
MP-OUT-VS	B06 (1x)
MP-ROUT-0	B04b (1x)
MP-ROUT-0	B06 (1x)
MP-ROUT-1	B04b (1x)
MP-ROUT-1	B06 (1x)
MP-ROUT-2	B04b (1x)
MP-ROUT-2	B06 (1x)
MP-ROUT-3	B04b (1x)
MP-ROUT-3	B06 (1x)
MP-ROUT-4	B04b (1x)
MP-ROUT-4	B06 (1x)
MP-ROUT-5	B04b (1x)
MP-ROUT-5	B06 (1x)
MP-ROUT-6	B04b (1x)
MP-ROUT-6	B06 (1x)
MP-ROUT-7	B04b (1x)
MP-ROUT-7	B06 (1x)
MP-ROUT-8	B04b (1x)
MP-ROUT-8	B06 (1x)
MP-ROUT-9	B04b (1x)
MP-ROUT-9	B06 (1x)
MUTE	B08a (3x)
NAND-AD(0)	B05a (1x)
NAND-AD(0)	B05e (1x)
NAND-AD(1)	B05a (1x)
NAND-AD(1)	B05e (1x)
NAND-AD(2)	B05a (1x)
NAND-AD(2)	B05e (1x)
NAND-AD(3)	B05a (1x)
NAND-AD(3)	B05e (1x)
NAND-AD(4)	B05a (1x)
NAND-AD(4)	B05e (1x)
NAND-AD(5)	B05a (1x)
NAND-AD(5)	B05e (1x)
NAND-AD(6)	B05a (1x)
NAND-AD(6)	B05e (1x)
NAND-AD(7)	B05a (1x)
NAND-AD(7)	B05e (1x)
NAND-ALE	B05a (1x)
NAND-ALE	B05e (1x)
NAND-CLE	B05a (1x)
NAND-CLE	B05e (1x)
NAND-D(10)	B05a (1x)
NAND-D(10)	B05e (1x)
NAND-D(11)	B05a (1x)
NAND-D(11)	B05e (1x)
NAND-D(12)	B05a (1x)
NAND-D(12)	B05e (1x)
NAND-D(13)	B05a (1x)
NAND-D(13)	B05e (1x)
NAND-D(14)	B05a (1x)
NAND-D(14)	B05e (1x)
NAND-D(15)	B05a (1x)
NAND-D(15)	B05e (1x)
NAND-D(8)	B05a (2x)
NAND-D(8)	B05e (1x)
NAND-D(9)	B05a (1x)
NAND-D(9)	B05e (1x)
NAND-RBY	B05a (1x)
NAND-RBY	B05e (2x)
NAND-REn	B05a (1x)
NAND-REn	B05e (1x)
NAND-SEL	B05a (1x)
NAND-SEL	B05e (2x)
NAND-WEn	B05a (1x)
NAND-WEn	B05e (1x)
ON-MODE	B04e (2x)
ON-MODE	B04g (1x)
ON-MODE	B05f (1x)
ON-MODE	B06 (1x)
P0_6	B04e (1x)
P3_2	B04e (2x)
P4_4	B04e (2x)
P50	B04e (1x)
P50-HDMI	B04e (2x)
P50-HDMI	B07a (1x)
PARX-DDC-SCL	B07a (1x)
PARX-DDC-SCL	B07b (1x)
PARX-DDC-SDA	B07a (1x)
PARX-DDC-SDA	B07b (1x)
PB	B07b (1x)
PB	B07c (1x)
PB1	B07b (1x)
PB1	B07c (1x)
PCI-CLK-VPR	B05a (2x)
PCI-INTA	B05a (2x)
PCI-REQ	B05a (2x)
PCI-REQ-A	B05a (2x)
PCI-REQ-B	B05a (2x)
PLL-1V2	B04f (2x)
PLL-3V3	B04f (2x)
PLL-OUT	B05a (2x)
PNX-MA-0	B04d (2x)
PNX-MA-1	B04d (2x)
PNX-MA-10	B04d (2x)
PNX-MA-11	B04d (2x)
PNX-MA-12	B04d (2x)
PNX-MA-2	B04d (2x)
PNX-MA-3	B04d (2x)
PNX-MA-4	B04d (2x)
PNX-MA-5	B04d (2x)
PNX-MA-6	B04d (2x)
PNX-MA-7	B04d (2x)
PNX-MA-8	B04d (2x)
PNX-MA-9	B04d (2x)
PNX-MBA0	B04d (2x)
PNX-MBA1	B04d (2x)
PNX-MCAS	B04d (2x)
PNX-MCKE	B04d (2x)
PNX-MCLK-N	B04d (2x)
PNX-MCLK-P	B04d (2x)
PNX-MCS-0	B04d (2x)
PNX-MDATA-0	B04d (2x)
PNX-MDATA-1	B04d (2x)
PNX-MDATA-10	B04d (2x)
PNX-MDATA-11	B04d (2x)
PNX-MDATA-12	B04d (2x)
PNX-MDATA-13	B04d (2x)
PNX-MDATA-14	B04d (2x)
PNX-MDATA-15	B04d (2x)
PNX-MDATA-2	B04d (2x)
PNX-MDATA-3	B04d (2x)
PNX-MDATA-4	B04d (2x)
PNX-MDATA-5	B04d (2x)
PNX-MDATA-6	B04d (2x)
PNX-MDATA-7	B04d (2x)
PNX-MDATA-8	B04d (2x)
PNX-MDATA-9	B04d (2x)
PNX-MDQM-0	B04d (2x)
PNX-MDQM-1	B04d (2x)
PNX-MDQS-0	B04d (2x)
PNX-MDQS-1	B04d (2x)
PNX-MRAS	B04d (2x)
PNX-MWE	B04d (2x)
POD-MODE	B01b (1x)
POD-MODE	B04e (2x)
POWER-DOWN_BOLT-ON	B03a (1x)
POWERDOWN-HDMI	B05a (1x)
POWERDOWN-HDMI	B07b (1x)
POWER-OK-DISPLAY	B04e (3x)
PR	B07b (1x)
PR	B07c (1x)
PR1	B07b (1x)
PR1	B07c (1x)
PROT-AUDIOSUPPLY	B04e (1x)
PROT-AUDIOSUPPLY	B08a (1x)
PROT-AUDIOSUPPLY	B08b (1x)
PSEN	B04e (2x)
RC	B03a (1x)
RC	B04e (2x)
RC	B05f (1x)
RESET-AUDIO	B04a (1x)
RESET-AUDIO	B04e (2x)
RESET-FE-MAIN	B02a (1x)
RESET-FE-MAIN	B05a (2x)
RESET-MAIN-NVM	B04e (2x)
RESET-MAIN-NVM	B05e (1x)
RESET-MIPS	B04e (3x)
RESET-MIPS	B05a (1x)
RESET-PNX2015	B04e (3x)
RESET-STBY	B04e (1x)
RESET-STBY	B05f (1x)
RESET-SYSTEM	B01b (1x)
RESET-SYSTEM	B04e (2x)
RESET-SYSTEM	B05a (1x)
RIGHT-SPEAKER	B08a (2x)
RIGHT-SPEAKER	B08b (1x)
RXD	B01b (1x)
RXD	B05e (1x)
RXD	B07d (1x)
RXD-UP	B04e (1x)
RXD-UP	B05e (1x)
RXD-VIPER	B05a (1x)
RXD-VIPER	B05e (1x)
SCL-DMA	B02a (1x)
SCL-DMA	B03a (1x)
SCL-DMA	B03b (1x)
SCL-DMA	B04e (3x)
SCL-DMA	B05a (2x)
SCL-I2C4	B04g (1x)
SCL-I2C4	B05a (2x)
SCL-MM	B05a (2x)
SCL-MM	B07b (1x)
SCL-UP-SW	B04e (2x)
SCL-UP-VIP	B04e (2x)
SCL-UP-VIP	B05a (1x)
SCL-UP-VIP	B05e (1x)
SC-STANDBY	B03a (1x)
SDA-DMA	B02a (1x)
SDA-DMA	B03a (1x)
SDA-DMA	B03b (1x)
SDA-DMA	B04e (3x)
SDA-DMA	B05a (2x)
SDA-I2C4	B04g (1x)
SDA-I2C4	B05a (2x)
SDA-MM	B05a (2x)
SDA-MM	B07b (1x)
SDA-UP-SW	B04e (2x)
SDA-UP-VIP	B04e (2x)
SDA-UP-VIP	B05a (1x)
SDA-UP-VIP	B05e (1x)
SDM	B04e (3x)
SOUND-ENABLE	B05a (1x)
SOUND-ENABLE	B08a (2x)
SOUND-ENABLE-VPR	B05a (2x)
SPDIF-HDMI	B05c (1x)
SPDIF-HDMI	B07b (1x)
SPDIF-OUT1	B05c (1x)
SPDIF-OUT1	B07c (1x)
SPI-CLK	B04e (2x)
SPI-CSB	B04e (2x)
SPI-PROG	B04e (2x)
SPI-SDI	B04e (2x)
SPI-SDO	B04e (2x)
SPI-WP	B04e (3x)
STANDBY	B01b (1x)
STANDBY	B05f (1x)
STBY-WP-NAND-FLASH	B04e (2x)
STBY-WP-NAND-FLASH	B05e (1x)
STROBE1N-MAIN	B03a (1x)
STROBE1N-MAIN	B04a (1x)
STROBE1P-MAIN	B03a (1x)
STROBE1P-MAIN	B04a (1x)
STROBE2N-MAIN	B03a (1x)
STROBE2N-MAIN	B04a (1x)
STROBE2P-MAIN	B03a (1x)
STROBE2P-MAIN	B04a (1x)
STROBE3N-MAIN	B03a (1x)
STROBE3N-MAIN	B04a (1x)
STROBE3P-MAIN	B03a (1x)
STROBE3P-MAIN	B04a (1x)
SUPPLY-FAULT	B01a (1x)
SUPPLY-FAULT	B04e (2x)
TEMP-SENSOR	B04e (2x)
TUN-VIPER-RX-BUSY	B04c (1x)
TUN-VIPER-RX-BUSY	B05c (1x)
TUN-VIPER-RX-CLKP	B04c (1x)
TUN-VIPER-RX-CLKP	B05c (1x)
TUN-VIPER-RX-DATA0	B04c (1x)
TUN-VIPER-RX-DATA0	B05c (1x)
TUN-VIPER-RX-DATA1	B04c (1x)
TUN-VIPER-RX-DATA1	B05c (1x)
TUN-VIPER-RX-DATA10	B04c (1x)
TUN-VIPER-RX-DATA10	B05c (1x)
TUN-VIPER-RX-DATA11	B04c (1x)
TUN-VIPER-RX-DATA11	B05c (1x)
TUN-VIPER-RX-DATA12	B04c (1x)
TUN-VIPER-RX-DATA12	B05c (1x)
TUN-VIPER-RX-DATA13	B04c (1x)
TUN-VIPER-RX-DATA13	B05c (1x)
TUN-VIPER-RX-DATA14	B04c (1x)
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TUN-VIPER-RX-DATA15	B04c (1x)
TUN-VIPER-RX-DATA15	B05c (1x)
TUN-VIPER-RX-DATA2	B04c (1x)
TUN-VIPER-RX-DATA2	B05c (1x)
TUN-VIPER-RX-DATA3	B04c (1x)
TUN-VIPER-RX-DATA3	B05c (1x)
TUN-VIPER-RX-DATA4	B04c (1x)
TUN-VIPER-RX-DATA4	B05c (1x)
TUN-VIPER-RX-DATA5	B04c (1x)
TUN-VIPER-RX-DATA5	B05c (1x)
TUN-VIPER-RX-DATA6	B04c (1x)
TUN-VIPER-RX-DATA6	B05c (1x)
TUN-VIPER-RX-DATA7	B04c (1x)
TUN-VIPER-RX-DATA7	B05c (1x)
TUN-VIPER-RX-DATA8	B04c (1x)
TUN-VIPER-RX-DATA8	B05c (1x)
TUN-VIPER-RX-DATA9	B04c (1x)
TUN-VIPER-RX-DATA9	B05c (1x)
TUN-VIPER-TX-BUSY	B04c (1x)
TUN-VIPER-TX-BUSY	B05c (1x)
TUN-VIPER-TX-CLKN	B04c (1x)
TUN-VIPER-TX-CLKN	B05c (1x)
TUN-VIPER-TX-CLKP	B04c (1x)
TUN-VIPER-TX-CLKP	B05c (1x)
TUN-VIPER-TX-DATA0	B04c (1x)
TUN-VIPER-TX-DATA0	B05c (1x)
TUN-VIPER-TX-DATA1	B04c (1x)
TUN-VIPER-TX-DATA1	B05c (1x)
TUN-VIPER-TX-DATA10	B04c (1x)
TUN-VIPER-TX-DATA10	B05c (1x)
TUN-VIPER-TX-DATA11	B04c (1x)
TUN-VIPER-TX-DATA11	B05c (1x)
TUN-VIPER-TX-DATA12	B04c (1x)
TUN-VIPER-TX-DATA12	B05c (1x)
TUN-VIPER-TX-DATA13	B04c (1x)
TUN-VIPER-TX-DATA13	B05c (1x)
TUN-VIPER-TX-DATA14	B04c (1x)
TUN-VIPER-TX-DATA14	B05c (1x)
TUN-VIPER-TX-DATA15	B04c (1x)
TUN-VIPER-TX-DATA15	B05c (1x)
TUN-VIPER-TX-DATA2	B04c (1x)
TUN-VIPER-TX-DATA2	B05c (1x)
TUN-VIPER-TX-DATA3	B04c (1x)
TUN-VIPER-TX-DATA3	B05c (1x)
TUN-VIPER-TX-DATA4	B04c (1x)
TUN-VIPER-TX-DATA4	B05c (1x)
TUN-VIPER-TX-DATA5	B04c (1x)
TUN-VIPER-TX-DATA5	B05c (1x)
TUN-VIPER-TX-DATA6	B04c (1x)
TUN-VIPER-TX-DATA6	B05c (1x)
TUN-VIPER-TX-DATA7	B04c (1x)
TUN-VIPER-TX-DATA7	B05c (1x)
TUN-VIPER-TX-DATA8	B04c (1x)
TUN-VIPER-TX-DATA8	B05c (1x)
TUN-VIPER-TX-DATA9	B04c (1x)
TUN-VIPER-TX-DATA9	B05c (1x)
TXD	B01b (1x)
TXD	B05e (1x)
TXD	B07d (1x)
TXD-UP	B04e (1x)
TXD-UP	B05e (1x)
TXD-VIPER	B05a (1x)
TXD-VIPER	B05e (1x)
TXPNXA-	B04b (1x)
TXPNXA-	B04g (1x)
TXPNXA+	B04b (1x)
TXPNXA+	B04g (1x)
TXPNXB-	B04b (1x)
TXPNXB-	B04g (1x)
TXPNXB+	B04b (1x)
TXPNXB+	B04g (1x)
TXPNXC-	B04b (1x)
TXPNXC-	B04g (1x)
TXPNXC+	B04b (1x)
TXPNXC+	B04g (1x)
TXPNXCLK-	B04b (1x)
TXPNXCLK-	B04g (1x)
TXPNXCLK+	B04b (1x)
TXPNXCLK+	B04g (1x)
TXPNXD-	B04b (1x)
TXPNXD-	B04g (1x)
TXPNXD+	B04b (1x)
TXPNXD+	B04g (1x)
TXPNXE-	B04b (1x)
TXPNXE-	B04g (1x)
TXPNXE+	B04b (1x)
TXPNXE+	B04g (1x)
UART-SWITCH	B04e (2x)
UART-SWITCH	B05e (1x)
UART-SWITCHn	B05e (2x)
UP-3V3	B04f (2x)
USB1-DM	B05a (2x)
USB1-DP	B05a (2x)
USB-BUS-PW	B05a (3x)
USB-OVERCUR	B05a (3x)
U-VOLT-DETECT	B08a (3x)
V_SYNC_IN	B03a (1x)
VDISP	B04g (2x)
VN	B08a (4x)
VP	B08a (4x)
VREF-AUD	B03b (1x)
VREF-AUD	B03e (1x)
VREF-AUD-POS	B03b (2x)
VREF-AUD-POS	B04a (28x)
VREF-DDRPNX	B04d (3x)
VREFD-VPRDDR	B05b (2x)
VREF-PNX	B04c (2x)
VREF-PNX	B05c (1x)
VREF-VPRDDR	B05b (2x)
V-SYNC-VGA	B07b (1x)
Y	B07b (2x)
Y	B07c (1x)
Y1	B07b (2x)
Y1	B07c (1x)

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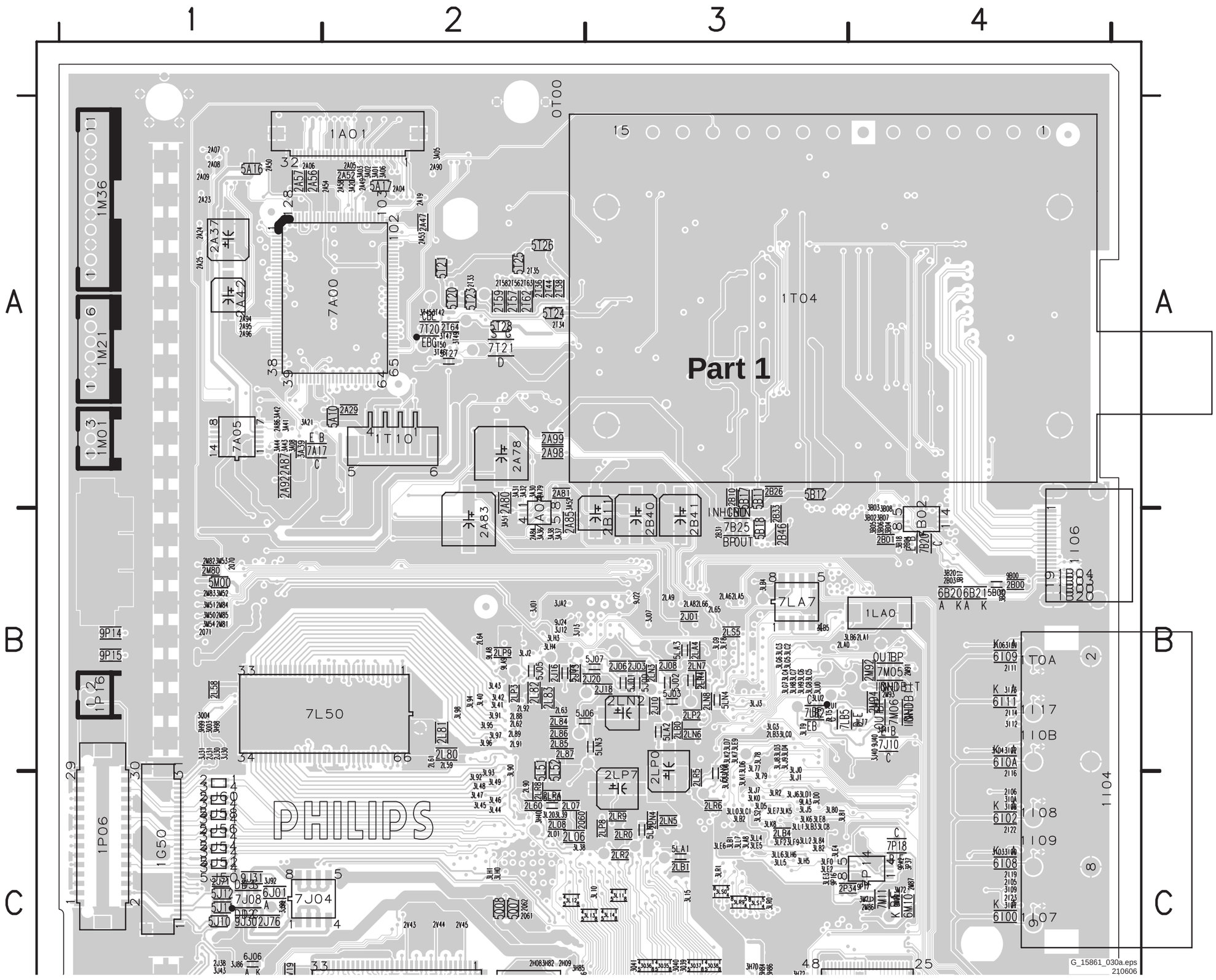
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Layout SSB (Top Side Overview)

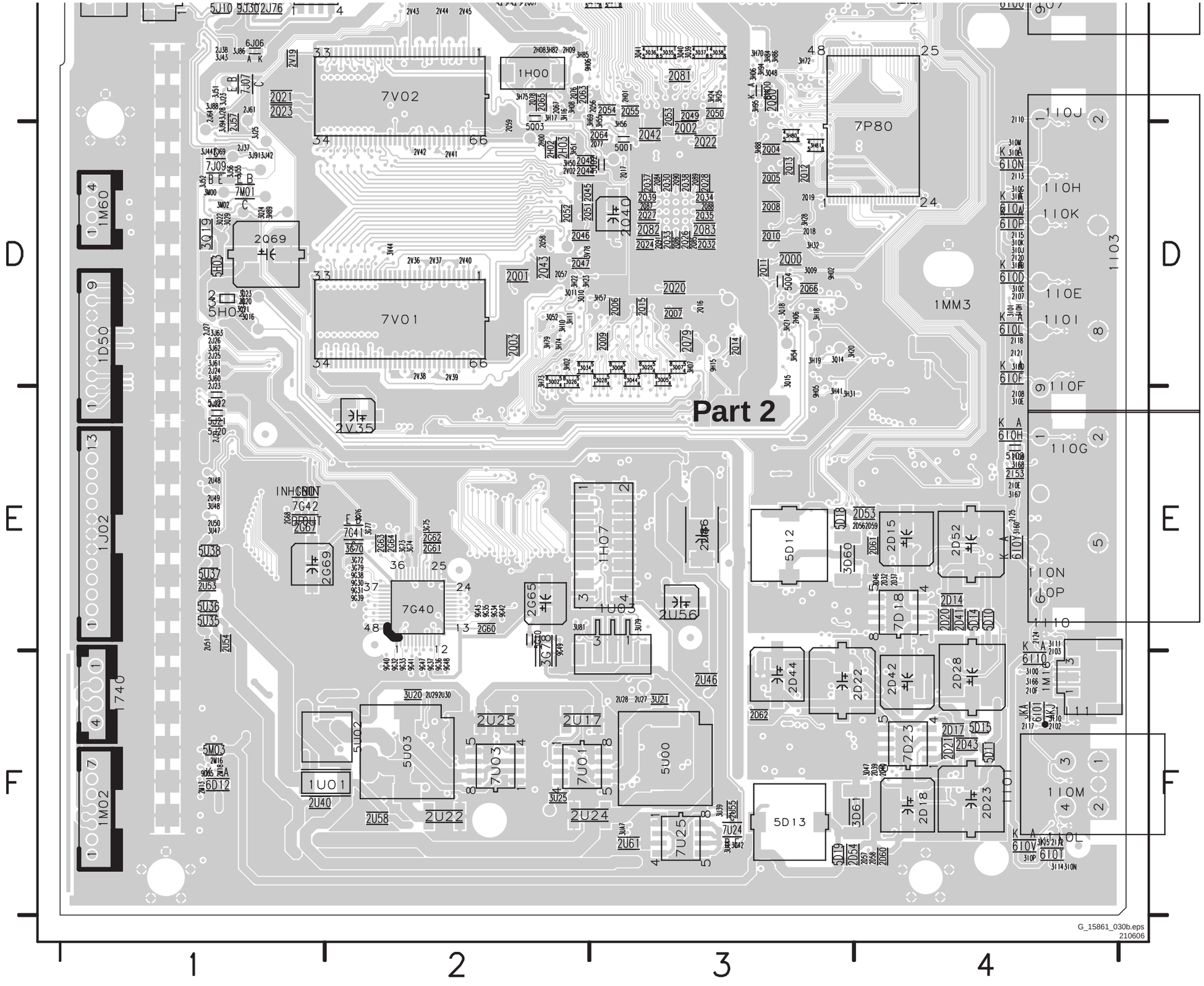


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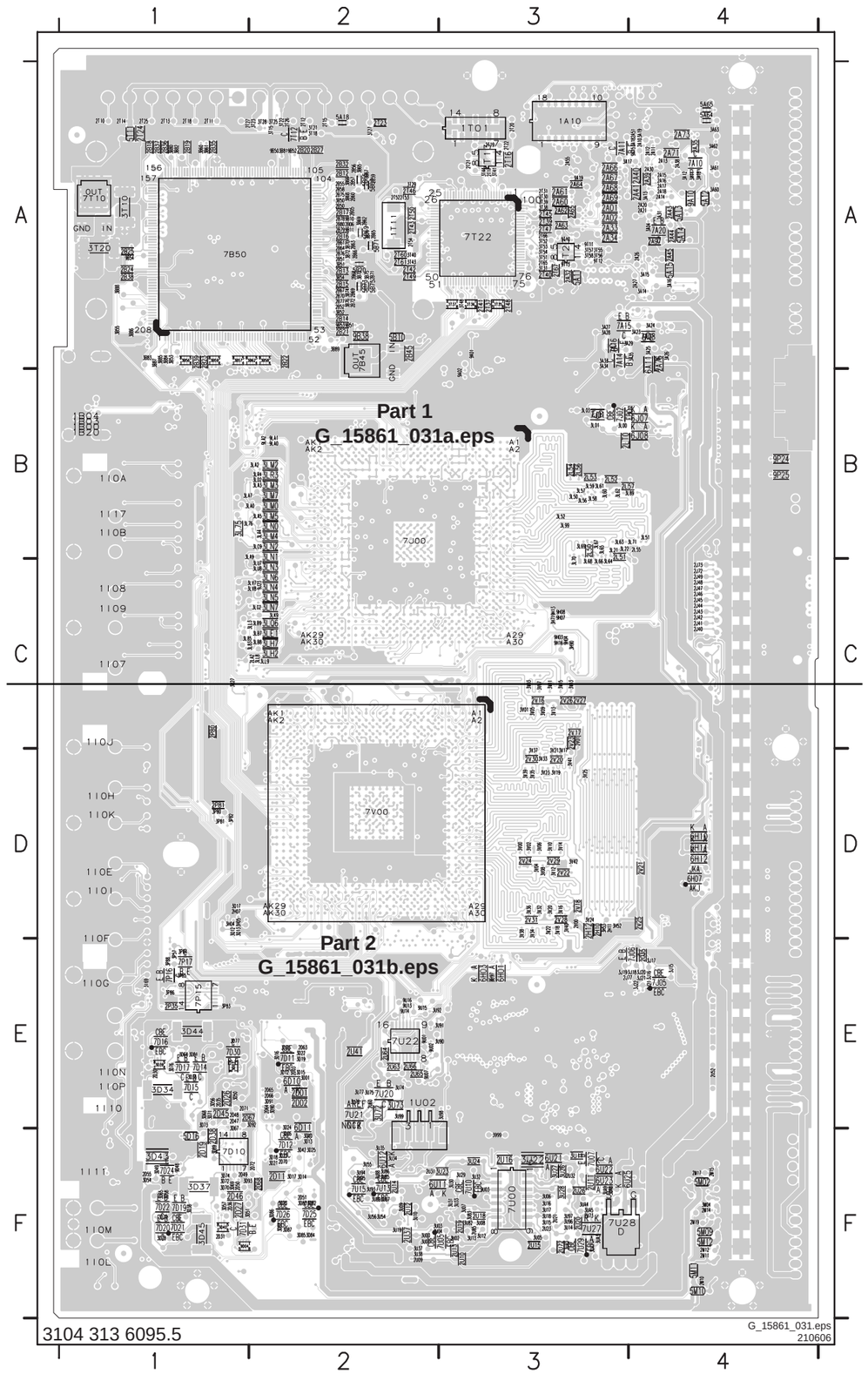
Layout SSB (Top Side Part 1)



Layout SSB (Top Side Part 2)

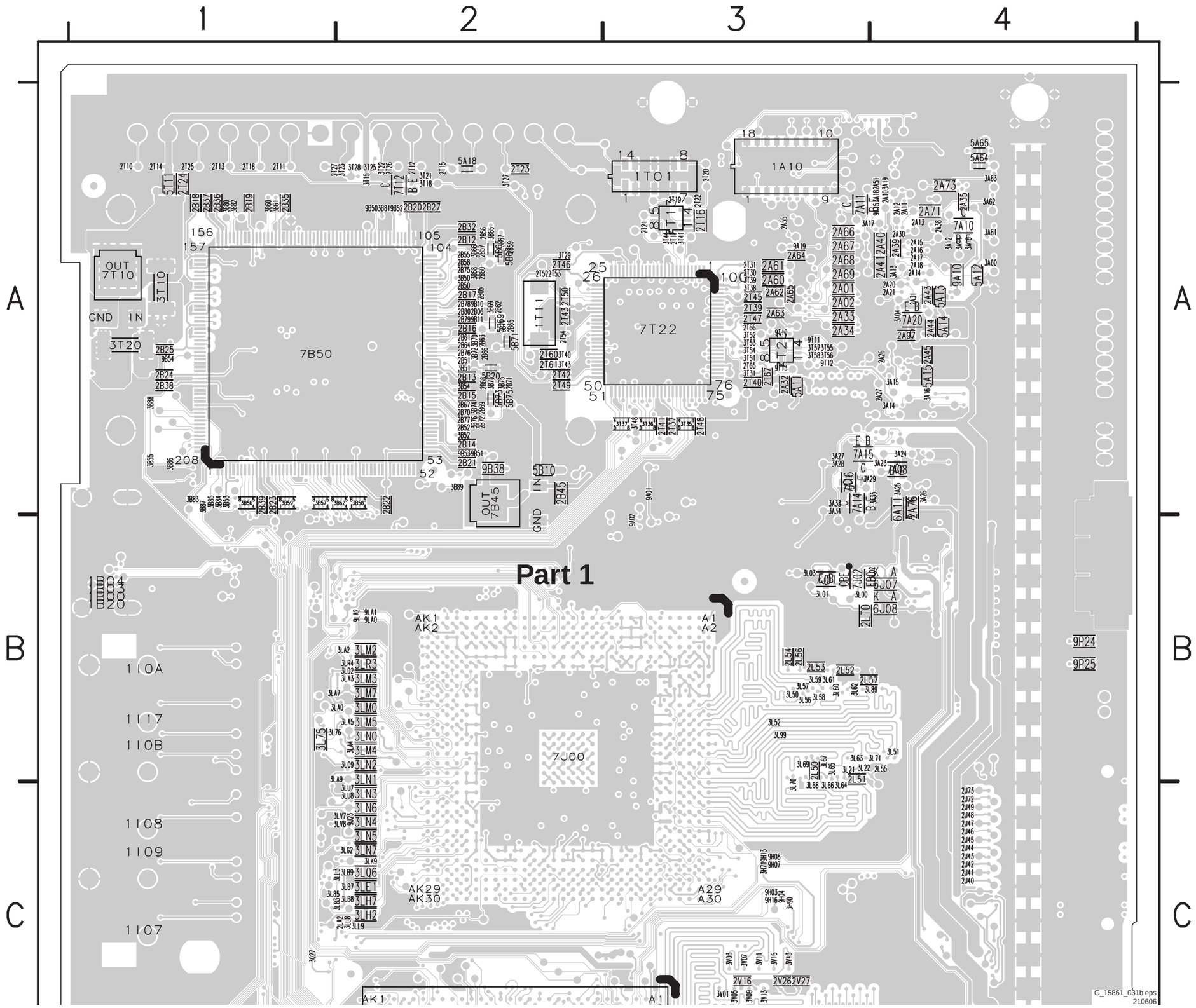


Layout SSB (Overview Bottom Side)

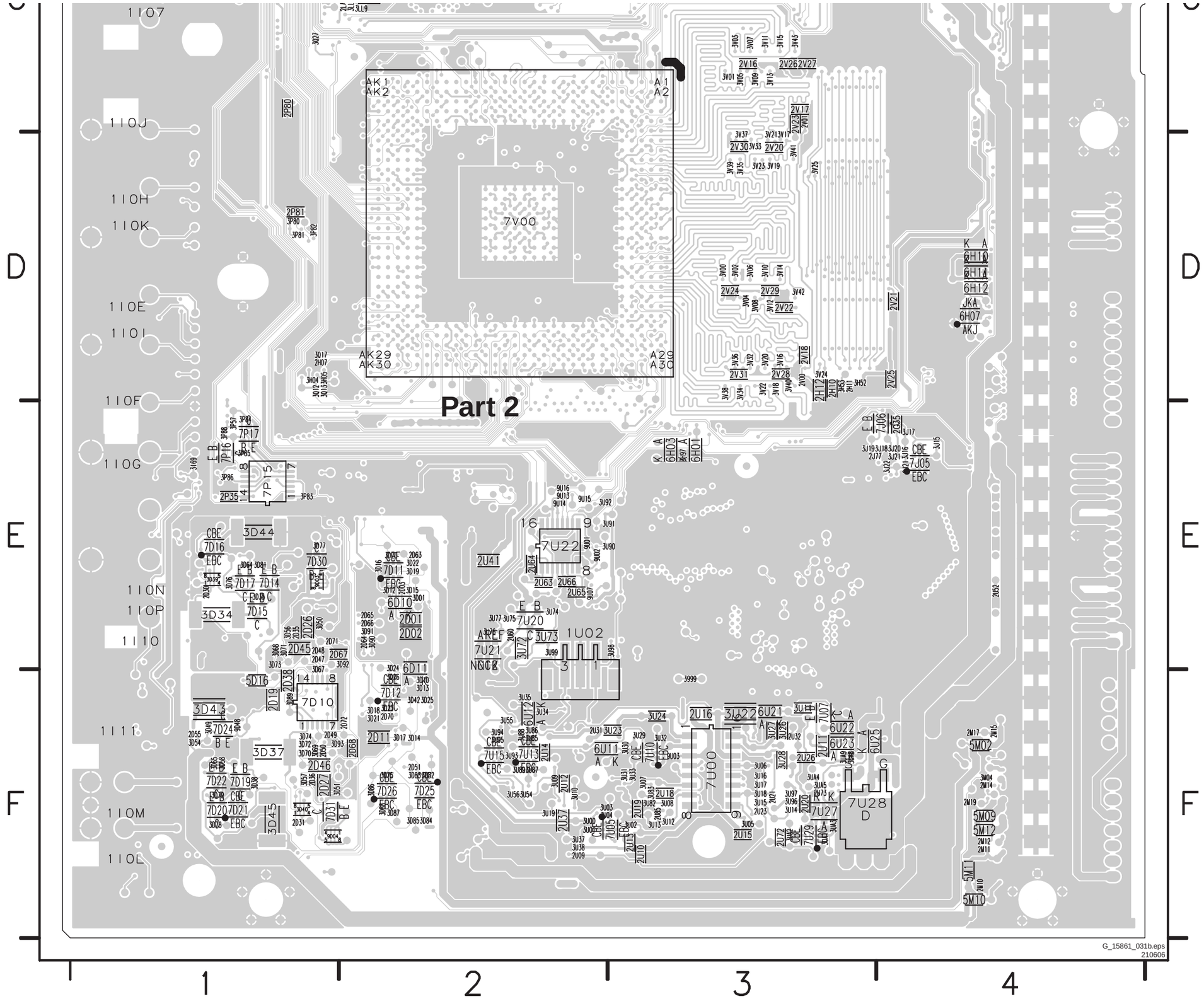


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2A01	A3	2J41	C4	3A25	A4	3L22	B3	3U19	F2	7A14	A3
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Layout SSB (Bottom Side Part 1)

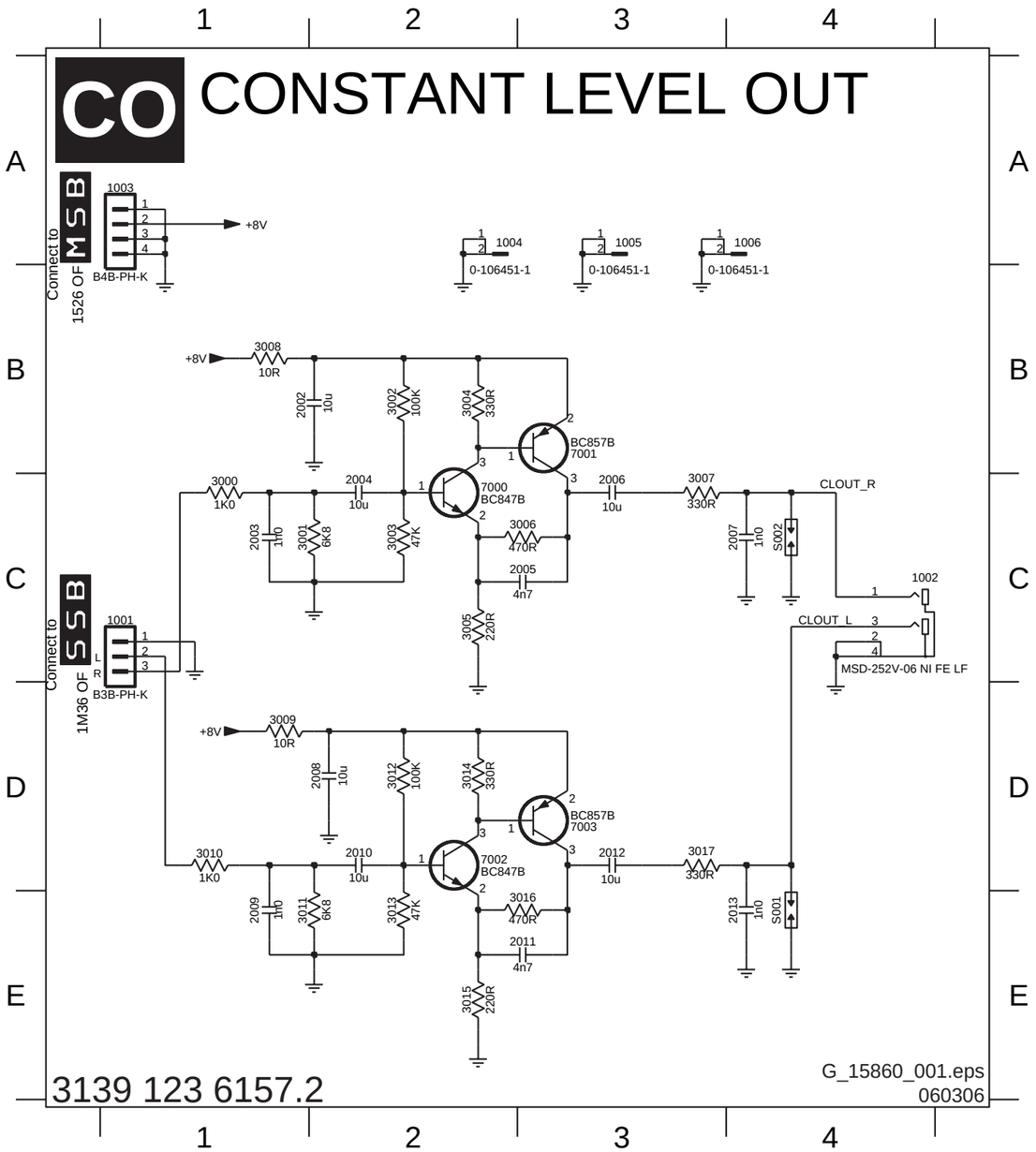


Layout SSB (Bottom Side Part 2)



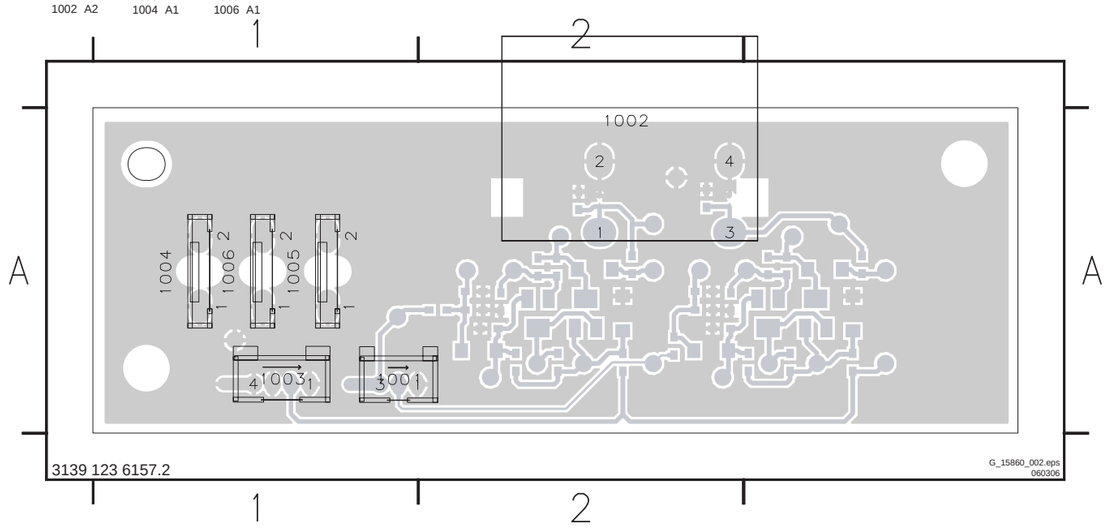
Constant Level Out Panel

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1003 A1	2002 B1	2006 C3	2010 D2	3000 C1	3004 B2	3008 B1	3012 D2	3016 E3	7002 D2	
1004 A2	2003 C1	2007 C4	2011 E3	3001 C1	3005 C2	3009 D1	3013 E2	3017 D3	7003 D3	



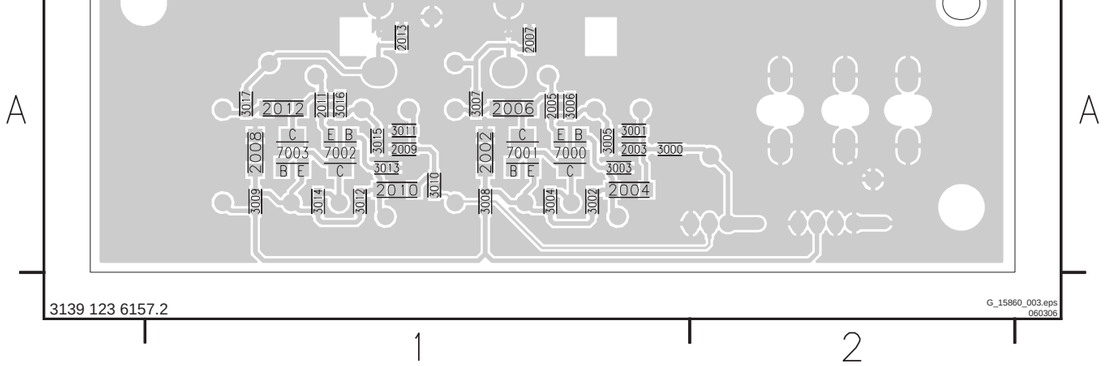
Layout Constant Level Out Panel (Top Side)

1001 A1	1003 A1	1005 A1	
1002 A2	1004 A1	1006 A1	

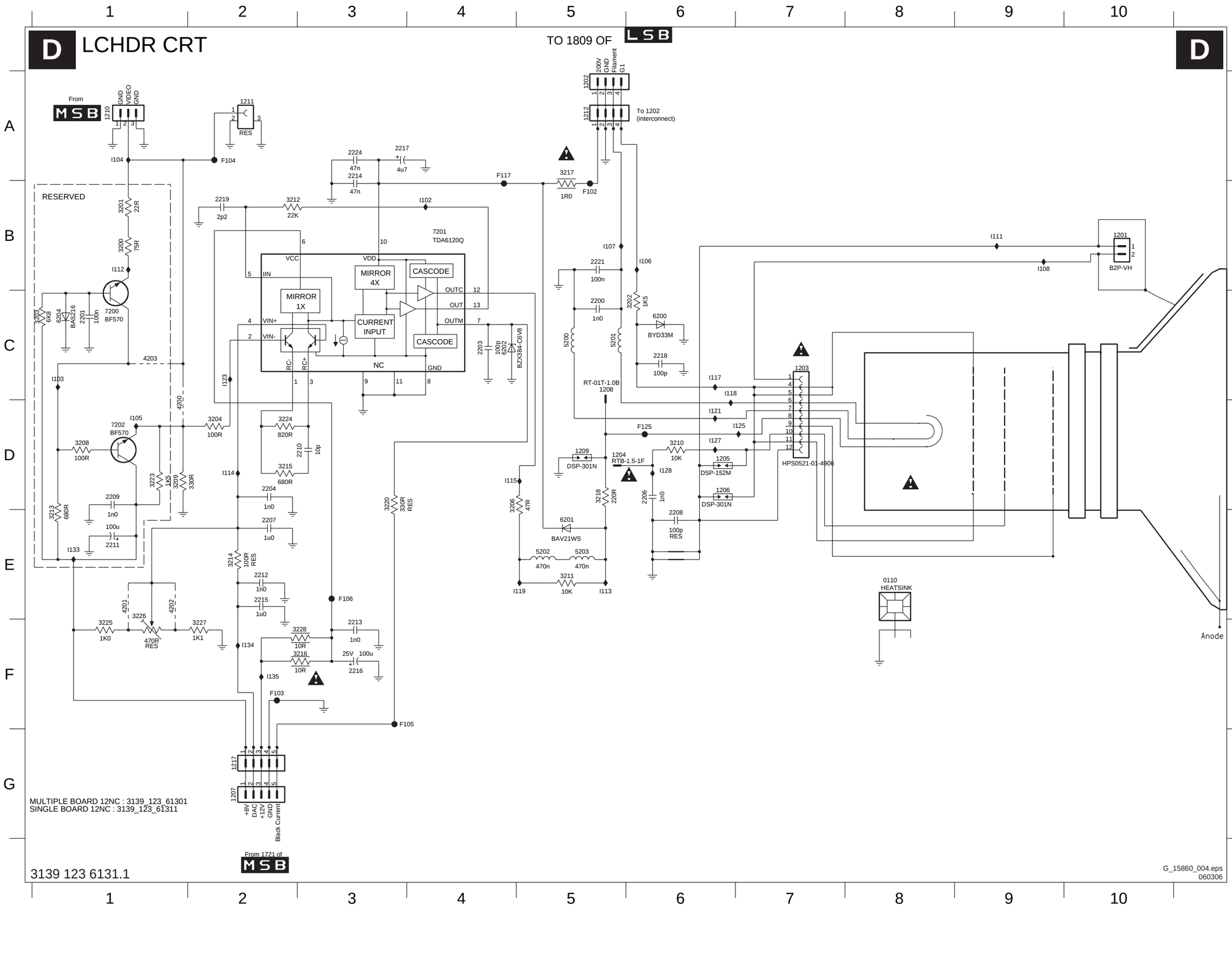


Layout Constant Level Out Panel (Bottom Side)

2002 A1	2007 A1	2012 A1	3003 A1	3008 A1	3013 A1	7000 A1
2003 A1	2008 A1	2013 A1	3004 A1	3009 A1	3014 A1	7001 A1
2004 A1	2009 A1	3000 A1	3005 A1	3010 A1	3015 A1	7002 A1
2005 A1	2010 A1	3001 A1	3006 A1	3011 A1	3016 A1	7003 A1
2006 A1	2011 A1	3002 A1	3007 A1	3012 A1	3017 A1	

