



CONFIDENTIAL

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42" PDP

SERVICE MANUAL

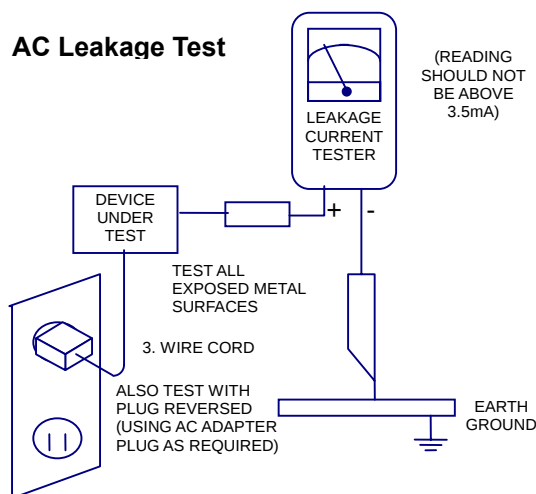
MODEL : BDS4223V/27

PANEL : VVEPP42SD-YD05-

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1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items.
 - a. Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating paper, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.**
 - b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such opening include, but not limited to, (1) excessively wide cabinet ventilation slots, and (2) an improperly fitted and/or incorrectly secured cabinet back cover.
 - c. **Leakage Current Hot Check**—With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institutes (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 478. With the instrument AC switch first in the ON position and then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.7 mini-ampere. Reverse the instrument power cord plug in the outlet and repeat test. **ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER.**

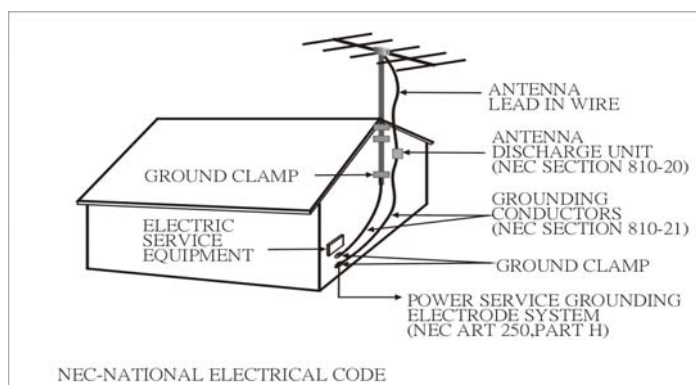


2. Read and comply with all caution and safety-related notes on or inside the cabinet.
3. **Design Alteration Warning**—Do not alter or add to the mechanical or electrical design of this unit. Design alterations and additions, including, but not limited to, circuit modifications and the addition of the items such as auxiliary audio and/or video output connections might alter the safety characteristics of this TV Monitor and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and will make you, the service, responsible for personal injury or property damage resulting therefrom.
4. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: **a.** near sharp edges, **b.** near thermally hot parts—be sure that leads and components do not touch thermally hot parts, **c.** the AC supply, **d.** high voltage, **e.** antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between components, and between components and the printed-circuit board. Check AC power cord for damage.
5. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.
6. **PRODUCT SAFETY NOTICE** — Many electrical and mechanical parts have special safety-related characteristics some of which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified in this service data by shading with a ⚠ mark on schematics and by shading or a * mark in the parts list. Use of a substitute replacement part that does not have the same safety characteristics as the recommended replacement part in this service data parts list might create shock, fire, and/or other hazards.

7. Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the TV receiver, be sure the antenna or cable system is grounded so as provide some protection against voltage surges and built-up static charges.

Section 810 of the National Electrical Code, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



1. SCOPE:
These specifications describe all the characteristics of the 42 inch color monitor.
2. ELECTRICAL REQUIREMENTS:
 - 2.1. Display panel: Specification
 - a. Screen size Diagonal 42 inch
 - b. Aspect ratio 16:9 wide
 - c. Number of pixels 852(Horizontal, RGB Trio) X 480(Vertical)pixels
 - d. Pixel Pitch 1.095mm(Horizontal) X1.110mm(Vertical)
 - e. Luminance 1000cd/m², at 1% White Window
 - f. Chromatically $x=0.275\pm0.03$, $y=0.285\pm0.03$ (color temperature COOL)
at center block white pattern 100% (mosaic).
 $x=0.285\pm0.03$, $y=0.293\pm0.03$ (color temperature NATURAL)
at center block white pattern 100% (mosaic).
 $x=0.313\pm0.03$, $y=0.329\pm0.03$ (color temperature WARM)
at center block white pattern 100% (mosaic).
 - 2.2. Power Source:
 - a. Input voltage 100 ~ 240 Vac , 50 / 60 Hz
 - b. Input current 4.0 A
 - c. Inrush current 60 A p-p/20ms Max.
 - d. Power consumption 380 Watts (at 110Vac/all white pattern)
400 Watts Max
 - e. Stand-by & DPMS 8 Watts Max. (at 110Vac)
 - 2.3. Input Signal:
 - 2.3.1 Connector Type: RCA Jack for audio, video Y/C_B/C_R and Y/P_B/P_R
4 pin Din S-terminal
9 pin D-SUB
15 pin D-SUB
24 pin DVI
 - 2.3.2 Video/S-Video Signal:
 - a. Type Analog
 - b. Polarity Positive
 - c. Amplitude Video: 1Vp-p (with sync)
S-Video: Y: 1Vp-p ,C: 0.286Vp-p
 - d. Frequency H: 15.734KHz V: 60Hz (NTSC)
 - e. Input impedance 75 ohms
 - 2.3.3 COMPONENT Signal:
 - a. Type Analog
 - b. Polarity Positive
 - c. Amplitude Y: 1Vp-p (with sync)
Pb/Cb: 0.7Vp-p ,Pr/Cr: 0.7Vp-p
 - d. Frequency