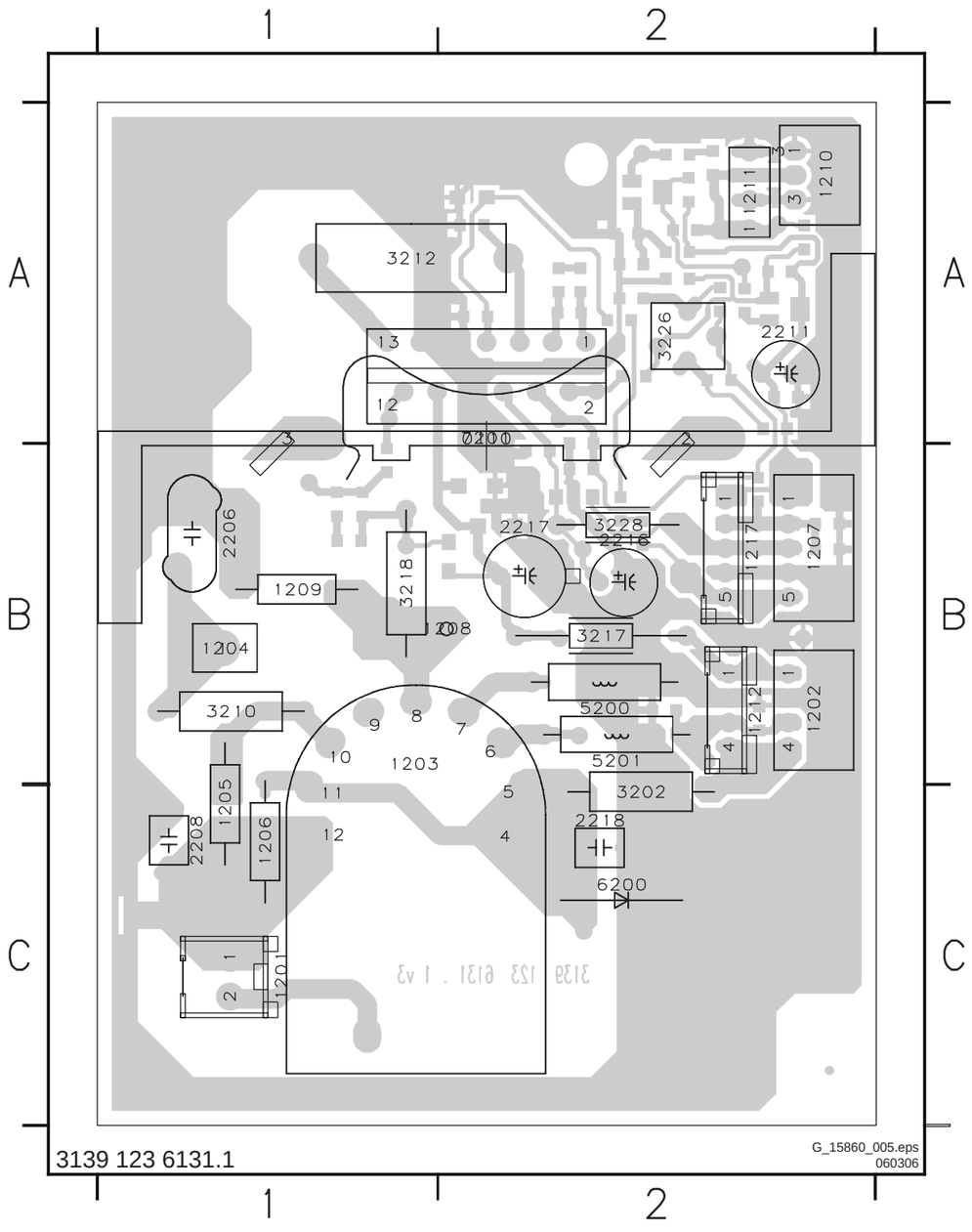


LCHDR CRT Panel



0110 E8
1201 B10
1202 A5
1203 C7
1204 D5
1205 D6
1206 D6
1207 G2
1208 C5
1209 D5
1210 A1
1211 A2
1212 A5
1217 G2
2200 C5
2201 C1
2203 C4
2204 D2
2206 D6
2207 E2
2208 E6
2209 D1
2210 D3
2211 E1
2212 E2
2213 F3
2214 A3
2215 E2
2216 F3
2217 A3
2218 C6
2219 B2
2221 B5
2224 A3
3200 B1
3201 B1
3202 C6
3203 C1
3204 D2
3206 D4
3208 D1
3209 D1
3210 D6
3211 E5
3212 B2
3213 E1
3214 E2
3215 D2
3216 F3
3217 A5
3218 D5
3220 D3
3223 D1
3224 D2
3225 F1
3226 E1
3227 F2
3228 F3
4200 D1
4201 E1
4202 E1
4203 C1
5200 C5
5201 C5
5202 E5
5203 E5
6200 C6
6201 E5
6202 C4
6204 C1
7200 C1
7201 B4
7202 D1
F102 B5
F103 F2
F104 A2
F105 F3
F106 E3
F117 A4
F125 D6
I102 B4
I103 C1
I104 A1
I105 D1
I106 B6
I107 B5
I108 B9
I111 B9
I112 B1
I113 E5
I114 D2
I115 D4
I117 C6
I118 C6
I119 E5
I121 D6
I123 C2
I125 D7
I127 D6
I128 D6
I133 E1
I134 F2
I135 F2

Layout LCHDR CRT Panel (Top Side)

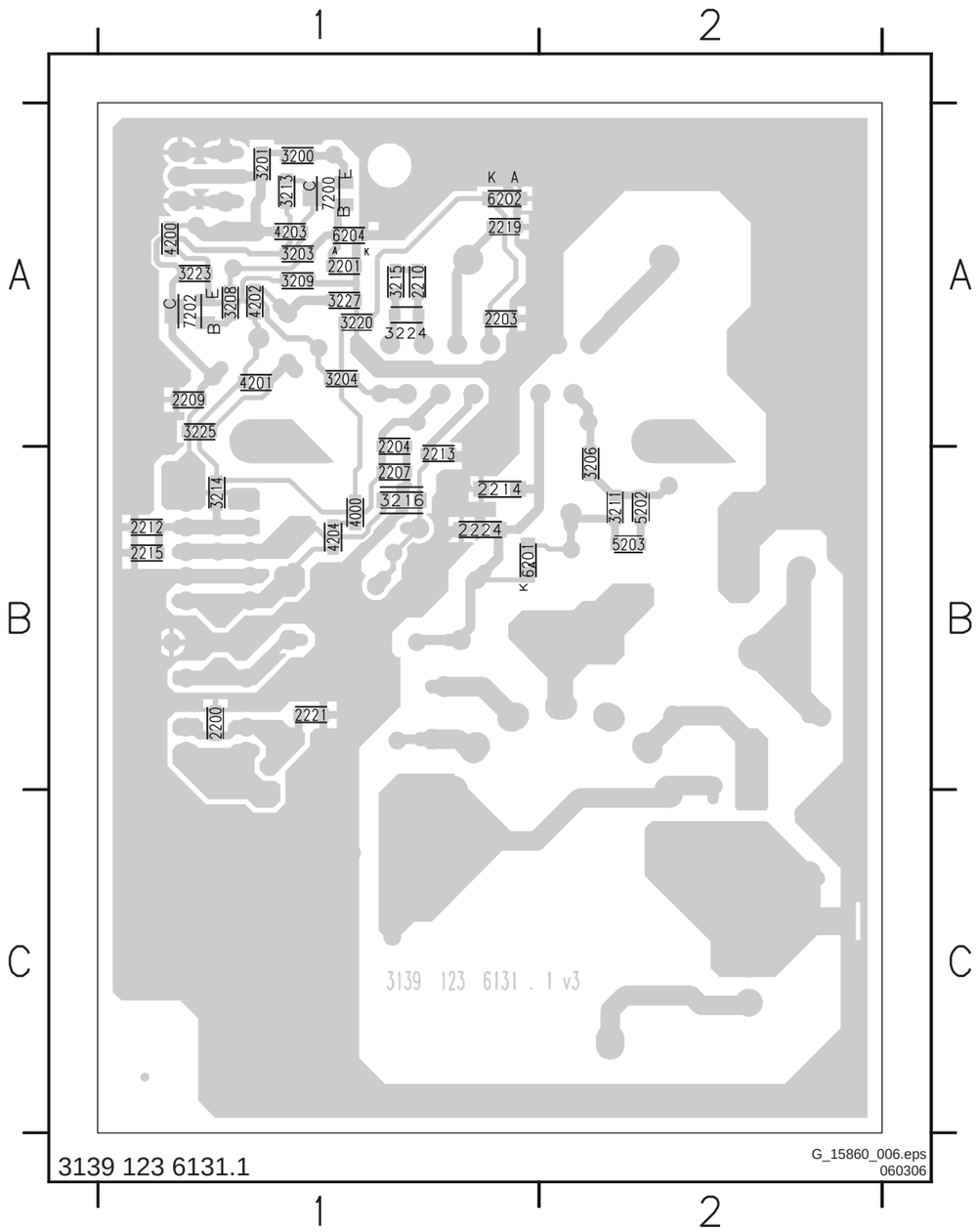


0110 A2
1201 C1
1202 B2
1203 B1
1204 B1
1205 C1
1206 C1
1207 B2
1208 B2
1209 B1
1210 A2
1211 A2
1212 B2
1217 B2
2206 B1
2208 C1
2211 A2
2217 B2
2218 C2
3202 C2
3210 B1
3212 A1
3217 B2
3218 B1
3226 A2
3228 B2
4002 B2
5200 B2
5201 B2
6200 C2
7201 A2

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060306

3139 123 6131.1

Layout LCHDR CRT Panel (Bottom Side)

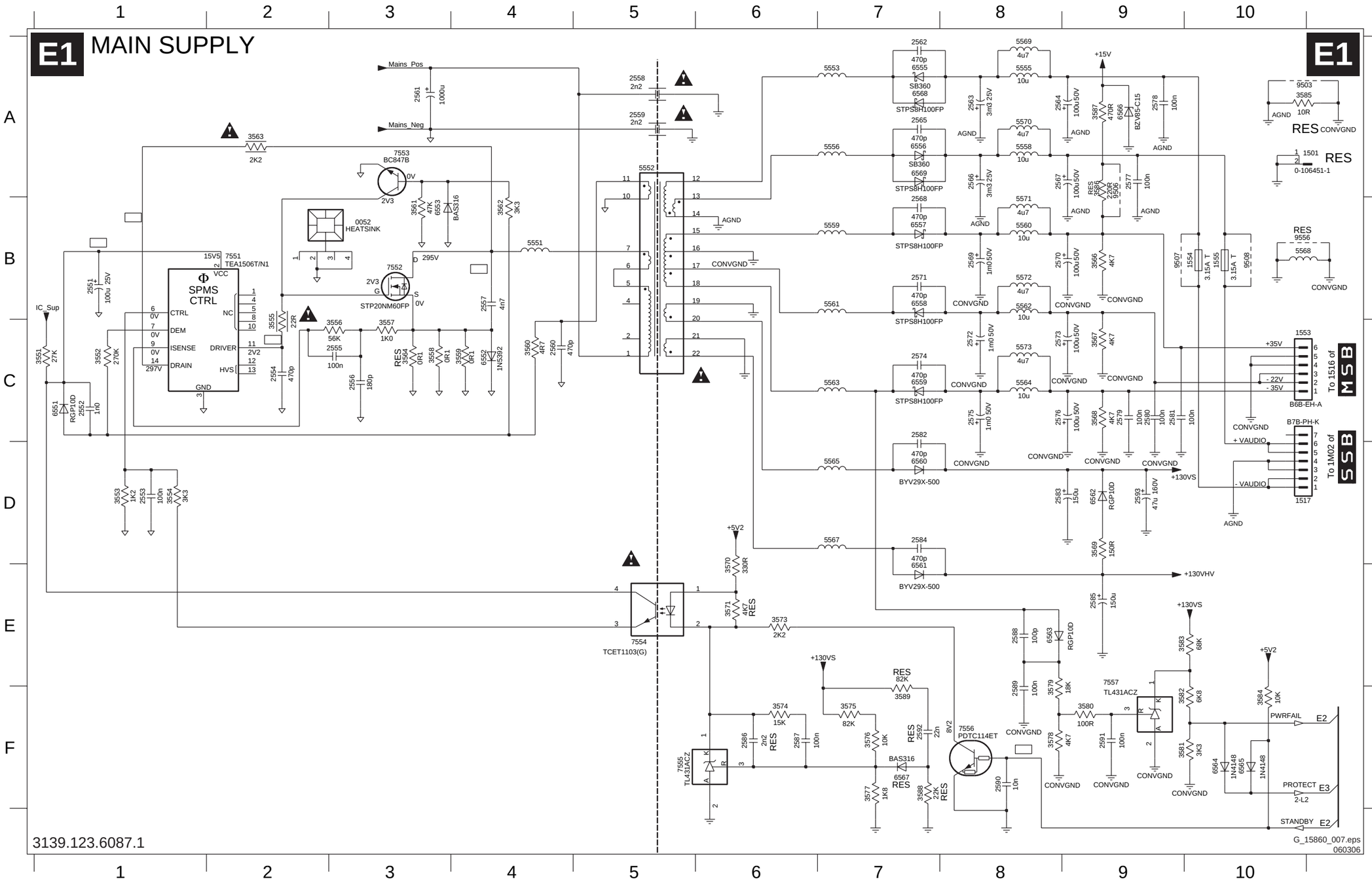


2200 B1
2201 A1
2203 A1
2204 A1
2207 B1
2209 A1
2210 A1
2212 B1
2213 B1
2214 B1
2215 B1
2219 A1
2221 B1
2224 B1
3200 A1
3201 A1
3203 A1
3204 A1
3206 B2
3208 A1
3209 A1
3211 B2
3213 A1
3214 B1
3215 A1
3216 B1
3220 A1
3223 A1
3224 A1
3225 A1
3227 A1
4000 B1
4200 A1
4201 A1
4202 A1
4203 A1
4204 B1
5202 B2
5203 B2
6201 B1
6202 A1
6204 A1
7200 A1
7202 A1

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060306

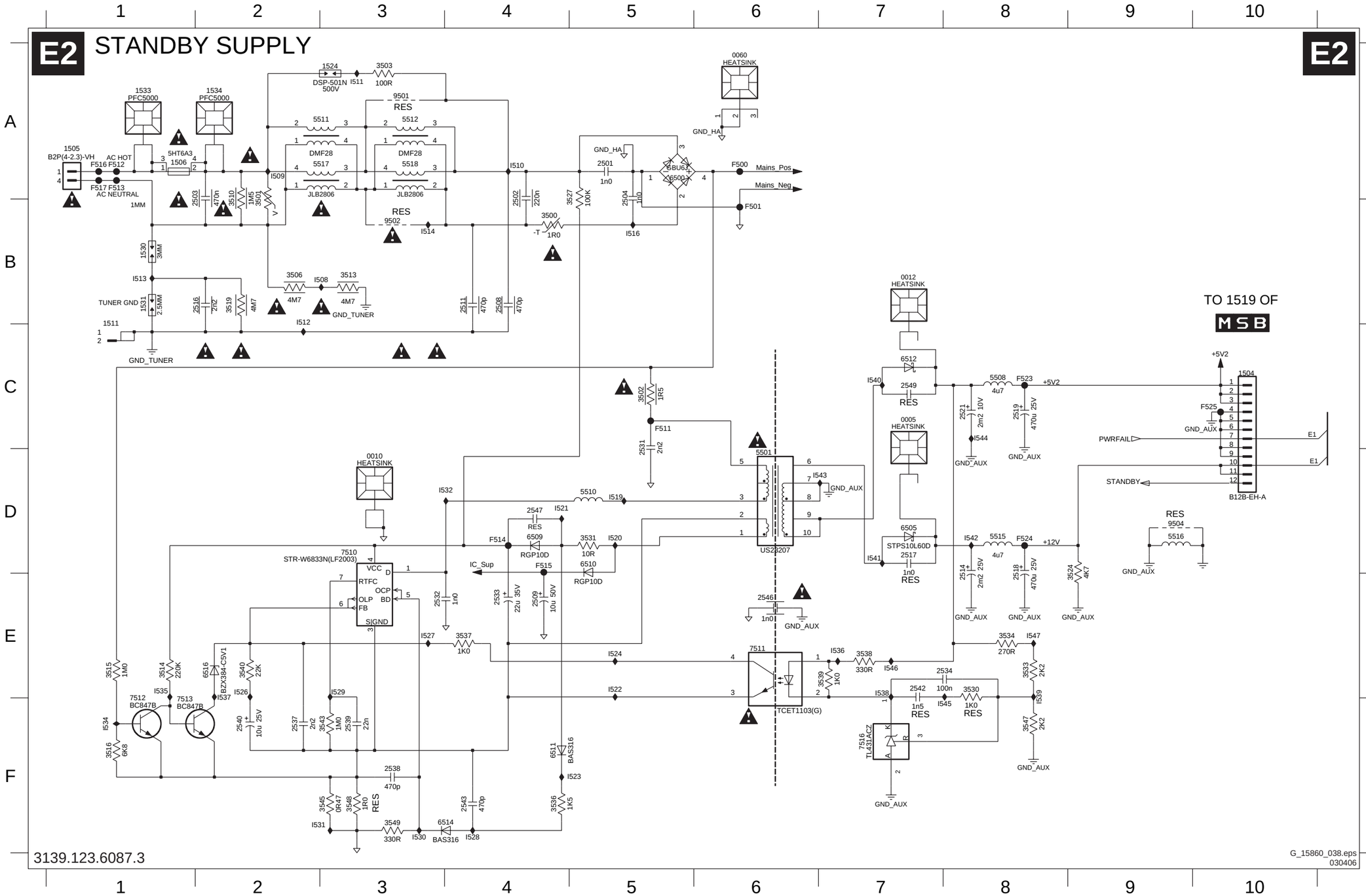
3139 123 6131.1

Large Signal Panel: Main Supply



0052 B3	3585 A10
1501 A10	3586 A9
1517 D10	3587 A9
1553 C10	3588 F7
1554 B10	3589 F7
1555 B10	5551 B4
2551 B1	5552 A5
2552 C1	5553 A7
2553 D1	5555 A8
2554 C2	5556 A7
2555 C3	5558 A8
2556 C3	5559 B7
2557 B4	5560 B8
2558 A5	5561 B7
2559 A5	5562 B8
2560 C4	5563 C7
2561 A3	5564 C8
2562 A7	5565 D7
2563 A8	5567 D7
2564 A8	5568 B10
2565 A7	5569 A8
2566 A8	5570 A8
2567 A8	5571 B8
2568 B7	5572 B8
2569 B8	5573 C8
2570 B8	6551 C1
2571 B7	6552 C4
2572 C8	6553 B3
2573 C8	6555 A7
2574 C7	6556 A7
2575 C8	6557 B7
2576 C8	6558 B7
2577 A9	6559 C7
2578 A9	6560 D7
2579 C9	6561 E7
2580 C9	6562 D9
2581 C9	6563 E8
2582 C7	6564 F10
2583 D8	6565 F10
2584 D7	6566 A9
2585 E9	6567 F7
2586 F6	6568 A7
2587 F6	6569 A7
2588 E8	7551 B2
2589 F8	7552 B3
2590 F8	7553 A3
2591 F9	7554 E5
2592 F7	7555 F5
2593 D9	7556 F8
3551 C1	7557 E9
3552 C1	9503 A10
3553 D1	9506 A9
3554 D1	9507 B9
3555 C2	9508 B10
3556 C3	9556 B10
3557 C3	
3558 C3	
3559 C4	
3560 C4	
3561 B3	
3562 B4	
3563 A2	
3564 C3	
3566 B9	
3567 C9	
3568 C9	
3569 D9	
3570 E6	
3571 E6	
3573 E6	
3574 F6	
3575 F7	
3576 F7	
3577 F7	
3578 F8	
3579 F8	
3580 F9	
3581 F9	
3582 F9	
3583 E9	
3584 F10	

Large Signal Panel: Standby Supply



0005 C7 6514 F4
0010 D3 6516 E2
0012 B7 7510 D3
0060 A6 7511 E6
1504 C10 7512 F1
1505 A1 7513 F1
1506 A1 7516 F7
1511 C1 9501 A3
1524 A3 9502 B3
1530 B1 9504 D9
1531 B1 F500 A6
1533 A1 F501 B6
1534 A2 F511 C5
2501 A5 F512 A1
2502 A4 F513 A1
2503 A2 F514 D4
2504 A5 F515 D4
2508 B4 F516 A1
2509 E4 F517 A1
2511 B4 F523 C8
2514 D8 F524 D8
2516 B2 F525 C10
2517 D7 I508 B3
2518 D8 I509 A2
2519 C8 I510 A4
2521 C8 I511 A3
2531 C5 I512 B2
2532 E3 I513 B1
2533 E4 I514 B3
2534 E8 I516 B5
2537 F2 I519 D5
2538 F3 I520 D5
2539 F3 I521 D4
2540 F2 I522 E5
2542 E7 I523 F5
2543 F4 I524 E5
2546 E7 I526 E2
2547 D4 I527 E3
2549 C7 I528 F4
3500 B4 I529 E3
3501 A2 I530 F3
3502 C5 I531 F2
3503 A3 I532 D4
3506 B2 I534 F1
3510 A2 I535 E1
3513 B3 I536 E7
3514 E1 I537 E2
3515 E1 I538 E7
3516 F1 I539 E8
3519 B2 I540 C7
3524 D9 I541 D7
3527 A4 I542 D8
3530 E8 I543 D7
3531 D5 I544 C8
3533 E8 I545 F8
3534 E8 I546 E7
3536 F4 I547 E8
3537 E4
3538 E7
3539 E7
3540 E2
3543 F3
3545 F3
3547 F8
3548 F3
3549 F3
5501 D6
5508 C8
5510 D5
5511 A3
5512 A3
5515 D8
5516 D9
5517 A3
5518 A3
6500 A5
6505 D7
6509 D4
6510 D5
6511 F4
6512 C7

Large Signal Panel: Deflection

E3 DEFLECTION

E3

RESERVED

To 1202 of CRT PANEL 1202

TO DEFLECTION YOKES

	USA BASIC 4:3	USA BASIC 16:9	USA CORE 4:3	USA CORE 16:9	
Ref Des	313503710981	313503710991	313503711001	313503711011	NOT_USED
1002	NOT USED	NOT USED	NOT USED	NOT USED	242202512479 EH-B
1102	NOT USED	NOT USED	NOT USED	NOT USED	242202512479 EH-B
2816	NOT USED	NOT USED	NOT USED	NOT USED	222247990022 430n
3820	319801211080 1R0	319801211580 31980121 1R5	319801211080 1R0	319801211580 31980121 1R5	319801211080 1R0
5802	242253595282 47u	242253595282 47u	242253595282 47u	242253595282 47u	NOT USED
9203	NOT USED	NOT USED	NOT USED	NOT USED	319803690010

0081 B10
0082 F13
0083 A14
0085 A9
0180 B11
1801 G15
1802 H15
1803 I15
1804 C15
1805 D15
1806 A8
1807 I6
1808 I7
1809 I8
2801 B3
2802 B8
2803 B9
2804 A8
2805 A11
2806 A7
2807 B14
2808 B15
2810 D7
2811 C14
2812 C15
2813 D15
2814 C14
2815 D12
2816 D12
2817 C9
2818 C11
2819 E10
2820 E11
2821 C6
2822 H11
2823 G11
2824 G10
2825 H12
2826 H13
2827 I13
2828 I12
2829 E11
2830 F6
2831 E4
2832 E6
2833 D9
2834 E4
2835 C5
2836 C3
2837 H2
2838 I1
2839 I2
2840 J2
2841 J2
2842 J4
2843 H5
2844 H6
2845 C5
2846 E2
2847 D8
2850 E12
2851 H10
3801 A7
3802 C15
3803 B14
3804 G14
3805 H14
3806 I15
3807 D12
3808 D12
3809 C6
3810 B14
3811 H10
3812 G10
3813 G11
3814 H11
3815 J13
3816 A15
3817 B12
3818 I12
3819 I11
3820 J11
3821 J11
3822 E9
3823 D9
3824 D7
3825 E7
3826 D6
3827 F6
3829 E9
3832 E5
3833 E6
3834 E1
3835 E2
3836 E2
3837 E4
3838 C5
3839 C3
3840 C3
3841 G2
3842 H2
3843 H2
3844 H1
3845 I2
3846 J1
3847 J2
3848 I3
3849 J4
3850 G3
3851 G4
3852 H5
3853 H5
3854 H6
3855 H6
3856 H7
3857 H7
3858 H8
3859 I5
3860 I4
3861 J3
3862 J5
3864 J5
3865 J14
3866 D7
3867 G3
3868 G4
5801 B13
5802 B3
5803 D13
5804 D12
5805 D11
5807 E10
5808 C4
5809 I6
5810 D10
5811 C7
6801 A11
6802 B9
6803 A14
6804 B15
6805 C14
6806 D14
6807 C15
6808 D15
6809 D11
6810 C10
6811 H12
6812 F4
6813 E3
6814 H1
6815 H2
6816 F4
6817 H4
6818 H5
6819 I4
6820 H7
6821 D10
6822 J2
6823 J3
6824 G1
6825 E7
6826 D6
6827 F6
6829 I2
6830 F9
6831 H8
6832 D9
7801 C6
7802 E8
7803-1 E7
7803-2 D7
7807 E3
7808 G3
7809 I3
7810 J3
7811 F11
7812 H5
7813 H6
7814 H8
7906 G5
9203 B3
9818 I5

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Large Signal Panel: HV Gen

E4 HV GEN

TRANSFORMER
VAUX
ABL RTN VAUX GND
DRIVER & CONTROL
OVP ON / TEST OFF GND VB+
MT
5904 HVG
VFOC EHT R EHT G EHT B
NC NC NC

1904 RTB-1.5-1F DYN FOCUS
DSP-152M
W8073
B12B-EH-A
B3B-EH-A
TEST
TO 1620 of MSB

BZX79-C3V9
BAS316
BZX79-C4V7
BZX79-C18
BAT85
BZX79-C8V2
BC857B
BC847B
BAT54 COL
BYV27 400V
BYV27

+15V
-13V
+330V
+130VS
+130VHV
-200V
-15V

E3 DYN-FOCUS-LO 2-F19
E3 DYN-FOCUS-HIGH 2-G19
E3 VERT-PARABOLA 2-H19
E3 VDOA 2-J13
E3 VDOB 2-L13
E3 HOUT 2-F2,1-M4
E3 VPULSE 2-O19
E3 HOT-COLLECTOR 2-G19
HVG-ON E3 2-H19
DM-INPUT E3 2-G19

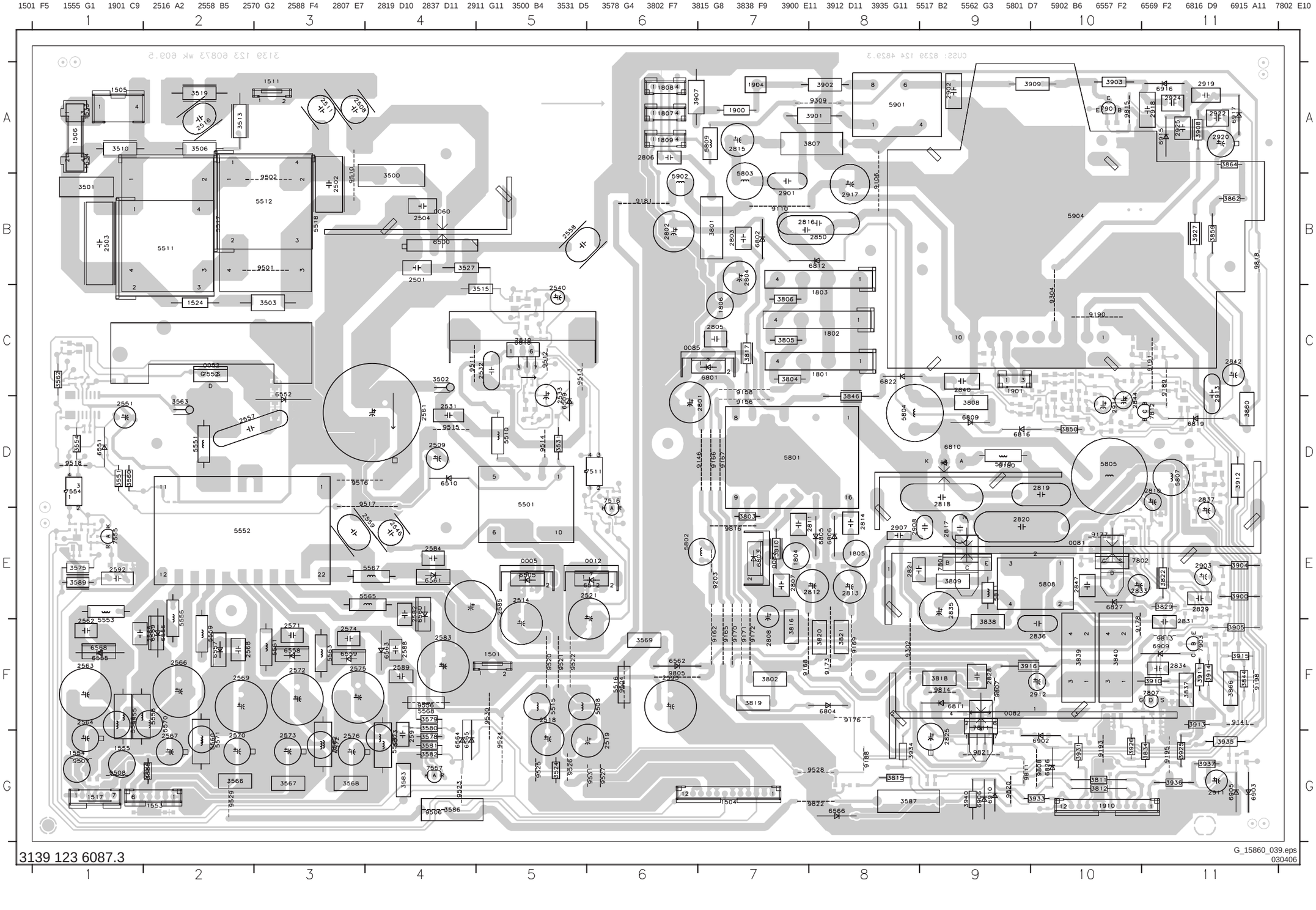
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5903	NOT USED	NOT USED	NOT USED	NOT USED	319801890020

3139 123 6087.1
G_15860_010.eps 100406

1900 A2
1901 A10
1904 A1
1910 D1
2901 B2
2902 B4
2903 C2
2904 C3
2905 D2
2906 E2
2907 G2
2908 G2
2910 C2
2911 D4
2912 C6
2913 C7
2914 E5
2915 E7
2916 D8
2917 A9
2918 C10
2919 B9
2920 B10
2921 D6
2922 B9
2924 C9
2925 C9
2926 F5
2927 F7
3900 C3
3901 B2
3902 A2
3903 B3
3904 C2
3905 C4
3906 E5
3907 A3
3908 B9
3909 B3
3910 B6
3911 B6
3912 C7
3913 C6
3914 C6
3915 B5
3916 C5
3917 D6
3918 E7
3919 D5
3920 D5
3921 F6
3922 F6
3923 C5
3924 D5
3925 E6
3926 F2
3927 F1
3928 F2
3929 D2
3930 F2
3931 E2
3932 G2
3933 F3
3934 G2
3935 F2
3936 D3
3937 D4
3940 G3
5901 A3
5902 A9
5904 A6
6901 C4
6902 F2
6903 C4
6904 C4
6905 D4
6906 G3
6908 B6
6909 C5
6910 G2
6912 D6
6913 D8
6914 D8
6915 C9
6916 B9
6917 B9
6919 F6
7901 C3
7902 G3
7903 C5
7904 E6
7905 D7

Layout Large Signal Panel (Top Side)

0005 E5 0010 C5 0012 E6 0052 C2 0060 B4 0081 E10 0082 F9 0083 E7 0085 C6 0180 D9 1501 F5 1504 G7 1505 A1 1506 A1 1511 A1 1517 G1 1524 C2 1533 A1 1534 A1 1553 G2 1554 G1 1555 G1 1801 C8 1802 C8 1803 C8 1804 E7 1805 E8 1806 C7 1807 A6 1808 A6 1809 A6 1900 A7 1901 C9 1904 A7 1910 G10 2501 B4 2502 B3 2503 B1 2504 B4 2508 A3 2509 D4 2511 A3 2514 E5 2516 A2 2518 F5 2519 G6 2521 E6 2531 D4 2532 C5 2540 C5 2551 D1 2557 D2 2558 B5 2559 E4 2561 D4 2562 F1 2563 F1 2565 F2 2566 F2 2569 F2 2570 G2 2571 F3 2572 F3 2573 G3 2574 F3 2575 F3 2576 G3 2582 E4 2583 F4 2584 E4 2585 E5 2588 F4 2589 F4 2591 G4 2592 E1 2593 F6 2801 D7 2802 B6 2803 B7 2804 B7 2805 C7 2806 A6 2807 E7 2808 F7 2810 D11 2811 E8 2813 E8 2814 E8 2815 A7 2816 B7 2817 E9 2818 D9 2819 D10 2820 E9 2821 E8 2825 G9 2828 F9 2829 E11 2831 F11 2833 E10 2834 F11 2835 E9 2836 F10 2837 D11 2840 C9 2842 C11 2844 D10 2847 E10 2850 B8 2901 B7 2902 A9 2907 E8 2908 E8 2911 G11 2912 A11 2913 A11 2914 D10 2917 B8 2918 A11 2919 A11 2920 A11 2922 A11 2924 A11 2925 A11 3500 B4 3501 B1 3502 C4 3503 C3 3506 A2 3510 A1 3513 A2 3515 C5 3519 A2 3524 G5 3527 B4 3531 D5 3551 D1 3554 D1 3560 D1 3562 C1 3563 D2 3566 G2 3567 G3 3568 G3 3569 F6 3575 E1 3578 G4 3579 F4 3580 F4 3581 G4 3582 G4 3583 G4 3585 G2 3586 G4 3587 G8 3589 E1 3801 B7 3802 F7 3803 E7 3804 C7 3805 C7 3806 C7 3807 A8 3808 D9 3809 E9 3810 E7 3811 G10 3812 G10 3815 G8 3816 F7 3817 C7 3818 F9 3819 F7 3820 F8 3821 F8 3822 E11 3829 E11 3834 G11 3837 F11 3838 F9 3839 F10 3840 F10 3844 F11 3846 D8 3850 D10 3859 B11 3860 D11 3862 B11 3864 A11 3866 F11 3900 E11 3901 A8 3902 A8 3903 A10 3905 F11 3907 A6 3908 A11 3909 A10 3911 F11 3912 D11 3913 F11 3914 F11 3915 F11 3916 F9 3925 G11 3926 G10 3927 B11 3931 G10 3933 G10 3934 G8 3935 G11 3936 G11 3937 G11 3940 G9 5501 D5 5508 F6 5510 D5 5511 B2 5512 B3 5515 F5 5516 F6 5517 B2 5518 B3 5551 D2 5552 E2 5553 F1 5555 F1 5558 F2 5559 F2 5560 G2 5561 F3 5562 G3 5563 F3 5564 G4 5565 E4 5567 E4 5568 F4 5569 F1 5570 F2 5571 G2 5572 G3 5573 G4 5801 D7 5802 B6 5803 B7 5804 D8 5805 D10 5807 D11 5808 E10 5809 A7 5810 D9 5811 E9 5901 A8 5902 B6 5904 B10 6500 B4 6505 E5 6510 D4 6511 D1 6512 E6 6552 C3 6555 F1 6556 F2 6557 F2 6558 F3 6559 F3 6560 E4 6562 F6 6563 F4 6564 G4 6565 G4 6566 G8 6568 F1 6569 F2 6801 C7 6802 B7 6803 E7 6804 F8 6805 E8 6806 E8 6809 D9 6810 D9 6811 F9 6812 B8 6816 D9 6819 D11 6822 C8 6827 E10 6902 G10 6903 G11 6905 G11 6909 F11 6910 G9 6915 A11 6916 A11 7501 C5 7502 C6 7503 E6 7504 E6 7505 E6 7506 E6 7507 E6 7508 E6 7509 E6 7510 C5 7511 D6 7516 D6 7552 C2 7554 D1 7555 E1 7557 G4 7801 E9 7802 E10 7807 F11 7811 F9 7812 D11 7901 A10 7903 F11 9106 B8 9110 B7 9141 F11 9146 D7 9156 D7 9158 C7 9162 F7 9165 F7 9166 D7 9167 D7 9168 F7 9169 F8 9170 F7 9171 F7 9172 F7 9173 F8 9176 F8 9177 E10 9178 F10 9181 B6 9188 G8 9189 C11 9190 C10 9191 C11 9193 G10 9195 G11 9198 F11 9203 E7 9302 F8 9304 C10 9309 A8 9501 B3 9502 B3 9503 G2 9504 F6 9506 G4 9507 G1 9508 G1 9510 B3 9511 C4 9512 C5 9513 C5 9514 D5 9515 D4 9516 D3 9517 D4 9518 D1 9520 F5 9521 F5 9522 F5 9523 G4 9524 G5 9525 G5 9526 G5 9527 G6 9528 G8 9529 G2 9530 F5 9531 G6 9556 F4 9805 F6 9807 F9 9808 G10 9811 G9 9813 F11 9814 F9 9815 A10 9816 E7 9818 B11 9820 G9 9821 G9 9822 G8

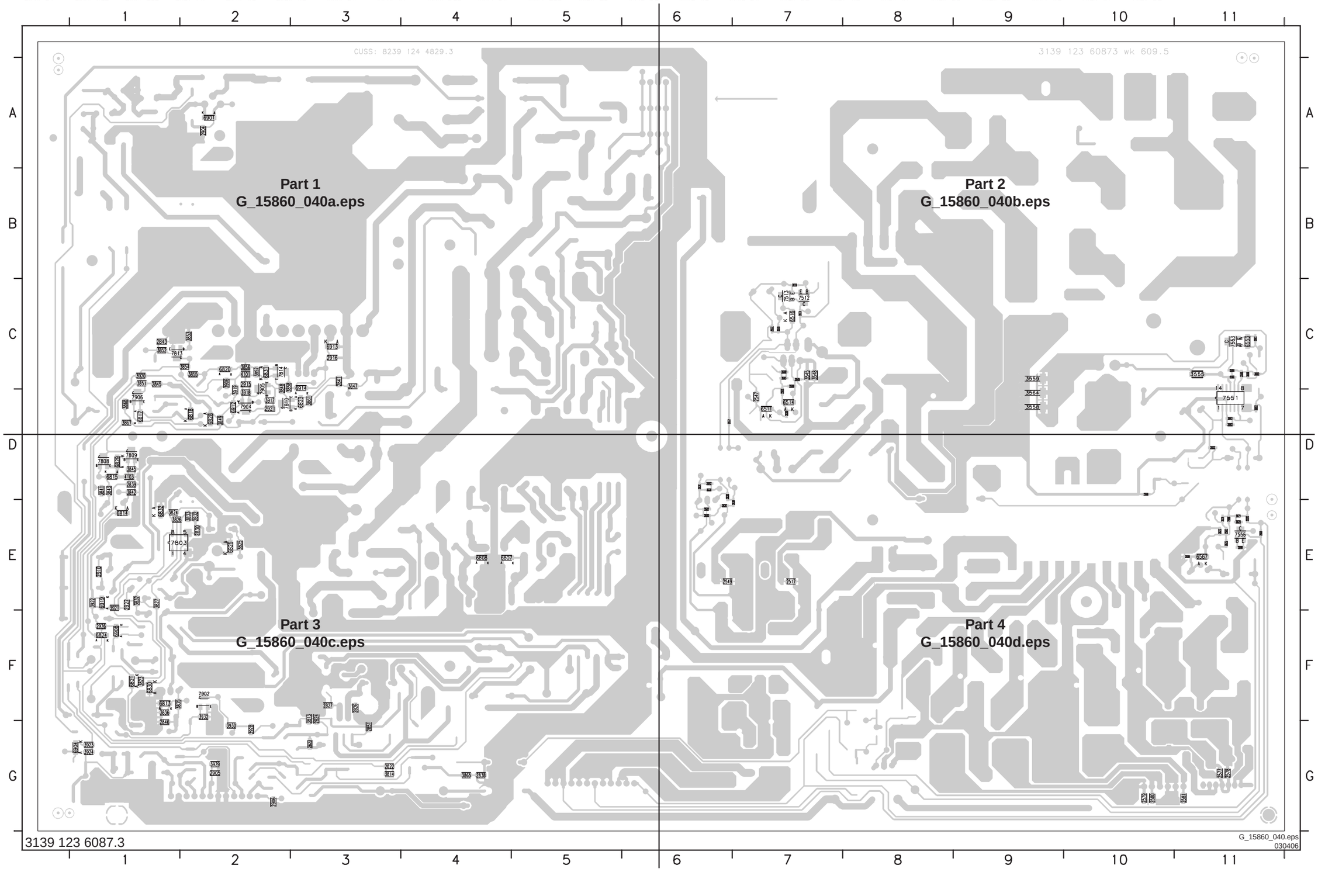


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Layout Large Signal Panel (Overview Bottom Side)

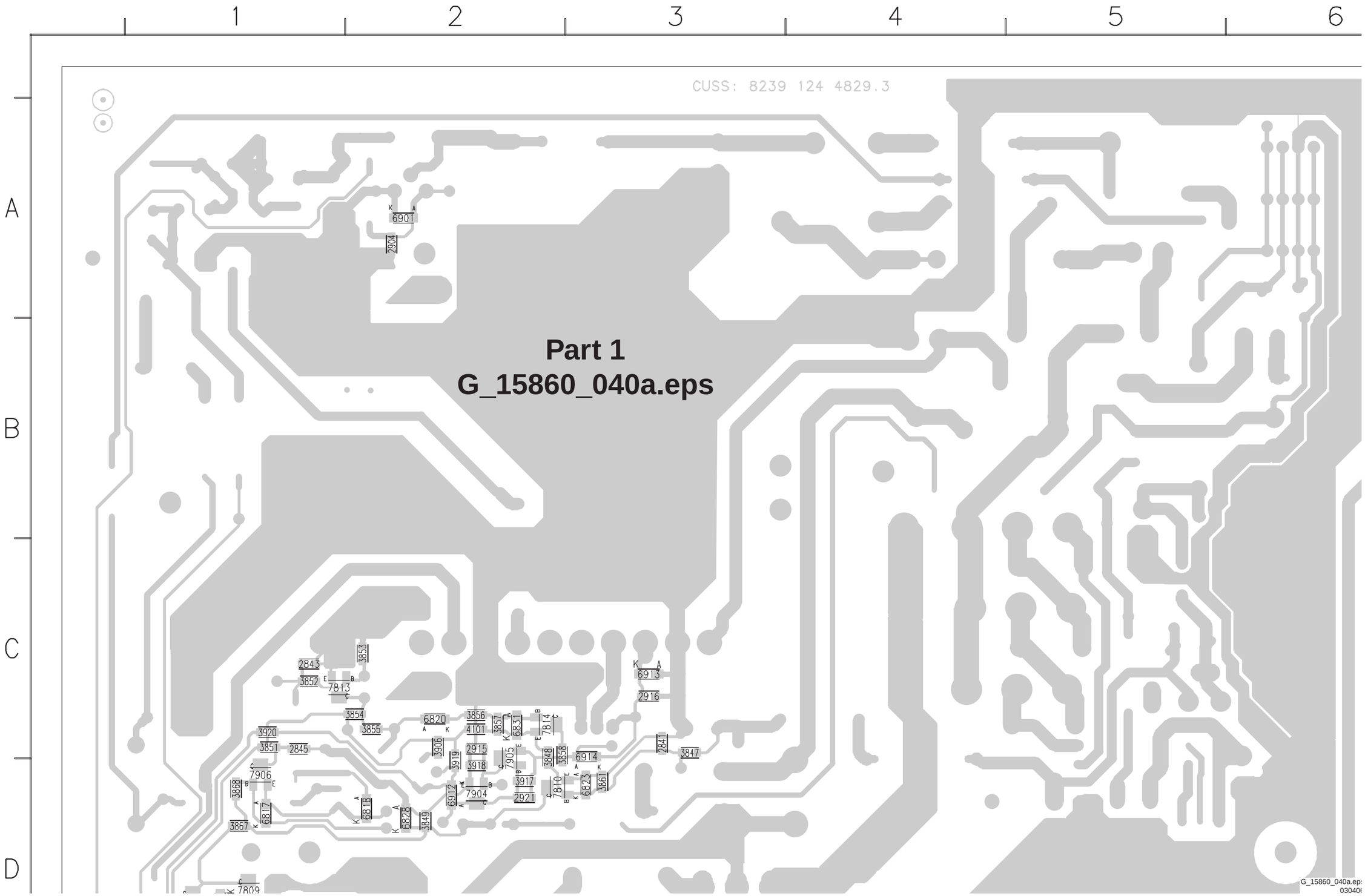
2517 E7	2547 D7	2560 D10	2587 E11	2830 E2	2846 G1	2916 C3	3533 E6	3543 C7	3555 C11	3570 E11	3588 E11	3827 E1	3843 D1	3853 C2	3865 G4	3920 C1	3930 G2	6553 C11	6817 D1	6828 D2	6908 F1	7551 D11	7813 C1
2534 D6	2549 E6	2577 G11	2590 E11	2832 E2	2851 G3	2921 D2	3534 E6	3545 C7	3556 C11	3571 E11	3813 F3	3832 E1	3845 D1	3854 C2	3867 D1	3921 E1	3932 F2	6567 E11	6818 D2	6829 D1	6912 D2	7553 C11	7814 C2
2537 C7	2552 D11	2578 G11	2822 G3	2838 G4	2904 A2	2926 F1	3536 D7	3547 E6	3557 C11	3573 E11	3814 G3	3833 E2	3847 C3	3855 C2	3868 D1	3922 E1	4101 C2	6807 E4	6820 C2	6830 F1	6913 C3	7556 E11	7902 F2
2538 C7	2553 D11	2579 G10	2823 G3	2839 D1	2905 G2	2927 E1	3537 D6	3548 C7	3558 D9	3574 E11	3823 F1	3835 F1	3848 C2	3856 C2	3906 C2	3923 G1	4103 D1	6808 E4	6821 F1	6831 C2	6914 C3	7803 E1	7904 D2
2539 C7	2554 C11	2580 G10	2824 F3	2841 C3	2906 G2	3514 C7	3538 E7	3549 C7	3559 C9	3576 E11	3824 E1	3836 F1	3849 D2	3857 C2	3917 D2	3924 G1	6511 D7	6813 F1	6823 D3	6832 E1	6919 E1	7808 D1	7905 C2
2542 D6	2555 C11	2581 G11	2826 F3	2843 C1	2910 E1	3516 C7	3539 D6	3552 D11	3561 C11	3577 E11	3825 E2	3841 D1	3851 C1	3858 C2	3918 D2	3928 G2	6514 D7	6814 E1	6824 F1	6901 A2	7512 C7	7809 D1	7906 D1
2543 D7	2556 C11	2586 E11	2827 F3	2845 C1	2915 C2	3530 D6	3540 C7	3553 D11	3564 D9	3584 E11	3826 E1	3842 D1	3852 C1	3861 D3	3919 D2	3929 G2	6516 C7	6815 D1	6825 E2	6904 G1	7513 C7	7810 D2	



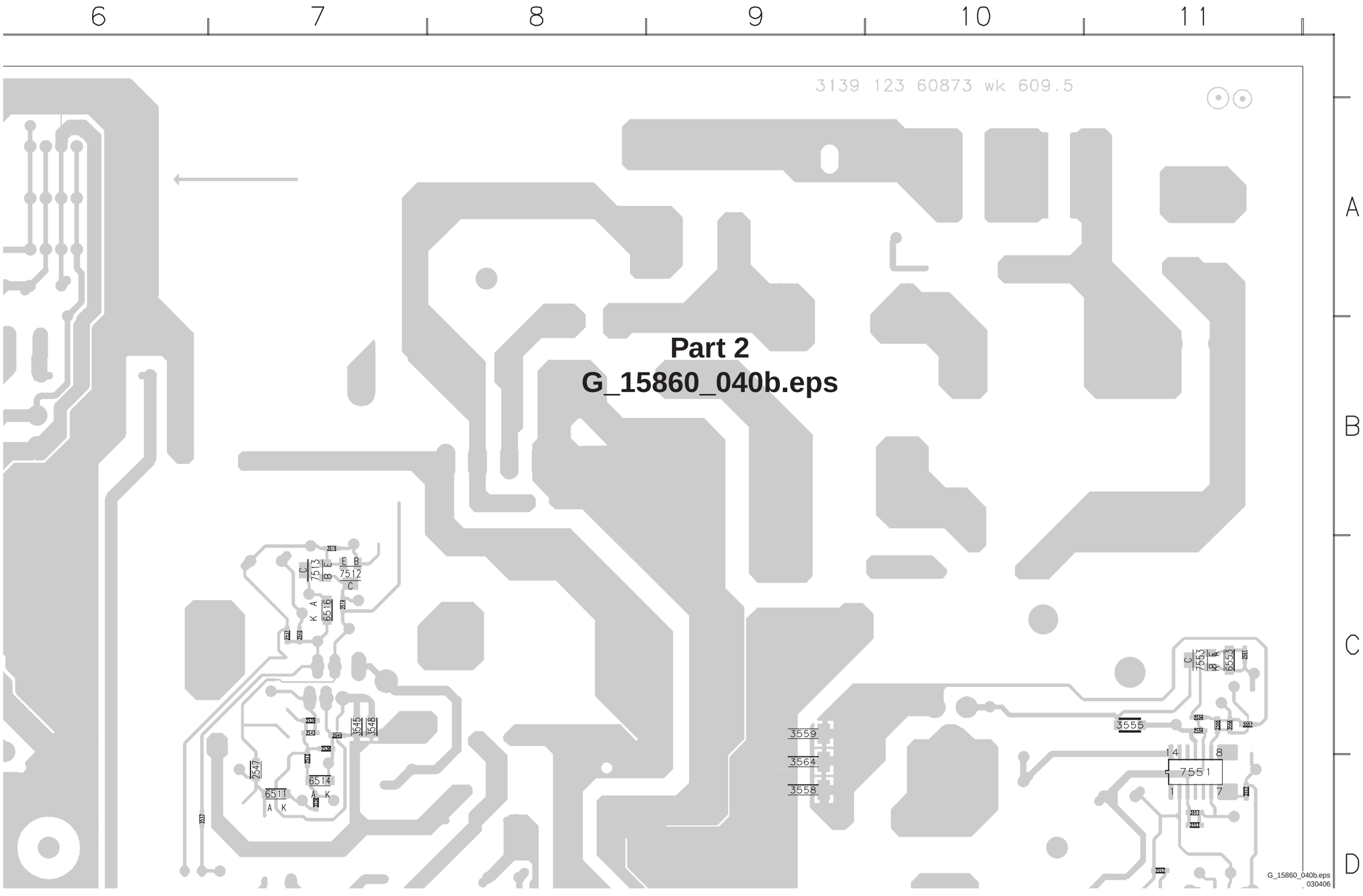
3139 123 6087.3

G_15860_040.eps
030406

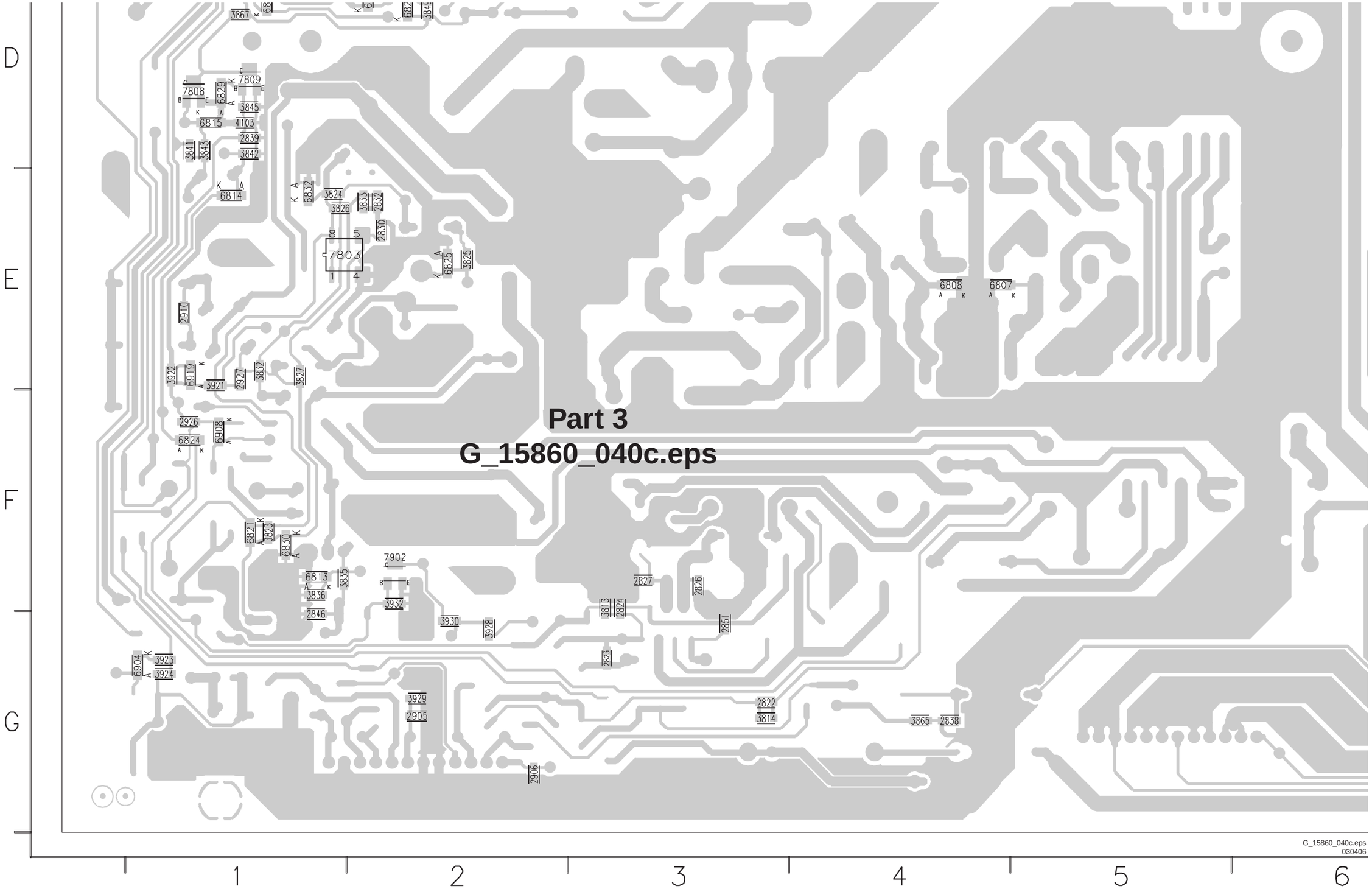
Layout Large Signal Panel (Part 1 Bottom Side)



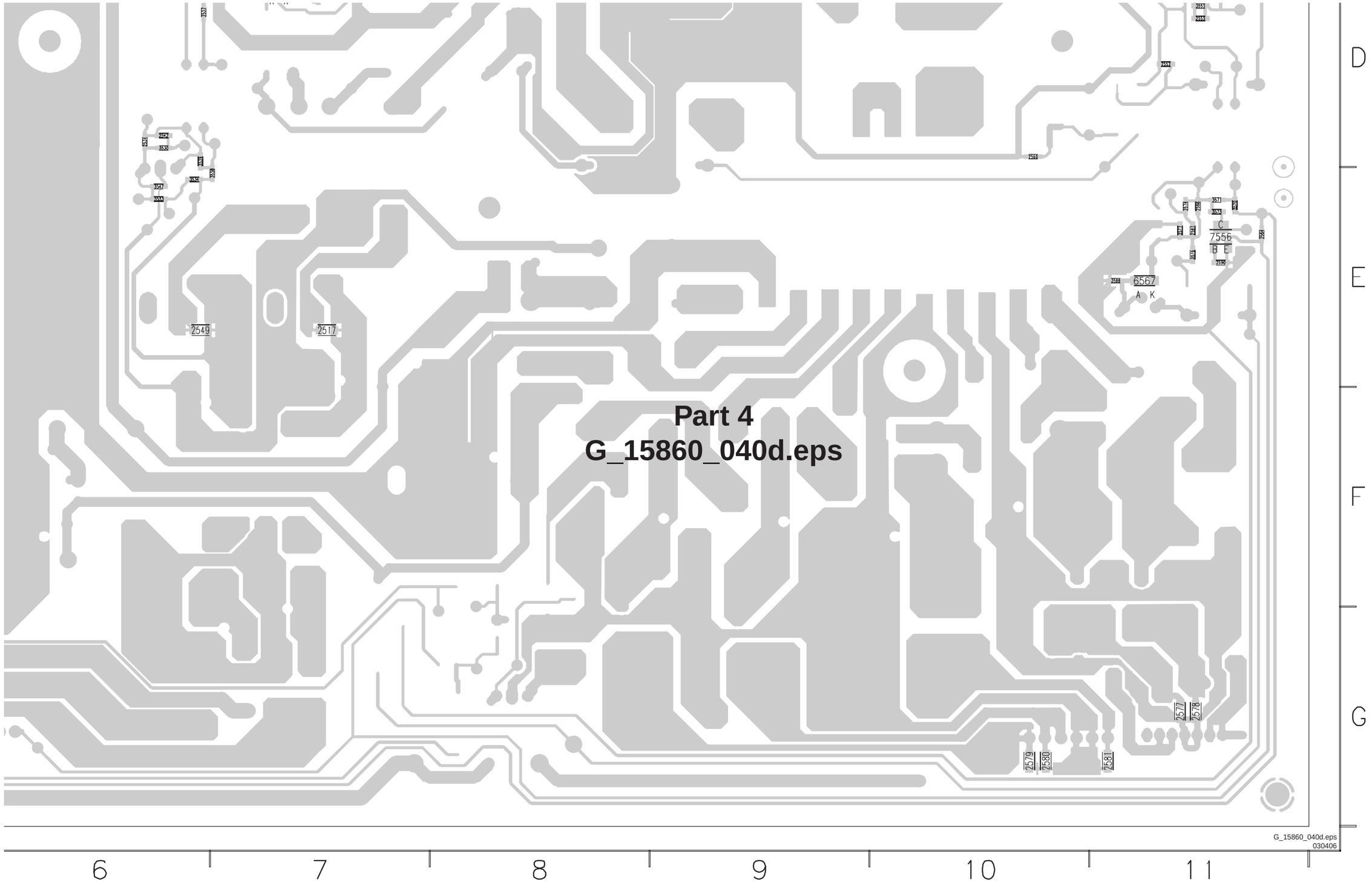
Layout Large Signal Panel (Part 2 Bottom Side)



Layout Large Signal Panel (Part 3 Bottom Side)

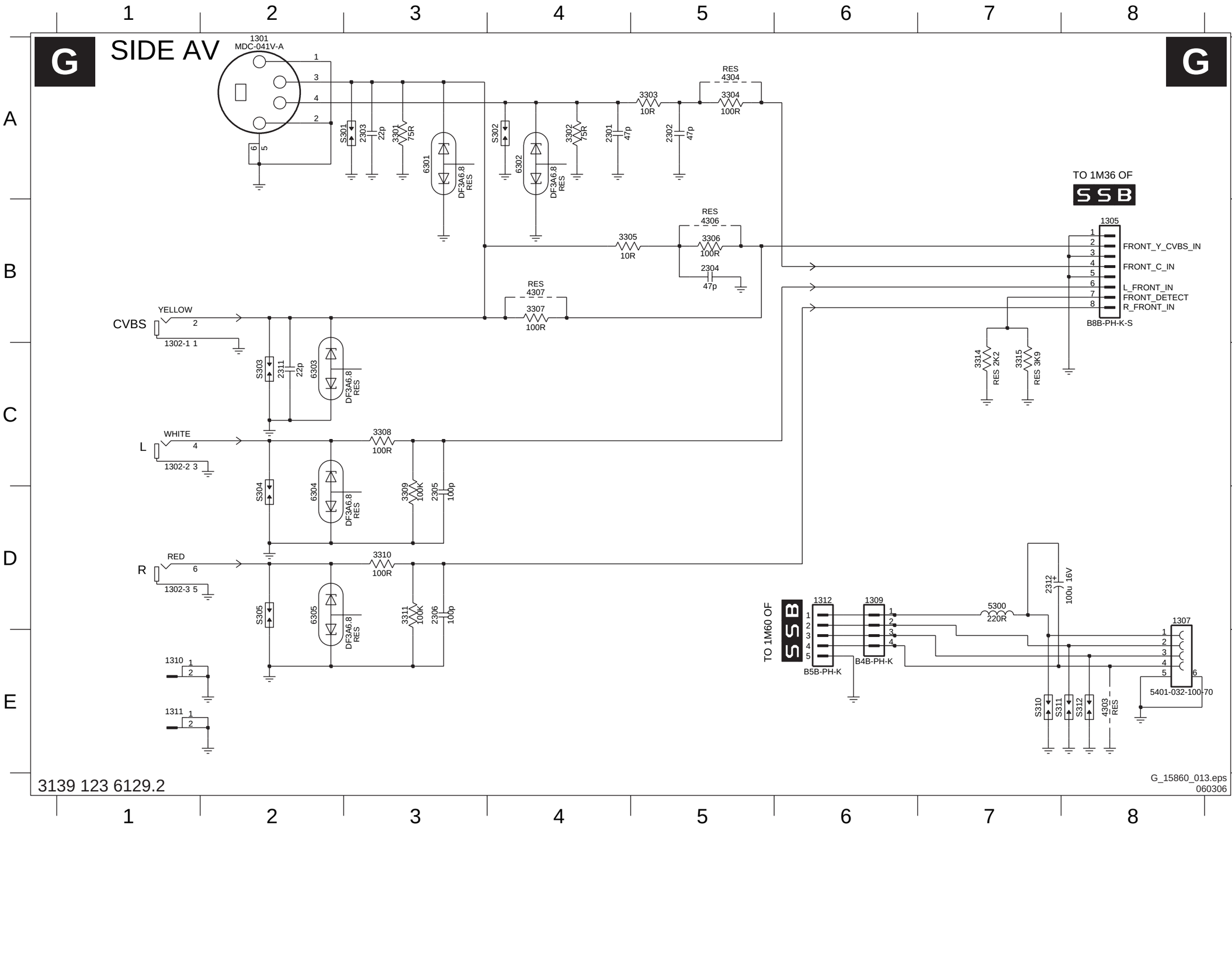


Layout Large Signal Panel (Part 4 Bottom Side)



Part 4
G_15860_040d.eps

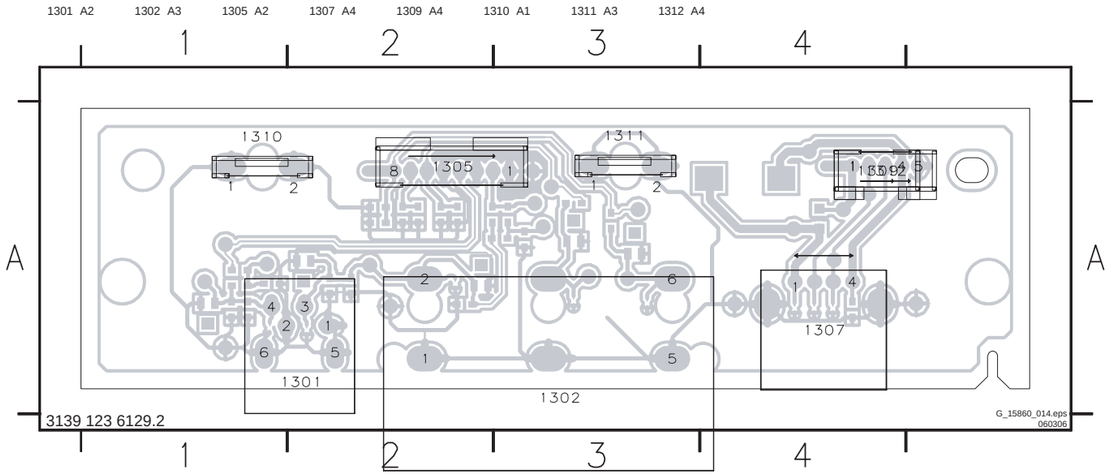
Side AV Panel



1301 A2
1302-1 B1
1302-2 C1
1302-3 D1
1305 B8
1307 D8
1309 D6
1310 E1
1311 E1
1312 D6
2301 A4
2302 A5
2303 A3
2304 B5
2305 D3
2306 D3
2311 C2
2312 D7
3301 A3
3302 A4
3303 A5
3304 A5
3305 B4
3306 B5
3307 B4
3308 C3
3309 D3
3310 D3
3311 D3
3314 C7
3315 C7
4303 E8
4304 A5
4306 B5
4307 B4
5300 D7
6301 A3
6302 A4
6303 C2
6304 D2
6305 D2
S301 A3
S302 A4
S303 C2
S304 D2
S305 D2
S310 E7
S311 E8
S312 E8

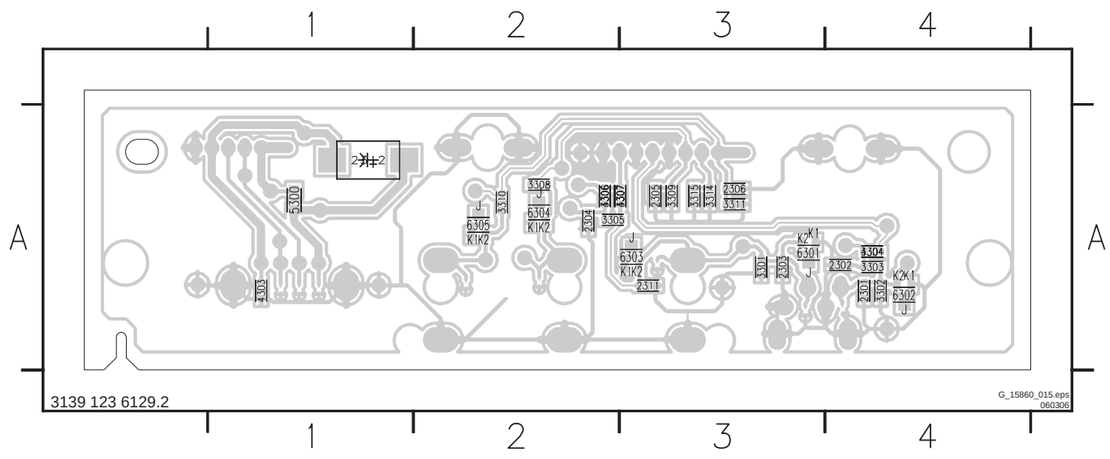
Layout Side AV Panel (Top Side)

1301 A2 1302 A3 1305 A2 1307 A4 1309 A4 1310 A1 1311 A3 1312 A4



Layout Side AV Panel (Bottom Side)

2301 A4
2302 A4
2303 A3
2304 A2
2305 A3
2306 A3
2311 A3
2312 A1
3301 A3
3302 A4
3303 A4
3304 A4
3305 A2
3306 A2
3307 A3
3308 A2
3309 A3
3310 A2
3311 A3
3314 A3
3315 A3
4303 A1
4304 A4
4306 A2
4307 A3
5300 A1
5301 A1
5302 A1
6301 A3
6302 A4
6303 A3
6304 A2
6305 A2



Personal Notes:

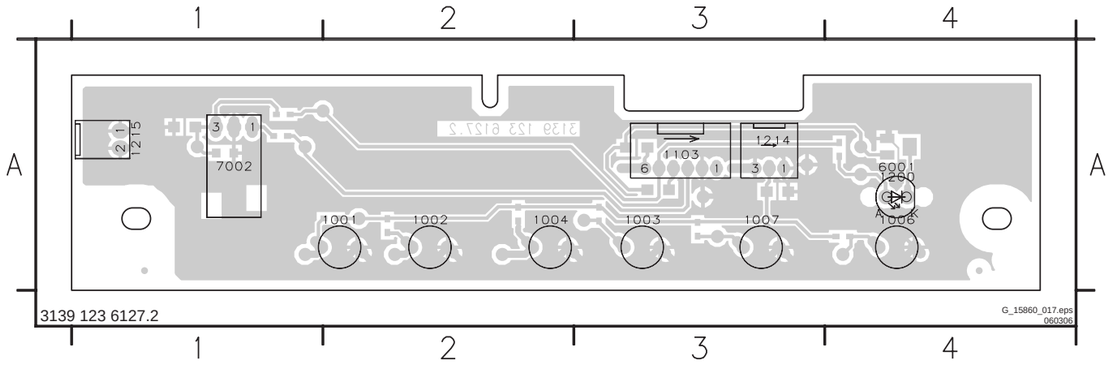
E_06532_012.eps
131004

Keyboard LED Panel

1001 B2
1002 B2
1003 B2
1004 B3
1006 B3
1007 B3
1103 C1
1200 C3
1214 A1
1215 E1
2001 E3
3007 C3
3010 A2
3011 A2
3012 A3
3013 A3
3014 D3
3015 A3
3016 D2
3017 A3
6001 D2
6002 A2
6003 E3
6004 D1
6005 D1
7001 D3
7002 E2

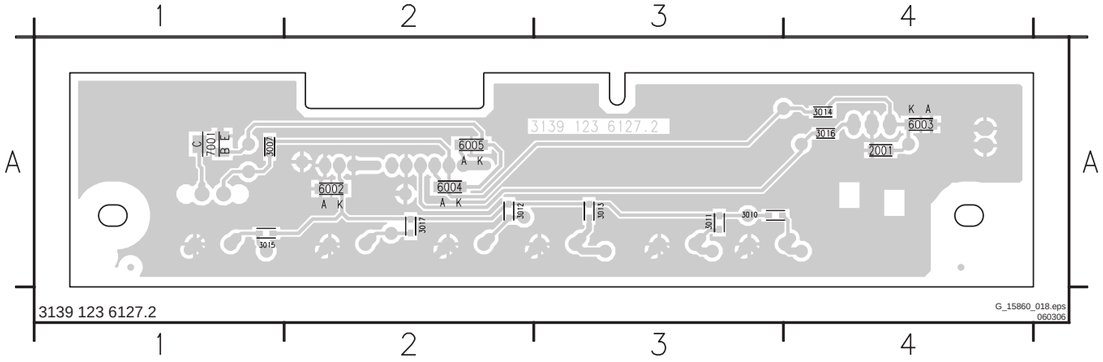
Layout Keyboard LED Panel (Top Side)

1001 A2 1003 A3 1006 A4 1103 A3 1214 A3 6001 A4
1002 A2 1004 A2 1007 A3 1200 A4 1215 A1 7002 A1

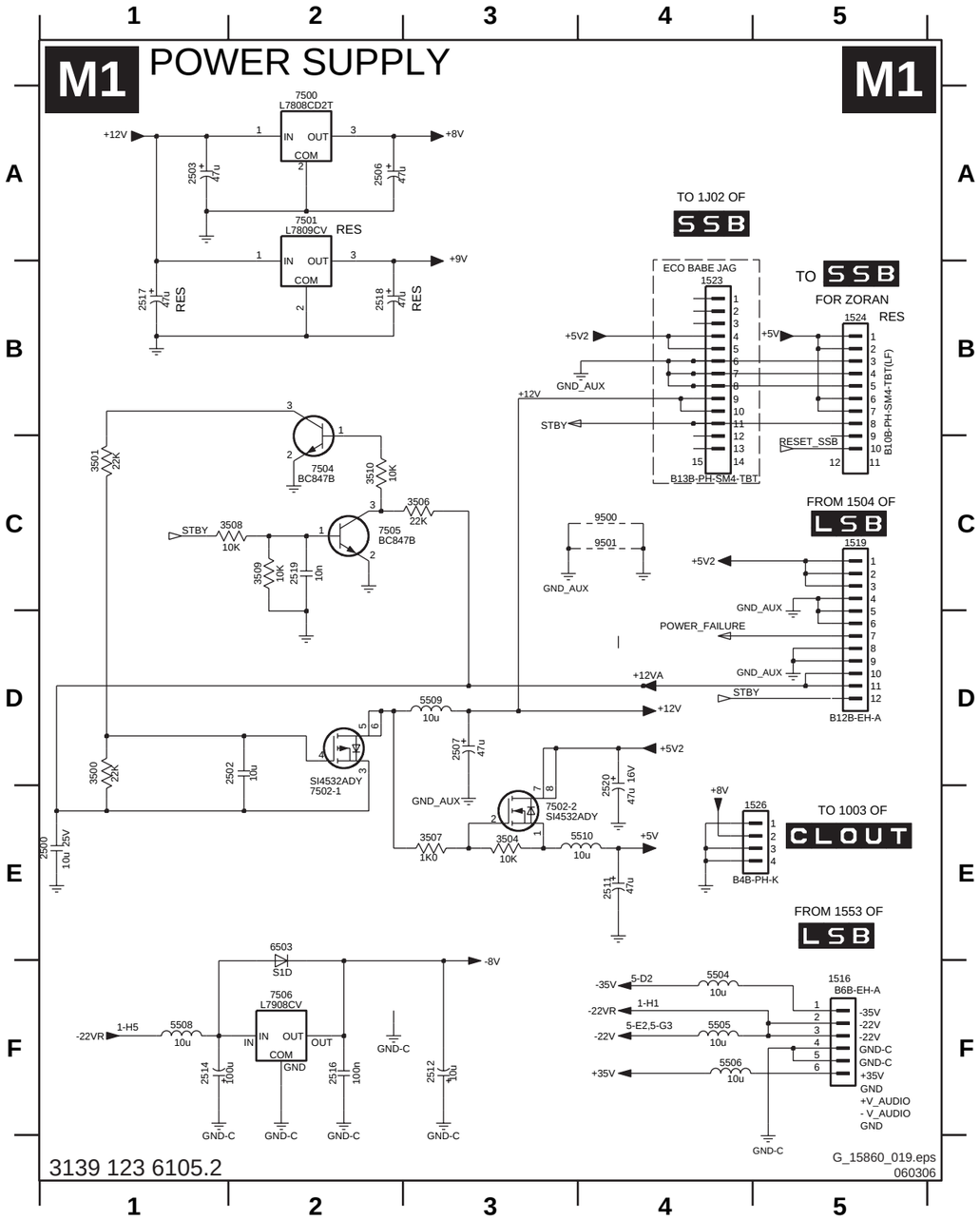


Layout Keyboard LED Panel (Bottom Side)

2001 A4 3010 A3 3012 A2 3014 A4 3016 A4 6002 A2 6004 A2 7001 A1
3007 A1 3011 A3 3013 A3 3015 A1 3017 A2 6003 A4 6005 A2



MSB: Power Supply



1516 F5
1519 C5
1523 B4
1524 B5
1526 E5
2500 E1
2502 D1
2503 A1
2506 A2
2507 D3
2511 E4
2512 F3
2514 F1
2516 F2
2517 B1
2518 B2
2519 C2
2520 E4
3500 D1
3501 C1
3504 E3
3506 C3
3507 E3
3508 C2
3509 C2
3510 C2
5504 F4
5505 F4
5506 F4
5508 F1
5509 D3
5510 E4
6503 E2
7500 A2
7501 A2
7502-1 E2
7502-2 E3
7504 C2
7505 C2
7506 F2
9500 C4
9501 C4

Personal Notes:

E_06532_012.eps
131004

MSB: Painter

M2 PAINTER

M2

IIC BUS

7200 SAA5675HL/M1

+3V3_Painter

+5V2

GND-C

For Vision System

I2C BUS B TEST CONNECT

TO FRONT CONTROLS (ZORAN ONLY)

	Zoran	EBJ
3265	Deleted	Insert
3212	Insert	Deleted
Remark	Painter & STV2050 on at the different time	Painter & STV2050 on at the same time

3139 123 6105.2

G_15860_020.eps 060306

0201 F4 7201 C2
0204 F5 7227 D8
1202 E1
1203 E1
1206 B3
1207 D11
1208 C11
1209 D11
2204 B3
2205 B3
2206 A4
2207 A4
2223 B4
2224 F9
2225 C4
2235 C10
2254 D8
2255 D8
2256 D8
2257 D7
2260 B10
2261 A10
2262 F2
2263 F1
2264 C2
2265 D3
3200 E2
3201 E2
3202 A8
3203 A8
3204 A8
3212 C8
3213 A5
3214 B8
3215 G7
3216 C8
3217 C8
3218 C8
3219 C8
3220 E7
3221 E7
3222 F7
3224 E10
3225 C8
3226 C9
3227 D9
3228 B4
3229 B4
3230 F7
3231 C8
3232 D8
3233 C8
3234 C4
3235 C8
3236 C10
3237 C10
3240 B4
3241 D7
3245 A8
3246 A7
3247 A7
3248 A7
3249 A8
3250 A8
3251 A8
3252 B8
3253 D7
3254 D7
3255 D7
3256 D7
3257 F7
3258 F7
3264 C3
3265 D3
4200 E3
4201 E3
4202 A10
4203 A10
4204 B10
4205 B10
4207 A7
4208 A7
5200 A6
6257 D7
6260 A11
6261 A11
6262 E2
6263 D2
6264 E3
6265 E2
7200 A5

MSB: HOP

M3 HOP

M3

TO 1210 CRT PANEL

TO 1207 OF CRT PANEL

TO LSB 1910

TO 1612

TO ID50 OF EBJ OR 1412

SYNC SLICER (RES)

RES

7600 TDA9332H/N3 TV DISPLAY PROCESSORS

7660-1 LM393D

7660-2 LM393D

7404 78L05ACD

B9B-PH-SM4-TBT(LF) FOR MONITOR ONLY

NOT INSERTED IN MONITOR

FOR MONITOR ONLY

B12B-EH-A

B3B-PH-SM4-TBT(LF)

DSX840GA 12M

G_15860_021.eps 060306

3139 123 6105.2

1412 B10
1451-1 C11
1451-2 A11
1610 F4
1612 E11
1613 E11
1620 D1
1702 A5
1710 A4
1720 A4
1721 B1
2440 B9
2441 B8
2442 B8
2443 C8
2453 E9
2601 D3
2602 D3
2607 G3
2615 F3
2616 C5
2617 C5
2618 G3
2619 G3
2620 G4
2621 G4
2626 D6
2627 D6
2628 D6
2630 D6
2631 D6
2632 E6
2633 F5
2634 F5
2635 C6
2636 C6
2637 D6
2638 C6
2639 C6
2644 B2
2660 C1
2661 D1
2662 C2
2663 D1
2664 D1
2665 D1
2666 E1
2667 E1
2668 E1
2669 F1
2670 C1
2671 C2
2672 D1
2673 D8
2674 D8
2675 D9
2740 B1
2741 A2
2743 B1
2750 B1
2780 C10
2781 C10
2782 D10
2783 D11
2784 D11
2785 B6
2786 A7
2787 A7
2788 A5
3421 F8
3422 C10
3424 F8
3426 F7
3427 E8
3428 F9
3429 E9
3430 F8
3432 F7
3435 F7
3440 C8
3450 E7
3451 E7
3454 G8
3455 E8
3456 G7
3457 G6
3458 F9
3459 B10
3460 F10
3461 F10
3601 D3
3602 D3
3603 E2
3604 E2
3607 E2
3608 E2
3609 E2
3613 F2
3614 F2
3616 G3
3617 D8
3618 D8
3619 D9
3620 E10
3621 E10
3623 E9
3624 E9
3626 E6
3627 F6
3628 D7
3630 D7
3631 D7
3632 D7
3633 F6
3634 E6
3635 C7
3636 C7
3637 D7
3638 C7
3639 C5
3643 D3
3644 B2
3645 C6
3646 C6
3647 C6
3648 C6
3660 C3
3661 C1
3662 B3
3664 F1
3665 F2
3666 F2
3667 B2
3668 B2
3740 A1
3750 A1
3751 C3
3752 C3
3756 A5
3765 A4
3772 A3
3780 C11
3781 A6
3782 B5
3783 B6
3784 B6
3785 B7
3786 B7
3787 B7
3788 C7
3789 B3
3790 B3
3791 B4
3792 A4
3793 A5
3794 A7
3795 A4
3796 B6
3797 B5
4600 D2
5601 A8
5602 B6
6642 E2
6643 D2
6644 A6
7404 B8
7451-1 G7
7451-2 G7
7452-1 E7
7452-2 F7
7453-1 F8
7453-2 E8
7600 D4
7660-1 C2
7660-2 D2
7702 B5
7712 B4
7720 B3
7721 A6
7722 B6
7723 B7

MSB: Convergence Processor

M4 CONVERGENCE PROCESSOR

OSD "OR" CIRCUIT

Ref Des	3135_037_12021_01 FN3	3135_037_12111_01 FN2	3135_037_12201_01 FN1	RESERVED FN0
7050	NOT USED	NOT USED	NOT USED	932211746668 16Kx8 F M24128-MN6 EEPROM

300~399

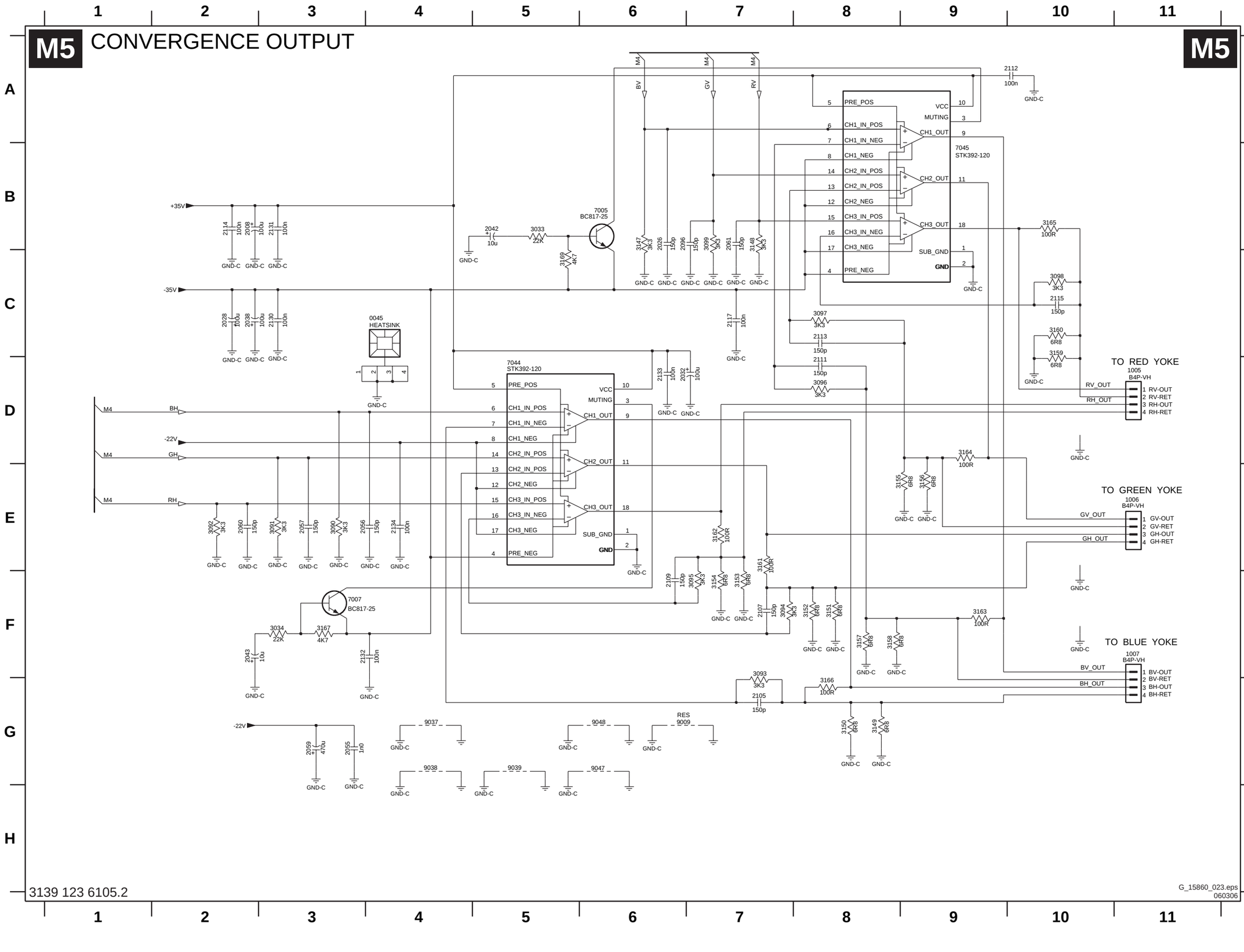
3139 123 6105.2

G_15860_022.eps
060306

1302 A4
1303 B7
1305 E8
2331 B8
2332 A6
2335 F1
2336 G3
2337 E3
2338 F4
2339 F2
2340 E2
2341 D3
2342 C3
2343 D3
2344 D3
2345 E4
2346 C4
2347 A4
2348 A5
2351 B5
2352 B5
2353 B5
2354 B5
2355 B6
2356 B6
2357 B6
2358 B7
2359 B5
2360 B5
2361 B6
2362 B6
2363 B6
2364 B6
2365 B7
2366 B10
2367 B11
2368 B11
2369 C10
2370 C11
2371 C11
2372 C10
2373 D11
2374 D11
2375 E10
2376 E11
2377 E11
2378 E10
2379 F11
2380 F11
2381 G10
2382 G11
2383 G11
2384 E9
2385 A5
2386 A6
2387 A2
3306 A7
3307 A10
3308 A9
3309 A11
3315 A10
3316 A9
3317 A11
3320 D3
3326 A10
3327 A8
3328 A9
3334 A8
3335 A7
3340 G10
3341 F11
3342 F11
3349 B3
3350 B3
3351 B2
3352 C2
3353 D2
3354 D2
3355 B4
3356 C4
3357 C3
3358 D4
3359 C3
3360 G1
3361 G2
3362 G3
3363 F3
3364 E3
3365 F3
3366 G1
3367 F2
3368 E2
3369 F2
3370 E8
3371 E8
3372 F8
3373 B9
3374 B9
3375 B10
3376 B11
3377 B11
3378 C9
3379 C9
3380 C10
3381 C11
3382 C11
3383 B8
3384 C9
3385 D10
3386 D11
3387 D11
3388 E9
3389 E9
3390 E10
3391 E11
3392 E11
3393 E9
3394 E9
3395 E10
3396 F11
3397 E11
3398 G9
3399 G10
4309 A3
5301 B8
5305 A5
5306 B5
7350 A2
7351 A2
7352 C4
7353-1 D10
7353-2 D10
7354-1 B10
7354-2 B10
7355-1 F10
7355-2 F10
7357 A5
7359 A7
7360 A9
7361 A8
7362 A10
7364-1 C2
7364-2 C2
7365-1 C2
7365-2 D1
7367 B3
7369-1 F2
7369-2 E2
7370-1 G3
7370-2 E3
7372 A6

MSB: Convergence Output

M5 CONVERGENCE OUTPUT



0045 C4
1005 D11
1006 E11
1007 F11
2008 B2
2026 B6
2028 C2
2032 D6
2038 C2
2042 B5
2043 F2
2055 G3
2056 E3
2057 E3
2059 G3
2060 E2
2061 B7
2096 B6
2105 G7
2107 F7
2109 F6
2111 D8
2112 A10
2113 C8
2114 B2
2115 C10
2117 C7
2130 C3
2131 B3
2132 F3
2133 D6
2134 E4
3033 B5
3034 F3
3090 E3
3091 E3
3092 E2
3093 F7
3094 F7
3095 F7
3096 D8
3097 C8
3098 C10
3099 B7
3147 B6
3148 B7
3149 G8
3150 G8
3151 F8
3152 F8
3153 F7
3154 F7
3155 E9
3156 E9
3157 F8
3158 F8
3159 C10
3160 C10
3161 E7
3162 E7
3163 F9
3164 D9
3165 B10
3166 G8
3167 F3
3169 C5
7005 B6
7007 F3
7044 D5
7045 B9
9009 G6
9037 G4
9038 G4
9039 G5
9047 G6
9048 G6

MSB: Intellisense (Reserved)

M6 INTELLISENSE (RES)

M6

SENSOR MUX

INPUT FROM SENSOR

SAMPLE & HOLD

+5V
2200 100n
2251 100u 16V
GND-C
7241 74HCT4051 16
VCC
MDX
8X 0/7
G8
VEE
GND
3
7
8
M4 TBU0 4-I4 11 0
M4 TBU1 4-I4 10 1
M4 TBU2 4-I5 9 2
6
GND-C
0 13
1 14
2 15
3 12
4 1
5 5
6 2
7 4
3294 100R SENSOR_1
3295 100R SENSOR_2
3296 100R SENSOR_3
3297 100R SENSOR_4
1210 B4B-EH-A
1 2 3 4
1211 B5B-EH-A
1 2 3 4 5
-8V
3205 150R
6205 BZX284-C5V1
2201 100n
2252 100u 16V
+5V
3208 100R
2279 10u
2280 100n
7240-1 TL074C
7240-2 TL074C
7240-3 TL074C
3292 100R
6230 BAS116
2253 470n
3282 100R
6231 BZX284-C5V1
3243 1K0
+3.3V
6208 BAV99
2281 100n
3209 100R
2282 10u 16V
3291 33K
2250 3n3
7242 BC847B
3293 1K0 SH_CLEAR
2211 10u 16V
2210 100n
7204 TLV0831CD
VCC
CLK
DO
REF
GND
CS_
IN+
IN-
3242 100R
4206
ADC_IN M2
ADC_CS M2
ADC_DO M2
ADC_CLK M2
SH_CLEAR M2

1210 A5
1211 A5
2200 A2
2201 C1
2210 D8
2211 D8
2250 D4
2251 A2
2252 C1
2253 C7
2279 B4
2280 C4
2281 C4
2282 D4
3205 C1
3208 B4
3209 C4
3242 E9
3243 C8
3282 C8
3291 D4
3292 C6
3293 D7
3294 A4
3295 A4
3296 B4
3297 B3
4206 F8
6205 C1
6208 D9
6230 C6
6231 C8
7204 E8
7240-1 C4
7240-2 C5
7240-3 C7
7241 A2
7242 D6

3139 123 6105.2

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060306

MSB: Audio Amplifier (Reserved)

M7 AUDIO_AMPLIFIER (RES)

M7

To 1517 of LSB

1900
-V_AUDIO 1
2
Audio_Gnd 3
4
+V_AUDIO 5
6
7
B7B-PH-K

0083 HEATSINK

7990 TDA2616Q

+V_AUDIO
2987 100n Audio_Gnd
2991 47u Audio_Gnd
2986 100n
+15V9 7
VP+
1 INV1-
+15V9 MUTE
3 V|GND
Audio_Gnd
9 INV2-
8 INV12
Audio_Gnd
VP- 5
-15V6
OUT1 4
OUT2 6

A6 AUDIO-L
2981 RES
3985 10K
2975 220p Audio_Gnd
3988 12K Audio_Gnd
2989 220n
2990 1n0 Audio_Gnd

A6 AUDIO-R
2985 RES
3991 10K
2976 220p Audio_Gnd
3992 12K Audio_Gnd
2992 220n
2993 1n0 Audio_Gnd

AmpOutL
2994 47n
2996 47n
3989 10R
AmpOutR
2995 47n
2997 47n
3993 10R Audio_Gnd

1910
L 5
3
2
R 1
Audio_Gnd

15V7
Audio_Gnd
0V
7991 PDTC124ET

A6 VOL_MUTE

2988 100n Audio_Gnd
2998 47u Audio_Gnd
-V_AUDIO

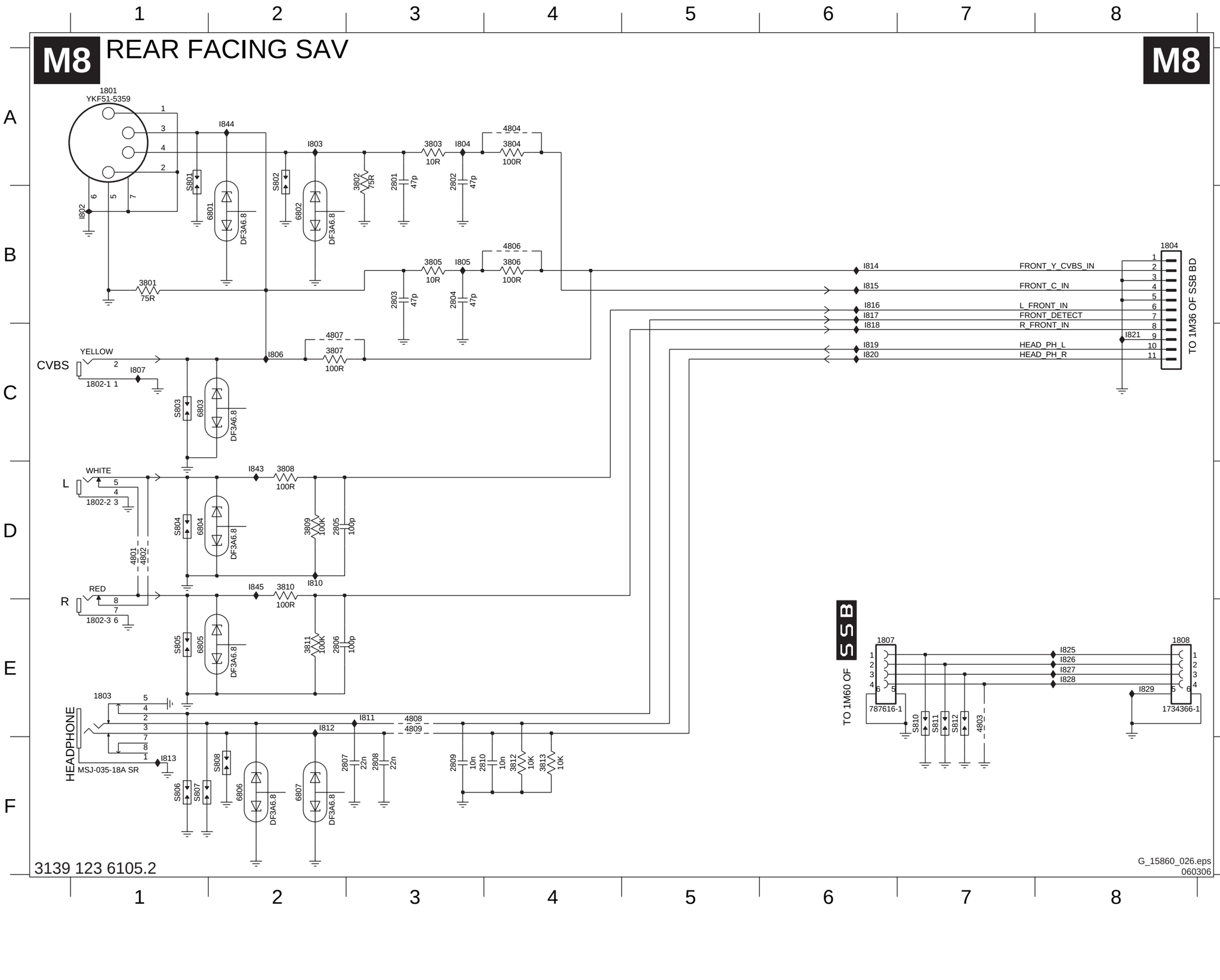
TO SSB

1903 RES
AUDIO-L 1
VOL_MUTE 2
AUDIO-R 3
Audio_Gnd 4
5
+9V 7 6
B5B-PH-SM4-TBT(LF)
For Zoran only

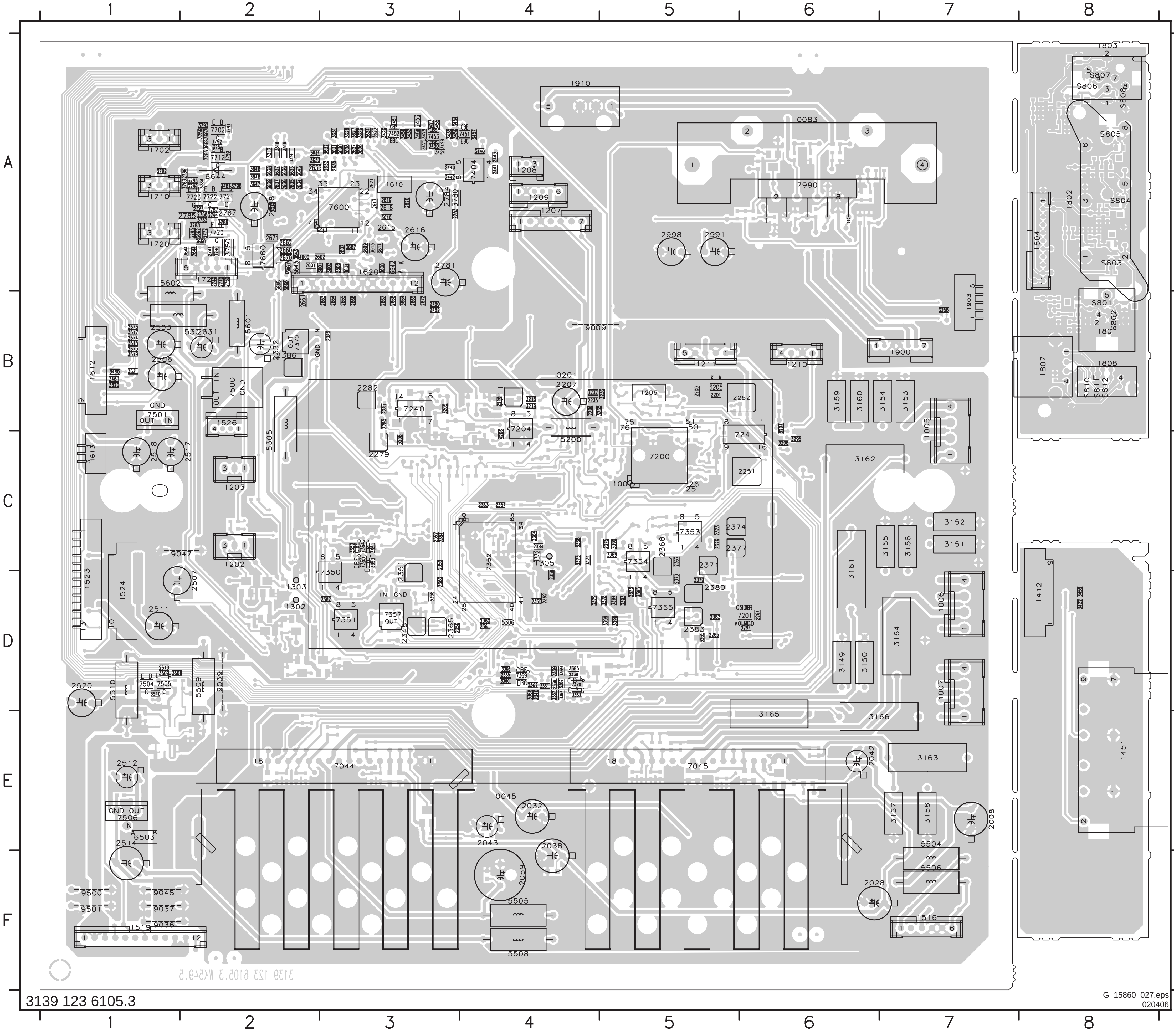
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0083 A3
1900 A7
1903 D7
1910 C7
2975 B1
2976 C2
2981 B2
2985 C2
2986 B5
2987 A5
2988 D4
2989 B3
2990 B3
2991 A5
2992 C3
2993 C3
2994 B6
2995 C6
2996 B6
2997 C6
2998 D5
3985 B2
3988 B2
3989 B6
3991 C2
3992 C2
3993 C6
7990 B4
7991 D3

MSB: Rear Facing SAV

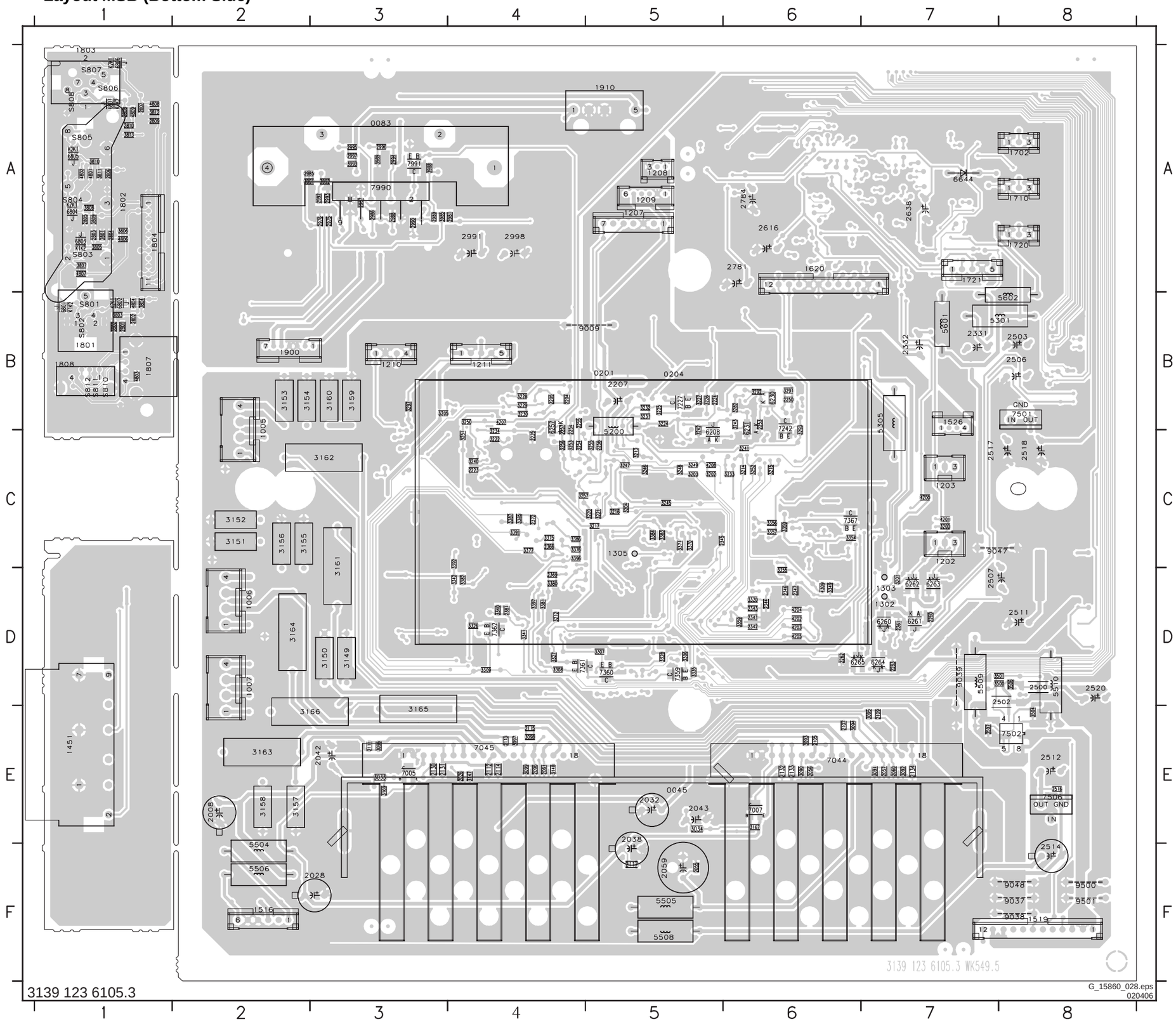


Layout MSB (Top Side)



0045	E4	2387	D3	3317	A2	3780	A3
0083	A6	2440	A3	3334	A2	3781	A2
0201	B4	2441	A4	3351	C3	3782	A2
1005	B7	2442	A3	3352	C3	3783	A2
1006	D7	2443	A4	3353	C3	3784	A2
1007	D7	2453	A3	3358	D3	3785	A2
1202	C2	2503	B1	3360	D4	3786	A2
1203	C2	2506	B1	3361	D4	3787	A2
1206	B5	2507	D2	3362	D4	3788	A2
1207	A4	2511	D1	3363	D4	3789	A2
1208	A4	2512	E1	3364	D4	3790	A2
1209	A4	2514	E1	3365	D4	3791	A2
1210	B6	2517	C2	3366	D4	3792	A1
1211	B5	2518	C1	3367	D4	3793	A2
1302	D2	2519	D1	3368	D4	3794	A2
1303	D2	2520	D1	3369	D4	3795	A2
1305	C4	2601	A2	3372	C4	3796	A2
1412	D8	2602	A3	3373	C4	3797	A2
1451	E8	2607	A3	3374	C4	4206	C4
1516	F7	2615	A3	3378	D5	4600	A2
1519	F1	2616	A3	3379	D4	5200	C4
1523	D1	2617	A3	3388	C4	5301	B2
1524	D1	2618	A3	3389	C5	5305	C2
1526	B2	2619	A3	3390	C5	5306	D4
1610	A3	2620	A3	3393	D5	5504	E7
1612	B1	2621	A3	3394	D5	5505	F4
1613	C1	2626	A3	3395	D5	5506	F7
1620	A3	2627	A3	3398	D5	5508	F4
1702	A1	2628	A3	3399	D5	5509	D2
1710	A1	2630	A3	3421	A3	5510	D1
1720	A1	2631	A3	3422	D8	5601	B2
1721	A2	2632	A3	3424	A3	5602	A1
1801	B8	2633	A2	3426	A3	6205	B5
1802	A8	2634	A2	3427	A3	6503	E1
1803	A8	2635	A2	3428	A3	6642	A3
1804	A8	2636	A2	3429	A3	6643	A2
1807	B8	2637	A2	3430	A3	6644	A2
1808	B8	2638	A2	3432	A3	7044	E3
1900	B7	2639	A2	3435	A3	7045	E5
1903	B7	2644	A2	3440	A4	7200	C5
1910	A4	2660	A2	3450	A3	7201	D6
2008	E7	2661	B2	3451	A3	7204	B4
2028	F6	2662	A2	3454	A3	7240	B3
2032	E4	2663	B3	3455	A3	7241	C6
2038	E4	2664	B3	3456	A3	7350	D3
2042	E6	2665	B3	3457	A4	7351	D3
2043	E4	2666	B3	3458	A3	7352	C4
2059	F4	2667	B3	3459	D8	7353	C5
2200	B5	2668	B3	3460	B1	7354	C5
2201	B5	2669	B3	3461	B1	7355	D5
2206	B4	2670	A2	3508	D1	7357	D3
2207	B4	2671	A2	3509	D1	7364	C3
2210	B4	2672	B3	3510	D1	7365	C3
2211	B4	2673	B1	3601	A3	7369	D4
2235	B4	2674	B1	3602	A3	7370	D4
2251	C6	2675	B1	3603	A3	7372	B2
2252	B6	2740	A2	3604	A3	7404	A4
2264	D6	2741	A2	3607	A3	7451	A4
2265	D5	2743	A2	3608	A3	7452	A3
2279	C3	2750	A2	3609	A3	7453	A3
2280	B3	2780	B3	3613	A3	7500	B2
2281	B3	2781	A3	3614	A3	7501	B1
2282	B3	2782	B3	3616	A3	7504	D1
2331	B2	2783	A3	3617	B1	7505	D1
2332	B2	2784	A3	3618	B1	7506	E1
2335	D4	2785	A2	3619	B1	7600	A3
2336	D4	2786	A2	3620	B1	7660	A2
2337	D4	2787	A2	3621	B1	7702	A2
2338	D4	2788	A2	3623	A3	7712	A2
2339	D4	2991	A5	3624	A3	7720	A2
2340	D4	2998	A5	3626	A3	7721	A2
2348	D3	3149	D6	3627	A3	7722	A2
2351	D3	3150	D6	3628	A3	7723	A2
2352	C3	3151	C7	3630	A3	7990	A6
2353	C4	3152	C7	3631	A3	9009	B4
2354	C3	3153	B7	3632	A3	9037	F1
2355	D4	3154	B7	3633	A2	9038	F1
2356	D3	3155	C7	3634	A2	9039	D2
2357	C4	3156	C7	3635	A2	9047	C2
2358	D4	3157	E7	3636	A2	9048	F1
2359	C3	3158	E7	3637	A2	9500	F1
2360	D4	3159	B6	3638	A2	9501	F1
2361	D4	3160	B6	3639	A2	S810	B8
2362	D4	3161	C6	3643	A2	S811	B8
2363	D3	3162	C6	3644	A2	S812	B8
2364	C4	3163	E7	3645	A2		
2365	D3	3164	D7	3646	A2		
2367	C5	3165	E6	3647	A2		
2368	C5	3166	E6	3648	A2		
2370	D5	3208	C3	3660	A2		
2371	C5	3209	B3	3661	A2		
2373	C5	3218	B4	3662	A2		
2374	C5	3219	B4	3664	B3		
2375	C5	3235	B4	3665	A2		
2376	C5	3236	B5	3666	A2		
2377	C5	3237	B4	3667	A2		
2378	D5	3258	B7	3668	A2		
2379	D5	3264	D6	3740	A2		
2380	D5	3265	D5	3750	A2		
2382	D5	3294	B6	3751	A2		
2383	D5	3295	C6	3752	A2		
2384	C4	3296	C6	3756	A2		
2385	B3	3315	A2	3765	A2		
2386	B2	3316	A2	3772	A2		

Layout MSB (Bottom Side)



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2026	E4	3221	C5	4801	A1		
2055	F5	3222	C4	4802	A1		
2056	E6	3224	B5	4803	B1		
2057	E7	3225	B5	4804	B1		
2060	E7	3226	B5	4806	A1		
2061	E4	3227	B5	4807	A1		
2096	E4	3228	B4	4808	A1		
2105	E6	3229	B4	4809	A1		
2107	E6	3230	B4	6208	C5		
2109	E7	3231	B5	6230	B6		
2111	E3	3232	B5	6231	B6		
2112	E4	3233	C6	6257	B4		
2113	E4	3234	C4	6260	D7		
2114	E4	3240	C4	6261	D7		
2115	E4	3241	C6	6262	D7		
2117	F5	3242	C5	6263	D7		
2130	E3	3243	B6	6264	D7		
2131	E3	3245	C5	6265	D6		
2132	E6	3246	C5	6801	B1		
2133	E6	3247	C5	6802	B1		
2134	E7	3248	C5	6803	A1		
2204	B4	3249	C5	6804	A1		
2205	B4	3250	B4	6805	A1		
2223	C4	3251	C4	6806	A1		
2224	B5	3252	C6	6807	A1		
2225	C4	3253	C4	7005	E3		
2250	B6	3254	C4	7007	E6		
2253	B6	3255	C5	7227	B5		
2254	B4	3256	C4	7242	B6		
2255	B4	3257	C4	7359	D5		
2256	C5	3282	B6	7360	D5		
2257	B4	3291	B6	7361	D4		
2260	D7	3292	B6	7362	D4		
2261	D7	3293	C6	7367	C6		
2262	D6	3297	B3	7502	E8		
2263	D7	3306	D5	7991	A3		
2341	D6	3307	D5	S801	B1		
2342	D6	3308	D4	S802	B1		
2343	D6	3309	D4	S803	A1		
2344	D6	3320	D6	S804	A1		
2345	C5	3326	D4	S805	A1		
2346	D6	3327	D4	S806	A1		
2347	D6	3328	D5	S807	A1		
2366	C4	3335	D5	S808	A1		
2369	D4	3340	D4				
2372	C4	3341	D4				
2381	D4	3342	D4				
2500	D8	3349	D6				
2502	D8	3350	C6				
2516	E8	3354	C6				
2801	B1	3355	D6				
2802	B1	3356	C6				
2803	A1	3357	C6				
2804	A1	3359	D6				
2805	A1	3370	C5				
2806	A1	3371	C5				
2807	A1	3375	C4				
2808	A1	3376	C4				
2809	A1	3377	C4				
2810	A1	3380	D4				
2975	A3	3381	D4				
2976	A3	3382	D4				
2981	A4	3383	C5				
2985	A2	3384	C5				
2986	A3	3385	C4				
2987	A3	3386	C4				
2988	A3	3387	C4				
2989	A3	3391	C4				
2990	A3	3392	C4				
2992	A3	3396	C4				
2993	A3	3397	D4				
2994	A3	3500	D8				
2995	A3	3501	D8				
2996	A3	3504	E8				
2997	A3	3506	D8				
3033	E3	3507	E7				
3034	E5	3801	A1				
3090	E6	3802	B1				
3091	E7	3803	B1				
3092	E7	3804	B1				
3093	E6	3805	A1				
3094	E6	3806	A1				
3095	E7	3807	A1				
3096	E3	3808	A1				
3097	E4	3809	A1				
3098	E4	3810	A1				
3099	E4	3811	A1				
3147	E4	3812	A1				
3148	E4	3813	A1				
3167	E6	3985	A3				
3169	E3	3988	A3				
3200	C7	3989	A3				
3201	D7	3991	A2				
3202	C5	3992	A3				
3203	C5	3993	A3				
3204	C5	4200	C7				
3205	B3	4201	C7				
3212	D4	4202	D6				
3213	C5	4203	D6				
3214	C6	4204	D6				
3215	C6	4205	D6				
3216	C5	4207	B4				
3217	C5	4208	C5				
3220	C5	4309	D6				

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions
8.2 Hardware Alignments
8.3 Software Alignments
8.4 Option Settings
8.5 Convergence and Geometry Adjustments

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage and frequency: 120 VAC / 60 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for at least 20 minutes.
- Measure the voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use the cooling fins/plates as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an insulated trimmer/screwdriver to perform the alignments.

8.2 Hardware Alignments

8.2.1 VG2 (Screen) Set-up

Preferred Method

1. Connect a Black Level signal to the aerial input of the set.
2. Preset all Screen controls on the Screen/Focus Control Block to minimum (fully CCW).
3. Connect an Oscilloscope to the Collector of the output transistor on the Green CRT board. Set the probe to x10.
4. Adjust the Green Screen control until the Black Level is at 172 V.
5. Repeat steps 3 and 4 for the Red and Blue CRTs.

Alternate Method

1. Connect a Black Level signal to the aerial input of the set.
2. Preset all Screen controls on the Screen/Focus Control Block to minimum (fully CCW).
3. Turn each Screen control clockwise until each CRT is barely illuminated.

8.2.2 Focus Adjustment

Note: Before beginning the following adjustment procedures set the customer picture, sharpness, brightness, and tint controls to midrange and the customer colour control to minimum.

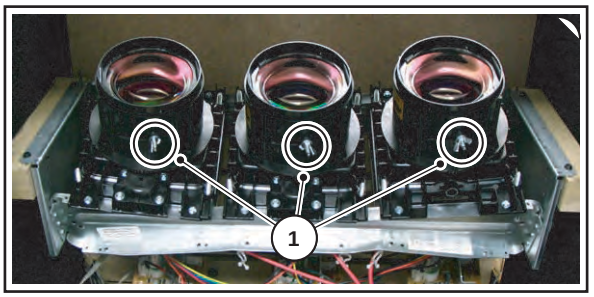
Electrical Focus Adjustment

1. Remove the back cover of the set and the light shield, then turn the set on and inject a crosshatch pattern signal into the antenna terminal.
   Note: The crosshatch pattern will appear clearer if the front of the screen is covered with a dark cloth.
2. Cover two of the CRT output lenses with pieces of cardboard (or other non-conductive opaque material) to observe the magnified reflection of the other picture tube on the backside of the viewing screen.
3. Adjust the CRTs focus control (located on the Screen/ Focus Control Block) for the sharpest raster image.
4. Confirm correct focus by viewing the screen from the front of the set.
5. Repeat steps two through four to adjust the focus of the two remaining CRTs.

Note: Before beginning the following adjustment procedures, set the customer picture, sharpness, brightness, and tint controls to midrange and the customer colour control to minimum.

Optical Focus Adjustment

1. Remove the back cover of the set and the light shield, then turn the set on and inject an NTSC crosshatch pattern signal into the antenna terminal.
   Note: The crosshatch pattern will appear clearer if the front of the screen is covered with a dark cloth.
2. Cover two of the CRT output lenses with pieces of cardboard (or other non-conductive, opaque material) and observe the magnified reflection of the other picture tube on the backside of the viewing screen.
3. Loosen the "lens retaining wing nuts [1]" on the CRT Focus Assembly.
4. Move the wing nut in the slot of the uncovered lens to locate the optimum optical focus viewing the picture from the back side of the screen), then re-tighten the wing nut.
5. Confirm correct focus by viewing the screen from the front of the set.
6. Repeat steps two through five to adjust the focus of the two remaining CRTs.



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Figure 8-1 Optical focus adjustment

8.3 Software Alignments

Put the set in SAM mode (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. Select ALIGNMENTS and go to one of the sub menus. The alignments are explained below.

Notes:
- All changes must be stored manually.
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values.

8.3.1 General

For the next alignments, supply the following test signals via a video generator to the RF input: NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

Tuner AGC
Purpose: To keep the tuner output signal constant as the input signal amplitude varies.

For this chassis, no alignment is necessary, as the AGC alignment is done automatically (standard value: “32”).

8.3.2 White Point

- Set ACTIVE CONTROL to OFF.
- In the [MENU] -> PICTURE user menu, set:
  - DYNAMIC CONTRAST to OFF.
  - COLOUR ENHANCEMENT to OFF.
  - COLOUR to "0".
  - CONTRAST to "100".
  - BRIGHTNESS to "50".
- Go to the SAM and select ALIGNMENTS -> WHITE POINT.

Method 1 (with color analyzer):
- Use a 100% white screen as input signal and set the following values:
  - COLOR TEMPERATURE: "Tint to be aligned" ????.
  - All WHITE POINT values to: "127".
  - RED BL OFFSET value to: "7".
  - GREEN BL OFFSET value to: "5".
- Measure with a calibrated (phosphor- independent) color analyzer in the centre of the screen. Consequently, the measurement needs to be done in a dark environment.
- Adjust, by means of decreasing the value of one or two white points, the correct x,y coordinates (see table "White D alignment values"). Tolerance: dx,dy: $\pm$ 0.004.
- Repeat this step for the other Color Temperatures that need to be aligned.
- When finished press STORE (in the SAM root menu) to store the aligned values to the NVM.
- Restore the initial picture settings after the alignments.

Table 8-1 White D alignment values

Color Temp. (degr. K)	Cool (11000)	Normal (9100)	Warm (6500)
x	0.276	0.285	0.313
y	0.282	0.293	0.329

When such equipment is not available, use “method 2”.

Method 2 (without color analyzer):
If you do not have a color analyzer, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

1. Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
2. Set the RED, GREEN and BLUE default values according to the values in the "Tint settings" table.
3. When finished press STORE (in the SAM root menu) to store the aligned values to the NVM.
4. Restore the initial picture settings after the alignments.

Table 8-2 Tint settings

Colour Temp.	R	G	B
Cool	113	116	118
Normal	126	121	118
Warm	124	107	83

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I^2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known via the option codes.

Notes:
- After changing the option(s), save them via “STORE”.
- The new option setting is only active after the TV is switched "off" and "on" again with the Mains switch (the EAROM is then read again).

8.4.2 Option Codes

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: **0-6-2-5-9-6-[i+]**. Do not allow the display to time out while entering the key sequence.

Cursor to the OPT. NO. in the SERVICE OPTIONS level. Locate the “option code label” on the inside right panel of the unit and enter the correct codes for the model being serviced.

Note: Remember to cursor to the STORE OPTIONS level and select “OK” to save these changes

Table 8-3 Option numbers

Model number	Group 1	Group 2
51MP6200D/37	00016 00015 00545 14979	00034 00000 16928 00000
51PP9200D/37	00016 00016 00545 14979	00034 00000 16928 00000
60PP9200D/37	00016 00017 00545 14979	00034 00000 16928 00000

8.4.3 Dealer Options

Table 8-4 Dealer options

Menu item	Subjects	Options	Description
Personal Options	Picture Mute	On	Picture mute active in case no picture detected
		Off	Noise in case of no picture detected
	Virgin Mode	On	TV starts up (once) with a language selection menu after the Mains switch is turned "on" for the first time (virgin mode)
		Off	TV does not start up (once) with a language selection menu after the Mains switch is turned "on" for the first time (virgin mode)
	2CS Korea	On	only for AP region
		Off	

8.4.4 (Service) Options

Select the sub menu's to set the initialization codes (options).

Table 8-5 Service options

Menu-item	Subjects	Options	Description	Remarks
PIP/DS	Dual Screen	None / 1 tuner / 2 tuners	no DS / DS with one tuner / DS with two tuners	Not applicable in these sets
Data	EPG	Off / On	Feature not present / present	Electronic Program Guide: off for legal reasons
	RRT	No / Yes	Parental control is enabled via the Regional Rating Table (RRT)	
Display	Screen	034 / 035 / 036	Used screen size, type, and resolution (see table “Display code overview” in chapter “Service Modes”for the values)	Magnavox 51” or Philips 51” / 60”
	Scanning Backlight	On / Off	Feature present / not present	Not applicable in these sets
	Dimming Backlight	On / Off	Feature present / not present	Not applicable in these sets
Video Repro	Picture Processing	Spider / No Spider	Feature present / not present	Not applicable in these sets
	Comb filter	None / 2D / 3D	Only selectable with Columbus in set: No / without RAM / with RAM	
	Ambient Light	None / Mono / Stereo	Inverter not present / two inverters mono / two inverters stereo	Not applicable in these sets
	MOP	On / Off	Feature present / not present (for sets with AmbiLight this is “on”)	Not applicable in these sets
Source Selection	HDMI 1	None / Audio / No Audio	No HDMI / HDMI with analog audio / HDMI without analog audio	
	HDMI 2	None / Audio / No Audio	No HDMI / HDMI with analog audio / HDMI without analog audio	Not applicable in these sets
	USB version	None / 1.1 / 2.0 + CR	No USB / USB 1.1 in side I/O panel / USB 2.0 in cardreader panel	
	IEEE1394	Yes / No	Firewire connector present / not present	Not applicable in these sets
	Ethernet	Yes / No	Connector present / not present	
	S/PDIF inputs	None / 1 conn. / 2 conn.	None / 1 connector present (in)/ 2 connectors present (in/out)	
Audio Repro	Subw. Internal Present	Yes / No	Internal sub woofer present / not present	Not applicable in these sets
	Acoustic System	51 / 60 Philips	51” / 60”	Cabinet design, used for setting dynamic audio parameters.
Miscellaneous	Alternative Tuner	Philips	Tuner brand	
	Tuner Type	TD1336s	Tuner type	
	Hotel mode	Off / On	iBoard present	Not applicable in these sets
Option numbers	Group 1	“Value”	00016 0001x 00545 14979 (see set sticker)	x=5: Magnavox 51”, x=6: Philips 51”, x=7: Philips 60”
	Group 2	“Value”	00034 00000 16928 00000 (see set sticker)	
	Store	OK	To store changed option numbers	

8.4.5 GDE SAM

Specifications:
- Set display mode in service mode.
- Service blanking.
- Set geometry.
- Preset picture.
- Set white tone.
- Convergence disable for setting geometry.

The GDE SAM mode (GDE = Generic Display Engine), allows the Service Technician to set Geometry and White Tone (Grey Scale). This mode is controlled by the GDE microprocessor located on the ACS module. These settings are stored in an EEPROM, also located on the ACS module.

Adjustments for the 1080i should be done with an HD 1080i signal applied to the set.
The Service Blanking selection (SERV BLANK) will blank the bottom half of the picture. This selection is useful when adjusting the Yokes to level the picture.
The Clamp Pulse should be set to Normal for an NTSC signal. It should be set to HDTV for an HD signal.
The Convergence Processor selection will enable or disable Convergence drive. Convergence should be disabled when performing Cantering or Geometry alignments.

8.5 Convergence and Geometry Adjustments

8.5.1 Introduction

If the Medium Signal Board (MSB) has been replaced, the following adjustments will be required in the order as shown:
1. Geometry.
2. Convergence.
3. Grey Scale (White Tone).

If the Large Signal Board (LSB) has been changed the following adjustments are required:
1. Geometry.
2. Convergence.

If one or more CRTs have been replaced:
1. Geometry.
2. Convergence.
3. Grey Scale (White Tone).

If the SSB (Small Signal Board) has been changed:
1. Convergence.

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: **0-6-2-5-9-6-[INFO]**. Do not allow the display to time out while entering the key sequence.

Cursor down to the GDE SAM level for the Geometry settings. Cursor further down to the DCSM level for the Convergence settings. Cursor up to the Alignments level for the Whitepoint settings.

Note: Read the complete following text **before** starting the alignments.

8.5.2 Screen Centring

If one or more CRTs are replaced, it will be necessary to perform Screen Centring.
1. Place the Convergence Template on the TV screen or place a string from corner to corner to determine the screen centre.
2. Apply a centre cross pattern to the TV.
3. Enter the GDE SAM mode, described in the Geometry section and disable Convergence.
4. Cover the Red and Blue CRTs.
5. Using the Centring rings on the Green CRT, centre the cross onto the centre of the template.
6. Uncover the Red CRT and centre the Red onto the Green cross.
7. Follow the same procedure with the Blue CRT.

Note: Only perform the Screen Centring for the first mode to be adjusted. Do **not** repeat the adjustment for the other modes.

8.5.3 Geometry Alignment

The Geometry alignment data is stored in the NVM, located in the ACS module (Automatic Convergence System, a part of the MSB) . Whenever the ACS module or the Large Signal Board (LSB) have been changed, a Geometry alignment will be necessary. The Geometry Alignment is performed in the GDE SAM alignment mode. Make sure the set is in the mode in which you wish to align before entering the SAM mode. Use the AV button on the Remote to select the input with a signal, applied after entering the SAM mode.

Apply a crosshatch pattern to the set. Cursor Down to CONV PROC in the menu and press the Right Cursor button to select. Now disable the Convergence processor. Select GEOMETRY in the menu and enter the following default values for the mode being adjusted.

Table 8-6 Geometry Default Values

	1080i
Wide blank	7
Horizontal Shift	21
Horizontal Para	8
E-W Width	44
E-W Para	38
E-W Trap	26
Horizontal Bow	7
Vertical Slope	36
Vertical Ampl	36
S Correction	31
Vertical Shift	31
Fast Blank	1

After entering the default values, the E-W WIDTH, VERTICAL SLOPE, and VERTICAL AMP should be the only settings requiring further adjustment.

Note: Perform (and store) Convergence alignment after any changes to the Geometry.

8.5.4 Convergence Mode

There are two new screen sizes for the NAFTA region incorporating a Digital Convergence system using 208 adjustment points. The Convergence Processor is located on the ACS module. The Convergence drive circuits are located on the SSP (Small Signal Board). Data for the Convergence and Geometry settings are stored in the EEPROM located on the ACS module.
If the CRTs, the Large Signal Board (LSP), or the Small Signal Board (SSB) are changed, a complete Geometry and Convergence alignment will be necessary.
If the MSB with the ACS module, the Small Signal Board (SSB), or CRTs are changed, a complete Convergence alignment will be necessary.
To obtain the correct Geometry during Convergence, a template must be used. There are nine Geometry and Convergence settings, stored in the EEPROM on the ACS Module.

- 51 inch 16x9 aspect ratio - Use Template, ask your NSO.
- 60 inch 16x9 aspect ratio - Use Template, ask your NSO.

8.5.5 Convergence Alignment

Enter the Service Alignment Mode (SAM) by pressing the following key sequence on the remote control transmitter: **0-6-2-5-9-6-[i+]**. Do not allow the display to time out while entering the key sequence.

Make sure that a signal is applied to the set for the mode being adjusted.
Make sure that the set is in the mode you wish to adjust before entering the Convergence Alignment mode.

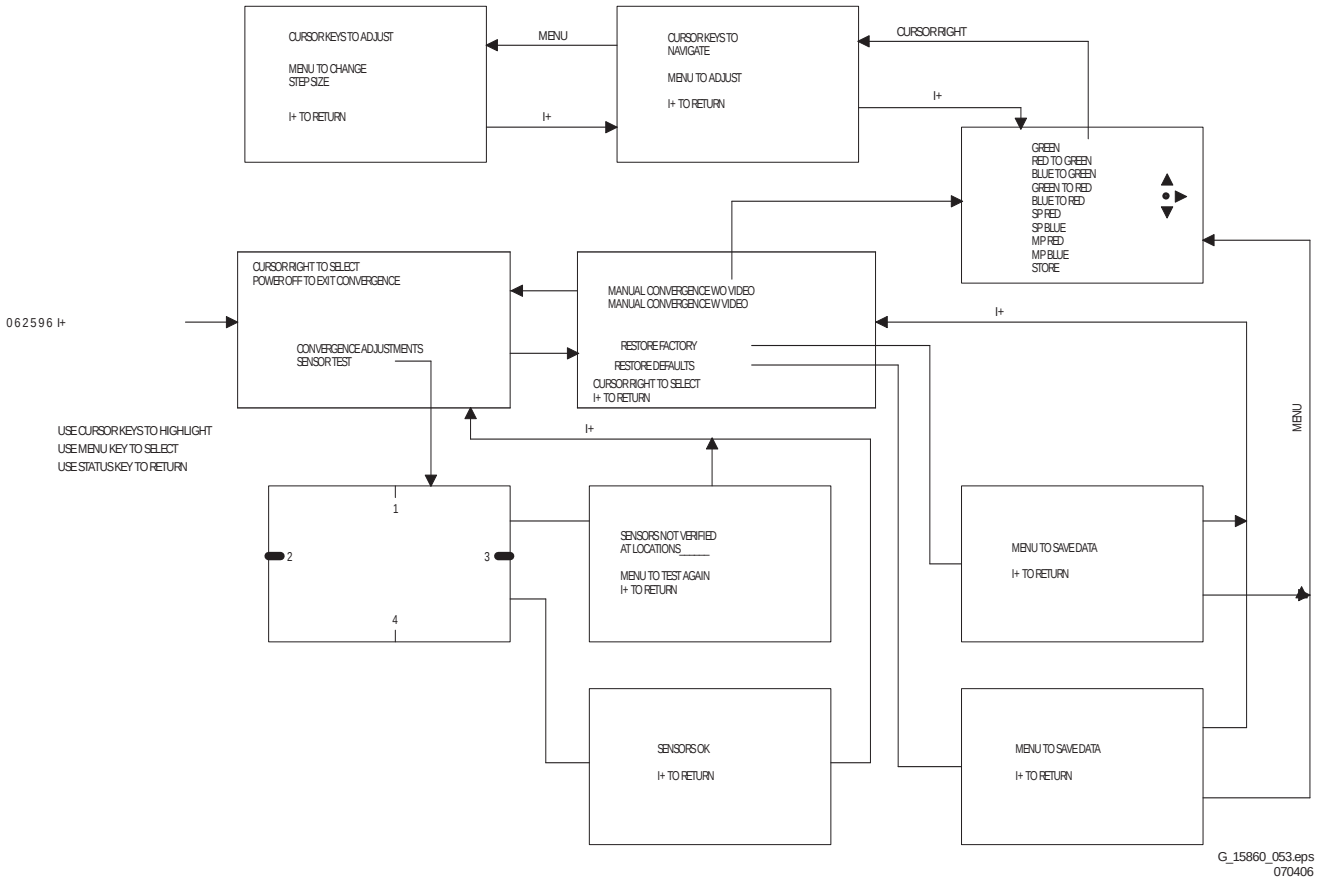


Figure 8-2 Convergence menus

Use the Cursor Up-Down button to highlight the selection. Press the Cursor Right button to make the selection. In the second menu:

- MANUAL CONVERGENCE WITHOUT VIDEO means that the screen behind the adjustment grid will be blank.
- MANUAL CONVERGENCE WITH VIDEO displays the applied video behind the adjustment grid.
- RESTORE FACTORY loads the values from the last saved convergence alignment.
- RESTORE DEFAULT loads values from the ROM on the ACS Microprocessor.
- RESTORE FACTORY or RESTORE DEFAULT will overwrite all nine convergence modes.

If the ACS module has been changed, there may not be data in the NVM for RESTORE FACTORY. The RESTORE DEFAULT settings will then be loaded.

An internally generated grid will be displayed in the Convergence mode as shown on the following page. The shaded area is the visible screen area. Horizontal lines A and M are displayed on the top and bottom edge of the visible screen area. Lines 1 and 15 are also displayed on the left and right edge of the visible screen area. Vertical line 0 is adjustable although it is not visible.

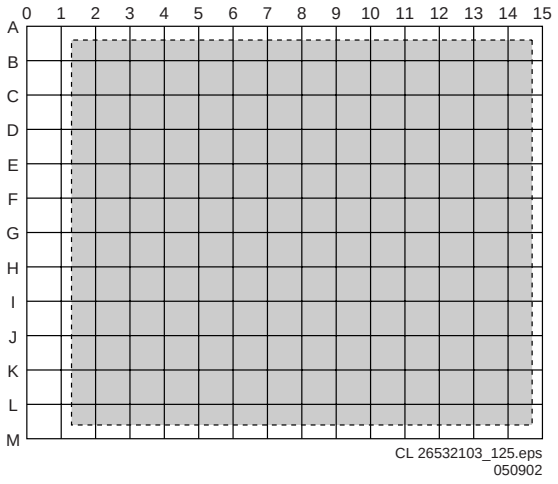


Figure 8-3 Convergence grid

8.5.6 Single Tube Replacement Convergence

If a single tube has been replaced, it is not necessary to do a Major Convergence alignment.

1. Enter the Convergence mode and select the adjustment needed.
2. Select "Red to Green", for example if the Red tube has been replaced.
3. Adjust the centring rings on the CRT to centre the Red pattern onto the Green pattern.
4. Starting with the centreline, adjust the Red icon onto the Green pattern.

Best results are obtained when navigating from left to right. Two or three passes may be necessary to obtain satisfactory results.

8.5.7 Touch Up Convergence

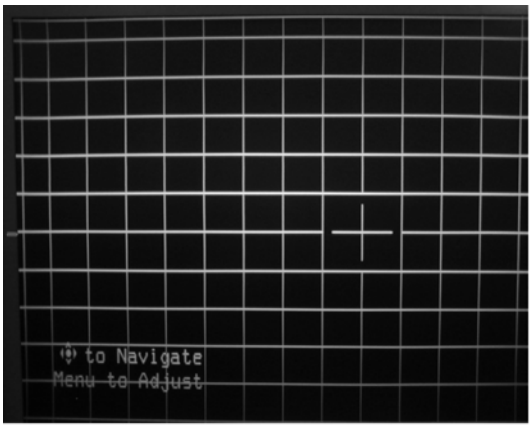
When making minor Convergence corrections, move the Cursor to the location to be adjusted then press the MENU button to adjust that location. When in the adjustment mode, press the MENU button a second time if it is desired to change the step size of the adjustment. When making minor Convergence corrections, you may adjust the following:

- RED TO GREEN
- BLUE TO GREEN
- SP RED
- MP RED
- SP BLUE
- MP BLUE

8.5.8 Green Geometry

Important: Do not make changes to the Green Geometry **without** placing a Template over the screen.

The Green Geometry must be done first when performing a complete convergence alignment. A Screen Template is necessary to obtain the correct geometry. Failure to use the Screen Template or mis-adjustment of the convergence will result in reduced life time of the Convergence amplifiers.



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Figure 8-4 Screen shot of 'Green geometry' adjustment

Place the Screen template on the TV screen. Select GREEN in the selection menu. The Cursor will appear in the centre of the screen as shown in the picture.

When the ACS module has been replaced, it would be advisable to load Default settings. Press the MENU button to adjust, and then use the Cursor buttons to move the Green cross onto the Template.
After a point has been adjusted, press the Info button to return to Navigate. When Default settings have been loaded, the left most line that is not visible should be adjusted first. Adjust the Vertical line 0 while observing line 1 to make line 1 parallel with the left edge of the screen. The adjustment should only be made in small steps.
Do not adjust any one point more than 1/4 the distance of one grid in each pass. After the left most line is adjusted, start at the centre left of the screen and work to the right, aligning the Horizontal lines. When adjusting the Horizontal lines, best results are obtained when working from left to right.
After the Centre line is adjusted, go to the next line down until all of the lines have been adjusted, then work from the centre up to adjust the Horizontal lines. Using the same method, work from centre out to adjust the Vertical lines. At least three passes will be necessary to complete the alignment. Press the Index button to return to the selection menu.

When the GREEN geometry is complete, STORE the data. Remove the template from the screen. Select RED TO GREEN in the selection menu. Using the same method that was used to adjust the Green Grid to the Template, adjust the Red Grid onto the Green Grid. If the set is a later production, select SP RED to centre the Red grid onto the Green grid. Exit this mode by pressing the MENU button. Then select the MP RED to adjust the Red onto the Green using the 35-point adjustment. When this is complete, select the RED TO GREEN to perform the 208-point adjustment.
When the RED TO GREEN is complete, select the BLUE TO GREEN, using the same alignment method as the RED TO GREEN.

Select STORE to save your the alignments after adjusting each colour.

Exiting the Convergence Mode without saving will cause the alignments to be lost.

Repeat the adjustment for each of the remaining modes.

8.5.9 Grey Scale Alignment

1. Place the input to the RGB (AUX 5) or YPbPr (AUX 4) mode. Connect a Computer or Computer monitor generator to the AUX 5 input or a Component Generator to AUX 4.
2. Preset the Screen controls counter clockwise.
3. Turn the Green Screen control clockwise to make the menu visible.
4. Enter the SAM mode by entering **0-6-2-5-9-6-[i+]** on the Remote Control. Select the GDE mode and select WHITE TONE.
5. Preset the following registers: Use the Cursor Right-Left buttons to set the value. Use the Cursor Up-Down buttons to select the register. Press the MENU button to exit the WHITE TONE menu.
   - NORMAL RED CUT-OFF: "32"
   - NORMAL GREEN CUT-OFF: "25"
   - NORMAL BLUE CUT-OFF:"31"
   - NORMAL RED DRIVE: "22"
   - NORMAL GREEN DRIVE: "58"
   - NORMAL BLUE DRIVE: "40"
6. Set the BRIGHTNESS, PICTURE, and SHARPNESS to their midpoint position. Select a Black Raster pattern on the computer or computer monitor generator.
7. Connect an Oscilloscope, set to measure DC, to each cathode to determine the dominant (lowest) colour.
8. Adjust the SUB BRIGHTNESS control to set the Black Level equal to 180 Volts on the Oscilloscope.
9. Move the probe to the remaining cathodes and adjust the corresponding cut-off registers to make the black part of the waveform at 180 Volts.
10. Set the corresponding Screen control to just make cut-off for the black part of the waveform for that tube.
11. Remove the Oscilloscope probe.
12. Apply a Greyscale pattern to the set.
13. Adjust the Drive Controls to achieve the proper white balance. At least one drive should remain 3F.
14. The following Drives and Cut-offs should be set as listed. These are in the WHITE TONE menu.
    - COOL CUT-OFF RED: "0"
    - COOL CUT-OFF GREEN: "0"
    - COOL CUT-OFF BLUE: "0"
    - COOL DRIVE RED: "-7"
    - COOL DRIVE GREEN: "-6"
    - COOL DRIVE BLUE: "0"
    - WARM CUT-OFF RED: "0"
    - WARM CUT-OFF GREEN: "0"
    - WARM CUT-OFF BLUE: "0"
    - WARM DRIVE RED: "+7"
    - WARM DRIVE GREEN: "+4"
    - WARM DRIVE BLUE: "-6"
15. Press the MENU button to return to the SAM menu. Exit the Service mode by turning the set "off".

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

9.1 Introduction
9.2 General Overview
9.3 Large Signal Panel (LSP)
9.4 CRT Board
9.5 MSB HOP Section
9.6 List of Abbreviations
9.7 IC Data Sheets

9.1 Introduction

This document is prepared for HDPTV2K6 maintenance purpose. Schematics should be referred in order to know the location of the components mentioned in this document. The explanation groups similar function components in the same section so that can be followed in order.

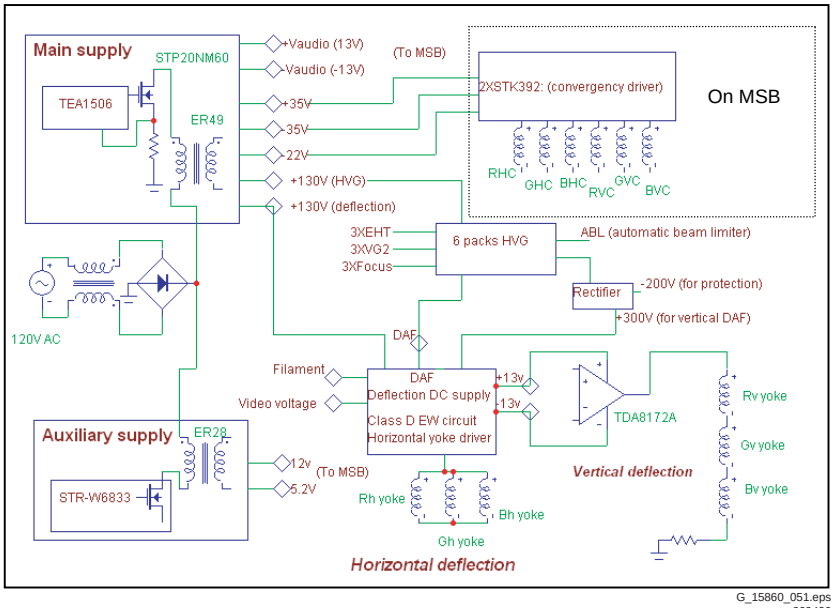
Two new chassis are being introduced for the US region in the model year 2006. The table below lists the Model and Chassis numbers.

Table 9-1 Model and chassis overview

Model	Chassis	Aspect Ratio	Destination
51PP9200/37	EBJ1.0U RA	16x9	USA
60PP9200/37	EBJ1.0U RA	16x9	USA

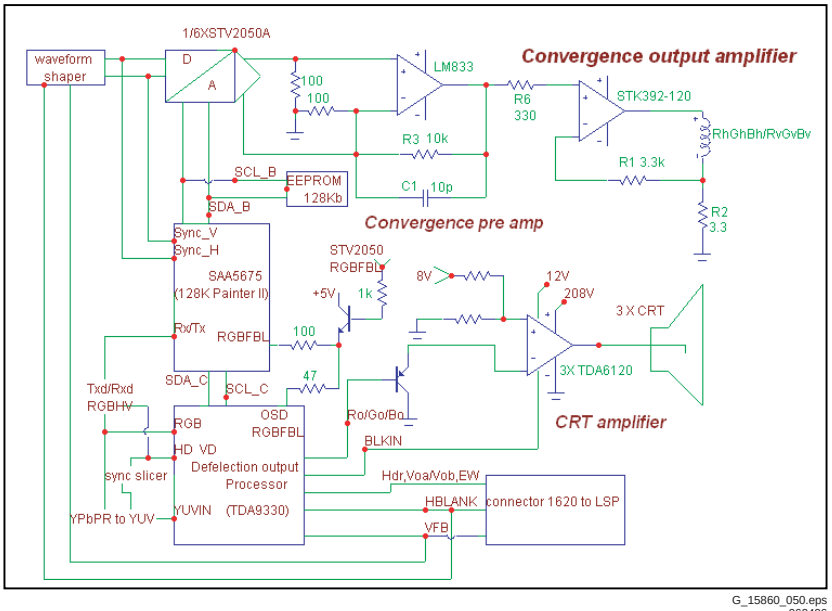
The EBJ1.0 chassis (= HDPTV2K6) mainly consists of the following three panels:

1. Large signal panel (LSP),
2. Mix Signal Board (MSB),
3. Small Signal Board (SSB).



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Figure 9-1 Blockdiagram LSP



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Figure 9-2 Blockdiagram MSB

9.1.1 Large Signal Panel (LSP)

The LSP consists of two power supply blocks and one deflection block. These two power supply blocks are the Main Supply and the Standby Supply. The Main Supply delivers power for the CRT deflection circuit, audio amplifiers and the convergence output stage. The Standby Supply delivers power for the SSB and the GDE/ACS processor. The deflection blocks deliver three stable anode high voltages,and the horizontal/vertical deflection for the three CRTs.

9.1.2 Medium Signal Board (MSB)

The MSB performs the following functions:
- GDE controller that controls the convergence and CRT output processor (HOP). Beside that, it communicates with the EBJ module (=SSB) to perform the necessary CRT alignment.
- CRT output processor that delivers the CRT deflection signal source for large signal to drive the CRT's deflection.
- Convergence processor and Convergence driving amplifier that ensure the three CRT beam landing is converged on the desired location.
- Interface circuit to complete the links between EBJ module and desired circuit.
- Power management circuit to process large signal supply for EBJ module and the other circuit.

9.1.3 Small Signal Board (SSB)

The Eco Baby Jag (=EBJ) module is the same digital module developed by Philips for LCD and PDP with a difference (components fitted differently) in video interface for CRT RPTV (video interface: RGBHV (1366X1080i@60Hz) and communication port is UART).

The module contains:
- ATSC/QAM/NTSC tuner and demodulator.
- AV decoder (NTSC). Picture enhancement like 3D comb filter, LTI/CTI, noise reduction, film mode, EDDI.
- Rear AV interface:
  - AV1: YPbPr /CVBS, L, R (6 cinches block).
  - AV2: YPbPr/CVBS, L, R (6 cinches block).
  - HDMI/DVI share L, R with AV1.
  - AV3: SVHS/CVBS, L, R.
  - SPDIF audio output for analogue and digital.
- System controller and standby processor.
- Audio decoder/processor.
- 2X10W class D audio amplifier.

There are interfaces on the SSB for the following panels:
- Audio constant monitor output: L, R (additional panel derived from EBJ).
- Side AV interface: SVHS /CVBS, L, R and USB1.1.
- Front control.
- Keyboard.

Description below refers to the block diagrams in chapter 6 "Block Diagrams, Test Point Overview, and Waveforms".

Analog Reception
The TV receives multimedia information by tuning the Hybrid tuner (for analog and digital reception) to one of many 6 MHz input channels available via a cable connection. When the input channel is an analog channel, the signal is processed via the NTSC decoder and the VBI data decoder of the MPIF.

Digital Reception
The TV receives multimedia information by tuning to one of many 6 MHz input channels available via a cable connection. When the input channel is a digital channel, it is processed via the QAM demodulator and then passed to the multi-media processor (VIPER), which handles the synchronization and display of audio-visual material.

Signal Processing
The AVIP together with the MPIF device is used to perform the input decoding of a single stream of analog audio and video broadcast signals. In addition, the AVIP is used for decoding and presentation of audio output streams. The main data connection between MPIF and AVIP is done via an I^2D bus. The AVIP converts the incoming video data to ITU-656 format for communication to the VIPER IC.
The audio data is transferred between the AVIP and VIPER using I^2S.
The AVIP IC is controlled by the VIPER via the I^2C bus.
The key part in the system, the VIPER, performs almost all key features, like video quality enhancement, motion compensation, picture-in-picture processing, and others. It is a completely digital IC with a TriMedia DSP (Digital Signal Processor) core and a MIPS microcontroller core. The DSP and some additional cores are used to do the video feature processing and some auxiliary sound feature processing. The MIPS microcontroller core is used for all internal and external controlling tasks including a system wide I^2C bus.
The VIPER provides a primary digital (YUV or RGB) output to the LVDS transmitter.

Note: For a more detailed SSB circuit description, please refer to the BL2.xU Service Manual (3122 785 15570). The here described chassis is an ECO version of the BL2.x-chassis, e.g. it does not have the POD interface. However, the AVIP, MPIF, PNX, and VIPER part are comparable.

9.2 General Overview

9.3 Large Signal Panel (LSP)

9.3.1 Horizontal Output Circuit and EW Correction Circuit

Note: Description below refers to diagram E3 (middle section).
Horizontal drive pulse (33.75 kHz, 45% duty cycle) from the HOP circuit on the MSB is fed to 7807 on the LSP.

Transistor 7807 is switched "on" and "off" and drives the Horizontal Output Transistor 7801 through the base driver transformer 5808 which is operating in flyback mode: when 7807 is "on", the current energy is stored in 5808 and released to drive 7801 when 7807 is "off". Base driver is supplied by 130VS through 3839/3840/2836

7801 drives the horizontal output stage. Horizontal output stage is supplied by 130VS through 5801 to the output stage. This 130VS charges up Scap 2816 together with Yokes and being switched by 7801.

During the scanning period, 7801/6810 is "on", which means the voltage of 2816/2850 is applied on the Yokes and so a sawtooth current is flowing through the Yokes and completes the scanning. The horizontal yokes of Red, Green and Blue tube are connected in parallel.

During the flyback period, the tuning capacitor 2818 and the yokes consist as a resonant circuit and resonates at the frequency of 1/5.5us while 7801/6810 is "off".

Transformer 5801 produces a plus and minus 13-volt supply for the Vertical Output circuit.

Voltage from Pin 7 of 5801 is rectified by 6802 to produce the +200 volt supply for the CRTs.

Voltage from Pin 5 is rectified by 6801 to produce the Filament voltage. This voltage is filtered by 2804 to provide

approximately 6 volts DC. This circuit is protected by fuse 1806 and resistor 3801.

The negative Horizontal pulse from Pin 5 feeds the Blanking and Sweep failure detection circuit.
The output of 7807 together with 2831/3832/2832 generates a sawtooth waveform for the class-D EW correction circuit. This sawtooth waveform is fed to the comparator IC 7803 and compare with the diode modulator input DM INPUT/EWO fed by HOP IC. The class D output of the comparator drives transistor 7802.

7802 drives EW coil 5807 together with 2820 and 5805 that connected to diode modulator circuit that is part of the horizontal output stage. The EW correction circuit driving and output waveform is a parabola-like signal that required to correct the geometry construction error of the tube mechanical system.

Misc. components:
- 6813/3836: Gate protection and discharge for 7807.
- 3834/3835/2846: High frequency suppression to prevent noise and small signal circuit damaging.
- 3837/2834: Snubber of 7807 switching pulses.
- 3826/3833: Preset level for EW class D comparator.
- 3827/2830: RC filter feedback EW corrector output to the comparator.
- 3866/2810: RC filter for the supply +15V of EW class D comparator circuit.
- 3824/3825: Pull up resistor and serial resistor of the EW class D comparator circuit.
- 6825: Gate protection for 7802.
- 6827/2833: EW coil current discharge path to prevent high surge occurring on 7802 drain.
- 2847: Surge suppression for 6827.
- 3829/3823: Feedback divider of EW correction circuit.
- 6821/6830/6832: Surge suppression of EW correction circuit.
- 5805/2819: Tuning components of the diode modulator circuit. The resonant frequency of these two components is 1/5.5us.
- 5804/6809/3808: Linearity coil and ringing suppression components.

9.3.2 Line Output Transformer (LOT) 5801 and the Secondary Supply

Note: Description below refers to diagram E3 (right upper part). The line output transformer is using the switching and flyback of 7801 to supply all the secondary supply such as video +200V, Vertical Supply ±13V, filament voltage as well as the horizontal blanking signal and the rest.

When 7801 is “on”, 130VS apply on the primary of 5801 and the LOT will supply the forward secondary output ±13V and filament voltage. When 7801 is “off”, 2818 and Yokes consist as resonant circuit that induced Hflyback, the LOT will supply the flyback supply +200V, 30V_clamp and the signals Neg-Horiz_Pulse, Hblank.

LOT Secondary Output:
- Filament: LOT pin6, rectified by 6801/2804 and protected by 1806. Supply to CRT board for tube's filament. Value is 6.15 ± 0.15V. If Filament not available, set still can be “on” but video will not display.
- Neg-Horiz-Pulse: This is the flyback phase of filament output. It is for protection of fault conditions that causing horizontal pulse “low”. If Neg-Horiz-Pulse is not available, set will shut down and report critical error 61.
- +200V: LOT pin7, rectified by 6802/2802 and protected by 3817. Supply to CRT board and protection circuit. If +200V not available -> 7814 “on” -> HVG-ON “low” -> HVG “off” -> -200V not available -> 7902 “on” and set will shut down and report critical error 61.
- Hblank: LOT pin10, generated through 3802/6804. It is for horizontal retrace period blanking. It is feedback to HOP IC to blank the video during flyback. It is also for phase II locking. If Hblank is incorrect, picture will be shifted abnormally.
- +13V: LOT pin14, rectified by 6805/2812 and protected by 1804. Supply to Frame IC for scanning positive supply. If +13V is not available, top part of the display will be clamped.
- -13V: LOT pin16, rectified by 6806/2813 and protected by 1805. Supply to Frame IC for scanning positive supply. If -13V is not available, bottom part of the display will be clamped.
- +30V_clamp: LOT pin13. It output and rectified through 6803/2808 to provide 30V for EW coil current discharge. Protected by 3810.

9.3.3 Frame and Dynamic Focus

Frame
Note: Description below refers to diagram E3 (right lower part). The frame IC circuit is using STV8172A the same as HDPTV2K5. It is supplied by +13V and -13V for the scanning. The flyback supply is generated by the STV8172A and the external components 6811/2825.

The vertical yokes of the Red, Green and Blue tube are connected in serial.

The vertical driving current source VDOA and VDOB is from HOP through 3811 and 3812. 3813 and 3814 converted the current source in to voltage and configured the IC into negative closed loop. 3820 and 3821 is the current sensing resistor, which determines the vertical scanning size together with 3813, 3814 and the source amplitude.

With this closed loop configuration, a current proportional to the source is flowing through the yokes during scanning period.

During flyback period, the internal switch of STV8172A will switch and apply the generated flyback supply to the yokes and so the yoke current just retrace because of i= l * di/dt. Pin 3 is switched to -13V during scanning period and 2825 will be charged to 13V -(-13V) =26V. Just after flyback, pin 3 is immediately switched to +13V, so the voltage at pin6 will become 26V+13V=39V.

Misc. components:
- 2822/2823/2824: Noise suppression.
- 3819/3804/3805/3806: Horizontal yoke crosstalk suppression.
- 3818/2828: Phase margin compensation for stability.
- 2826/2827: High frequency suppression on supply line.
- 6826/3815/3865: Vblank generating. Vblank is to blank the video during vertical flyback.

Dynamic Focus
Note: Description below refers to diagram E3 (right middle part) and diagram E4 (left upper part).
Due to the tube spherical electron beam scanning not matched with the real flat display surface, the electron beam focusing will be worse at the edge area compared with the center area. Therefore, in addition to the static focus which is generic across the whole display area, a dynamic focus is required corresponding to the display location. It is so called dynamic focus.

Dynamic Focus is taking the horizontal parabola waveform from Scap 2816/2850 and vertical parabola waveform from EW correction circuit. They are input to the dynamic focus amplifier 7901. Vertical parabola is injected to the emitter and amplified at the collector. The horizontal parabola is directly coupled and by transformer 5901 to 7901 collector. After that, the combined parabola waveform will be input to the six-pack HVG (high

voltage generator), coupled by the HVG capacitor and then connected to the tube's focus electrode.

Misc. components:
- 2903: Coupling vertical parabola to 7901.
- 3904/2910/3900/2904: Filtering and reshape vertical parabola.
- 3905: Current biasing of 7901.
- 3903: Pull up and amplification resistor of 7901.
- 3909/2902/3902: Preventing focus flash going to 7901.
- 5901: Coupling and amplifying of horizontal parabola.
- 2901/3901: Coupling horizontal parabola.

9.3.4 Six Pack HVG and Beam Current

Note: Description below refers to diagram E4 (right upper part).
Different from direct view CRT, PTV is using a separated high voltage generator for picture tube's EHT. The purpose of this is to have a well regulated EHT and so eliminated breathing and geometry concern. With a well-regulated EHT, the picture size will not be modulated by the EHT variation and a stable picture without breathing can be obtained ideally.

Somehow, due to the non-ideal regulation of the HVG in use, HDPTV2K6 shows some breathing defect.

Other than regulated EHT, the HVG also provide -200V for protection and +330V for dynamic focus.

A control pin is available which function as “On/Off” control by HVG-ON signal. HVG is supplied by 130VH.

HVG output:
- EHT info and beam limit: HVG pin2. The beam current that being supplied to EHT is drawn from this pin. Through the resistor 3911/3912 and capacitor 2913, we can obtain a voltage with level and ripple proportional to beam level and EHT ripple respectively. The voltage is buffered by 7903 and supply to HOP IC named as auto beam current (ABL). ABL is to limit the beam current at max 1.8mA fixed by 3911/3912. This voltage goes to HOP BCL pin and HOP will control the Contrast and Brightness depending on software setting. Corresponding to the voltage level, HOP IC will increase or decrease Contrast or Brightness accordingly and so set the max. beam at 1.8mA.
- -200V/+330V: HVG pin4, rectified by 6917/2920 and protected by 3908. -200V is used for protection control. Any fault causing HVG “off” will make -200V not available and shut down the set with error code 61. +330V is derived by negative rectification and supply to dynamic focus circuit.
- Test pin: HVG pin7. Applying voltage of 2V - 7V will make HVG EHT increase and could trigger the HVG internal protection circuit to shut down HVG.
- HVG-ON: HVG pin8. “High” turn “on” HVG and “low” turn “off” HVG.

Misc. components:
6903/6904/3923/3936/3924/3937/2911/6905: ABL components for peaking and transient beam current performance.
2926/3922/6919/3925/3921/2927: To improve the breathing caused by the non-ideal EHT regulation of HVG. These block of components takes the EHTinfo and input to EW correction drive (also as DM-INPUT, diode modulator). The injected EHTinfo will modulate the deflection current and so the scanning size.

Beam current protection
If the picture beam current is exceeding 1.8 mA a lot, the emitter of 7903 will be pulled “low” dramatically and will finally turn “on” 6912. 6912 will then latch transistor 7905 and 7904 that will pulled HVG-ON “low” and disable HVG operation. Consequently, -200V will not be available and set shut down with error 61.

9.3.5 Protection

Note: Description below refers to diagram E3 (left lower part).

Vertical Protection
The flyback generator vertical pulse from 7811 is injected to 7808 and turn “off” 7808 during scanning period. During flyback period, the pulse is at “high” level and turns “on” 7808, through 7906 and 7812. It will cause G1 to be -200V and the video is blanked.

During fault condition where vertical pulse is not available, in addition to G1 being pulled to -20V to blank video, 7808 will be turned “on” and so 7814 will be “off”. This will cause HVG-ON to be “low” and the set will be shut down with error 61.

Power Protect
The voltage divider 3578 and 3579 detect 5552 secondary and input to 7557. If there is a power failure, 7557 will then be “off” and pin1 become “high” instead of 2.5V, the voltage divider 3581/3582 will then derive a higher PROTECT signal which will turn “on” 7809 and cause HVG-ON “low”. HVG will be turned “off” and set shut down with error 61. PROTECT is “low” during normal operation.

Neg-Horiz-Pulse
Neg-Horiz-Pulse is derived from filament flyback phase. It is then rectified by 6822/2840 and connected to the base of 7810 through 3847. 3847/3848 and 3861 determine 7810 base voltage. Fault conditions cause the flyback pulse smaller will make 7810 base more positive and turn “on” 7810. This will turn “off” 7814 and disable HVG and cause set shut down with error 61.

+200V Protection
If +200V is not available due to some fault condition, 6812/6816 will be “off” and so is 7814. This will turn “off” HVG and set shut down with error 61.

+15V Protection
If +15V is not available due to some fault condition, 7814 will not be able to make HVG-ON “high” and HVG will be turn “off”. This will shut down the set with error 61.

Beam Current Protection
If the picture beam current is exceeding 1.8 mA a lot, the emitter of 7903 will be pulled “low” dramatically and will finally turn “on” 6912. 6912 will then latch transistor 7905 and 7904 that will pulled HVG-ON “low” and disable HVG operation. Consequently, -200V will not be available and set shut down with error 61.

Horizontal Collector Protection
If the horizontal pulse is not available due to some fault condition, HOP will not detect Hfb from 1910 pin 11. This will cause set shut down with error 61 to protect horizontal circuit.

9.4 CRT Board

Note: Description below refers to diagram D.
The RGB amplifier on the CRT board is just a traditional signal amplifier with a high gain. It has two supplies, i.e., small signal supply (+12V) and large signal supply (+200V). It amplifies the RGB signal from the HOP IC with a level of <6V to the Cathode output with level of >150V.

The overall voltage gain is defined by:
Vcathode= [4.5m * Rf +2Vbe] + 1.87 * R3212 / R3224 * (Vpin4-Vpin2)

= [4.5m * 22K +2 * 0.7] + 1.87 * 22K / 820 * (Vpin4 - Vpin2)
With the above equation, we know that we have a signal amplification AC gain of 1.87 * 22K * 820 ~ 50

For the fixed DC gain, it is referring to the 172V adjustment, i.e., POT meter adjustment input to pin 2 and determine Cathode DC level, which fix black level at 172V when HOP IC black level is 2.5V.

Therefore, if HOP IC output 2.5Vdc level, we can obtain 172V black level at Cathode by adjusting POT meter. With that, RGB amplifier will amplify and display the signal level from HOP IC with level >2.5V. All the signal < 2.5V will be below 172V at Cathode and blanked not to display.

Misc. components:

- 3208/7202/3223/3209/3204: Buffer of RGB. Temperature compensation for PNP buffer at MSB board.
- 3225/3227/3226: POT meter adjustment for 172V.
- 2215/2212/3214/2204/2207: Noise decoupling of non-inverting input pin.
- 3228/3216/2216/2213: +12V decoupling.
- 3224/3213: Gain components.
- 3215/2210: Gain for high frequency.
- 2214/2217/2224: +200V decoupling.
- 2203/6202/3220: AKB feedback voltage filtering and clamping. AKB is not used in HDPTV2K6 and so
- 3220 is not inserted. The AKB path is disconnected to MSB.
- 3206/5202/5203/3211/3218/6201: Cathode waveform smoothing and flash preventing.
- 3210/2206: G2 voltage decoupling and flash preventing.
- 3202/6200/2218: G1 voltage decoupling and flash preventing.
- 2200/2201/5200/5201: Filament voltage decoupling.

9.5 MSB HOP Section

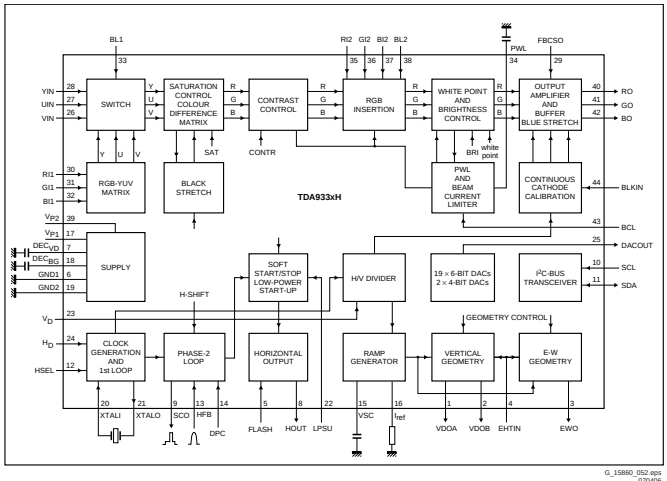


Figure 9-3 MSB HOP IC

The HOP is functioning as a horizontal output processor, which takes care of horizontal and vertical deflection drive, EW drive, and RGB drive.

9.5.1 Horizontal deflection drive

For the horizontal deflection drive, HOP pin8 output Hout to horizontal base driver through connector 1620 pin9. The switching Hout then drives the horizontal output stage with the yoke. The yoke coil is being switched, and horizontal yoke current is induced to achieve horizontal scanning.

Related to horizontal scanning, we have Hfb feedback from horizontal deflection stage. Hfb is for phase II locking, which locks the horizontal output stage flyback phase to HOP Hfreq local oscillator. The HOP IC will shut down if Hfb is not available.

9.5.2 Vertical Deflection Drive

For the vertical deflection drive, HOP pin1 and pin2 output differential vertical current source VDOA and VDOB to vertical IC STV8172A through connector 1620 pin3 and pin4. The sawtooth differential current source VDOA and VDOB is then being amplified by STV8172A and a sawtooth vertical yoke current is induced to achieve vertical scanning.

Related to the vertical scanning, we have the sawtooth generator pin16 IREF and pin15 VSC. IREF is a constant current fixed by resistor 3616. This IREF then charges 2615 to obtain a sawtooth current. During every vertical flyback period, 2615 is being switched to gnd and recharged again during the scanning period. A periodic sawtooth is then achieved and delivered to the vertical deflection stage through VDOA and VDOB.

9.5.3 East West (EW) Drive

For the EW drive, HOP pin3 output EW current source EWO to EW correction circuit 7802/7803 through connector 1620 pin5. The parabola EW current source is input to 7803 pin3 and pin5 and compared with sawtooth on pin2 and pin6. The current source will sink current from the EW correction through switching method (class D). This I_ew * (R3829//R3823) will determine the voltage of the diode modulator 6810 pin 2 voltage. This will then modulate the horizontal deflection current to achieve EW size control.

9.5.4 RGB Drive

For the RGB drive, HOP pin30/31/32/23/24 receive RGBHV from EBJ panel. HOP IC will then convert and amplify these standard 1080i RGBHV to CRT RGB drive signals pin40/41/42.

RGB drive output from HOP is with ~6V max. There are PNP buffers 7702/12/20 connected between RGB output and CRT board.

For the Blue channel, due to the blue CRT non-linear phosphor characteristic, a blue stretch circuit is designed in between BLUE output and the PNP buffer. The Blue stretch circuit consists of 7721/22/23. Depending on 7722 voltage level, 7723 may be turned “on” and so the gain of the circuit changes and obtains a two-section non-linear gain to compensate the blue phosphor characteristic.

HV sync. is embedded into RGB output which function to blank and synchronize the RGB display.

Related to RGB, we have a Beam Current Limiter (BCL or ABL) connected to LSP through 1620 pin1. The BCL circuit is to limit the beam when the display exceeds a certain driving level. This will prevent the display from blooming due to too high contrast. The circuit also set a max beam current, which is 1.8mA for the application. The max. beam is set by LSP 3910/3911. When1620 pin1 voltage goes lower till certain level said 2.8V, HOP Contrast/Brightness gain controller will start to react and reduced the gain and so limit the drive going too high.

Making use of the BCL function, 7660 is designed in to prevent the blue gun from damaging, which may happen if we have a blue background display for a long time. 7660 compares the driving level of the Red/Green combination and the Blue level. When the Blue level becomes higher than the Red/Green combination, 7660 starts to turn “on” and limit the RGB drive including the Blue drive.

SCO is the sandcastle output from the HOP IC. The sandcastle pulse can be used as clamp and blanking reference for display generating devices like TXT decoders and PIP processors. The sandcastle feature is not used in HDPTV2K6. This pin is incorporated with vertical flyback pulse from protection circuit, which is for protection when the pulse is not available.

The rest:

- EHTIN: input for EHT breathing correction, not used.
- HSEL: horizontal frequency selector. For 2fH, it should be left open.
- DPC: Dynamic phase compensation, not used.
- PWL: Peak White Limiting, not used.
- BLKIN: Black Current In. For AKB application, not used.

9.6 List of Abbreviations

16:9-ARFRONT	16:9 aspect ratio input from side jack panel
50Hz/60Hz	50Hz/60Hz AC frequency
6-CHANNEL DAC	6-Channel DAC
ACS	Auto Convergence System
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AM-FM	Amplitude Modulation/Frequency Modulation
AM-SOUND	Amplitude modulated sound signal
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ATV	See Auto TV
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
AUX-SUPPLY	Auxiliary supply
BC-PROT	Beam current protection
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BLC-INFO	Black current information
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries
B	Blue
C	Centre
C/16/9	Chrominance input
CBA	Circuit Board Assembly
CENTER	Centre speaker
C-FRONT	Chrominance front input
CODEC	Coding/Decoding
COMP	Compander ON/OFF
CORE TOP LEVEL	Core Top Level
CRT	Cathode Ray Tube
CSM	Customer Service Mode
CVBS	Composite Video Blanking Signal
DAC-HOP	Digital analogue converter HOP IC
DC_PROT	DC protection
DC-filament	Filament supply voltage
DETECT	Detect signal side I/O (side jack panel) input
DFU	Directions For Use: owner's manual
DIGITAL I/O	Digital in/out
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz
DNR	Dynamic Noise Reduction
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for service technicians
DUET	DUET-IC
DVD	Digital Versatile Disc
DYN-FASE-COR	Dynamic phase correction
EHT-INFO	Extra high-tension information
EPG	Electronic Program Guide (= NexTView)
EW-DRIVE	East-west drive signal
FALCONIC	Field and line rate converter IC. SAA4992H, feature box IC which performs Digital Natural Motion, 3DNR vertical zoom, and vertical peaking
FBCSO	Fixed beam current switch off
FBL	Fast Blanking
FDS	Full Dual Screen (same as FDW)
FDW	Full Dual Window (same as FDS)
FILAMENT	Filament of CRT
FILAMENT-PROT	Filament protection
FLASH	Flash memory

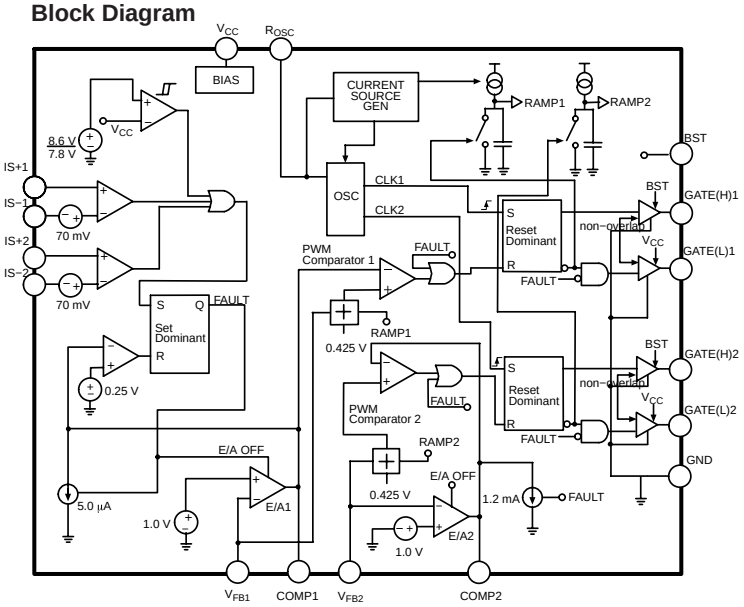
FM	Field Memory or Frequency Modulation
FM SOUND	Frequency Modulation Sound
FRAME ROTATION	Frame rotation
FRAME-ROT +	Frame rotation plus
GDE	Generic Display Engine
GHOST-IN	Signal Ghost cancellation in
G	Green
HA	Horizontal Acquisition
HEATER	Heater (Filament)
HFB	Horizontal flyback
HOP	High-end Output Processor
HP	Headphone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I2C	Integrated IC bus
I2S	Integrated IC Sound bus
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR-LED	Drive signal for the service infrared LED
KEYBOARD	Top controls
L	Left Audio
LDP	Line Deflection Protection
LED	Light Emitting Diode
LINE-DRIVE	Line drive signal
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LMN	System L, M, N
LNA	Low noise adapter
LSP	Large Signal Panel
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MUP	Microcomputer
MUTE	Mute-Line
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
NTSC	National Television Standard Committee. Colour system mainly used in North America and Japan. Colour carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non-Volatile Memory
O/C	Open Circuit
ON/OFF LED	On/off control signal for the LED
OSD	On Screen Display
OTC	OSD, Teletext Controller
PAL	Phase Alternating Line. Colour system mainly used in West Europe (colour carrier= 4.433619 MHz) and South America (colour carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
PCB	Printed Circuit Board (CBA)
PD	Power Down
PILOT	Pilot Signal
PIP	Picture In Picture
PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
POR	Power On Reset, signal to reset the uP
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
POWER-ON MUTE	Power "on" Mute
R	Right Audio
RAM	Random Access Memory
RC5	RC5 signal from the remote control receiver
RESET	Reset signal
ROM	Read only Memory
S/C	Short Circuit
SAM	Service Alignment Mode
Scavem	Scan Velocity Modulation
SCL	Serial Clock I2C
SDA	Serial Data I2C
SDM	Service Default Mode
SECAM	SEequence Couleur Avec Memoire. Colour system mainly used in France and East Europe. Colour carriers= 4.406250 MHz and 4.250000 MHz
SERVICE-DEFAULT	Service pin to activate SDM
SERVICE-MODE	Service pin to activate SAM
SIF	Sound Intermediate frequency
SL	Surround Left
SPDIF	Sony Philips Digital Interface Format
SSB	Small Signal Board
SSM	Small Signal Module
STANDBY	Standby
STBY	Standby
STEREO	Stereo
SW	Subwoofer
UI	Universal Interface
VA	Vertical Acquisition
VDNEG	Negative vertical drive signal
VDPOS	Positive vertical drive signal
VFB	Vertical flyback pulse
VGA-B	VGA Blue
VGA-FBL	VGA Fast-blanking
VGA-G	VGA Green
VGA-R	VGA Red
V-OUT	V-signal to HOP-IC
X-RAY-PROT	X-Ray Protection
X-tal	Crystal
Y-OUT	Luminance-signal to HOP-IC

9.7 IC Data Sheets

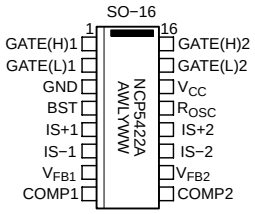
This section shows the internal block diagrams and pin configurations of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.7.1 Diagram B1A, NCP5422ADR2G (IC 7U00)

Block Diagram



Pin Configuration



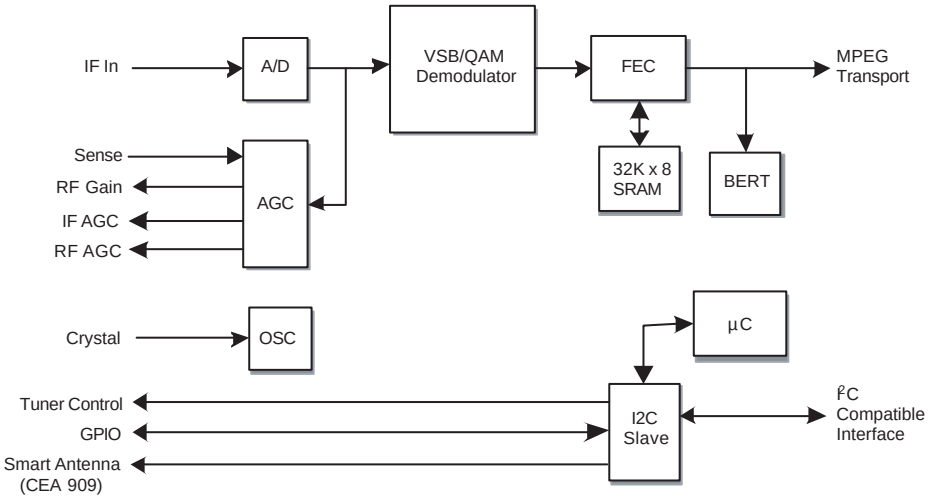
A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week

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Figure 9-4 Internal block diagram and pin configuration

9.7.2 Diagram B2A, NXT2004 (IC 7T22)

Block Diagram



Pin Configuration

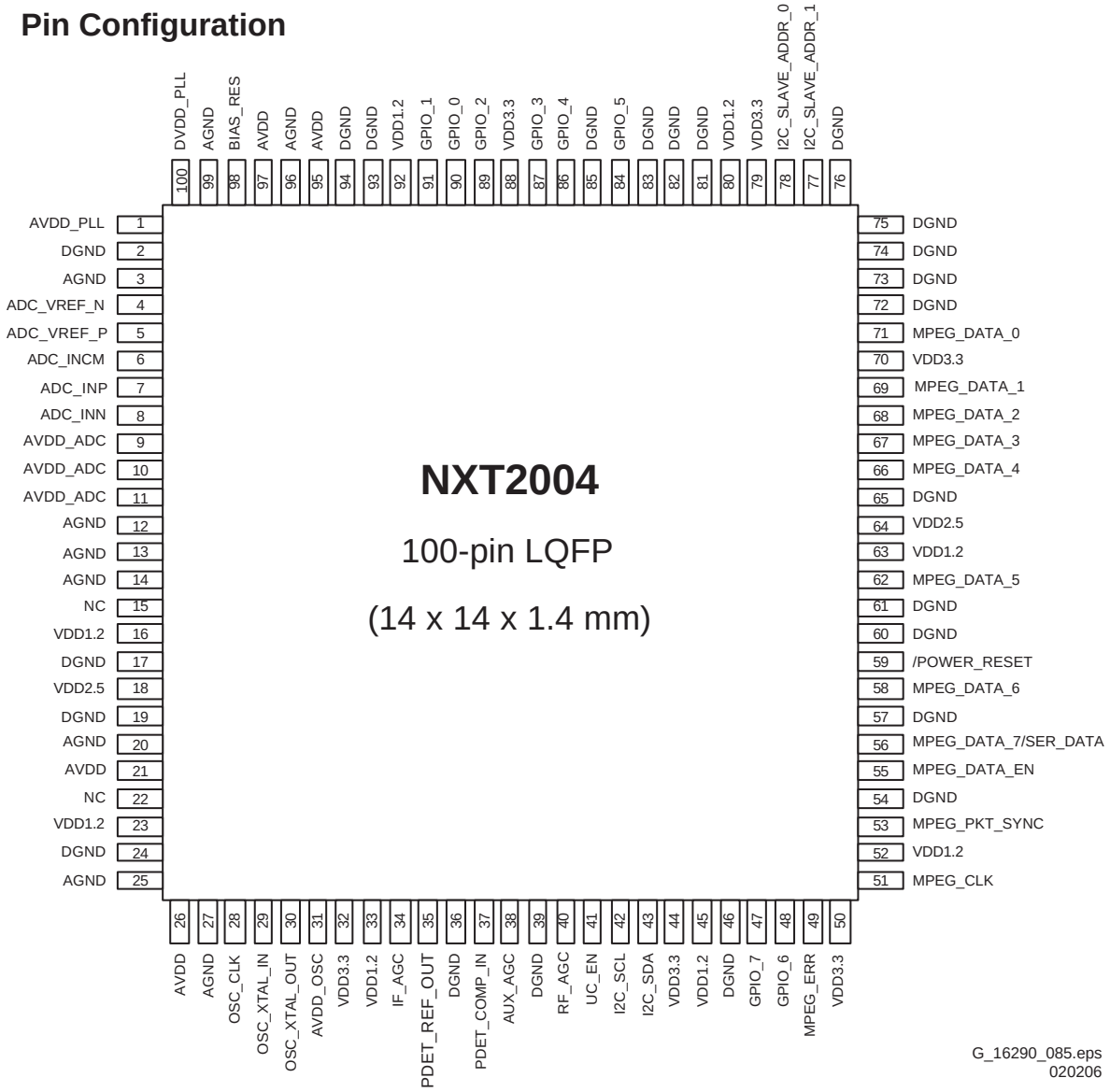


Figure 9-5 Internal block diagram and pin configuration

9.7.3 Diagram B3A/B/C/D, PNX 3000H (IC 7A00)

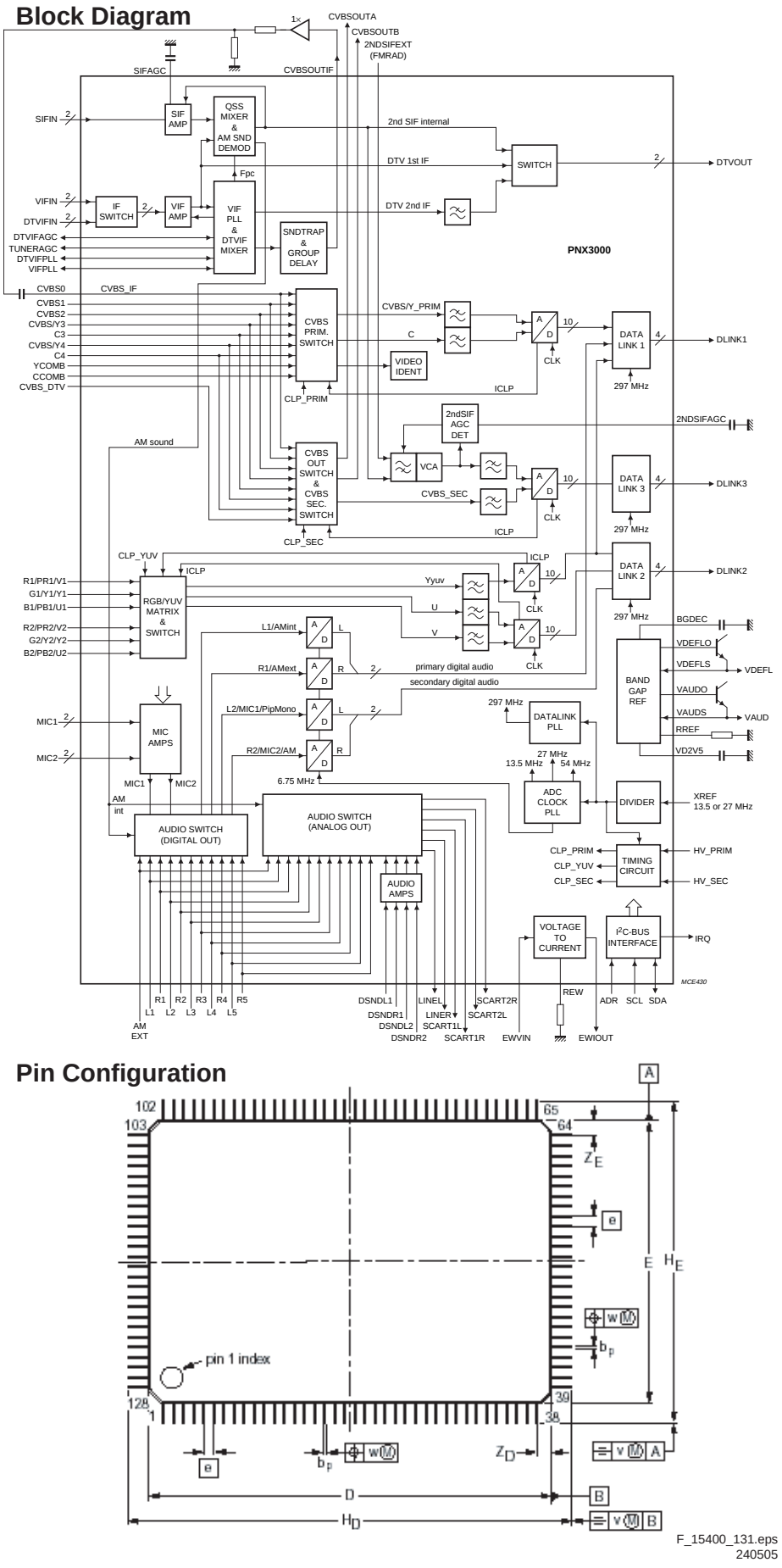
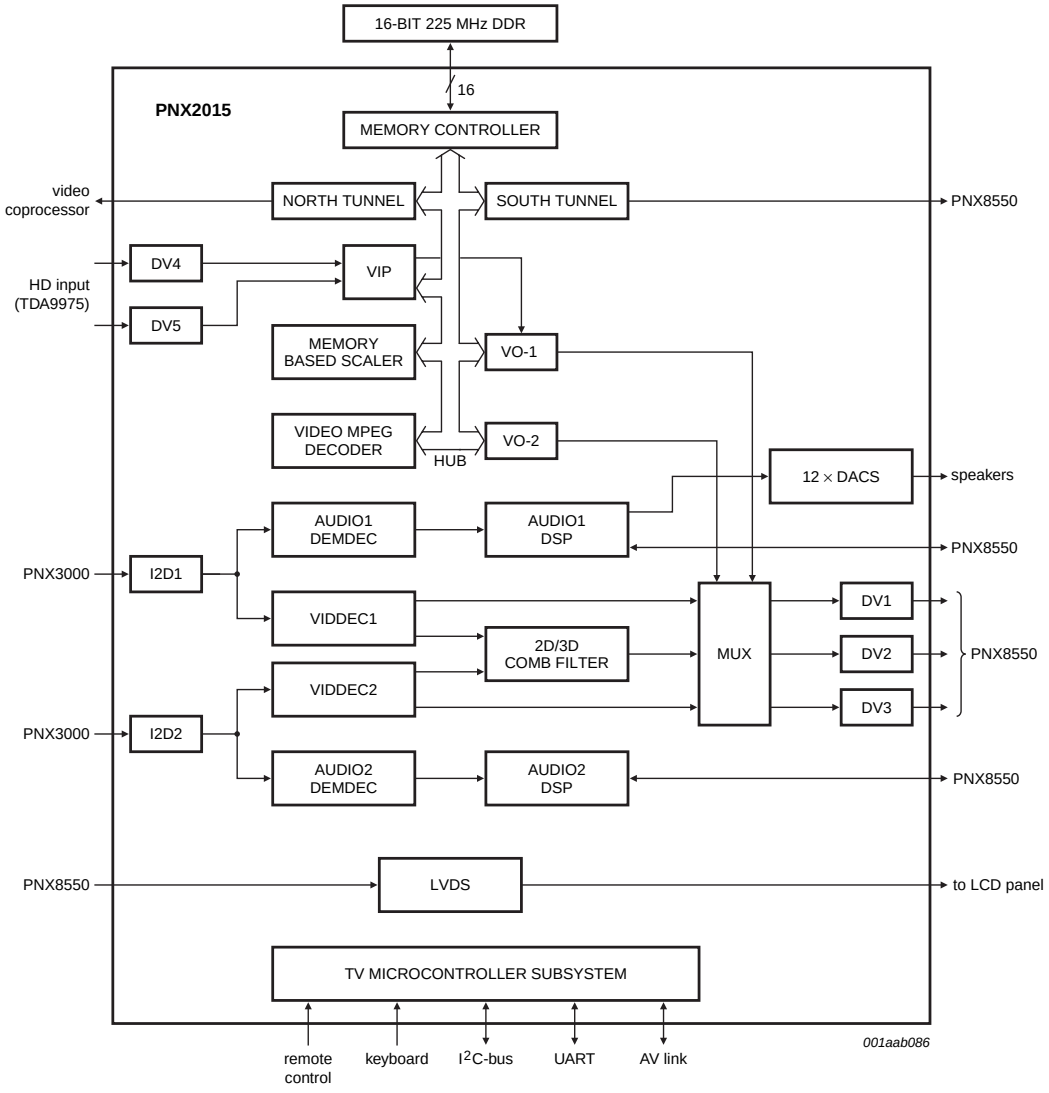


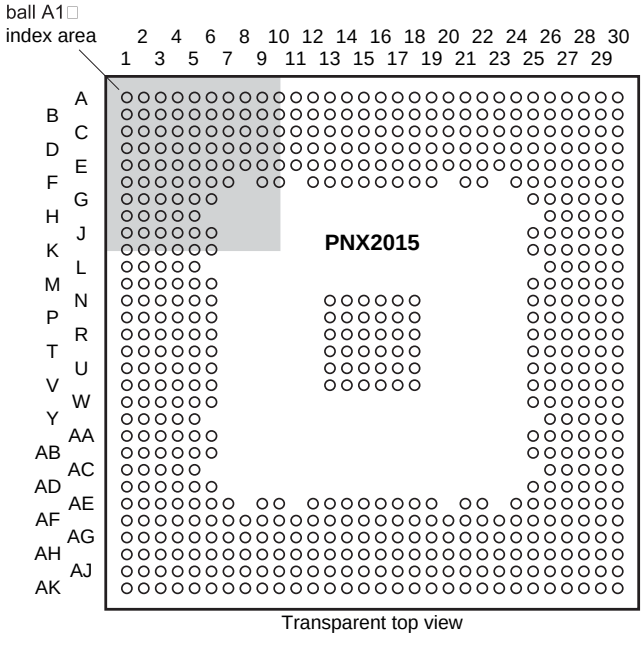
Figure 9-6 Internal block diagram and pin configuration

9.7.4 Diagram B4A/B/C/D/E/F, PNX 2015 (IC 7J00)

Block Diagram



Pin Configuration

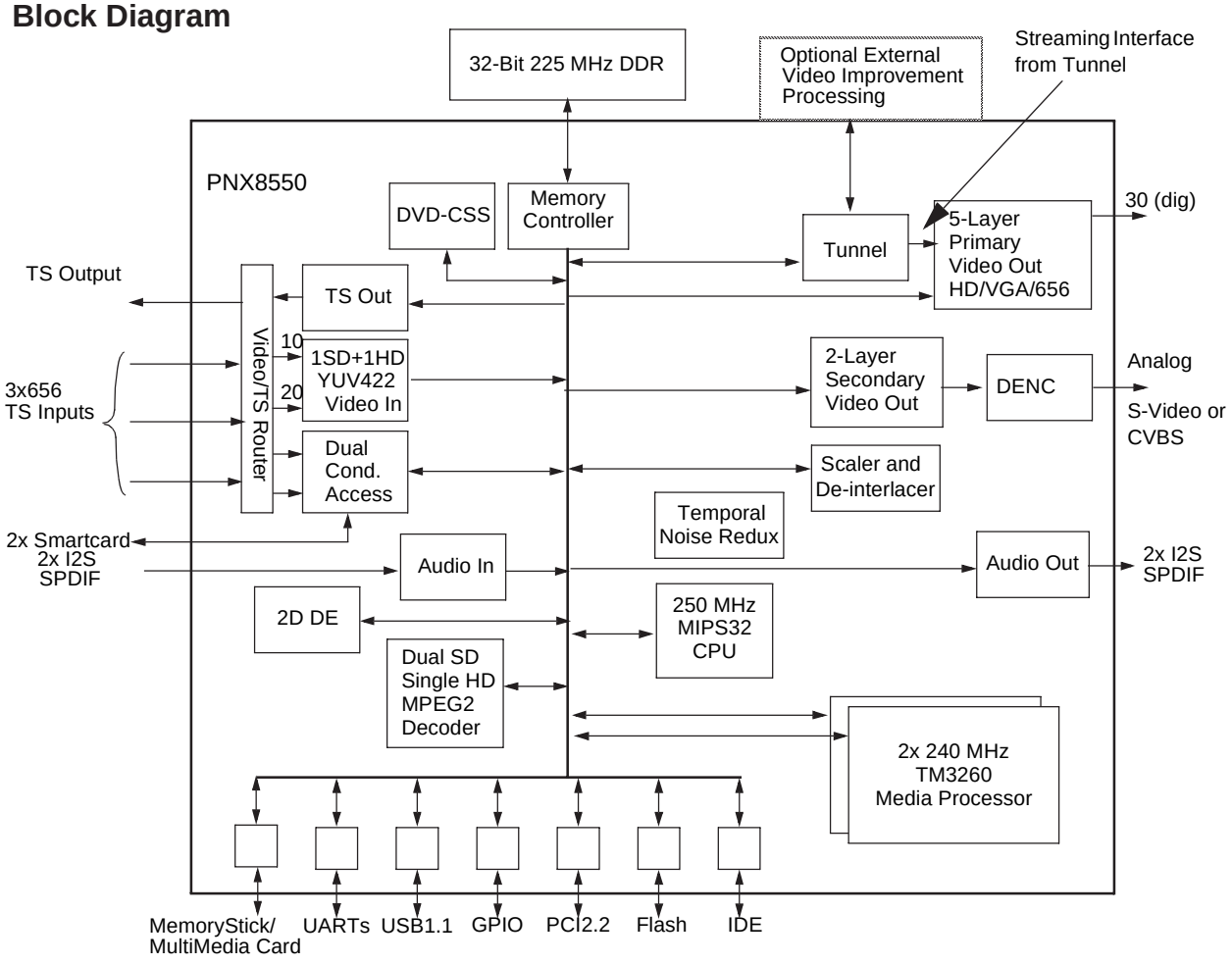


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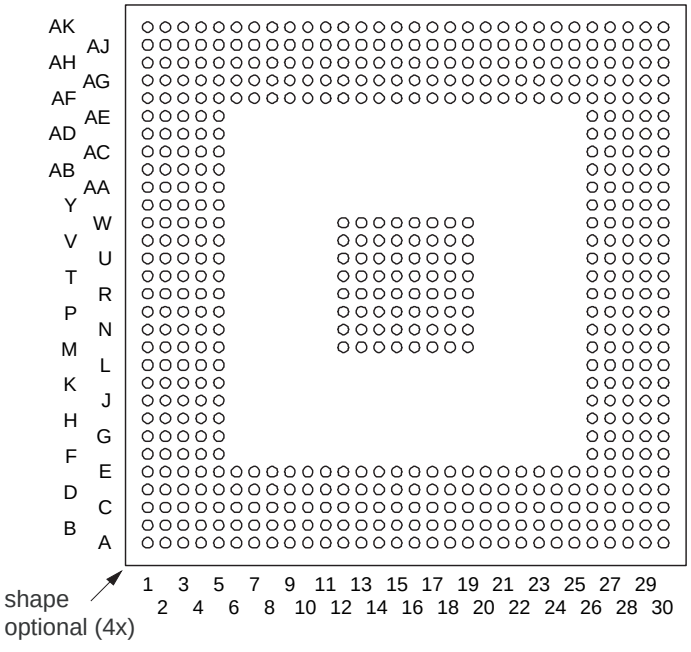
Figure 9-7 Internal block diagram and pin configuration

9.7.5 Diagram B5C, VIPER (IC 7V00)

Block Diagram



Pin Configuration

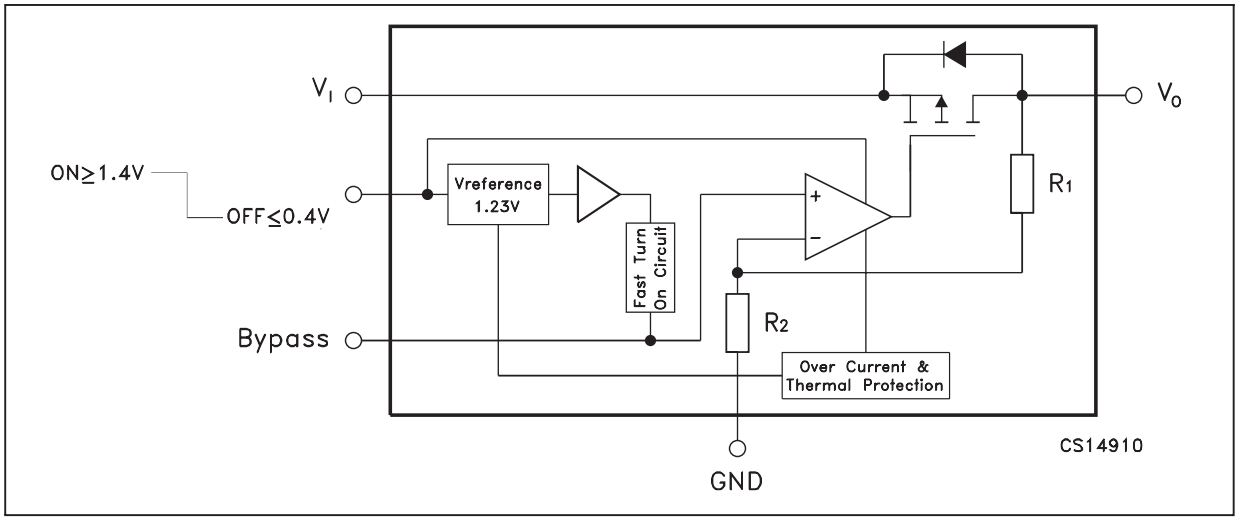


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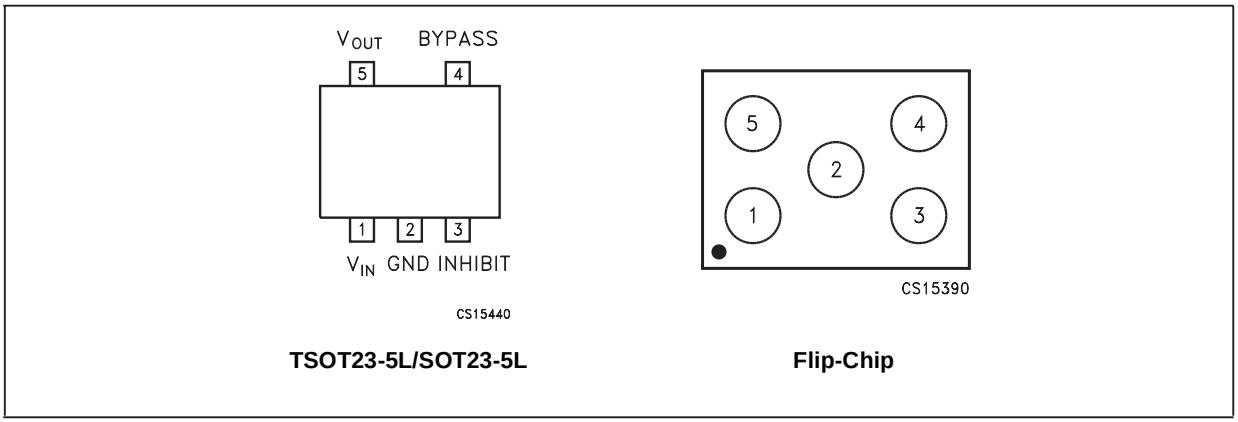
Figure 9-8 Internal block diagram and pin configuration

9.7.6 Diagram B5F, LD3985M33 (IC 7M05/6)
Diagram B6, LD3985M33 (IC 7G42)
Diagram B7A, LD3985M33 (IC 7B25)

Block Diagram



Pin Configuration

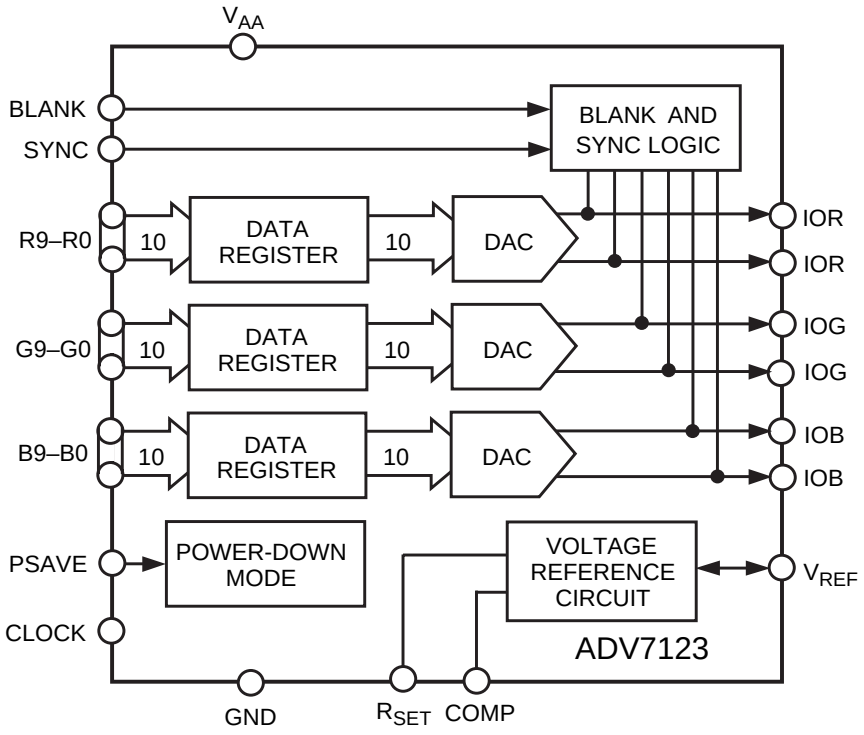


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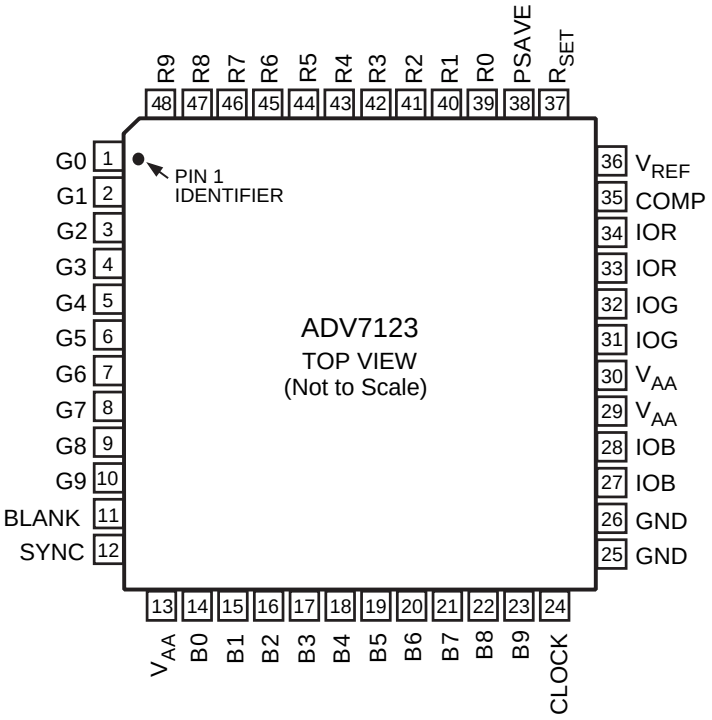
Figure 9-9 Internal block diagram and pin configuration

9.7.7 Diagram B6, ADV7123KSTZ140 (IC 7G40)

Block Diagram



Pin Configuration



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020206

Figure 9-10 Internal block diagram and pin configuration

9.7.8 Diagram B7A, LD1117DT33 (IC 7B45)

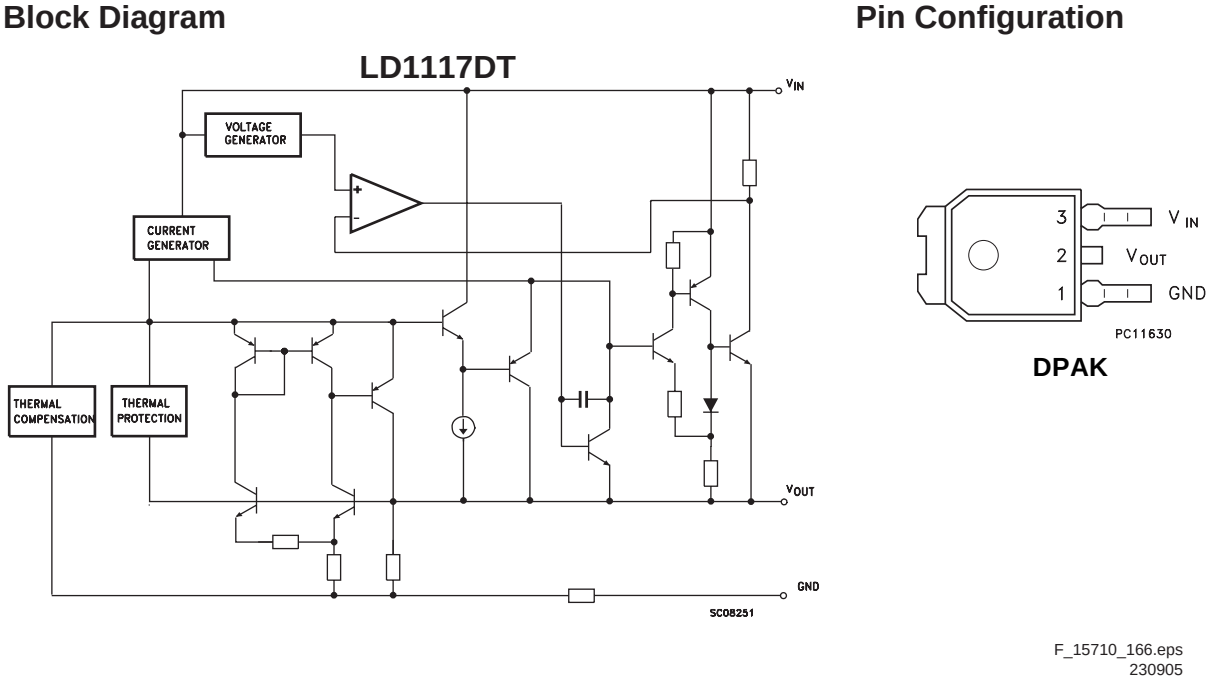


Figure 9-11 Internal block diagram and pin configuration

9.7.9 Diagram B8A, LM339P (IC 7D10)

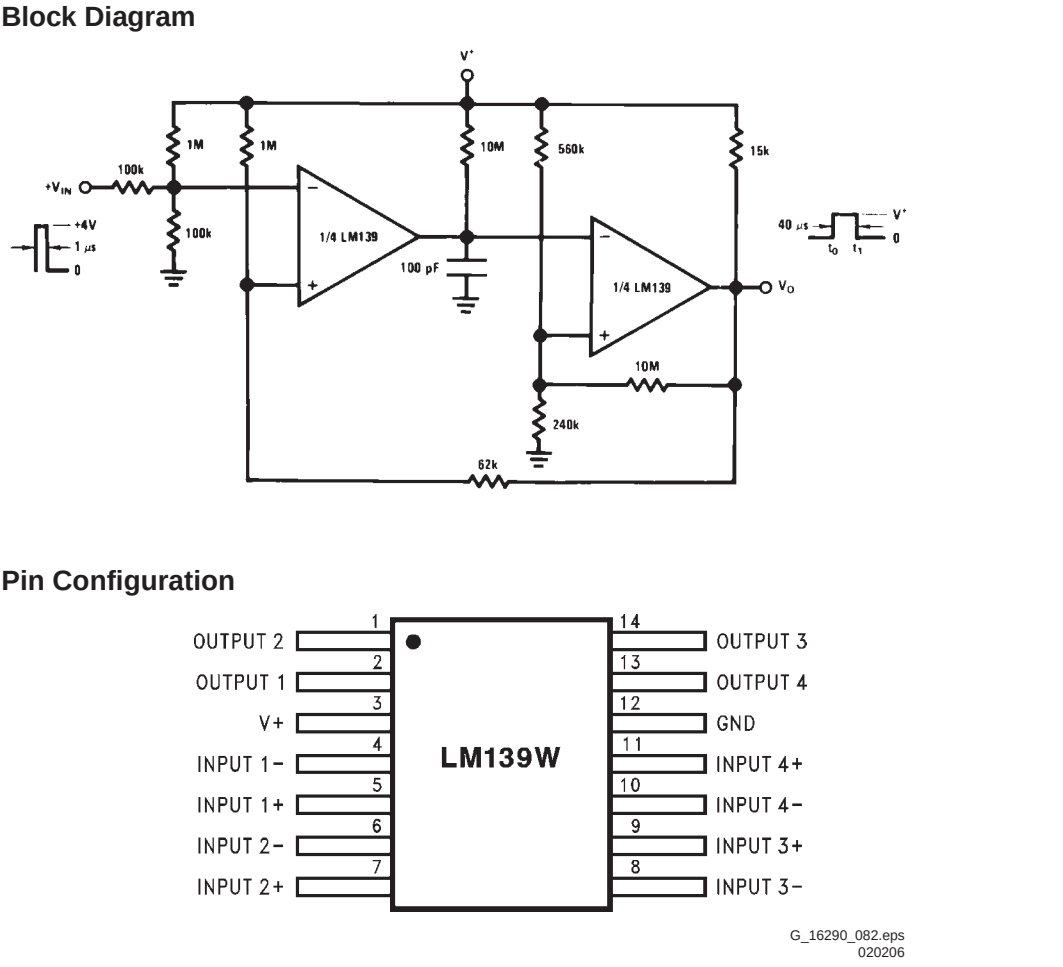
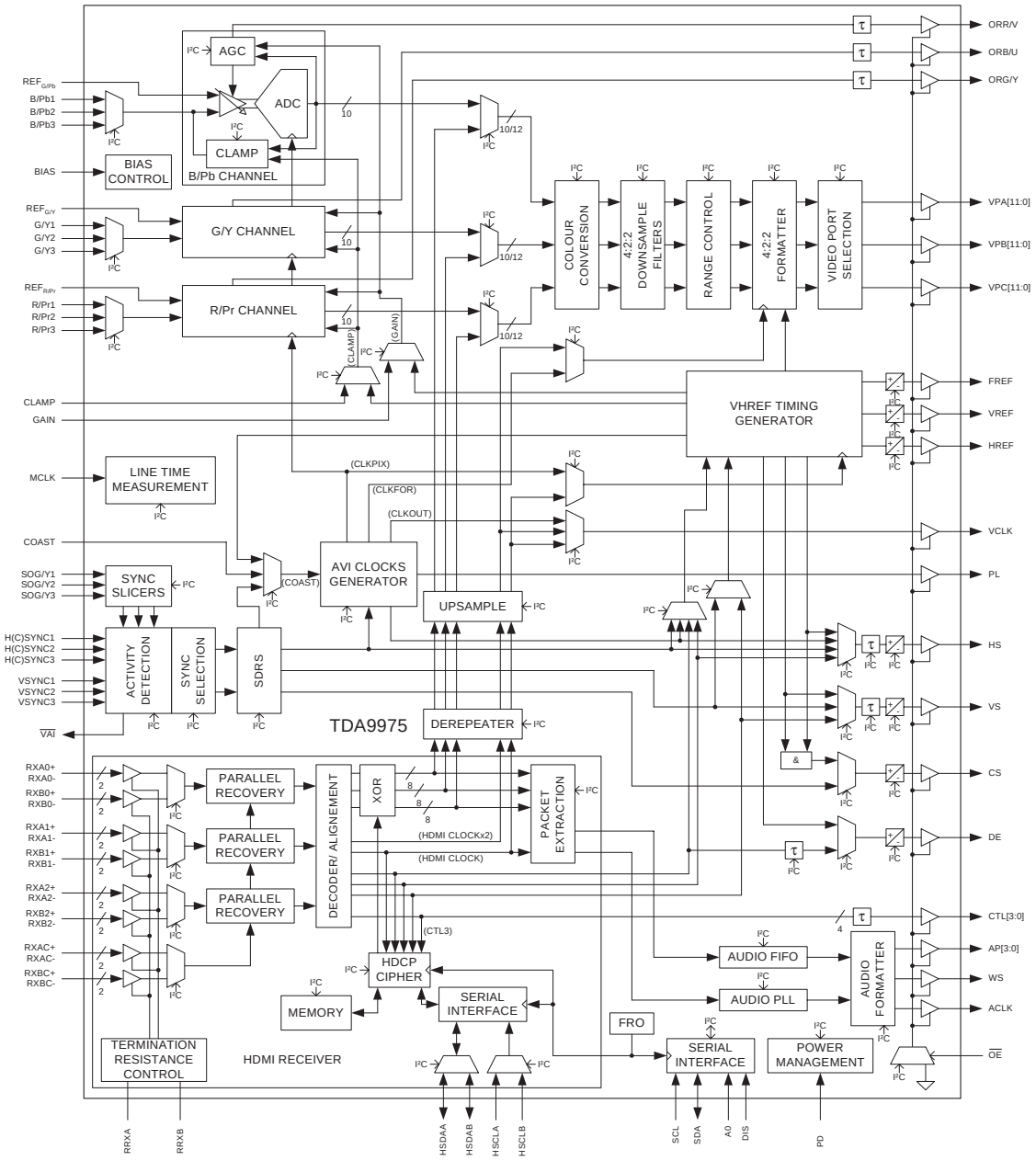


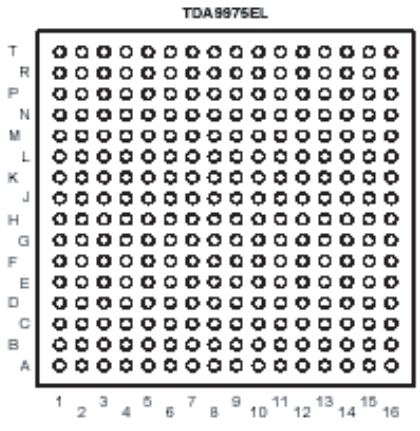
Figure 9-12 Internal block diagram and pin configuration

9.7.10 Diagram B7B, TDA9975H (IC 7B50)

Block Diagram



Pin Configuration



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240505

Figure 9-13 Internal block diagram and pin configuration

10. Spare Parts List

Sets Listed

	8670 000 23097	51MP6200D/37
	8670 000 23903	51PP9200D/37
	8670 000 23093	60PP9200D/37

Set Level

Various

1083	See Table 5.4	SSB Service Kits
0934	3121 237 56741	Cab Assy 51MP6200D
0934	3121 237 56771	Cab Assy 51PP9200D
0934	3121 237 56801	Cab Assy 60PP9200D
8519	3139 111 04431	Cable 12p/100/12p

–〰–

5213	2422 264 00484	Loudsp. 8Ω 15W FR
5215	3135 031 10011	Bead 95Ω at 100MHz

Small Signal Board [B]

Software (see Philips Service Website)

0802		Downloadable file

Various

1740	4822 267 10565	Connector 4p
1A10	2422 549 44377	Filter 45.75MHz
1D50	2422 025 10769	Connector 9p m
1H00	2422 543 01397	Xtal 27MHz 18pF
1H07	2422 025 03999	Connector 14p m
1I00	2422 026 05755	Socket Cinch 4p f
1I01	2422 026 05133	Connector SVHS 4p f
1I03	2422 026 05754	Socket Cinch 6p f
1I04	2422 026 05754	Socket Cinch 6p f
1I06	2422 033 00018	Connector 19p f
1J02	4822 267 10636	Conn 13p
1LA0	2422 543 01443	Xtal 16MHz 20pF
1M01	2422 025 10768	Connector 3p m
1M02	4822 267 10618	Connector 7p
1M16	2422 025 18749	Connector 3p m
1M21	2422 025 08149	Connector 6p m
1M36	2422 025 10655	Connector 11p m
1M60	2422 025 09406	Connector 4p m
1T01	2422 549 00137	Filter 44MHz
1T04	3112 297 14491	Tuner TD1336/FGHP
1T11	2422 543 01522	Xtal 25.140MHz 20pF
1U01	2422 086 00623	Fuse 3A T 125V
1U02	2422 025 18738	Connector 3p m

⊣⊢

2A05	2020 552 96618	1nF 10% 50V 0402
2A07	2020 552 96623	2.2nF 10% 50V 0402
2A08	2020 552 96623	2.2nF 10% 50V 0402
2A09	2020 552 96623	2.2nF 10% 50V 0402
2A10	2238 787 15641	22nF 5% 16V 0402
2A11	2238 787 15641	22nF 5% 16V 0402
2A13	2238 787 15641	22nF 5% 16V 0402
2A14	2238 787 15641	22nF 5% 16V 0402
2A15	2238 787 15641	22nF 5% 16V 0402
2A16	2238 787 15641	22nF 5% 16V 0402
2A17	2238 787 15641	22nF 5% 16V 0402
2A18	2238 787 15641	22nF 5% 16V 0402
2A19	2020 552 96628	10nF 10% 16V 0402
2A21	2238 787 15641	22nF 5% 16V 0402
2A23	2020 552 96623	2.2nF 10% 50V 0402
2A24	2238 869 15101	100pF 5% 50V 0402
2A25	2238 869 15101	100pF 5% 50V 0402
2A26	2238 787 15641	22nF 5% 16V 0402
2A27	2238 787 15641	22nF 5% 16V 0402
2A29	2238 586 59812	100nF 20% 50V 0603
2A31	2238 787 15641	22nF 5% 16V 0402
2A32	2238 586 59812	100nF 20% 50V 0603
2A33	2022 552 05679	1µF 10% 16V 0805
2A34	2022 552 05679	1µF 10% 16V 0805
2A35	2238 586 59812	100nF 20% 50V 0603
2A37	4822 124 12108	100µF 20% 4V
2A38	2020 552 96618	1nF 10% 50V 0402
2A39	2238 586 59812	100nF 20% 50V 0603
2A40	2022 552 05679	1µF 10% 16V 0805
2A41	2022 552 05679	1µF 10% 16V 0805
2A42	4822 124 23237	22µF 6.3V
2A43	2238 586 59812	100nF 20% 50V 0603
2A44	2238 586 59812	100nF 20% 50V 0603
2A45	2238 586 59812	100nF 20% 50V 0603
2A47	2238 586 59812	100nF 20% 50V 0603
2A49	2020 552 96628	10nF 10% 16V 0402
2A50	2020 552 96628	10nF 10% 16V 0402
2A51	3198 035 03310	330pF 5% 50V 0402
2A52	2238 586 59812	100nF 20% 50V 0603
2A53	2020 552 96628	10nF 10% 16V 0402
2A54	2020 552 96628	10nF 10% 16V 0402
2A55	2020 552 96628	10nF 10% 16V 0402
2A56	2022 552 05679	1µF 10% 16V 0805
2A57	2022 552 05679	1µF 10% 16V 0805
2A58	2020 552 96628	10nF 10% 16V 0402
2A60	2022 552 05679	1µF 10% 16V 0805
2A61	2022 552 05679	1µF 10% 16V 0805
2A62	2238 586 59812	100nF 20% 50V 0603
2A63	2238 586 59812	100nF 20% 50V 0603
2A64	2238 586 59812	100nF 20% 50V 0603
2A65	2238 586 59812	100nF 20% 50V 0603
2A66	2022 552 05679	1µF 10% 16V 0805
2A67	2022 552 05679	1µF 10% 16V 0805
2A68	2022 552 05679	1µF 10% 16V 0805
2A69	2022 552 05679	1µF 10% 16V 0805
2A71	2022 552 05679	1µF 10% 16V 0805
2A73	2022 552 05679	1µF 10% 16V 0805
2A76	2022 552 05679	1µF 10% 16V 0805
2A78	4822 124 12095	100µF 20% 16V
2A83	4822 124 12095	100µF 20% 16V
2A86	2020 552 96618	1nF 10% 50V 0402
2A87	2022 552 05679	1µF 10% 16V 0805
2A90	3198 035 14720	4.7nF 5% 25V 0402
2A92	2022 552 05679	1µF 10% 16V 0805
2B00	2238 586 59812	100nF 20% 50V 0603
2B01	2238 586 59812	100nF 20% 50V 0603
2B03	3198 035 14720	4.7nF 5% 25V 0402
2B04	2020 552 96628	10nF 10% 16V 0402
2B10	2238 586 59812	100nF 20% 50V 0603
2B11	4822 124 81058	47µF 20% 4V
2B12	2238 586 59812	100nF 20% 50V 0603
2B13	2238 586 59812	100nF 20% 50V 0603
2B14	2238 586 59812	100nF 20% 50V 0603
2B15	2238 586 59812	100nF 20% 50V 0603
2B16	2238 586 59812	100nF 20% 50V 0603
2B17	2238 586 59812	100nF 20% 50V 0603
2B18	2238 586 59812	100nF 20% 50V 0603
2B19	2238 586 59812	100nF 20% 50V 0603
2B20	2238 586 59812	100nF 20% 50V 0603
2B21	2238 586 59812	100nF 20% 50V 0603
2B22	2238 586 59812	100nF 20% 50V 0603
2B23	2238 586 59812	100nF 20% 50V 0603
2B24	2238 586 59812	100nF 20% 50V 0603
2B25	2238 586 59812	100nF 20% 50V 0603
2B26	2238 586 59812	100nF 20% 50V 0603
2B31	2020 552 96628	10nF 10% 16V 0402
2B32	2238 586 59812	100nF 20% 50V 0603
2B33	2238 586 59812	100nF 20% 50V 0603
2B35	2238 586 59812	100nF 20% 50V 0603
2B36	2238 586 59812	100nF 20% 50V 0603
2B37	2238 586 59812	100nF 20% 50V 0603
2B38	2238 586 59812	100nF 20% 50V 0603
2B39	2238 586 59812	100nF 20% 50V 0603
2B40	4822 124 12108	100µF 20% 4V
2B41	4822 124 12108	100µF 20% 4V
2B45	2022 552 05679	1µF 10% 16V 0805
2B46	2022 552 05679	1µF 10% 16V 0805
2B50	2020 552 96628	10nF 10% 16V 0402
2B51	2020 552 96628	10nF 10% 16V 0402
2B52	2020 552 96628	10nF 10% 16V 0402
2B55	2020 552 96628	10nF 10% 16V 0402
2B56	3198 034 01580	1.5pF 1% 50V 0402
2B57	2238 869 15109	10pF 5% 50V 0402
2B58	2020 552 96628	10nF 10% 16V 0402
2B59	3198 034 01580	1.5pF 1% 50V 0402
2B60	2238 869 15109	10pF 5% 50V 0402
2B61	2020 552 96628	10nF 10% 16V 0402
2B62	3198 034 01580	1.5pF 1% 50V 0402
2B63	2238 869 15109	10pF 5% 50V 0402
2B64	2020 552 96628	10nF 10% 16V 0402
2B65	3198 034 01580	1.5pF 1% 50V 0402
2B66	2238 869 15109	10pF 5% 50V 0402
2B67	2020 552 96628	10nF 10% 16V 0402
2B68	3198 034 01580	1.5pF 1% 50V 0402
2B69	2238 869 15109	10pF 5% 50V 0402
2B70	2020 552 96628	10nF 10% 16V 0402
2B71	3198 034 01580	1.5pF 1% 50V 0402
2B72	2238 869 15109	10pF 5% 50V 0402
2B75	2020 552 96628	10nF 10% 16V 0402
2B76	2020 552 96628	10nF 10% 16V 0402
2B77	2020 552 96628	10nF 10% 16V 0402
2B78	2020 552 96628	10nF 10% 16V 0402
2B79	2020 552 96628	10nF 10% 16V 0402
2B80	2020 552 96628	10nF 10% 16V 0402
2D01	2020 552 96637	10µF 10% 6.3V 0805
2D02	2020 552 96637	10µF 10% 6.3V 0805
2D03	3198 035 02210	220pF 5% 50V 0402
2D11	2022 552 05615	2.2µF 10% 6.3V 0805
2D14	4822 126 14585	100nF 10% 0805 50V
2D15	4822 124 12095	100µF 20% 16V
2D17	4822 126 14585	100nF 10% 0805 50V
2D18	4822 124 12095	100µF 20% 16V
2D19	4822 126 14585	100nF 10% 0805 50V
2D20	4822 126 14585	100nF 10% 0805 50V
2D21	4822 126 14585	100nF 10% 0805 50V
2D26	2022 552 05679	1µF 10% 16V 0805
2D27	2022 552 05679	1µF 10% 16V 0805
2D30	4822 117 13605	Jumper 0402
2D31	4822 117 13605	Jumper 0402
2D32	2020 552 96621	1.5nF 10% 50V 0402
2D35	2020 552 96621	1.5nF 10% 50V 0402
2D36	2020 552 96621	1.5nF 10% 50V 0402
2D37	2020 552 96621	1.5nF 10% 50V 0402
2D38	4822 126 14585	100nF 10% 0805 50V
2D39	2020 552 96621	1.5nF 10% 50V 0402
2D40	2020 552 96621	1.5nF 10% 50V 0402
2D41	4822 126 14585	100nF 10% 0805 50V
2D42	4822 124 12095	100µF 20% 16V
2D43	4822 126 14585	100nF 10% 0805 50V
2D44	4822 124 12095	100µF 20% 16V
2D45	2022 552 05679	1µF 10% 16V 0805
2D46	2022 552 05679	1µF 10% 16V 0805
2D47	2020 552 96621	1.5nF 10% 50V 0402
2D48	2020 552 96621	1.5nF 10% 50V 0402
2D49	2020 552 96621	1.5nF 10% 50V 0402
2D50	2020 552 96621	1.5nF 10% 50V 0402
2D51	2020 552 96618	1nF 10% 50V 0402
2D53	2020 552 96828	470nF 20% 25V
2D54	2020 552 96828	470nF 20% 25V
2D56	2020 552 96623	2.2nF 10% 50V 0402
2D57	2020 552 96623	2.2nF 10% 50V 0402
2D58	2020 552 96623	2.2nF 10% 50V 0402
2D59	2020 552 96623	2.2nF 10% 50V 0402
2D63	2238 787 15641	22nF 5% 16V 0402
2D64	3198 034 02280	2.2pF 1% 50V 0402
2D65	3198 034 02280	2.2pF 1% 50V 0402
2D66	3198 034 02280	2.2pF 1% 50V 0402
2D67	2238 586 59812	100nF 20% 50V 0603
2D68	2238 586 59812	100nF 20% 50V 0603
2D71	3198 034 04780	4.7pF 50V NP0 0402
2D72	3198 034 04780	4.7pF 50V NP0 0402
2G60	2238 586 59812	100nF 20% 50V 0603
2G61	2238 586 59812	100nF 20% 50V 0603
2G62	2238 586 59812	100nF 20% 50V 0603
2G63	2238 586 59812	100nF 20% 50V 0603
2G64	2238 586 59812	100nF 20% 50V 0603
2G67	2022 552 05679	1µF 10% 16V 0805
2G68	2020 552 96628	10nF 10% 16V 0402
2G69	4822 124 12108	100µF 20% 4V
2H00	2238 869 15101	100pF 5% 50V 0402
2H01	2020 552 96618	1nF 10% 50V 0402
2H02	2238 586 59812	100nF 20% 50V 0603
2H03	2022 552 05679	1µF 10% 16V 0805
2H06	2020 552 96618	1nF 10% 50V 0402
2H07	2020 552 96618	1nF 10% 50V 0402
2H08	3198 034 02790	47pF 1% 50V 0402
2H09	3198 034 02790	47pF 1% 50V 0402
2H10	2238 586 59812	100nF 20% 50V 0603
2H11	2238 869 15101	100pF 5% 50V 0402
2H12	2022 552 05679	1µF 10% 16V 0805
2I02	2238 869 15101	100pF 5% 50V 0402
2I03	2238 869 15101	100pF 5% 50V 0402
2I05	2238 869 15101	100pF 5% 50V 0402
2I06	2238 869 15101	100pF 5% 50V 0402
2I07	2238 869 15101	100pF 5% 50V 0402
2I08	2238 869 15101	100pF 5% 50V 0402
2I09	4822 126 14324	33pF 5% 50V 0402
2I0E	2238 869 15101	100pF 5% 50V 0402
2I0F	2238 869 15101	100pF 5% 50V 0402
2I10	2238 869 15101	100pF 5% 50V 0402
2I11	2238 869 15101	100pF 5% 50V 0402
2I12	2238 869 15101	100pF 5% 50V 0402
2I13	2238 869 15101	100pF 5% 50V 0402
2I14	2238 869 15101	100pF 5% 50V 0402
2I15	2238 869 15101	100pF 5% 50V 0402
2I16	2238 869 15101	100pF 5% 50V 0402
2I17	2238 869 15101	100pF 5% 50V 0402

2I18	2238 869 15101	100pF 5% 50V 0402
2I19	2238 869 15101	100pF 5% 50V 0402
2I53	2238 586 59812	100nF 20% 50V 0603
2J01	2238 586 59812	100nF 20% 50V 0603
2J03	2238 586 59812	100nF 20% 50V 0603
2J06	2238 586 59812	100nF 20% 50V 0603
2J08	2238 586 59812	100nF 20% 50V 0603
2J10	2238 586 59812	100nF 20% 50V 0603
2J13	2238 586 59812	100nF 20% 50V 0603
2J16	2238 586 59812	100nF 20% 50V 0603
2J18	2238 586 59812	100nF 20% 50V 0603
2J20	2238 586 59812	100nF 20% 50V 0603
2J21	2238 869 15101	100pF 5% 50V 0402
2J22	2238 869 15101	100pF 5% 50V 0402
2J23	2238 869 15101	100pF 5% 50V 0402
2L01	2020 552 96618	1nF 10% 50V 0402
2L06	2022 552 05679	1µF 10% 16V 0805
2L07	2238 586 59812	100nF 20% 50V 0603
2L08	2238 586 59812	100nF 20% 50V 0603
2L50	2238 586 59812	100nF 20% 50V 0603
2L51	2238 586 59812	100nF 20% 50V 0603
2L52	2238 586 59812	100nF 20% 50V 0603
2L53	2238 586 59812	100nF 20% 50V 0603
2L54	2238 586 59812	100nF 20% 50V 0603
2L55	2020 552 96618	1nF 10% 50V 0402
2L56	2238 586 59812	100nF 20% 50V 0603
2L57	2238 586 59812	100nF 20% 50V 0603
2L58	2238 586 59812	100nF 20% 50V 0603
2L59	2020 552 96618	1nF 10% 50V 0402
2L60	2238 586 59812	100nF 20% 50V 0603
2L61	2020 552 96618	1nF 10% 50V 0402
2L62	2020 552 96618	1nF 10% 50V 0402
2L63	2238 869 15101	100pF 5% 50V 0402
2L64	2020 552 96618	1nF 10% 50V 0402
2L65	3198 035 03320	3.3nF 5% 50V 0402
2L66	3198 035 03320	3.3nF 5% 50V 0402
2L80	2022 552 05615	2.2µF 10% 6.3V 0805
2L81	2022 552 05615	2.2µF 10% 6.3V 0805
2L82	2022 552 05615	2.2µF 10% 6.3V 0805
2L83	2022 552 05615	2.2µF 10% 6.3V 0805
2L84	2238 586 59812	100nF 20% 50V 0603
2L85	2238 586 59812	100nF 20% 50V 0603
2L86	2238 586 59812	100nF 20% 50V 0603
2L87	2238 586 59812	100nF 20% 50V 0603
2L88	2238 869 15101	100pF 5% 50V 0402
2L89	2020 552 96618	1nF 10% 50V 0402
2L90	2020 552 96618	1nF 10% 50V 0402
2L91	2020 552 96618	1nF 10% 50V 0402
2L92	2020 552 96618	1nF 10% 50V 0402
2LA0	4822 126 14519	22pF 5% 50V 0402
2LA1	4822 126 14519	22pF 5% 50V 0402
2LA2	2238 869 15109	10pF 5% 50V 0402
2LA4	2238 586 59812	100nF 20% 50V 0603
2LA5	3198 035 03320	3.3nF 5% 50V 0402
2LA6	3198 035 03320	3.3nF 5% 50V 0402
2LA8	3198 035 03320	3.3nF 5% 50V 0402
2LA9	3198 035 03320	3.3nF 5% 50V 0402
2LB0	2238 586 59812	100nF 20% 50V 0603
2LB1	2238 586 59812	100nF 20% 50V 0603
2LB3	2020 552 96618	1nF 10% 50V 0402
2LB4	2238 586 59812	100nF 20% 50V 0603
2LN2	4822 124 81058	47µF 20% 4V
2LN3	2238 586 59812	100nF 20% 50V 0603
2LN4	2238 586 59812	100nF 20% 50V 0603
2LN5	2238 586 59812	100nF 20% 50V 0603
2LN6	2238 586 59812	100nF 20% 50V 0603
2LN7	2238 586 59812	100nF 20% 50V 0603
2LN8	2238 586 59812	100nF 20% 50V 0603
2LP0	4822 124 12108	100µF 20% 4V
2LP2	2238 586 59812	100nF 20% 50V 0603
2LP3	2238 586 59812	100nF 20% 50V 0603
2LP4	2238 586 59812	100nF 20% 50V 0603
2LP7	4822 124 12108	100µF 20% 4V
2LP8	2238 586 59812	100nF 20% 50V 0603
2LP9	2238 586 59812	100nF 20% 50V 0603
2LR0	2238 586 59812	100nF 20% 50V 0603
2LR2	2238 586 59812	100nF 20% 50V 0603
2LR4	2238 586 59812	100nF 20% 50V 0603
2LR5	2238 586 59812	100nF 20% 50V 0603
2LR6	2238 586 59812	100nF 20% 50V 0603
2LR8	2238 586 59812	100nF 20% 50V 0603
2LR9	2238 586 59812	100nF 20% 50V 0603
2LS5	2238 586 59812	100nF 20% 50V 0603
2LT0	2022 552 05679	1µF 10% 16V 0805
2M10	2020 552 96618	1nF 10% 50V 0402
2M11	2020 552 96618	1nF 10% 50V 0402
2M12	2020 552 96618	1nF 10% 50V 0402
2M13	2020 552 96618	1nF 10% 50V 0402
2M14	2020 552 96618	1nF 10% 50V 0402
2M15	2020 552 96623	2.2nF 10% 50V 0402
2M16	2020 552 96623	2.2nF 10% 50V 0402
2M17	2020 552 96623	2.2nF 10% 50V 0402
2M18	2020 552 96623	2.2nF 10% 50V 0402
2M19	2020 552 96618	1nF 10% 50V 0402
2M80	2238 586 59812	100nF 20% 50V 0603
2M81	2238 869 15101	100pF 5% 50V 0402
2M82	2238 869 15101	100pF 5% 50V 0402
2M83	2238 869 15101	100pF 5% 50V 0402
2M84	2238 869 15101	100pF 5% 50V 0402
2M85	2238 869 15101	100pF 5% 50V 0402
2M86	2238 787 15641	22nF 5% 16V 0402
2M87	2238 869 15101	100pF 5% 50V 0402
2M91	2020 552 96628	10nF 10% 16V 0402
2M92	2022 552 05679	1µF 10% 16V 0805
2M93	2020 552 96628	10nF 10% 16V 0402
2M94	2022 552 05679	1µF 10% 16V 0805
2P34	2238 586 59812	100nF 20% 50V 0603
2P35	2238 586 59812	100nF 20% 50V 0603
2P80	2238 586 59812	100nF 20% 50V 0603
2P81	2238 586 59812	100nF 20% 50V 0603
2Q01	2022 552 05679	1µF 10% 16V 0805
2Q03	2022 552 05679	1µF 10% 16V 0805
2Q04	2238 586 59812	100nF 20% 50V 0603
2Q05	2238 586 59812	100nF 20% 50V 0603
2Q06	2238 586 59812	100nF 20% 50V 0603
2Q07	2238 586 59812	100nF 20% 50V 0603
2Q08	2238 586 59812	100nF 20% 50V 0603
2Q09	2238 586 59812	100nF 20% 50V 0603
2Q10	2238 586 59812	100nF 20% 50V 0603
2Q11	2238 586 59812	100nF 20% 50V 0603
2Q12	2238 586 59812	100nF 20% 50V 0603
2Q13	2238 586 59812	100nF 20% 50V 0603
2Q14	2238 586 59812	100nF 20% 50V 0603
2Q15	2238 586 59812	100nF 20% 50V 0603
2Q16	2020 552 96628	10nF 10% 16V 0402
2Q17	2020 552 96628	10nF 10% 16V 0402
2Q18	2020 552 96628	10nF 10% 16V 0402
2Q19	2020 552 96628	10nF 10% 16V 0402
2Q20	2250 200 13672	4.7µF 10% 6.3V 0805
2Q21	2022 552 05679	1µF 10% 16V 0805
2Q22	2250 200 13672	4.7µF 10% 6.3V 0805
2Q23	2022 552 05679	1µF 10% 16V 0805
2Q24	2238 586 59812	100nF 20% 50V 0603
2Q26	2238 586 59812	100nF 20% 50V 0603
2Q27	2238 586 59812	100nF 20% 50V 0603
2Q28	2238 586 59812	100nF 20% 50V 0603
2Q30	2238 586 59812	100nF 20% 50V 0603
2Q32	2238 586 59812	100nF 20% 50V 0603
2Q33	2238 586 59812	100nF 20% 50V 0603
2Q34	2238 586 59812	100nF 20% 50V 0603
2Q35	2238 586 59812	100nF 20% 50V 0603
2Q37	2238 586 59812	100nF 20% 50V 0603
2Q38	2238 586 59812	100nF 20% 50V 0603
2Q39	2238 586 59812	100nF 20% 50V 0603
2Q42	2250 200 13672	4.7µF 10% 6.3V 0805
2Q44	2238 586 59812	100nF 20% 50V 0603
2Q45	2238 586 59812	100nF 20% 50V 0603
2Q46	2238 586 59812	100nF 20% 50V 0603
2Q47	2238 586 59812	100nF 20% 50V 0603
2Q48	2238 586 59812	100nF 20% 50V 0603
2Q49	2238 586 59812	100nF 20% 50V 0603
2Q50	2238 586 59812	100nF 20% 50V 0603
2Q51	2238 586 59812	100nF 20% 50V 0603
2Q52	2238 586 59812	100nF 20% 50V 0603
2Q53	2238 586 59812	100nF 20% 50V 0603
2Q54	2238 586 59812	100nF 20% 50V 0603
2Q55	2238 586 59812	100nF 20% 50V 0603
2Q56	2020 552 96628	10nF 10% 16V 0402
2Q57	2020 552 96628	10nF 10% 16V 0402
2Q58	2020 552 96628	10nF 10% 16V 0402
2Q59	2020 552 96628	10nF 10% 16V 0402
2Q60	2238 586 59812	100nF 20% 50V 0603
2Q61	2020 552 96618	1nF 10% 50V 0402
2Q62	2238 869 15101	100pF 5% 50V 0402
2Q63	2238 586 59812	100nF 20% 50V 0603
2Q64	2238 586 59812	100nF 20% 50V 0603
2Q65	2238 586 59812	100nF 20% 50V 0603
2Q66	2238 586 59812	100nF 20% 50V 0603
2Q67	2020 552 96618	1nF 10% 50V 0402
2Q69	2020 012 00028	470µF 20% 16V
2Q70	2238 869 15101	100pF 5% 50V 0402
2Q71	2238 869 15101	100pF 5% 50V 0402
2Q76	2020 552 96618	1nF 10% 50V 0402
2Q77	2020 552 96618	1nF 10% 50V 0402
2Q82	2250 200 13672	4.7µF 10% 6.3V 0805
2Q83	2250 200 13672	4.7µF 10% 6.3V 0805
2Q84	2020 552 96628	10nF 10% 16V 0402
2Q85	2020 552 96628	10nF 10% 16V 0402
2Q86	2020 552 96628	10nF 10% 16V 0402
2Q87	2020 552 96618	1nF 10% 50V 0402
2Q88	2020 552 96618	1nF 10% 50V 0402
2Q89	2020 552 96618	1nF 10% 50V 0402
2Q90	2020 552 96618	1nF 10% 50V 0402
2Q91	2020 552 96628	10nF 10% 16V 0402
2T10	2020 552 96628	10nF 10% 16V 0402
2T11	2020 552 96628	10nF 10% 16V 0402
2T12	2020 552 96628	10nF 10% 16V 0402
2T13	2020 552 96628	10nF 10% 16V 0402
2T14	2020 552 96628	10nF 10% 16V 0402
2T15	2020 552 96628	10nF 10% 16V 0402
2T16	2022 552 05679	1µF 10% 16V 0805
2T17	2020 552 96628	10nF 10% 16V 0402
2T18	2020 552 96628	10nF 10% 16V 0402
2T19	2020 552 96628	10nF 10% 16V 0402
2T20	2020 552 96628	10nF 10% 16V 0402
2T21	2020 552 96628	10nF 10% 16V 0402
2T22	2020 552 96628	10nF 10% 16V 0402
2T23	2238 586 59812	100nF 20% 50V 0603
2T24	2022 552 05679	1µF 10% 16V 0805
2T25	2020 552 96628	10nF 10% 16V 0402
2T26	3198 034 01510	150pF 1% 50V 0402
2T27	3198 034 01510	150pF 1% 50V 0402
2T30	2020 552 96628	10nF 10% 16V 0402
2T31	2020 552 96628	10nF 10% 16V 0402
2T33	2020 552 96628	10nF 10% 16V 0402
2T34	2020 552 96628	10nF 10% 16V 0402
2T35	2020 552 96628	10nF 10% 16V 0402
2T36	2238 586 59812	100nF 20% 50V 0603
2T37	2238 586 59812	100nF 20% 50V 0603
2T38	2238 586 59812	100nF 20% 50V 0603
2T39	2238 586 59812	100nF 20% 50V 0603
2T40	2238 586 59812	100nF 20% 50V 0603
2T41	2238 586 59812	100nF 20% 50V 0603
2T42	2238 586 59812	100nF 20% 50V 0603
2T43	2238 586 59812	100nF 20% 50V 0603
2T44	2238 586 59812	100nF 20% 50V 0603
2T45	2238 586 59812	100nF 20% 50V 0603
2T46	2238 586 59812	100nF 20% 50V 0603
2T47	2238 586 59812	100nF 20% 50V 0603
2T48	2238 586 59812	100nF 20% 50V 0603
2T49	2238 586 59812	100nF 20% 50V 0603
2T50	2238 586 59812	100nF 20% 50V 0603
2T53	4822 126 14324	33pF 5% 50V 0402
2T54	4822 126 14324	33pF 5% 50V 0402
2T56	2020 552 96628	10nF 10% 16V 0402
2T57	2022 552 05679	1µF 10% 16V 0805
2T58	2020 552 96628	10nF 10% 16V 0402
2T59	2022 552 05679	1µF 10% 16V 0805
2T60	2238 586 59812	100nF 20% 50V 0603
2T61	2238 586 59812	100nF 20% 50V 0603
2T62	2022 552 05679	1µF 10% 16V 0805
2T63	2020 552 96628	10nF 10% 16V 0402
2T64	2238 586 59812	100nF 20% 50V 0603
2T65	4822 126 14524	68pF 5% 50V 0402
2T66	4822 126 14524	68pF 5% 50V 0402
2U09	2238 869 15101	100pF 5% 50V 0402
2U10	2238 586 59812	100nF 20% 50V 0603
2U11	2022 552 05679	1µF 10% 16V 0805
2U12	2238 586 59812	100nF 20% 50V 0603
2U13	2238 586 59812	100nF 20% 50V 0603
2U14	2238 586 59812	100nF 20% 50V 0603
2U15	2238 586 59812	100nF 20% 50V 0603
2U16	2022 552 05679	1µF 10% 16V 0805
2U17	2022 552 05635	22µF 10% 16V
2U18	2238 586 59812	100nF 20% 50V 0603
2U19	2238 586 59812	100nF 20% 50V 0603
2U20	2238 586 59812	100nF 20% 50V 0603
2U21	3198 035 03320	3.3nF 5% 50V 0402
2U22	2020 552 00207	100µF 20% 6V3 1812
2U23	2238 869 15101	100pF 5% 50V 0402
2U24	2022 552 05635	22µF 10% 16V
2U25	2022 552 05635	22µF 10% 16V
2U26	2238 586 59812	100nF 20% 50V 0603
2U27	2020 552 96618	1nF 10% 50V 0402
2U28	2020 552 96618	1nF 10% 50V 0402
2U29	2020 552 96618	1nF 10% 50V 0402
2U30	2020 552 96618	1nF 10% 50V 0402
2U31	3198 035 03320	3.3nF 5% 50V 0402
2U32	3198 035 03320	3.3nF 5% 50V 0402
2U37	2020 552 96684	470nF 10% 25V 0805
2U40	2022 552 05679	1µF 10% 16V 0805
2U41	2022 552 05679	1µF 10% 16V 0805
2U46	2022 552 05679	1µF 10% 16V 0805
2U55	2238 586 59812	100nF 20% 50V 0603
2U56	4822 124 81058	47µF 20% 4V
2U58	2022 552 05679	1µF 10% 16V 0805
2U60	2020 552 96628	10nF 10% 16V 0402
2U61	2022 552 05679	1µF 10% 16V 0805
2U63	2238 586 59812	100nF 20% 50V 0603
2U64	2238 586 59812	100nF 20% 50V 0603
2U65	2238 586 59812	100nF 20% 50V 0603
2U66	2238 586 59812	100nF 20% 50V 0603
2U73	2238 787 15641	22nF 5% 16V 0402
2U85	3198 035 03320	3.3nF 5% 50V 0402
2V00	2020 552 96618	1nF 10% 50V 0402
2V01	2020 552 96618	1nF 10% 50V 0402
2V02	2020 552 96618	1nF 10% 50V 0402
2V16	2238 586 59812	100nF 20% 50V 0603
2V17	2238 586 59812	100nF 20% 50V 0603
2V18	2238 586 59812	100nF 20% 50V 0603
2V19	2238 586 59812	100nF 20% 50V 0603
2V20	2238 586 59812	100nF 20% 50V 0603

2V21	2238 586 59812	100nF 20% 50V 0603
2V22	2238 586 59812	100nF 20% 50V 0603
2V23	2238 586 59812	100nF 20% 50V 0603
2V24	2238 586 59812	100nF 20% 50V 0603
2V25	2238 586 59812	100nF 20% 50V 0603
2V26	2238 586 59812	100nF 20% 50V 0603
2V27	2238 586 59812	100nF 20% 50V 0603
2V28	2238 586 59812	100nF 20% 50V 0603
2V29	2238 586 59812	100nF 20% 50V 0603
2V30	2238 586 59812	100nF 20% 50V 0603
2V31	2238 586 59812	100nF 20% 50V 0603
2V35	4822 124 81058	47µF 20% 4V
2V36	2238 869 15101	100pF 5% 50V 0402
2V37	2238 869 15101	100pF 5% 50V 0402
2V38	2238 869 15101	100pF 5% 50V 0402
2V39	2238 869 15101	100pF 5% 50V 0402
2V40	2238 869 15101	100pF 5% 50V 0402
2V41	2238 869 15101	100pF 5% 50V 0402
2V42	2238 869 15101	100pF 5% 50V 0402
2V43	2238 869 15101	100pF 5% 50V 0402
2V44	2238 869 15101	100pF 5% 50V 0402
2V45	2238 869 15101	100pF 5% 50V 0402

–WW–

3A08	3198 031 01830	18kΩ 5% 0.01W 0402
3A10	2322 706 75601	560Ω 1% 0402
3A11	3198 031 01220	1.2kΩ 5% 0.01W 0402
3A12	3198 031 01220	1.2kΩ 5% 0.01W 0402
3A13	3198 031 04730	47Ω 5% 0402
3A14	4822 117 13545	100Ω 1% 0402
3A15	4822 117 13545	100Ω 1% 0402
3A17	4822 117 13545	100Ω 1% 0402
3A18	3198 031 01810	180Ω 5% 0402
3A19	3198 031 01810	180Ω 5% 0402
3A20	3198 031 03910	390Ω 1% 0402
3A21	4822 117 13543	470Ω 5% 0402
3A23	4822 117 11297	100kΩ 5% 0.1W
3A24	4822 117 13606	10kΩ 5% 0.01W 0402
3A25	3198 031 06840	680kΩ 5% 0.01W 0402
3A26	3198 031 04730	47Ω 5% 0402
3A27	4822 117 13605	Jumper 0402
3A29	4822 117 13548	1kΩ 5% 0402
3A33	4822 117 13605	Jumper 0402
3A35	4822 117 13548	1kΩ 5% 0402
3A39	4822 051 30689	68Ω 5% 0.063W 0603
3A41	4822 117 13548	1kΩ 5% 0402
3A42	4822 117 13606	10kΩ 5% 0.01W 0402
3A43	4822 117 13606	10kΩ 5% 0.01W 0402
3A44	4822 117 13606	10kΩ 5% 0.01W 0402
3A60	4822 117 13543	470Ω 5% 0402
3A61	4822 117 13543	470Ω 5% 0402
3A62	4822 117 13545	100Ω 1% 0402
3A63	4822 117 13545	100Ω 1% 0402
3B02	4822 117 13545	100Ω 1% 0402
3B03	4822 117 13545	100Ω 1% 0402
3B04	4822 117 13606	10kΩ 5% 0.01W 0402
3B05	3198 031 04730	47Ω 5% 0402
3B06	3198 031 04730	47Ω 5% 0402
3B07	4822 117 13545	100Ω 1% 0402
3B08	4822 117 13545	100Ω 1% 0402
3B17	3198 031 02290	22Ω 5% 0.1W 0402
3B18	4822 117 13606	10kΩ 5% 0.01W 0402
3B19	4822 117 13548	1kΩ 5% 0402
3B20	4822 117 11297	100kΩ 5% 0.1W
3B50	4822 117 13597	330Ω 5% 0.01W 0402
3B51	4822 117 13597	330Ω 5% 0.01W 0402
3B52	4822 117 13597	330Ω 5% 0.01W 0402
3B53	4822 117 13548	1kΩ 5% 0402
3B54	3198 031 01230	12kΩ 5% 0402
3B56	2350 033 11339	4 x 33Ω 5%
3B57	2350 033 11339	4 x 33Ω 5%
3B58	2350 033 11339	4 x 33Ω 5%
3B59	2350 033 11339	4 x 33Ω 5%
3B60	4822 117 13545	100Ω 1% 0402
3B61	4822 117 13545	100Ω 1% 0402
3B62	2350 033 11339	4 x 33Ω 5%
3B65	4822 117 13543	470Ω 5% 0402
3B66	4822 117 13548	1kΩ 5% 0402
3B67	4822 117 13543	470Ω 5% 0402
3B68	4822 117 13548	1kΩ 5% 0402
3B69	4822 117 13543	470Ω 5% 0402
3B70	4822 117 13548	1kΩ 5% 0402
3B71	4822 117 13543	470Ω 5% 0402
3B72	4822 117 13548	1kΩ 5% 0402
3B73	4822 117 13543	470Ω 5% 0402
3B74	4822 117 13548	1kΩ 5% 0402
3B75	4822 117 13543	470Ω 5% 0402
3B76	4822 117 13548	1kΩ 5% 0402
3B80	4822 117 13548	1kΩ 5% 0402
3B81	4822 117 13606	10kΩ 5% 0.01W 0402
3B82	4822 117 13548	1kΩ 5% 0402
3B83	4822 117 13606	10kΩ 5% 0.01W 0402
3B84	3198 031 01590	15Ω 5% 0402
3B86	3198 031 03390	33Ω 1% 0402
3B87	3198 031 03390	33Ω 1% 0402
3B88	3198 031 03390	33Ω 1% 0402
3B89	3198 031 02290	22Ω 5% 0.1W 0402
3D01	4822 117 11297	100kΩ 5% 0.1W
3D10	3198 031 04730	47Ω 5% 0402
3D12	3198 031 05620	5.6kΩ 5% 0.01W 0402
3D13	3198 031 02720	2.7kΩ 5% 0.01W 0402
3D14	3198 031 02240	220kΩ 5% 0.1W 0402
3D15	3198 031 04740	470kΩ 5% 0402
3D16	4822 117 13602	2.2kΩ 5% 0.01W 0402
3D17	3198 031 02240	220kΩ 5% 0.1W 0402
3D18	3198 031 04730	47Ω 5% 0402
3D20	4822 117 13601	22kΩ 5% 0402
3D21	3198 031 02720	2.7kΩ 5% 0.01W 0402
3D22	4822 117 13606	10kΩ 5% 0.01W 0402
3D23	4822 117 13602	2.2kΩ 5% 0.01W 0402
3D24	4822 117 13606	10kΩ 5% 0.01W 0402
3D25	4822 117 13602	2.2kΩ 5% 0.01W 0402
3D26	4822 117 13602	2.2kΩ 5% 0.01W 0402
3D34	2322 762 60332	3.3kΩ 5% 2512
3D35	3198 031 01220	1.2kΩ 5% 0.01W 0402
3D37	2322 762 60332	3.3kΩ 5% 2512
3D38	3198 031 01220	1.2kΩ 5% 0.01W 0402
3D39	2350 033 11223	22kΩ 5%
3D40	2350 033 11223	22kΩ 5%
3D42	3198 031 04730	47Ω 5% 0402
3D43	5322 117 11726	10Ω 5%
3D44	2322 762 60331	330Ω 5% 2512
3D45	2322 762 60331	330Ω 5% 2512
3D46	3198 031 04780	4.7Ω 5% 0402
3D47	3198 031 04780	4.7Ω 5% 0402
3D50	4822 117 13606	10kΩ 5% 0.01W 0402
3D51	4822 117 13606	10kΩ 5% 0.01W 0402
3D56	3198 031 01530	15kΩ 5% 0.01W 0402
3D57	3198 031 01530	15kΩ 5% 0.01W 0402
3D58	3198 031 06810	680Ω 5% 0.01W 0402
3D64	3198 031 01220	1.2kΩ 5% 0.01W 0402
3D65	3198 031 01220	1.2kΩ 5% 0.01W 0402
3D67	3198 031 03920	3.9kΩ 5% 0402
3D68	4822 117 11297	100kΩ 5% 0.1W
3D69	3198 031 03920	3.9kΩ 5% 0402
3D70	4822 117 11297	100kΩ 5% 0.1W
3D71	4822 117 13606	10kΩ 5% 0.01W 0402
3D72	4822 117 13606	10kΩ 5% 0.01W 0402
3D73	3198 031 05610	560Ω 5% 0.01W 0402
3D74	3198 031 05610	560Ω 5% 0.01W 0402
3D75	4822 117 13603	33kΩ 5% 0402
3D76	4822 117 13601	22kΩ 5% 0402
3D78	4822 117 13601	22kΩ 5% 0402
3D79	4822 117 13601	22kΩ 5% 0402
3D81	3198 031 06810	680Ω 5% 0.01W 0402
3D82	3198 031 04730	47Ω 5% 0402
3D83	3198 031 04730	47Ω 5% 0402
3D84	3198 031 04730	47Ω 5% 0402
3D85	3198 031 04730	47Ω 5% 0402
3D86	4822 117 11297	100kΩ 5% 0.1W
3D87	3198 031 04730	47Ω 5% 0402
3D88	4822 117 13603	33kΩ 5% 0402
3D89	4822 117 13601	22kΩ 5% 0402
3D91	4822 117 13605	Jumper 0402
3G70	4822 051 30103	10kΩ 5% 0.062W
3G72	4822 117 13546	47Ω 5% 0402
3G73	3198 031 07590	75Ω 5% 0402
3G74	3198 031 07590	75Ω 5% 0402
3G75	3198 031 07590	75Ω 5% 0402
3G76	4822 117 11297	100kΩ 5% 0.1W
3G77	4822 117 11297	100kΩ 5% 0.1W
3G79	2322 706 74701	470Ω 1% 0402
3H02	3198 031 06890	68Ω 5% 0402
3H04	3198 031 01820	1.8kΩ 5% 0.01W 0402
3H05	3198 031 01820	1.8kΩ 5% 0.01W 0402
3H06	3198 031 02290	22Ω 5% 0.1W 0402
3H07	3198 031 02290	22Ω 5% 0.1W 0402
3H08	3198 031 04720	4.7kΩ 5% 0402
3H10	3198 031 04720	4.7kΩ 5% 0402
3H11	3198 031 04720	4.7kΩ 5% 0402
3H16	3198 031 04720	4.7kΩ 5% 0402
3H17	3198 031 04720	4.7kΩ 5% 0402
3H18	3198 031 04720	4.7kΩ 5% 0402
3H22	3198 031 04720	4.7kΩ 5% 0402
3H23	3198 031 04720	4.7kΩ 5% 0402
3H25	4822 117 13545	100Ω 1% 0402
3H28	3198 031 04720	4.7kΩ 5% 0402
3H31	3198 031 04720	4.7kΩ 5% 0402
3H32	3198 031 04720	4.7kΩ 5% 0402
3H40	3198 031 04720	4.7kΩ 5% 0402
3H41	3198 031 04720	4.7kΩ 5% 0402
3H50	2322 706 76801	680Ω 1% 0402
3H51	2322 706 73301	330Ω 1% 0402
3H52	2322 706 75601	560Ω 1% 0402
3H53	2322 706 75601	560Ω 1% 0402
3H54	4822 117 13606	10kΩ 5% 0.01W 0402
3H55	4822 117 13606	10kΩ 5% 0.01W 0402
3H56	4822 117 13606	10kΩ 5% 0.01W 0402
3H57	4822 117 13606	10kΩ 5% 0.01W 0402
3H69	4822 117 13606	10kΩ 5% 0.01W 0402
3H70	3198 031 04720	4.7kΩ 5% 0402
3H71	3198 031 04720	4.7kΩ 5% 0402
3H72	4822 117 13545	100Ω 1% 0402
3H73	3198 031 02290	22Ω 5% 0.1W 0402
3H74	3198 031 06890	68Ω 5% 0402
3H75	4822 117 13545	100Ω 1% 0402
3H79	3198 031 02290	22Ω 5% 0.1W 0402
3H80	2350 033 11472	4x 4.7kΩ 5%
3H81	2350 033 11472	4x 4.7kΩ 5%
3H82	3198 031 01050	1MΩ 5% 0402
3H84	3198 031 04720	4.7kΩ 5% 0402
3H85	3198 031 04720	4.7kΩ 5% 0402
3H86	3198 031 04720	4.7kΩ 5% 0402
3H88	3198 031 04720	4.7kΩ 5% 0402
3H90	3198 031 04720	4.7kΩ 5% 0402
3H94	3198 031 04720	4.7kΩ 5% 0402
3H95	4822 117 13597	330Ω 5% 0.01W 0402
3H97	3198 031 04720	4.7kΩ 5% 0402
3H98	4822 117 13545	100Ω 1% 0402
3H99	4822 117 13545	100Ω 1% 0402
3I00	3198 031 07590	75Ω 5% 0402
3I01	3198 031 07590	75Ω 5% 0402
3I02	3198 031 07590	75Ω 5% 0402
3I03	4822 117 13545	100Ω 1% 0402
3I04	4822 117 13545	100Ω 1% 0402
3I06	4822 117 13545	100Ω 1% 0402
3I07	4822 117 13545	100Ω 1% 0402
3I08	4822 117 13545	100Ω 1% 0402
3I09	4822 117 11297	100kΩ 5% 0.1W
3I0A	4822 117 11297	100kΩ 5% 0.1W
3I0B	4822 117 13545	100Ω 1% 0402
3I0C	4822 117 11297	100kΩ 5% 0.1W
3I0D	4822 117 13545	100Ω 1% 0402
3I0E	4822 117 11297	100kΩ 5% 0.1W
3I0F	3198 031 07590	75Ω 5% 0402
3I0G	4822 117 13545	100Ω 1% 0402
3I0H	3198 031 07590	75Ω 5% 0402
3I0I	4822 117 13545	100Ω 1% 0402
3I0J	3198 031 07590	75Ω 5% 0402
3I0K	4822 117 13545	100Ω 1% 0402
3I0L	3198 031 07590	75Ω 5% 0402
3I0M	4822 117 13545	100Ω 1% 0402
3I0N	3198 031 07590	75Ω 5% 0402
3I0P	3198 031 07590	75Ω 5% 0402
3I0Q	4822 117 13545	100Ω 1% 0402
3I10	4822 117 13545	100Ω 1% 0402
3I11	4822 117 13545	100Ω 1% 0402
3I12	4822 117 13545	100Ω 1% 0402
3I13	3198 031 07590	75Ω 5% 0402
3I60	4822 117 13545	100Ω 1% 0402
3I66	4822 117 11297	100kΩ 5% 0.1W
3I67	4822 117 11297	100kΩ 5% 0.1W
3I68	4822 117 13596	220Ω 5% 0.01W 0402
3J07	3198 031 06890	68Ω 5% 0402
3J60	4822 117 13545	100Ω 1% 0402
3J61	4822 117 13545	100Ω 1% 0402
3J62	4822 117 13545	100Ω 1% 0402
3J63	4822 117 13545	100Ω 1% 0402
3L00	4822 117 11297	100kΩ 5% 0.1W
3L01	4822 117 11297	100kΩ 5% 0.1W
3L02	4822 117 13606	10kΩ 5% 0.01W 0402
3L03	3198 031 04740	470kΩ 5% 0402
3L10	3198 031 03390	33Ω 1% 0402
3L11	2350 033 11339	4 x 33Ω 5%
3L12	2350 033 11339	4 x 33Ω 5%
3L13	2350 033 11339	4 x 33Ω 5%
3L14	2350 033 11339	4 x 33Ω 5%
3L15	3198 031 03390	33Ω 1% 0402
3L20	4822 117 13546	47Ω 5% 0402
3L21	2322 706 75601	560Ω 1% 0402
3L22	2322 706 75601	560Ω 1% 0402
3L38	2322 706 71002	1kΩ 1% 0402
3L39	2322 706 71002	1kΩ 1% 0402
3L40	3198 031 03390	33Ω 1% 0402
3L41	3198 031 03390	33Ω 1% 0402
3L42	3198 031 03390	33Ω 1% 0402
3L43	3198 031 03390	33Ω 1% 0402
3L44	3198 031 03390	33Ω 1% 0402
3L45	3198 031 03390	33Ω 1% 0402
3L46	3198 031 03390	33Ω 1% 0402
3L47	3198 031 03390	33Ω 1% 0402
3L48	3198 031 03390	33Ω 1% 0402
3L49	3198 031 03390	33Ω 1% 0402
3L50	3198 031 02290	22Ω 5% 0.1W 0402
3L51	4822 117 13545	100Ω 1% 0402
3L52	3198 031 02290	22Ω 5% 0.1W 0402
3L56	3198 031 02290	22Ω 5% 0.1W 0402
3L57	3198 031 02290	22Ω 5% 0.1W 0402
3L58	3198 031 02290	22Ω 5% 0.1W 0402
3L59	3198 031 02290	22Ω 5% 0.1W 0402

3L60	3198 031 02290	22Ω 5% 0.1W 0402
3L61	3198 031 02290	22Ω 5% 0.1W 0402
3L62	3198 031 02290	22Ω 5% 0.1W 0402
3L63	3198 031 02290	22Ω 5% 0.1W 0402
3L64	3198 031 02290	22Ω 5% 0.1W 0402
3L65	3198 031 02290	22Ω 5% 0.1W 0402
3L66	3198 031 02290	22Ω 5% 0.1W 0402
3L67	3198 031 02290	22Ω 5% 0.1W 0402
3L68	3198 031 02290	22Ω 5% 0.1W 0402
3L69	3198 031 02290	22Ω 5% 0.1W 0402
3L70	3198 031 02290	22Ω 5% 0.1W 0402
3L71	3198 031 02290	22Ω 5% 0.1W 0402
3L75	4822 117 11373	100Ω 1% 0805
3L76	4822 117 13606	10kΩ 5% 0.01W 0402
3L77	4822 117 13545	100Ω 1% 0402
3L78	4822 117 13606	10kΩ 5% 0.01W 0402
3L80	4822 117 13545	100Ω 1% 0402
3L81	4822 117 13606	10kΩ 5% 0.01W 0402
3L82	4822 117 13606	10kΩ 5% 0.01W 0402
3L83	4822 117 13606	10kΩ 5% 0.01W 0402
3L89	3198 031 02290	22Ω 5% 0.1W 0402
3L90	4822 117 13548	1kΩ 5% 0402
3L91	3198 031 03390	33Ω 1% 0402
3L92	3198 031 03390	33Ω 1% 0402
3L93	3198 031 03390	33Ω 1% 0402
3L94	3198 031 03390	33Ω 1% 0402
3L95	3198 031 03390	33Ω 1% 0402
3L96	3198 031 03390	33Ω 1% 0402
3L97	3198 031 03390	33Ω 1% 0402
3L98	3198 031 03390	33Ω 1% 0402
3L99	3198 031 02290	22Ω 5% 0.1W 0402
3LA0	4822 117 13606	10kΩ 5% 0.01W 0402
3LA2	4822 117 13606	10kΩ 5% 0.01W 0402
3LA3	4822 117 13606	10kΩ 5% 0.01W 0402
3LA4	4822 117 13606	10kΩ 5% 0.01W 0402
3LA5	4822 117 13548	1kΩ 5% 0402
3LA7	4822 117 13606	10kΩ 5% 0.01W 0402
3LA9	4822 117 13606	10kΩ 5% 0.01W 0402
3LB4	4822 117 13606	10kΩ 5% 0.01W 0402
3LB5	4822 117 13606	10kΩ 5% 0.01W 0402
3LB7	4822 117 13606	10kΩ 5% 0.01W 0402
3LB8	4822 117 13606	10kΩ 5% 0.01W 0402
3LB9	4822 117 13606	10kΩ 5% 0.01W 0402
3LC0	4822 117 13606	10kΩ 5% 0.01W 0402
3LC1	4822 117 13606	10kΩ 5% 0.01W 0402
3LC2	4822 117 13606	10kΩ 5% 0.01W 0402
3LC3	4822 117 13606	10kΩ 5% 0.01W 0402
3LC4	4822 117 13606	10kΩ 5% 0.01W 0402
3LC5	4822 117 11297	100kΩ 5% 0.1W
3LC6	3198 031 04720	4.7kΩ 5% 0402
3LC7	3198 031 04720	4.7kΩ 5% 0402
3LC8	4822 117 13606	10kΩ 5% 0.01W 0402
3LC9	4822 117 13606	10kΩ 5% 0.01W 0402
3LD0	4822 117 13606	10kΩ 5% 0.01W 0402
3LD1	4822 117 13606	10kΩ 5% 0.01W 0402
3LD2	4822 117 13606	10kΩ 5% 0.01W 0402
3LD3	4822 117 13606	10kΩ 5% 0.01W 0402
3LD4	4822 117 13606	10kΩ 5% 0.01W 0402
3LD5	4822 117 13606	10kΩ 5% 0.01W 0402
3LD6	4822 117 13606	10kΩ 5% 0.01W 0402
3LD7	4822 117 13606	10kΩ 5% 0.01W 0402
3LD8	4822 117 13606	10kΩ 5% 0.01W 0402
3LE1	4822 117 11373	100Ω 1% 0805
3LE2	4822 117 13545	100Ω 1% 0402
3LE3	3198 031 04720	4.7kΩ 5% 0402
3LE4	3198 031 04720	4.7kΩ 5% 0402
3LE5	4822 117 13606	10kΩ 5% 0.01W 0402
3LE6	4822 117 13606	10kΩ 5% 0.01W 0402
3LE7	4822 117 13606	10kΩ 5% 0.01W 0402
3LE8	4822 117 13606	10kΩ 5% 0.01W 0402
3LE9	4822 117 13606	10kΩ 5% 0.01W 0402
3LF0	4822 117 13545	100Ω 1% 0402
3LF8	4822 117 13545	100Ω 1% 0402
3LG2	4822 117 11297	100kΩ 5% 0.1W
3LG3	4822 117 13545	100Ω 1% 0402
3LG5	4822 117 13545	100Ω 1% 0402
3LG6	4822 117 13545	100Ω 1% 0402
3LG7	4822 117 13545	100Ω 1% 0402
3LG8	4822 117 13545	100Ω 1% 0402
3LG9	4822 117 13545	100Ω 1% 0402
3LH0	4822 117 13545	100Ω 1% 0402
3LH1	4822 117 13545	100Ω 1% 0402
3LH2	4822 117 11373	100Ω 1% 0805
3LH3	4822 117 13545	100Ω 1% 0402
3LH4	4822 117 13545	100Ω 1% 0402
3LH5	4822 117 13606	10kΩ 5% 0.01W 0402
3LH6	4822 117 13606	10kΩ 5% 0.01W 0402
3LH7	4822 117 11373	100Ω 1% 0805
3LH8	4822 117 13545	100Ω 1% 0402
3LH9	4822 117 13545	100Ω 1% 0402
3LJ0	4822 117 13545	100Ω 1% 0402
3LJ1	4822 117 13545	100Ω 1% 0402
3LJ2	4822 117 13606	10kΩ 5% 0.01W 0402
3LJ3	4822 117 13606	10kΩ 5% 0.01W 0402
3LJ5	4822 117 13545	100Ω 1% 0402
3LJ6	4822 117 13545	100Ω 1% 0402
3LJ7	4822 117 13545	100Ω 1% 0402
3LJ8	4822 117 13545	100Ω 1% 0402
3LJ9	4822 117 13545	100Ω 1% 0402
3LK0	4822 117 13545	100Ω 1% 0402
3LK1	4822 117 13545	100Ω 1% 0402
3LK2	4822 117 13545	100Ω 1% 0402
3LK3	4822 117 13545	100Ω 1% 0402
3LK5	4822 117 13545	100Ω 1% 0402
3LK6	4822 117 13545	100Ω 1% 0402
3LK7	4822 117 13545	100Ω 1% 0402
3LK8	4822 117 13545	100Ω 1% 0402
3LK9	4822 117 13545	100Ω 1% 0402
3LL0	4822 117 13545	100Ω 1% 0402
3LL1	4822 117 13545	100Ω 1% 0402
3LL2	4822 117 13545	100Ω 1% 0402
3LL3	4822 117 13545	100Ω 1% 0402
3LL4	4822 117 13545	100Ω 1% 0402
3LL5	4822 117 13545	100Ω 1% 0402
3LL6	4822 117 13545	100Ω 1% 0402
3LL7	4822 117 13545	100Ω 1% 0402
3LL8	4822 117 13597	330Ω 5% 0.01W 0402
3LL9	4822 117 13596	220Ω 5% 0.01W 0402
3LM0	4822 117 11373	100Ω 1% 0805
3LM2	4822 117 11373	100Ω 1% 0805
3LM3	4822 117 11373	100Ω 1% 0805
3LM4	4822 117 11373	100Ω 1% 0805
3LM5	4822 117 11373	100Ω 1% 0805
3LM7	4822 117 11373	100Ω 1% 0805
3LN0	4822 117 11373	100Ω 1% 0805
3LN1	4822 117 11373	100Ω 1% 0805
3LN2	4822 117 11373	100Ω 1% 0805
3LN3	4822 117 11373	100Ω 1% 0805
3LN4	4822 117 11373	100Ω 1% 0805
3LN5	4822 117 11373	100Ω 1% 0805
3LN6	4822 117 11373	100Ω 1% 0805
3LN7	4822 117 11373	100Ω 1% 0805
3LQ6	4822 117 11373	100Ω 1% 0805
3LR0	3198 031 03390	33Ω 1% 0402
3LR1	3198 031 03390	33Ω 1% 0402
3LR2	4822 117 13606	10kΩ 5% 0.01W 0402
3LR3	4822 117 11373	100Ω 1% 0805
3LR4	4822 117 13606	10kΩ 5% 0.01W 0402
3LR9	2350 033 11339	4 x 33Ω 5%
3LS0	2350 033 11339	4 x 33Ω 5%
3LS1	2350 033 11339	4 x 33Ω 5%
3LS2	3198 031 06810	680Ω 5% 0.01W 0402
3LT5	4822 117 13606	10kΩ 5% 0.01W 0402
3LT7	4822 117 11297	100kΩ 5% 0.1W
3LT9	3198 031 04730	47Ω 5% 0402
3LU0	4822 117 13606	10kΩ 5% 0.01W 0402
3LU1	4822 117 13606	10kΩ 5% 0.01W 0402
3LU2	4822 117 13606	10kΩ 5% 0.01W 0402
3LU7	4822 117 13602	2.2kΩ 5% 0.01W 0402
3LU8	4822 117 13548	1kΩ 5% 0402
3LV7	4822 117 13606	10kΩ 5% 0.01W 0402
3LV8	3198 031 02730	27kΩ 5% 0402
3M00	4822 117 13606	10kΩ 5% 0.01W 0402
3M02	4822 117 13606	10kΩ 5% 0.01W 0402
3M04	4822 117 13545	100Ω 1% 0402
3M50	4822 117 13605	Jumper 0402
3M51	4822 117 13605	Jumper 0402
3M52	4822 117 13605	Jumper 0402
3M53	4822 117 13605	Jumper 0402
3M54	4822 117 13605	Jumper 0402
3M71	4822 117 13606	10kΩ 5% 0.01W 0402
3M72	3198 031 06810	680Ω 5% 0.01W 0402
3P37	4822 117 11297	100kΩ 5% 0.1W
3P57	4822 117 13606	10kΩ 5% 0.01W 0402
3P80	4822 117 13606	10kΩ 5% 0.01W 0402
3P81	4822 117 13602	2.2kΩ 5% 0.01W 0402
3P82	4822 117 13606	10kΩ 5% 0.01W 0402
3P83	4822 117 13545	100Ω 1% 0402
3P84	4822 117 13545	100Ω 1% 0402
3P85	4822 117 13545	100Ω 1% 0402
3P86	4822 117 13545	100Ω 1% 0402
3P88	4822 117 13606	10kΩ 5% 0.01W 0402
3Q02	2350 033 11689	4x 68Ω 5% Netw.
3Q03	3198 031 04720	4.7kΩ 5% 0402
3Q04	3198 031 04720	4.7kΩ 5% 0402
3Q05	2350 033 11689	4x 68Ω 5% Netw.
3Q07	2350 033 11689	4x 68Ω 5% Netw.
3Q08	2350 033 11689	4x 68Ω 5% Netw.
3Q09	3198 031 03390	33Ω 1% 0402
3Q10	4822 117 13545	100Ω 1% 0402
3Q11	4822 117 13545	100Ω 1% 0402
3Q12	4822 117 13545	100Ω 1% 0402
3Q13	4822 117 13545	100Ω 1% 0402
3Q14	4822 117 13545	100Ω 1% 0402
3Q15	4822 117 13545	100Ω 1% 0402
3Q16	3198 031 01530	15kΩ 5% 0.01W 0402
3Q17	3198 031 01530	15kΩ 5% 0.01W 0402
3Q18	3198 031 01530	15kΩ 5% 0.01W 0402
3Q19	2122 662 00166	PTC 0.4Ω 6V 3216
3Q20	3198 031 02290	22Ω 5% 0.1W 0402
3Q21	3198 031 02290	22Ω 5% 0.1W 0402
3Q22	4822 117 13606	10kΩ 5% 0.01W 0402
3Q23	3198 031 01530	15kΩ 5% 0.01W 0402
3Q25	2350 033 11689	4x 68Ω 5% Netw.
3Q26	2350 033 11689	4x 68Ω 5% Netw.
3Q27	3198 031 04720	4.7kΩ 5% 0402
3Q28	2350 033 11689	4x 68Ω 5% Netw.
3Q29	3198 031 05620	5.6kΩ 5% 0.01W 0402
3Q34	2350 033 11689	4x 68Ω 5% Netw.
3Q35	2350 033 11339	4 x 33Ω 5%
3Q36	2350 033 11339	4 x 33Ω 5%
3Q37	2350 033 11339	4 x 33Ω 5%
3Q38	2350 033 11339	4 x 33Ω 5%
3Q39	3198 031 03390	33Ω 1% 0402
3Q40	3198 031 03390	33Ω 1% 0402
3Q41	3198 031 03390	33Ω 1% 0402
3Q44	2350 033 11689	4x 68Ω 5% Netw.
3Q48	4822 117 13545	100Ω 1% 0402
3Q52	4822 117 13545	100Ω 1% 0402
3T10	2322 762 60479	47Ω 5% 2512
3T15	3198 031 04720	4.7kΩ 5% 0402
3T18	3198 031 04720	4.7kΩ 5% 0402
3T20	2322 762 60479	47Ω 5% 2512
3T21	3198 031 04720	4.7kΩ 5% 0402
3T22	4822 117 13596	220Ω 5% 0.01W 0402
3T23	4822 117 13596	220Ω 5% 0.01W 0402
3T25	4822 117 13602	2.2kΩ 5% 0.01W 0402
3T27	4822 117 13548	1kΩ 5% 0402
3T28	4822 117 13602	2.2kΩ 5% 0.01W 0402
3T29	4822 117 13548	1kΩ 5% 0402
3T35	2350 033 11689	4x 68Ω 5% Netw.
3T36	2350 033 11689	4x 68Ω 5% Netw.
3T37	2350 033 11689	4x 68Ω 5% Netw.
3T38	2322 706 73303	33kΩ 5% 0402
3T39	2322 706 73303	33kΩ 5% 0402
3T40	4822 117 13548	1kΩ 5% 0402
3T41	4822 117 13596	220Ω 5% 0.01W 0402
3T42	3198 031 08220	8.2kΩ 5% 0.5W
3T43	4822 117 13548	1kΩ 5% 0402
3T44	4822 117 13596	220Ω 5% 0.01W 0402
3T45	3198 031 04730	47Ω 5% 0402
3T46	3198 031 04730	47Ω 5% 0402
3T47	4822 117 13548	1kΩ 5% 0402
3T48	3198 031 04720	4.7kΩ 5% 0402
3T49	3198 031 04730	47Ω 5% 0402
3T50	3198 031 04730	47Ω 5% 0402
3T51	4822 117 13545	100Ω 1% 0402
3T52	4822 117 13545	100Ω 1% 0402
3T57	4822 117 13605	Jumper 0402
3T58	4822 117 13605	Jumper 0402
3U00	4822 117 13603	33kΩ 5% 0402
3U01	4822 117 13603	33kΩ 5% 0402
3U02	4822 117 13596	220Ω 5% 0.01W 0402
3U03	4822 117 13606	10kΩ 5% 0.01W 0402
3U04	4822 117 13601	22kΩ 5% 0402
3U05	4822 117 13596	220Ω 5% 0.01W 0402
3U06	3198 031 03930	39kΩ 5% 0402
3U07	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U08	3198 031 03320	3.3kΩ 5% 0402
3U09	3198 031 03320	3.3kΩ 5% 0402
3U10	4822 117 13548	1kΩ 5% 0402
3U11	4822 051 30221	220Ω 5% 0.062W
3U12	4822 117 13548	1kΩ 5% 0402
3U13	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U14	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U15	4822 117 13548	1kΩ 5% 0402
3U16	3198 031 04720	4.7kΩ 5% 0402
3U17	2322 706 71002	1kΩ 1% 0402
3U18	4822 117 13596	220Ω 5% 0.01W 0402
3U19	4822 117 13601	22kΩ 5% 0402
3U20	4822 051 30109	10Ω 5% 0.062W
3U21	4822 051 30109	10Ω 5% 0.062W
3U22	5322 117 11726	10Ω 5%
3U24	4822 051 30109	10Ω 5% 0.062W
3U25	4822 117 13613	2.2Ω 5% 0603
3U27	4822 051 30109	10Ω 5% 0.062W
3U28	4822 117 13613	2.2Ω 5% 0603
3U29	4822 117 13548	1kΩ 5% 0402
3U30	4822 117 13548	1kΩ 5% 0402
3U32	4822 117 13606	10kΩ 5% 0.01W 0402
3U33	4822 117 13606	10kΩ 5% 0.01W 0402
3U34	4822 117 13606	10kΩ 5% 0.01W 0402
3U35	4822 117 13601	22kΩ 5% 0402
3U37	2322 706 74701	470Ω 1% 0402
3U38	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U39	4822 117 11297	100kΩ 5% 0.1W
3U42	3198 031 04730	47Ω 5% 0402
3U44	3198 031 04730	47Ω 5% 0402
3U47	4822 117 13545	100Ω 1% 0402
3U48	4822 117 13545	100Ω 1% 0402
3U54	3198 031 01090	10Ω 5% 0.01W 0402
3U55	4822 117 13606	10kΩ 5% 0.01W 0402

3U56	4822 117 13548	1kΩ 5% 0402
3U72	4822 117 10353	150Ω 1% 0.1W
3U73	4822 117 10353	150Ω 1% 0.1W
3U74	4822 117 13548	1kΩ 5% 0402
3U75	4822 117 13548	1kΩ 5% 0402
3U76	4822 117 13548	1kΩ 5% 0402
3U77	3198 031 01520	1.2kΩ 5% 0.01W 0402
3U79	4822 117 13545	100Ω 1% 0402
3U81	4822 117 13545	100Ω 1% 0402
3U82	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U83	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U85	4822 117 13606	10kΩ 5% 0.01W 0402
3U86	4822 117 13606	10kΩ 5% 0.01W 0402
3U87	4822 117 13606	10kΩ 5% 0.01W 0402
3U88	4822 117 13545	100Ω 1% 0402
3U89	4822 117 13606	10kΩ 5% 0.01W 0402
3U90	4822 117 13606	10kΩ 5% 0.01W 0402
3U91	4822 117 13606	10kΩ 5% 0.01W 0402
3U92	4822 117 13606	10kΩ 5% 0.01W 0402
3U93	4822 117 13606	10kΩ 5% 0.01W 0402
3U94	3198 031 03320	3.3kΩ 5% 0402
3U95	4822 117 13602	2.2kΩ 5% 0.01W 0402
3U96	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U97	3198 031 03320	3.3kΩ 5% 0402
3U98	4822 117 13545	100Ω 1% 0402
3U99	4822 117 13545	100Ω 1% 0402
3UA1	3198 031 03320	3.3kΩ 5% 0402
3UA3	4822 117 13602	2.2kΩ 5% 0.01W 0402
3UA4	2322 706 71002	1kΩ 1% 0402
3UA5	2322 706 76809	68Ω 1% 0402 RC32
3UA7	2322 706 71002	1kΩ 1% 0402
3UA8	3198 031 06890	68Ω 5% 0402
3UA9	3198 031 06890	68Ω 5% 0402
3V00	3198 031 02290	22Ω 5% 0.1W 0402
3V01	3198 031 02290	22Ω 5% 0.1W 0402
3V02	3198 031 02290	22Ω 5% 0.1W 0402
3V03	3198 031 02290	22Ω 5% 0.1W 0402
3V04	3198 031 02290	22Ω 5% 0.1W 0402
3V05	3198 031 02290	22Ω 5% 0.1W 0402
3V06	3198 031 02290	22Ω 5% 0.1W 0402
3V07	3198 031 02290	22Ω 5% 0.1W 0402
3V08	3198 031 02290	22Ω 5% 0.1W 0402
3V09	3198 031 02290	22Ω 5% 0.1W 0402
3V10	3198 031 02290	22Ω 5% 0.1W 0402
3V11	3198 031 02290	22Ω 5% 0.1W 0402
3V12	3198 031 02290	22Ω 5% 0.1W 0402
3V13	3198 031 02290	22Ω 5% 0.1W 0402
3V14	3198 031 02290	22Ω 5% 0.1W 0402
3V15	3198 031 02290	22Ω 5% 0.1W 0402
3V16	3198 031 02290	22Ω 5% 0.1W 0402
3V17	3198 031 02290	22Ω 5% 0.1W 0402
3V18	3198 031 02290	22Ω 5% 0.1W 0402
3V19	3198 031 02290	22Ω 5% 0.1W 0402
3V20	3198 031 02290	22Ω 5% 0.1W 0402
3V21	3198 031 02290	22Ω 5% 0.1W 0402
3V22	3198 031 02290	22Ω 5% 0.1W 0402
3V23	3198 031 02290	22Ω 5% 0.1W 0402
3V24	4822 117 13596	220Ω 5% 0.01W 0402
3V25	4822 117 13596	220Ω 5% 0.01W 0402
3V32	3198 031 02290	22Ω 5% 0.1W 0402
3V33	3198 031 02290	22Ω 5% 0.1W 0402
3V34	3198 031 02290	22Ω 5% 0.1W 0402
3V35	3198 031 02290	22Ω 5% 0.1W 0402
3V36	3198 031 02290	22Ω 5% 0.1W 0402
3V37	3198 031 02290	22Ω 5% 0.1W 0402
3V38	3198 031 02290	22Ω 5% 0.1W 0402
3V39	3198 031 02290	22Ω 5% 0.1W 0402
3V40	3198 031 02290	22Ω 5% 0.1W 0402
3V41	3198 031 02290	22Ω 5% 0.1W 0402
3V42	3198 031 02290	22Ω 5% 0.1W 0402
3V43	3198 031 02290	22Ω 5% 0.1W 0402
3V78	4822 117 13548	1kΩ 5% 0402
9A01	4822 117 13605	Jumper 0402
9A02	4822 117 13605	Jumper 0402
9A10	4822 051 20008	Jumper 0805
9A19	4822 117 13605	Jumper 0402
9B10	4822 117 13605	Jumper 0402
9B11	4822 117 13605	Jumper 0402
9B52	4822 117 13605	Jumper 0402
9B53	4822 117 13605	Jumper 0402
9B54	4822 117 13605	Jumper 0402
9D03	2350 033 91001	4 x Jumper
9D04	2350 033 91001	4 x Jumper
9D48	4822 117 13605	Jumper 0402
9G30	4822 117 13605	Jumper 0402
9G31	4822 117 13605	Jumper 0402
9G32	4822 117 13605	Jumper 0402
9G33	4822 117 13605	Jumper 0402
9G34	4822 117 13605	Jumper 0402
9G35	4822 117 13605	Jumper 0402
9G36	4822 117 13605	Jumper 0402
9G37	4822 117 13605	Jumper 0402
9H02	4822 117 13605	Jumper 0402
9H03	4822 117 13605	Jumper 0402
9H05	4822 117 13605	Jumper 0402
9H06	4822 117 13605	Jumper 0402
9H07	4822 117 13605	Jumper 0402
9H08	4822 117 13605	Jumper 0402
9H13	4822 117 13605	Jumper 0402
9H15	4822 117 13605	Jumper 0402
9H16	4822 117 13605	Jumper 0402
9J22	4822 117 13605	Jumper 0402
9J23	4822 117 13605	Jumper 0402
9LA0	4822 117 13605	Jumper 0402
9LA1	4822 117 13605	Jumper 0402
9LA8	4822 117 13605	Jumper 0402
9LA9	4822 117 13605	Jumper 0402
9M09	4822 117 13605	Jumper 0402
9P17	4822 117 13605	Jumper 0402
9T10	4822 117 13605	Jumper 0402
9T11	4822 117 13605	Jumper 0402
9T12	4822 117 13605	Jumper 0402
9T13	4822 117 13605	Jumper 0402
9U03	4822 117 13605	Jumper 0402
9U13	4822 117 13605	Jumper 0402
9U14	4822 117 13605	Jumper 0402
9U15	4822 117 13605	Jumper 0402
9U16	4822 117 13605	Jumper 0402

5A10	2422 549 44197	Bead 220Ω at 100MHz
5A11	2422 549 44197	Bead 220Ω at 100MHz
5A12	2422 549 44197	Bead 220Ω at 100MHz
5A13	2422 549 44197	Bead 220Ω at 100MHz
5A14	2422 549 44197	Bead 220Ω at 100MHz
5A15	2422 549 44197	Bead 220Ω at 100MHz
5A16	2422 549 44197	Bead 220Ω at 100MHz
5A17	2422 549 44197	Bead 220Ω at 100MHz
5A18	2422 536 00767	0.56µH 10% 0603
5A64	2422 549 43062	Bead 600Ω at 100MHz
5A65	2422 549 43062	Bead 600Ω at 100MHz
5B00	2422 549 43062	Bead 600Ω at 100MHz
5B10	2422 549 44197	Bead 220Ω at 100MHz
5B11	2422 549 44197	Bead 220Ω at 100MHz
5B12	2422 549 44197	Bead 220Ω at 100MHz
5B17	2422 549 44197	Bead 220Ω at 100MHz
5B18	2422 549 44197	Bead 220Ω at 100MHz
5B20	2422 535 94151	22nH 2% 0805
5D10	2422 549 44197	Bead 220Ω at 100MHz
5D11	2422 549 44197	Bead 220Ω at 100MHz
5D12	2422 536 00137	33µH 10%
5D13	2422 536 00137	33µH 10%
5D14	2422 549 44197	Bead 220Ω at 100MHz
5D15	2422 549 44197	Bead 220Ω at 100MHz
5D16	2422 549 44197	Bead 220Ω at 100MHz
5H02	2422 549 45325	Bead 67Ω at 100MHz
5H03	2422 549 44197	Bead 220Ω at 100MHz
5I02	2422 549 42896	Bead 120Ω 100MHz
5J00	2422 549 42896	Bead 120Ω 100MHz
5J01	2422 549 42896	Bead 120Ω 100MHz
5J02	2422 549 42896	Bead 120Ω 100MHz
5J03	2422 549 42896	Bead 120Ω 100MHz
5J04	2422 549 42896	Bead 120Ω 100MHz
5J05	2422 549 42896	Bead 120Ω 100MHz
5J06	2422 549 42896	Bead 120Ω 100MHz
5J07	2422 549 42896	Bead 120Ω 100MHz
5J20	2422 549 42896	Bead 120Ω 100MHz
5J21	2422 549 42896	Bead 120Ω 100MHz
5J22	2422 549 42896	Bead 120Ω 100MHz
5L50	2422 549 43769	Bead 30Ω at 100MHz
5L51	2422 549 44197	Bead 220Ω at 100MHz
5L52	2422 549 44197	Bead 220Ω at 100MHz
5LA1	2422 549 43062	Bead 600Ω at 100MHz
5LA2	2422 549 43062	Bead 600Ω at 100MHz
5LA3	2422 549 43062	Bead 600Ω at 100MHz
5LN0	2422 549 43062	Bead 600Ω at 100MHz
5LN1	2422 549 43062	Bead 600Ω at 100MHz
5LN2	2422 549 43062	Bead 600Ω at 100MHz
5LN3	2422 549 43062	Bead 600Ω at 100MHz
5LN4	2422 549 43062	Bead 600Ω at 100MHz
5M00	2422 549 44197	Bead 220Ω at 100MHz
5M02	2422 549 44197	Bead 220Ω at 100MHz
5M03	2422 549 44197	Bead 220Ω at 100MHz
5M09	2422 549 44197	Bead 220Ω at 100MHz
5M10	2422 549 44197	Bead 220Ω at 100MHz
5M11	2422 549 44197	Bead 220Ω at 100MHz
5M12	2422 549 44197	Bead 220Ω at 100MHz
5Q01	2422 549 43062	Bead 600Ω at 100MHz
5Q02	2422 549 43062	Bead 600Ω at 100MHz
5Q03	2422 549 43062	Bead 600Ω at 100MHz
5Q04	2422 549 43062	Bead 600Ω at 100MHz
5Q07	2422 549 44197	Bead 220Ω at 100MHz
5Q08	2422 549 44197	Bead 220Ω at 100MHz
5T11	2422 549 44197	Bead 220Ω at 100MHz
5T20	2422 549 44197	Bead 220Ω at 100MHz
5T21	2422 549 44197	Bead 220Ω at 100MHz
5T23	2422 549 44197	Bead 220Ω at 100MHz
5T24	2422 549 44197	Bead 220Ω at 100MHz
5T25	2422 549 44197	Bead 220Ω at 100MHz
5T26	2422 549 44197	Bead 220Ω at 100MHz
5T27	2422 549 43062	Bead 600Ω at 100MHz
5T28	2422 549 44197	Bead 220Ω at 100MHz
5U00	2422 536 00671	10µH 20%
5U02	2422 536 00779	10µH 20%
5U03	2422 536 00671	10µH 20%
5U35	4822 051 20008	Jumper 0805
5U36	4822 051 20008	Jumper 0805
5U37	4822 051 20008	Jumper 0805
5U38	4822 051 20008	Jumper 0805



6A11	4822 130 11397	BAS316
6B20	4822 130 11397	BAS316
6B21	9340 548 68115	PDZ24B
6D10	4822 130 11397	BAS316
6D11	4822 130 11152	UDZ18B
6D12	4822 130 11397	BAS316
6H00	9322 134 46685	SML-310MT
6H01	4822 130 11397	BAS316
6H03	4822 130 11397	BAS316
6H07	9340 566 10115	BAV99S
6H10	4822 130 11416	PDZ6.8B
6H11	4822 130 11416	PDZ6.8B
6H12	4822 130 11416	PDZ6.8B
6I00	9340 548 68115	PDZ24B
6I01	9340 566 10115	BAV99S
6I02	9340 548 68115	PDZ24B
6I08	9340 548 68115	PDZ24B
6I09	9340 548 68115	PDZ24B
6I0A	9340 548 68115	PDZ24B
6I0D	9340 548 68115	PDZ24B
6I0F	9340 548 68115	PDZ24B
6I0H	9340 548 68115	PDZ24B
6I0J	9340 548 68115	PDZ24B
6I0L	9340 548 68115	PDZ24B
6I0N	9340 548 68115	PDZ24B
6I0P	9340 548 68115	PDZ24B
6I0T	9340 548 68115	PDZ24B
6I0V	9340 548 68115	PDZ24B
6I0Y	9340 548 68115	PDZ24B
6I10	9340 548 68115	PDZ24B
6I11	9340 548 68115	PDZ24B
6J07	4822 130 11397	BAS316
6J08	4822 130 80622	BAT54
6M10	4822 130 11564	UDZ3.9B
6U11	9322 159 70685	MM3Z9V1
6U12	4822 130 11397	BAS316
6U21	4822 130 11152	UDZ18B
6U22	4822 130 11397	BAS316
6U23	4822 130 11397	BAS316



7A00	9352 767 55557	PNX3000HL/N3
7A05	9322 185 74668	LM324P
7A08	3198 010 42310	BC847BW
7A10	3198 010 42310	BC847BW
7A11	3198 010 42310	BC847BW
7A14	9340 219 30115	BC817-25W
7A15	3198 010 42320	BC857BW
7A16	9340 219 30115	BC817-25W
7A17	3198 010 42310	BC847BW
7B02		For SW see item 0802
7B20	3198 010 42310	BC847BW
7B25	9322 213 41685	LD3985M18
7B45	4822 209 17398	LD1117DT33
7B50	9352 798 04557	TDA9970HS/8/C2
7D10	9322 213 35668	LM339P
7D11	9340 425 20115	BC847BS
7D12	9340 425 20115	BC847BS
7D14	3198 010 42310	BC847BW
7D15	3198 010 44350	BC807-25W
7D16	9340 425 30115	BC847BPN
7D17	9340 219 30115	BC817-25W
7D18	9322 224 40668	FET FDS4559_NL
7D19	3198 010 42310	BC847BW
7D20	3198 010 44350	BC807-25W
7D21	9340 425 30115	BC847BPN
7D22	9340 219 30115	BC817-25W
7D23	9322 224 40668	FET FDS4559_NL
7D25	9340 425 30115	BC847BPN
7D26	9340 425 30115	BC847BPN
7G40	9322 227 21671	IADV7123KSTZ140
7G41	3198 010 42310	BC847BW
7G42	9322 213 43685	LD3985M33
7J00	9352 806 65557	PNX2015E/M1E03
7J01	3198 010 42310	BC847BW

7J02	9340 425 30115	BC847BPN
7L50	9322 228 06671	K4D261638I-LC40
7LA7		For SW see item 0802
7LB2	9340 425 20115	BC847BS
7LB5	3198 010 42310	BC847BW
7M01	3198 010 42310	BC847BW
7M05	9322 213 43685	LD3985M33
7M06	9322 218 04685	LD3985M122
7M11	9340 310 30215	PDTC144ET
7P14	9322 206 22668	M24C64-WDW6P
7P15	9351 750 00118	74HC4066PW
7P16	3198 010 44310	PDTC114EU
7P17	3198 010 44310	PDTC114EU
7P18	3198 010 44210	PDTA114EU
7P80		For SW see item 0802
7T10	9322 202 58668	LD1117DT50
7T12	3198 010 42310	BC847BW
7T13	9322 183 24669	LA7795T-E
7T20	9340 425 30115	BC847BPN
7T21	9322 163 75685	SI2306DS
7T22	9322 211 68668	NXT2004
7U00	9322 207 46668	NCP5422AD
7U01	9322 160 70668	SI4936ADY
7U03	9322 160 70668	SI4936ADY
7U05	9340 425 20115	BC847BS
7U07	9340 219 30115	BC817-25W
7U10	9340 425 10115	BC857BS
7U13	9340 425 30115	BC847BPN
7U15	9340 425 20115	BC847BS
7U20	5322 130 60159	BC846B
7U21	9322 213 50685	TS431AIL
7U24	3198 010 42310	BC847BW
7U25	9322 160 70668	SI4936ADY
7U27	9322 192 16685	TS2431AI
7U28	9340 575 87118	PHD38N02LT
7V00	9352 803 38557	PNX8552EH/M2/S1
7V01	9322 221 77671	K4D551638F-LC40
7V02	9322 221 77671	K4D551638F-LC40

Constant Level Out Panel [CO]

Various

1001	2422 025 10768	Connector 3p m
1002	2422 026 05722	Sct Cinch 2p F WhRd
1003	2422 025 09406	Connector 4p m
1004	4822 267 10973	Connector 1p
1005	4822 267 10973	Connector 1p
1006	4822 267 10973	Connector 1p

⊣⊢

2002	2020 552 96507	10µF 10V
2003	3198 016 31020	1nF 25V 0603
2004	2020 552 96507	10µF 10V
2005	4822 126 13193	4.7nF 10% 63V
2006	2020 552 96507	10µF 10V
2007	3198 016 31020	1nF 25V 0603
2008	2020 552 96507	10µF 10V
2009	3198 016 31020	1nF 25V 0603
2010	2020 552 96507	10µF 10V
2011	4822 126 13193	4.7nF 10% 63V
2012	2020 552 96507	10µF 10V
2013	3198 016 31020	1nF 25V 0603

⊣WW⊢

3000	4822 051 30102	1kΩ 5% 0.062W
3001	4822 051 30682	6.8Ω 5% 0.062W
3002	4822 117 13632	100kΩ 1% 0603 0.62W
3003	4822 117 12925	47kΩ 1% 0.063W 0603
3004	4822 051 30331	330Ω 5% 0.062W
3005	4822 051 30221	220Ω 5% 0.062W
3006	4822 051 30471	47Ω 5% 0.062W
3007	4822 051 30331	330Ω 5% 0.062W
3008	4822 051 30109	10Ω 5% 0.062W
3009	4822 051 30109	10Ω 5% 0.062W
3010	4822 051 30102	1kΩ 5% 0.062W
3011	4822 051 30682	6.8Ω 5% 0.062W
3012	4822 117 13632	100kΩ 1% 0603 0.62W
3013	4822 117 12925	47kΩ 1% 0.063W 0603
3014	4822 051 30331	330Ω 5% 0.062W
3015	4822 051 30221	220Ω 5% 0.062W
3016	4822 051 30471	47Ω 5% 0.062W
3017	4822 051 30331	330Ω 5% 0.062W



7000	5322 130 60159	BC846B
7001	4822 130 60373	BC856B
7002	5322 130 60159	BC846B
7003	4822 130 60373	BC856B

Large Signal Board [E]

Various

1504	2422 025 08333	Connector 12p m
1505	4822 267 10966	Connector 2p
1506	2422 086 00689	Fuse 6.3AT 250V 5x20
1511	4822 267 10973	Connector 1p
1517	4822 267 10618	Connector 7p
1553	2422 025 12482	Connector 6p m
1801	2422 025 16153	Connector 4p b
1802	2422 025 16153	Connector 4p b
1803	2422 025 16153	Connector 4p b
1809	4822 267 10565	Connector 4p
1901	4822 267 10735	Connector 3p
1904	2422 024 00628	connector 1P M
1910	2422 025 08333	Connector 12p m

⊣⊢

2502	2222 338 22224	220nF 20% 275V
2503	2222 338 22474	470nF 20% 275V
2514	4822 124 12417	2200µF 20% 25V
2516	2020 554 90173	2.2nF 20% 250V
2518	4822 124 11767	470µF 20% 25V
2519	4822 124 11767	470µF 20% 25V
2521	2020 021 91668	2200µF 20% 10V
2532	4822 126 13449	1nF 10% 2kV
2546	4822 126 13841	1nF 20% 250V
2557	4822 126 14505	4.7nF 10% 2KV
2558	2252 811 95018	2.2nF 20% 250V
2559	2252 811 95018	2.2nF 20% 250V
2561	2020 024 90747	1000µF 20% 200V
2563	4822 124 12355	3300UF 20% 25V
2566	4822 124 12355	3300UF 20% 25V
2569	3198 026 51020	1000µF 50V
2572	3198 026 51020	1000µF 50V
2575	3198 026 51020	1000µF 50V
2583	2020 021 00112	150µ 160V
2585	2020 021 00112	150µ 160V
2593	4822 124 42336	47µF 20% 160V
2802	4822 124 11508	22µF 20% 250V
2804	4822 123 14026	470µF 20% 35V
2812	4822 124 81144	1000µF 16V
2813	4822 124 81144	1000µF 16V
2815	4822 124 11565	10µF 20% 250V
2816	2022 333 00277	430nF 5% 250V
2817	4822 126 12239	560pF 10% 2kV
2819	4822 121 10653	22nF 5% 630V
2820	4822 121 42035	4.7µF 10% 100V
2835	2020 021 91429	1500µF 20% 35V
2836	4822 121 51473	470nF 20% 63V
2901	4822 121 51473	470nF 20% 63V
2908	4822 126 12263	220pF 10% 2kV
2913	4822 121 51473	470nF 20% 63V
2917	2020 012 93486	47µF 20% 200V

⊣WW⊢

3500	2122 612 00081	NTC 1Ω 20% 5W
3501	2122 550 00147	VDR 1mA 775V
3566	3198 012 14720	4.7kΩ +100%/-0% 1W
3567	3198 012 14720	4.7kΩ +100%/-0% 1W
3568	3198 012 14720	4.7kΩ +100%/-0% 1W
3569	4822 053 10151	150Ω 5% 1W
3583	3198 012 16830	68kΩ 5% 1W
3587	2322 195 63471	470Ω 5%
3801	3198 012 36870	0.68Ω 5% 3W
3802	4822 053 10102	1kΩ 5% 1W
3807	4822 053 12479	47Ω 5% 3W
3808	4822 053 10471	470Ω 5% 1W
3809	4822 053 10478	4.7Ω 5% 1W
3816	4822 053 10108	1Ω 5% 1W
3818	3198 012 11580	1.5Ω 5% 1W
3819	4822 053 10471	470Ω 5% 1W
3820	4822 053 10108	1Ω 5% 1W
3821	3198 012 11580	1.5Ω 5% 1W
3837	3198 012 14720	4.7kΩ +100%/-0% 1W
3838	4822 053 10108	1Ω 5% 1W
3839	4822 117 12473	4.7kΩ 5% 5W
3840	4822 117 12473	4.7kΩ 5% 5W
3866	4822 053 10151	150Ω 5% 1W



5501	2422 531 00119	SS28509-01
5508	4822 157 11328	4,7UH 20% 8X10
5515	4822 157 11328	4,7UH 20% 8X10
5517	2422 549 01142	Mains Filter 6mH
5518	2422 549 01142	Mains Filter 6mH
5552	2422 531 00121	SS49507-02
5801	2422 531 02512	US40104-01
5802	2422 535 95282	47µH
5803	2422 535 91014	2200µH 5%
5804	2422 549 45206	Lin. coil UL15113-00
5805	2422 536 00272	90µH UC20016 Y
5807	2422 535 91014	2200µH 5%
5808	2422 531 02554	UD15201-05
5901	2422 531 02434	W8073-001 DAF
5902	2422 535 95282	47µH
5904	3122 268 32951	HV Generator PTV



6500	4822 130 10741	GBU6J
6505	9322 175 70667	STPS10L60D
6512	9322 175 70667	STPS10L60D
6555	9322 161 78682	SB360L-7024
6556	9322 161 78682	SB360L-7024
6557	4822 130 11572	STPS8H100F
6558	4822 130 11572	STPS8H100F
6559	4822 130 11572	STPS8H100F
6560	3139 120 52021	BYV29X-500
6561	3139 120 52021	BYV29X-500
6801	4822 130 10218	BY229X-800
6803	4822 130 10218	BY229X-800
6810	9340 560 29127	BYM357DX



7510	9322 223 02682	W6833N(LF2003)
7511	8238 274 02070	TCET1103G
7552	9322 227 99687	FET STP20NM60FP
7554	8238 274 02070	TCET1103G
7801	4822 130 63817	BU2520AF
7802	4822 130 60838	MTP3055V
7811	9322 205 56682	IC E-STV8172A
7901	9322 224 91676	KTC3245

Keyboard LED Panel [K]

⊣⊢

2001	2022 552 05598	100nF 10% 50V

⊣WW⊢

3001	4822 050 21001	100R00 1% 0,6W
4001	4822 051 20008	Jumper 0805

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5001	2422 540 98534	Reson. 4MHz ZTT*MGW



6001	9322 207 76676	LED IR LTE-3271BL



7002	4822 130 40981	BC337-25

Multi Signal Board [M]

Various

1005	2422 025 10647	Connector 4p m
1006	2422 025 10647	Connector 4p m
1007	2422 025 10647	Connector 4p m
1202	4822 265 20566	Connector 3p f
1203	4822 265 20566	Connector 3p f
1206	2422 543 01095	Res. 12MHz DSX840
1302	4822 267 10676	Connector 1p
1303	4822 267 10676	Connector 1p
1305	4822 267 10676	Connector 1p
1516	2422 025 12482	Connector 6p m
1519	2422 025 08333	Connector 12p m
1523	2422 025 19433	Connector 13p m
1524	4822 252 60151	Surge protect
1526	2422 025 09406	Connector 4p m
1533	2422 090 01101	Soc Fuse 1P Female
1534	2422 090 01101	Soc Fuse 1P Female
1610	2422 543 01095	Res. 12MHz DSX840
1612	2422 025 18744	Connector 9p m

1620	2422 025 08333	Connector 12p m
1702	4822 267 10735	Connector 3p
1710	4822 267 10735	Connector 3p
1720	4822 267 10735	Connector 3p
1721	4822 267 10734	Connector 5p
1804	4822 071 51002	Coil 19372(1A)
1805	4822 071 51002	Coil 19372(1A)
1806	2422 086 10783	Fuse 2A 250V LT
1900	2422 549 43675	DSP-152M-A21F

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2008	4822 124 40255	100µF 20% 63V
2026	3198 016 31510	150pF 10% 50V 0603
2028	4822 124 40255	100µF 20% 63V
2032	4822 124 40255	100µF 20% 63V
2038	4822 124 40255	100µF 20% 63V
2042	4822 124 40248	10µF 20% 63V
2042	4822 124 81151	22µF 50V
2043	4822 124 40248	10µF 20% 63V
2043	4822 124 81151	22µF 50V
2055	3198 016 31020	1nF 25V 0603
2056	3198 016 31510	150pF 10% 50V 0603
2057	3198 016 31510	150pF 10% 50V 0603
2059	4822 124 41184	470µF 20% 50V
2060	3198 016 31510	150pF 10% 50V 0603
2061	3198 016 31510	150pF 10% 50V 0603
2096	3198 016 31510	150pF 10% 50V 0603
2105	3198 016 31510	150pF 10% 50V 0603
2107	3198 016 31510	150pF 10% 50V 0603
2109	3198 016 31510	150pF 10% 50V 0603
2111	3198 016 31510	150pF 10% 50V 0603
2112	4822 126 14585	100nF 10% 0805 50V
2113	3198 016 31510	150pF 10% 50V 0603
2114	4822 126 14585	100nF 10% 0805 50V
2115	3198 016 31510	150pF 10% 50V 0603
2117	4822 126 14585	100nF 10% 0805 50V
2130	4822 126 14585	100nF 10% 0805 50V
2131	4822 126 14585	100nF 10% 0805 50V
2132	4822 126 14585	100nF 10% 0805 50V
2133	4822 126 14585	100nF 10% 0805 50V
2134	4822 126 14585	100nF 10% 0805 50V
2204	4822 126 14225	56pF 5% 50V 0603
2205	4822 126 14225	56pF 5% 50V 0603
2206	2238 586 59812	100nF 20% 50V 0603
2207	4822 124 81286	47µF 20% 16V
2223	2238 586 59812	100nF 20% 50V 0603
2224	5322 126 11583	10nF 10% 50V 0603
2225	5322 126 11583	10nF 10% 50V 0603
2235	5322 126 11583	10nF 10% 50V 0603
2260	4822 122 33741	10pF 10% 50V
2261	4822 122 33741	10pF 10% 50V
2262	4822 122 33741	10pF 10% 50V
2263	4822 122 33741	10pF 10% 50V
2264	2238 586 59812	100nF 20% 50V 0603
2265	5322 126 11583	10nF 10% 50V 0603
2331	4822 124 40248	10µF 20% 63V
2332	4822 124 40248	10µF 20% 63V
2335	5322 122 33861	120pF 10% 50V
2336	5322 122 33861	120pF 10% 50V
2337	5322 122 33861	120pF 10% 50V
2338	5322 122 33861	120pF 10% 50V
2339	5322 122 33861	120pF 10% 50V
2340	5322 122 33861	120pF 10% 50V
2341	4822 126 14247	1.5nF 50V 0603
2342	5322 126 11583	10nF 10% 50V 0603
2343	4822 126 14247	1.5nF 50V 0603
2344	5322 126 11583	10nF 10% 50V 0603
2345	5322 126 11583	10nF 10% 50V 0603
2346	2020 552 96664	33pF 50V 0603
2347	2238 586 59812	100nF 20% 50V 0603
2348	4822 124 23002	10µF 16V
2351	4822 124 23002	10µF 16V
2352	2238 586 59812	100nF 20% 50V 0603
2353	2238 586 59812	100nF 20% 50V 0603
2354	2238 586 59812	100nF 20% 50V 0603
2355	2238 586 59812	100nF 20% 50V 0603
2356	2238 586 59812	100nF 20% 50V 0603
2357	2238 586 59812	100nF 20% 50V 0603
2358	2238 586 59812	100nF 20% 50V 0603
2359	2238 586 59812	100nF 20% 50V 0603
2360	2238 586 59812	100nF 20% 50V 0603
2361	2238 586 59812	100nF 20% 50V 0603
2362	2238 586 59812	100nF 20% 50V 0603
2363	2238 586 59812	100nF 20% 50V 0603
2364	2238 586 59812	100nF 20% 50V 0603
2365	4822 124 23002	10µF 16V
2366	4822 122 33741	10pF 10% 50V
2367	2238 586 59812	100nF 20% 50V 0603
2368	4822 124 23002	10µF 16V
2369	4822 122 33741	10pF 10% 50V
2370	2238 586 59812	100nF 20% 50V 0603
2371	4822 124 23002	10µF 16V
2372	4822 122 33741	10pF 10% 50V
2373	2238 586 59812	100nF 20% 50V 0603
2374	4822 124 23002	10µF 16V
2375	4822 122 33741	10pF 10% 50V
2376	2238 586 59812	100nF 20% 50V 0603
2377	4822 124 23002	10µF 16V
2378	4822 122 33741	10pF 10% 50V
2379	2238 586 59812	100nF 20% 50V 0603
2380	4822 124 23002	10µF 16V
2381	4822 122 33741	10pF 10% 50V
2382	2238 586 59812	100nF 20% 50V 0603
2383	4822 124 23002	10µF 16V
2384	5322 122 33861	120pF 10% 50V
2385	2238 586 59812	100nF 20% 50V 0603
2386	4822 124 23002	10µF 16V
2387	2238 586 59812	100nF 20% 50V 0603
2500	2022 552 05636	10µF 10% 16V 1210
2501	4822 126 13449	1nF 10% 2kV
2502	2022 552 05636	10µF 10% 16V 1210
2503	4822 124 81286	47µF 20% 16V
2504	4822 126 13449	1nF 10% 2kV
2506	4822 124 81286	47µF 20% 16V
2507	4822 124 81286	47µF 20% 16V
2509	4822 124 12255	10µF 20% 50V
2511	4822 124 81286	47µF 20% 16V
2512	4822 124 40248	10µF 20% 63V
2514	4822 124 40255	100µF 20% 63V
2516	2238 586 59812	100nF 20% 50V 0603
2519	5322 126 11583	10nF 10% 50V 0603
2520	4822 124 81286	47µF 20% 16V
2531	4822 126 10206	2.2nF 10% 500V
2534	2238 586 59812	100nF 20% 50V 0603
2537	4822 126 14238	2.2nF 50V 0603
2538	4822 126 13881	470pF 5% 50V
2539	2238 916 15641	22nF 10% 25V 0603
2540	4822 124 21732	10UF 20% 25V
2543	4822 126 13881	470pF 5% 50V
2551	4822 124 40207	100µF 20% 25V
2552	5322 126 11578	1nF 10% 50V 0603
2553	2238 586 59812	100nF 20% 50V 0603
2554	4822 126 13881	470pF 5% 50V
2555	2238 586 59812	100nF 20% 50V 0603
2556	4822 126 14508	180pF 5% 50V 0603
2560	4822 126 13881	470pF 5% 50V
2562	4822 126 12267	470pF 10% 2kV
2564	4822 124 40255	100µF 20% 63V
2565	4822 126 12267	470pF 10% 2kV
2567	4822 124 40255	100µF 20% 63V
2568	4822 126 12267	470pF 10% 2kV
2570	4822 124 40255	100µF 20% 63V
2571	4822 126 12267	470pF 10% 2kV
2573	4822 124 40255	100µF 20% 63V
2574	4822 126 12267	470pF 10% 2kV
2576	4822 124 40255	100µF 20% 63V
2577	4822 126 14585	100nF 10% 0805 50V
2578	4822 126 14585	100nF 10% 0805 50V
2579	4822 126 14585	100nF 10% 0805 50V
2580	4822 126 14585	100nF 10% 0805 50V
2581	4822 126 14585	100nF 10% 0805 50V
2582	4822 126 12267	470pF 10% 2kV
2584	4822 126 12267	470pF 10% 2kV
2587	2238 586 59812	100nF 20% 50V 0603
2588	4822 122 31211	100pF 10% 500V
2589	5322 121 42386	100nF 5% 63V
2590	5322 126 11583	10nF 10% 50V 0603
2591	5322 121 42386	100nF 5% 63V
2601	3198 016 31020	1nF 25V 0603
2602	3198 016 31020	1nF 25V 0603
2607	3198 017 34730	47nF 16V 0603
2615	2020 552 96814	100nF 5% 50V 1206
2616	4822 124 81286	47µF 20% 16V
2617	2238 916 15641	22nF 10% 25V 0603
2618	4822 126 14491	2.2µF 10V 0805
2619	2238 916 15641	22nF 10% 25V 0603
2620	4822 126 11663	12pF 5% 50V 0603
2621	4822 126 11663	12pF 5% 50V 0603
2630	2238 586 59812	100nF 20% 50V 0603
2631	2238 586 59812	100nF 20% 50V 0603
2632	2238 586 59812	100nF 20% 50V 0603
2633	4822 126 14043	1µF +80-20% 16V 0805
2634	2020 552 94427	100pF 5% 50V
2635	2238 586 59812	100nF 20% 50V 0603
2636	2238 586 59812	100nF 20% 50V 0603
2637	2238 586 59812	100nF 20% 50V 0603
2638	4822 124 81286	47µF 20% 16V
2639	2238 586 59812	100nF 20% 50V 0603
2644	2020 552 94427	100pF 5% 50V
2660	2020 552 00175	10µF 10% 6V3 0805
2661	4822 126 14043	1µF +80-20% 16V 0805
2662	2020 552 00175	10µF 10% 6V3 0805
2663	4822 122 33741	10pF 10% 50V
2664	4822 122 33741	10pF 10% 50V
2665	5322 126 11578	1nF 10% 50V 0603
2666	5322 126 11578	1nF 10% 50V 0603
2667	4822 122 33741	10pF 10% 50V
2668	4822 122 33741	10pF 10% 50V
2669	2238 586 59812	100nF 20% 50V 0603
2670	2020 552 00175	10µF 10% 6V3 0805
2671	2020 552 00175	10µF 10% 6V3 0805
2672	3198 016 31020	1nF 25V 0603
2740	2238 586 59812	100nF 20% 50V 0603
2741	5322 126 11578	1nF 10% 50V 0603
2743	2238 586 59812	100nF 20% 50V 0603
2750	2238 586 59812	100nF 20% 50V 0603
2780	2238 586 59812	100nF 20% 50V 0603
2781	4822 124 81286	47µF 20% 16V
2782	2238 586 59812	100nF 20% 50V 0603
2783	2238 586 59812	100nF 20% 50V 0603
2784	4822 124 81286	47µF 20% 16V
2785	2020 552 96507	10µF 10V
2787	2020 552 96507	10µF 10V
2803	4822 126 12267	470pF 10% 2kV
2805	4822 126 12267	470pF 10% 2kV
2806	5322 121 42386	100nF 5% 63V
2807	4822 126 12267	470pF 10% 2kV
2808	4822 124 41751	47µF 20% 50V
2810	4822 124 40433	47µF 20% 25V
2811	4822 126 12267	470pF 10% 2kV
2814	4822 126 12267	470pF 10% 2kV
2821	5322 121 42386	100nF 5% 63V
2822	5322 126 10223	4.7nF 10% 63V
2823	4822 126 14238	2.2nF 50V 0603
2824	5322 126 10223	4.7nF 10% 63V
2825	4822 124 40255	100µF 20% 63V
2826	4822 126 14585	100nF 10% 0805 50V
2827	4822 126 14585	100nF 10% 0805 50V
2828	4822 121 51252	470nF 5% 63V
2829	4822 122 31175	1nF 10% 500V
2830	5322 122 32654	22nF 10% 63V 0805
2831	4822 122 31175	1nF 10% 500V
2832	4822 122 33177	10nF 20% 50V
2833	4822 124 41751	47µF 20% 50V
2834	4822 122 31177	470pF 10% 500V
2837	4822 124 21913	1µF 20% 63V
2838	5322 122 31647	1nF 10% 63V
2839	5322 122 31647	1nF 10% 63V
2840	4822 126 12793	2.2nF 10% 2kV
2841	4822 122 33177	10nF 20% 50V
2843	4822 126 14585	100nF 10% 0805 50V
2844	4822 124 40248	10µF 20% 63V
2845	4822 126 14585	100nF 10% 0805 50V
2846	5322 122 31863	330pF 5% 63V 0805
2847	4822 126 12267	470pF 10% 2kV
2902	4822 126 12793	2.2nF 10% 2kV
2903	4822 124 40769	4.7µF 20% 100V
2904	4822 122 33177	10nF 20% 50V
2905	4822 126 14585	100nF 10% 0805 50V
2906	5322 122 31647	1nF 10% 63V
2907	4822 121 43856	4.7nF 5% 250V
2910	4822 126 12105	33nF 5% 50V 0805
2911	4822 124 40207	100µF 20% 25V
2912	4822 124 40248	10µF 20% 63V
2914	4822 124 40248	10µF 20% 63V
2915	4822 126 14585	100nF 10% 0805 50V
2916	4822 126 14585	100nF 10% 0805 50V
2918	4822 126 12793	2.2nF 10% 2kV
2919	4822 126 13449	1nF 10% 2kV
2920	4822 124 12265	4.7µF 20% 250V YXA
2921	4822 126 14585	100nF 10% 0805 50V
2922	4822 126 13682	100pF 5% 1kV
2924	4822 126 13682	100pF 5% 1kV
2925	4822 126 13682	100pF 5% 1kV
2926	5322 126 10223	4.7nF 10% 63V
2927	4822 126 14585	100nF 10% 0805 50V

⌐WW⌐

3033	4822 117 10354	22kΩ 1% 0.1W
3034	4822 117 10354	22kΩ 1% 0.1W
3090	4822 051 30332	3.3Ω 5% 0.062W
3091	4822 051 30332	3.3Ω 5% 0.062W
3092	4822 051 30332	3.3Ω 5% 0.062W
3093	4822 051 30332	3.3Ω 5% 0.062W
3094	4822 051 30332	3.3Ω 5% 0.062W
3095	4822 051 30332	3.3Ω 5% 0.062W
3096	4822 051 30332	3.3Ω 5% 0.062W
3097	4822 051 30332	3.3Ω 5% 0.062W
3098	4822 051 30332	3.3Ω 5% 0.062W
3099	4822 051 30332	3.3Ω 5% 0.062W
3147	4822 051 30332	3.3Ω 5% 0.062W
3148	4822 051 30332	3.3Ω 5% 0.062W
3149	4822 053 10688	6.8Ω 5% 1W
3150	4822 053 10688	6.8Ω 5% 1W
3151	4822 053 10688	6.8Ω 5% 1W
3152	4822 053 10688	6.8Ω 5% 1W
3153	4822 053 10688	6.8Ω 5% 1W
3154	4822 053 10688	6.8Ω 5% 1W

3155	4822 053 10688	6.8Ω 5% 1W
3156	4822 053 10688	6.8Ω 5% 1W
3157	4822 053 10688	6.8Ω 5% 1W
3158	4822 053 10688	6.8Ω 5% 1W
3159	4822 053 10688	6.8Ω 5% 1W
3160	4822 053 10688	6.8Ω 5% 1W
3167	4822 051 30103	10kΩ 5% 0.062W
3167	4822 051 30472	4.7Ω 5% 0.062W
3169	4822 051 30103	10kΩ 5% 0.062W
3169	4822 051 30472	4.7Ω 5% 0.062W
3200	4822 051 30101	100Ω 5% 0.062W
3201	4822 051 30101	100Ω 5% 0.062W
3202	4822 051 30101	100Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 051 30101	100Ω 5% 0.062W
3213	4822 051 30102	1kΩ 5% 0.062W
3214	4822 051 30101	100Ω 5% 0.062W
3215	4822 051 30101	100Ω 5% 0.062W
3216	4822 051 30102	1kΩ 5% 0.062W
3217	4822 051 30102	1kΩ 5% 0.062W
3218	4822 051 30102	1kΩ 5% 0.062W
3219	4822 051 30102	1kΩ 5% 0.062W
3220	4822 051 30102	1kΩ 5% 0.062W
3222	4822 051 30102	1kΩ 5% 0.062W
3224	4822 051 30222	2.2kΩ 5% 0.062W
3225	4822 051 30102	1kΩ 5% 0.062W
3226	4822 051 30223	22kΩ 5% 0.062W
3227	4822 051 30103	10kΩ 5% 0.062W
3228	4822 051 30101	100Ω 5% 0.062W
3229	4822 051 30101	100Ω 5% 0.062W
3230	4822 051 30101	100Ω 5% 0.062W
3231	4822 051 30101	100Ω 5% 0.062W
3232	4822 051 30101	100Ω 5% 0.062W
3233	4822 051 30101	100Ω 5% 0.062W
3234	4822 051 30101	100Ω 5% 0.062W
3235	4822 051 30101	100Ω 5% 0.062W
3236	4822 051 30682	6.8Ω 5% 0.062W
3237	4822 051 30103	10kΩ 5% 0.062W
3240	4822 117 13525	24kΩ 1% 0.62W 0603
3245	4822 051 30101	100Ω 5% 0.062W
3246	4822 051 30472	4.7Ω 5% 0.062W
3247	4822 051 30472	4.7Ω 5% 0.062W
3250	4822 051 30332	3.3Ω 5% 0.062W
3251	4822 051 30332	3.3Ω 5% 0.062W
3252	4822 051 30101	100Ω 5% 0.062W
3254	4822 051 30103	10kΩ 5% 0.062W
3258	4822 051 30101	100Ω 5% 0.062W
3264	4822 051 30222	2.2kΩ 5% 0.062W
3265	4822 051 30101	100Ω 5% 0.062W
3306	4822 051 30101	100Ω 5% 0.062W
3307	4822 051 30101	100Ω 5% 0.062W
3308	4822 051 30101	100Ω 5% 0.062W
3309	4822 051 30101	100Ω 5% 0.062W
3315	4822 051 30479	47Ω 5% 0.062W
3316	4822 051 30479	47Ω 5% 0.062W
3317	4822 051 30479	47Ω 5% 0.062W
3320	4822 051 30153	15kΩ 5% 0.062W
3326	4822 051 30102	1kΩ 5% 0.062W
3327	4822 051 30102	1kΩ 5% 0.062W
3328	4822 051 30102	1kΩ 5% 0.062W
3334	4822 051 30479	47Ω 5% 0.062W
3335	4822 051 30102	1kΩ 5% 0.062W
3340	4822 051 30103	10kΩ 5% 0.062W
3341	4822 051 30331	330Ω 5% 0.062W
3342	4822 051 30101	100Ω 5% 0.062W
3349	4822 051 30103	10kΩ 5% 0.062W
3350	4822 051 30103	10kΩ 5% 0.062W
3351	4822 051 30103	10kΩ 5% 0.062W
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 051 30472	4.7Ω 5% 0.062W
3354	4822 051 30472	4.7Ω 5% 0.062W
3355	4822 117 12864	82kΩ 5% 0.6W
3356	4822 051 30103	10kΩ 5% 0.062W
3357	4822 051 30103	10kΩ 5% 0.062W
3358	4822 051 30103	10kΩ 5% 0.062W
3359	4822 051 30153	15kΩ 5% 0.062W
3360	4822 051 30562	5.6kΩ 5% 0.063W 0603
3361	4822 051 30562	5.6kΩ 5% 0.063W 0603
3362	4822 051 30152	1.5Ω 5% 0.062W
3363	4822 051 30222	2.2kΩ 5% 0.062W
3364	4822 051 30152	1.5Ω 5% 0.062W
3365	4822 051 30472	4.7Ω 5% 0.062W
3366	4822 051 30152	1.5Ω 5% 0.062W
3367	4822 051 30222	2.2kΩ 5% 0.062W
3368	4822 051 30222	2.2kΩ 5% 0.062W
3369	4822 051 30472	4.7Ω 5% 0.062W
3370	4822 051 30103	10kΩ 5% 0.062W
3371	4822 051 30103	10kΩ 5% 0.062W
3372	5322 117 12487	1kΩ 1% 0.125W
3373	4822 051 30101	100Ω 5% 0.062W
3374	4822 051 30101	100Ω 5% 0.062W
3375	4822 051 30103	10kΩ 5% 0.062W
3376	4822 051 30101	100Ω 5% 0.062W
3377	4822 051 30331	330Ω 5% 0.062W
3378	4822 051 30101	100Ω 5% 0.062W
3379	4822 051 30101	100Ω 5% 0.062W
3380	4822 051 30103	10kΩ 5% 0.062W
3381	4822 051 30331	330Ω 5% 0.062W
3382	4822 051 30101	100Ω 5% 0.062W
3383	4822 051 30101	100Ω 5% 0.062W
3384	4822 051 30101	100Ω 5% 0.062W
3385	4822 051 30103	10kΩ 5% 0.062W
3386	4822 051 30101	100Ω 5% 0.062W
3387	4822 051 30331	330Ω 5% 0.062W
3388	4822 051 30101	100Ω 5% 0.062W
3389	4822 051 30101	100Ω 5% 0.062W
3390	4822 051 30103	10kΩ 5% 0.062W
3391	4822 051 30331	330Ω 5% 0.062W
3392	4822 051 30101	100Ω 5% 0.062W
3393	4822 051 30101	100Ω 5% 0.062W
3394	4822 051 30101	100Ω 5% 0.062W
3395	4822 051 30103	10kΩ 5% 0.062W
3396	4822 051 30101	100Ω 5% 0.062W
3397	4822 051 30331	330Ω 5% 0.062W
3398	4822 051 30101	100Ω 5% 0.062W
3399	4822 051 30101	100Ω 5% 0.062W
3500	4822 051 30223	22kΩ 5% 0.062W
3501	4822 051 30223	22kΩ 5% 0.062W
3502	4822 052 11158	1R50 5% 0,5W
3503	2120 103 00002	47Ω 20% 0.5W
3504	4822 051 30103	10kΩ 5% 0.062W
3506	4822 051 30223	22kΩ 5% 0.062W
3506	4822 053 21475	4.7MΩ 5% 0.5W
3507	4822 051 30102	1kΩ 5% 0.062W
3508	4822 051 30103	10kΩ 5% 0.062W
3509	4822 051 30103	10kΩ 5% 0.062W
3510	4822 051 30103	10kΩ 5% 0.062W
3510	4822 053 21155	1.5MΩ 5% 0.5W
3513	4822 053 21475	4.7MΩ 5% 0.5W
3514	4822 117 12891	220kΩ 1%
3515	4822 053 20105	1MΩ 5% 0.25W
3516	4822 051 30682	6.8Ω 5% 0.062W
3519	4822 053 21475	4.7MΩ 5% 0.5W
3524	4822 116 52283	4.7kΩ 5% 0.5W
3527	4822 050 21004	100kΩ 1% 0.6W
3531	4822 116 52176	10Ω 5% 0.5W
3533	2322 704 62202	2.2kΩ 1% 0603
3534	2322 704 62701	270Ω 1% 0603
3536	4822 051 30152	1.5Ω 5% 0.062W
3537	4822 051 30102	1kΩ 5% 0.062W
3538	4822 051 30331	330Ω 5% 0.062W
3539	4822 051 30102	1kΩ 5% 0.062W
3540	4822 051 30223	22kΩ 5% 0.062W
3543	2322 704 61005	1MΩ 1% 0603
3545	5322 117 12472	
3547	2322 704 62202	2.2kΩ 1% 0603
3548	5322 117 12472	
3549	4822 051 30331	330Ω 5% 0.062W
3551	4822 116 52264	27kΩ 5% 0.5W
3553	4822 117 11817	1.2kΩ 1% 0.0625W
3554	4822 116 52269	3.3kΩ 5% 0.5W
3555	4822 117 13572	22Ω 5% 1206
3556	4822 051 30563	56kΩ 5% 0.062W
3557	4822 051 30102	1kΩ 5% 0.062W
3558	2322 762 60107	0.1Ω 5% 2512
3559	2322 762 60107	0.1Ω 5% 2512
3560	4822 050 24708	4.7Ω 1% 0.6W
3561	4822 117 12925	47kΩ 1% 0.063W 0603
3562	4822 116 52269	3.3kΩ 5% 0.5W
3563	4822 052 10222	2.2kΩ 5% 0.33W
3564	2322 762 60107	0.1Ω 5% 2512
3570	4822 051 30331	330Ω 5% 0.062W
3573	4822 051 30222	2.2kΩ 5% 0.062W
3573	4822 051 30681	680Ω 5% 0.062W
3574	4822 051 30153	15kΩ 5% 0.062W
3575	4822 050 28203	82kΩ 1% 0.6W
3576	4822 117 12706	10kΩ 1% 0.063W 0603
3577	5322 117 13046	1.8kΩ 1% 0.063W 0603
3578	4822 116 52283	4.7kΩ 5% 0.5W
3579	4822 116 52251	18kΩ 5% 0.5W
3580	4822 116 52175	100Ω 5% 0.5W
3581	4822 116 52269	3.3kΩ 5% 0.5W
3582	4822 116 83961	6.8kΩ 5%
3584	4822 051 30103	10kΩ 5% 0.062W
3601	4822 051 30101	100Ω 5% 0.062W
3602	4822 051 30101	100Ω 5% 0.062W
3603	4822 051 30101	100Ω 5% 0.062W
3604	4822 051 30101	100Ω 5% 0.062W
3607	4822 051 30102	1kΩ 5% 0.062W
3608	4822 051 30479	47Ω 5% 0.062W
3609	4822 051 30101	100Ω 5% 0.062W
3613	4822 051 30222	2.2kΩ 5% 0.062W
3614	4822 051 30101	100Ω 5% 0.062W
3616	5322 117 13064	39kΩ 1% 0.063W 0603
3617	4822 051 30759	75Ω 5% 0.062W
3618	4822 051 30759	75Ω 5% 0.062W
3619	4822 051 30759	75Ω 5% 0.062W
3623	4822 051 30101	100Ω 5% 0.062W
3624	4822 051 30101	100Ω 5% 0.062W
3628	4822 051 30109	10Ω 5% 0.062W
3630	4822 051 30109	10Ω 5% 0.062W
3631	4822 051 30109	10Ω 5% 0.062W
3632	4822 051 30109	10Ω 5% 0.062W
3633	4822 051 30102	1kΩ 5% 0.062W
3634	4822 051 30102	1kΩ 5% 0.062W
3635	4822 051 30479	47Ω 5% 0.062W
3636	4822 051 30479	47Ω 5% 0.062W
3637	4822 051 30479	47Ω 5% 0.062W
3638	4822 051 30479	47Ω 5% 0.062W
3639	4822 051 30101	100Ω 5% 0.062W
3643	4822 051 30101	100Ω 5% 0.062W
3644	4822 051 30102	1kΩ 5% 0.062W
3645	4822 051 30101	100Ω 5% 0.062W
3646	4822 051 30101	100Ω 5% 0.062W
3647	4822 051 30101	100Ω 5% 0.062W
3648	4822 051 30103	10kΩ 5% 0.062W
3660	4822 051 30332	3.3Ω 5% 0.062W
3661	4822 051 30183	18kΩ 5% 0.062W
3662	4822 117 12925	47kΩ 1% 0.063W 0603
3664	4822 117 12925	47kΩ 1% 0.063W 0603
3665	4822 051 30101	100Ω 5% 0.062W
3666	4822 051 30101	100Ω 5% 0.062W
3667	4822 117 12925	47kΩ 1% 0.063W 0603
3668	4822 117 12925	47kΩ 1% 0.063W 0603
3740	4822 051 30102	1kΩ 5% 0.062W
3750	4822 117 11151	1Ω 5%
3751	4822 051 30152	1.5Ω 5% 0.062W
3752	4822 051 30561	560Ω 5% 0.062W
3756	4822 051 30681	680Ω 5% 0.062W
3765	4822 051 30681	680Ω 5% 0.062W
3772	4822 051 30681	680Ω 5% 0.062W
3780	4822 117 11151	1Ω 5%
3781	4822 051 30561	560Ω 5% 0.062W
3782	4822 051 30101	100Ω 5% 0.062W
3783	4822 051 30332	3.3Ω 5% 0.062W
3784	4822 051 30561	560Ω 5% 0.062W
3786	4822 051 30681	680Ω 5% 0.062W
3787	4822 051 30152	1.5Ω 5% 0.062W
3788	4822 051 30561	560Ω 5% 0.062W
3789	4822 051 30101	100Ω 5% 0.062W
3790	4822 051 30101	100Ω 5% 0.062W
3791	4822 051 30101	100Ω 5% 0.062W
3792	4822 051 30101	100Ω 5% 0.062W
3793	4822 051 30101	100Ω 5% 0.062W
3794	4822 051 30681	680Ω 5% 0.062W
3795	4822 051 30101	100Ω 5% 0.062W
3797	4822 051 30102	1kΩ 5% 0.062W
3803	4822 116 52176	10Ω 5% 0.5W
3804	3198 039 22010	220Ω 1%
3805	3198 039 22010	220Ω 1%
3806	3198 039 22010	220Ω 1%
3810	4822 052 10108	1Ω 5% 0.33W
3811	4822 116 52175	100Ω 5% 0.5W
3812	4822 116 52175	100Ω 5% 0.5W
3813	2322 734 61872	1.87kΩ 1% 0805
3814	2322 734 61872	1.87kΩ 1% 0805
3815	4822 116 52263	2.7kΩ 5% 0.5W
3817	4822 052 10108	1Ω 5% 0.33W
3822	4822 052 10108	1Ω 5% 0.33W
3823	4822 117 10834	47kΩ 1% 0.1W
3824	4822 117 11139	1.5kΩ 1% 0.1W
3825	4822 117 11373	100Ω 1% 0805
3826	4822 051 20273	27kΩ 5% 0.1W
3827	4822 051 10102	1kΩ 2% 0.25W
3829	4822 116 52297	68kΩ 5% 0.5W
3832	4822 117 10837	100kΩ 1% 0.1W
3833	4822 117 10965	18kΩ 1% 0.1W
3834	4822 116 52195	47Ω 5% 0.5W
3835	4822 051 20471	470Ω 5% 0.1W
3836	4822 117 11449	2.2kΩ 5% 0.1W 0805
3841	4822 051 20474	470kΩ 5% 0.1W
3842	4822 117 10833	10kΩ 1% 0.1W
3843	4822 117 11449	2.2kΩ 5% 0.1W 0805
3844	4822 116 52257	22kΩ 5% 0.5W
3845	4822 051 20223	22kΩ 5% 0.1W
3846	4822 052 10108	1Ω 5% 0.33W
3847	4822 117 10837	100kΩ 1% 0.1W
3848	4822 051 20273	27kΩ 5% 0.1W
3849	4822 117 11449	2.2kΩ 5% 0.1W 0805
3850	4822 116 83884	47kΩ 5% 0.5W
3851	4822 051 10102	1kΩ 2% 0.25W
3852	4822 117 11373	100Ω 1% 0805
3853	4822 117 10833	10kΩ 1% 0.1W
3854	4822 117 10833	10kΩ 1% 0.1W
3855	4822 117 13577	330Ω 1% 1.25W 0805
3856	4822 051 20472	4.7kΩ 5% 0.1W
3857	4822 117 10833	10kΩ 1% 0.1W
3858	4822 051 20472	4.7kΩ 5% 0.1W
3859	4822 116 52244	15kΩ 5% 0.5W
3861	4822 051 20562	5.6kΩ 5% 0.1W 0805
3862	4822 116 52244	15kΩ 5% 0.5W
3864	4822 116 52244	15kΩ 5% 0.5W

3865	4822 117 11449	2.2kΩ 5% 0.1W 0805
3867	4822 117 11373	100Ω 1% 0805
3868	4822 051 10102	1kΩ 2% 0.25W
3900	4822 116 52263	2.7kΩ 5% 0.5W
3901	2120 103 90073	100Ω 20% RC1/2
3902	3198 013 01520	1.5kΩ 20% 0.5W
3903	4822 053 20334	330kΩ 5% 0.25W
3904	4822 116 52257	22kΩ 5% 0.5W
3905	4822 116 52264	27kΩ 5% 0.5W
3906	4822 051 10102	1kΩ 2% 0.25W
3907	2120 103 90073	100Ω 20% RC1/2
3908	4822 052 10229	22Ω 5% 0.33W
3909	3198 013 01520	1.5kΩ 20% 0.5W
3910	4822 116 83961	6.8kΩ 5%
3911	4822 050 25603	56kΩ 1% 0.6W
3912	3198 013 01520	1.5kΩ 20% 0.5W
3913	4822 116 52303	8.2kΩ 5% 0.5W
3914	4822 050 11002	1kΩ 1% 0.4W
3915	4822 116 52256	2.2kΩ 5% 0.5W
3916	4822 052 10109	10Ω 5% 0.33W
3917	4822 051 20223	22kΩ 5% 0.1W
3918	4822 117 10361	680Ω 1% 0.1W
3919	4822 051 20124	120kΩ 5% 0.1W
3920	4822 051 20124	120kΩ 5% 0.1W
3921	4822 051 20474	470kΩ 5% 0.1W
3922	4822 117 10833	10kΩ 1% 0.1W
3923	4822 051 20471	470Ω 5% 0.1W
3924	4822 051 20273	27kΩ 5% 0.1W
3925	4822 050 11002	1kΩ 1% 0.4W
3926	4822 116 83874	220kΩ 5% 0.5W
3927	4822 053 20225	2.2MΩ 5% 0.25W
3928	4822 117 10833	10kΩ 1% 0.1W
3929	4822 117 10833	10kΩ 1% 0.1W
3930	4822 117 11373	100Ω 1% 0805
3931	4822 050 11002	1kΩ 1% 0.4W
3932	4822 117 10965	18kΩ 1% 0.1W
3933	4822 116 52176	10Ω 5% 0.5W
3934	4822 116 52283	4.7kΩ 5% 0.5W
3935	4822 053 20225	2.2MΩ 5% 0.25W
3936	4822 116 52176	10Ω 5% 0.5W
3937	4822 050 24708	4.7Ω 1% 0.6W
3940	4822 116 52234	100kΩ 5% 0.5W
4101	4822 051 20008	Jumper 0805
4103	4822 051 20008	Jumper 0805

5200	4822 157 50964	100µH
5301	4822 157 71736	10µH 5%
5305	4822 157 71736	10µH 5%
5306	4822 157 11716	Bead 30Ω at 100MHz
5504	4822 157 71736	10µH 5%
5505	4822 157 71736	10µH 5%
5506	4822 157 71736	10µH 5%
5508	4822 157 71736	10µH 5%
5509	4822 157 71736	10µH 5%
5510	4822 157 11411	Bead 80Ω at 100MHz
5510	4822 157 71736	10µH 5%
5516	4822 157 11411	Bead 80Ω at 100MHz
5551	4822 157 11411	Bead 80Ω at 100MHz
5553	4822 157 11411	Bead 80Ω at 100MHz
5555	4822 157 71736	10µH 5%
5556	4822 157 11411	Bead 80Ω at 100MHz
5558	4822 157 71736	10µH 5%
5559	4822 157 11411	Bead 80Ω at 100MHz
5560	4822 157 71736	10µH 5%
5561	4822 157 11411	Bead 80Ω at 100MHz
5562	4822 157 71736	10µH 5%
5563	4822 157 11411	Bead 80Ω at 100MHz
5564	4822 157 71736	10µH 5%
5565	4822 157 11411	Bead 80Ω at 100MHz
5567	4822 157 11411	Bead 80Ω at 100MHz
5568	4822 157 11411	Bead 80Ω at 100MHz
5601	4822 157 11411	Bead 80Ω at 100MHz
5602	4822 157 11411	Bead 80Ω at 100MHz
5809	4822 156 20966	47 µH
5811	4822 526 10704	Bead 50 Ω at 100MHz



6260	5322 130 34337	BAV99
6261	5322 130 34337	BAV99
6262	5322 130 34337	BAV99
6263	5322 130 34337	BAV99
6264	5322 130 34337	BAV99
6265	5322 130 34337	BAV99
6503	9322 128 69685	S1D
6509	4822 130 31607	RGP10D
6510	4822 130 31607	RGP10D
6511	4822 130 11397	BAS316
6514	4822 130 11397	BAS316
6516	9340 548 52115	PDZ5.1B
6551	4822 130 31607	RGP10D
6552	4822 130 31878	1N4003G
6553	4822 130 11397	BAS316
6562	4822 130 31607	RGP10D
6563	4822 130 31607	RGP10D
6564	4822 130 30621	1N4148
6565	4822 130 30621	1N4148
6566	9335 006 90133	BZV85-C
6642	4822 130 11397	BAS316
6644	4822 130 31983	BAT85
6802	9322 224 04683	BYV95C-E3
6804	4822 130 34174	BZX79-B4V7
6805	5322 130 31938	BYV27-200
6806	5322 130 31938	BYV27-200
6807	4822 130 11397	BAS316
6808	4822 130 11397	BAS316
6809	9322 224 04683	BYV95C-E3
6811	5322 130 31938	BYV27-200
6812	4822 130 30864	BZX79-B68
6813	4822 130 11551	UDZS10B
6814	4822 130 11551	UDZS10B
6815	4822 130 11397	BAS316
6816	4822 130 30864	BZX79-B68
6817	4822 130 11397	BAS316
6818	4822 130 11397	BAS316
6819	4822 130 31024	BZX79-B18
6820	4822 130 11551	UDZS10B
6821	4822 130 11397	BAS316
6822	9322 224 04683	BYV95C-E3
6823	4822 130 11397	BAS316
6824	4822 130 11551	UDZS10B
6825	4822 130 11551	UDZS10B
6826	4822 130 31024	BZX79-B18
6827	5322 130 31938	BYV27-200
6828	4822 130 11551	UDZS10B
6829	4822 130 11397	BAS316
6830	4822 130 11397	BAS316
6831	4822 130 11397	BAS316
6832	4822 130 11522	UDZ15B
6901	4822 130 11397	BAS316
6902	4822 130 31024	BZX79-B18
6903	4822 130 31981	BZX79-B3V9
6904	4822 130 11397	BAS316
6905	4822 130 34174	BZX79-B4V7
6906	4822 130 34382	BZX79-B8V2
6908	4822 130 11397	BAS316
6909	4822 130 30621	1N4148
6910	4822 130 31983	BAT85
6912	4822 130 11397	BAS316
6913	4822 130 11397	BAS316
6914	4822 130 11397	BAS316
6915	9322 203 12673	BYV27-600
6916	9322 203 12673	BYV27-600
6917	9322 203 12673	BYV27-600
6919	4822 130 80622	BAT54



7005	4822 130 42804	BC817-25
7007	4822 130 42804	BC817-25
7044	9322 123 44682	STK392-120
7045	9322 123 44682	STK392-120
7200	9352 719 40557	SAA5675/HL/M1
7201	9322 227 73685	BD45292G
7227	4822 130 62755	BF570
7351	9322 209 39668	M24128-BWMN6P
7352	9322 169 57671	STV2050A
7353	4822 209 30095	LM833D
7354	4822 209 30095	LM833D
7355	4822 209 30095	LM833D
7357	4822 209 17398	LD1117DT33
7359	5322 130 60159	BC846B
7360	5322 130 60159	BC846B
7361	5322 130 60159	BC846B
7362	5322 130 60159	BC846B
7364	9340 425 30115	BC847BPN
7365	9340 425 30115	BC847BPN
7367	5322 130 60159	BC846B
7369	9340 425 30115	BC847BPN
7370	9340 425 30115	BC847BPN
7500	9322 199 24668	L7808CD2T
7502	8238 277 12651	SI4532ADY
7504	5322 130 60159	BC846B
7505	5322 130 60159	BC846B
7506	4822 209 82112	MC7908CT
7512	5322 130 60159	BC846B
7513	5322 130 60159	BC846B
7516	4822 209 14933	TL431IZ
7551	9352 720 43118	TEA1506T/N1
7553	5322 130 60159	BC846B
7555	4822 209 14933	TL431IZ
7556	4822 130 11155	PDTC114ET
7557	4822 209 14933	TL431IZ
7600	9352 708 53557	TDA9332H/N3
7660	5322 209 70225	LM393D
7702	4822 130 60373	BC856B
7712	4822 130 60373	BC856B
7720	4822 130 60373	BC856B
7721	4822 130 42131	BF550
7722	5322 130 42718	BFS20
7723	4822 130 60373	BC856B
7803	5322 209 70225	LM393D
7807	4822 130 63316	BSN304
7808	5322 130 60159	BC846B
7809	5322 130 60159	BC846B
7810	5322 130 60159	BC846B
7812	4822 130 41646	BF423
7813	5322 130 60159	BC846B
7814	4822 130 60373	BC856B
7902	5322 130 60159	BC846B
7903	4822 130 41246	BC327-25
7904	5322 130 60159	BC846B
7905	4822 130 60373	BC856B
7906	5322 130 60159	BC846B

11. Revision List

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- First release.

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- **Chapter 7:** SSB point 5 version added.
- **Chapter 10:** Spare Parts List added.