Y/C _B /C _R :	H: 15.734KHz	V: 60Hz (480i)
Y/P _B /P _R : HDTV	H: 31KHz	V: 60Hz (480p)
	H: 45KHz	V: 60Hz (720p)
	H: 33KHz	V: 60Hz (1080i)

2.3.4 RGB Signal:

a. Type	TTL
b. Polarity	Positive or Negative
c. Amplitude	RGB: 0.7Vp-p
d. Frequency	H: support to 31K~69KHz V: support to 50~85Hz

2.3.5 DVI Signal:

a. Type	Digital
b. Polarity	Positive or Negative
c. Frequency	H: support to 31K~69KHz V: support to 50~85Hz
d. HDCP Encryption	Enabled

2.3.6 Audio Signal: Analog 500mV rms /more than 22Kohm

2.3.7 Pin Assignments For D-SUB Connector (In / Loop Out):

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	RED	6	RED GND	11	GND
2	GREEN	7	GREEN GND	12	SDA
3	BLUE	8	BLUE GND	13	H-SYNC
4	GND	9	NC	14	V-SYNC
5	GND	10	GND	15	SCL

2.3.8 Pin Assignments For 24 Pin DVI Connector (Digital Only):

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	TMDS Data 2-	9	TMDS Data 1-	17	TMDS Data 0-
2	TMDS Data 2+	10	TMDS Data 1+	18	TMDS Data 0+
3	TMDS Data 2/4 Shield	11	TMDS Data 1/3 Shield	19	TMDS Data 0/5 Shield
4	TMDS Data 4-	12	TMDS Data 3-	20	TMDS Data 5-
5	TMDS Data 4+	13	TMDS Data 3+	21	TMDS Data 5+
6	DDC Clock	14	+5V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (For +5V)	23	TMDS Clock +
8	No Connect	16	Hot Plug Detect	24	TMDS Clock -

2.3.9 MODE LIST FOR RGB/DVI :

Mode No	Resolution	Refresh Rate	Horizontal Frequency	Vertical Frequency	Vertical Sync Polarity	Horizontal Sync Polarity	Dot rate
		(Hz)	(K Hz)	(Hz)	(TTL)	(TTL)	(MHz)
1	640(VGA)×480	60	31.469	59.940	-	-	25.175
2	640(VGA)×480	72	37.900	72.810	-	-	31.500
3	640(VGA)×480	75	37.500	75.000	-	-	31.500
4	640(VGA)×480	85	43.269	85.008	-	-	36.000
6	800(SVGA)×600	60	37.879	60.317	+	+	40.000
7	800(SVGA)×600	72	48.077	72.188	+	+	50.000
8	800(SVGA)×600	75	46.879	75.000	+	+	49.500
9	800(SVGA)×600	85	53.674	85.061	+	+	56.250
10	1024(XGA)×768	60	48.364	60.004	-	-	65.000
11	1024(XGA)×768	70	56.476	70.069	-	-	75.000
12	1024(XGA)×768	75	60.023	75.029	+	+	78.750
13	1024(XGA)×768	85	68.677	84.997	+	+	94.500
14	1280(SXGA)×1024	60	63.981	60.020	+	+	108.000
18	720(DOS)×400	70	31.469	70.087	+	-	28.322
19	852(VGA)×480	60	31.413	59.835	-	-	30.000
20◎	1280(HDTV)×720p	60	45.000	60.000	+	+	74.250
21◎	1920(HDTV)×1080i	60(i)	33.750	60.000	+	+	74.250
22	640(VGA)×350	70	31.469	70.087	-	+	25.175
23◎	720(HDTV)×480p	60	31.469	59.940	+	+	27.000

Attention ◎: For HDTV S.T.B.(Set Top Box).

2.3.10 Y/P_B/P_R For Component:

Mode No	Resolution	Refresh Rate
1	640 ×480p	60
2	1920 ×1080i	60
3	1280 ×720p	60

2.4. Display Performance Requirements:

The data of display performance are measured based on the following conditions unless otherwise specified.

- a. Ambient temperature 25±5 °C
- b. Warm up period 30 minutes Min.
- c. Line input voltage : 100 Vac ~ 240 Vac (50 / 60 Hz)
- d. Viewing distance Distance from screen is 81 cm
- e. Display mode Test with window white pattern mode if not specified.
- f. Brightness condition Press recall bottom to set default brightness

2.4.1 Maximum Resolution: Support to 1280 x 1024

Horizontal Size (Standard) 920.1±0.5 mm (for mode 1~26)

Vertical Size (Standard) 518.4±0.5 mm (for mode 1~26)

2.4.2 Maximum Brightness Level: Timing Mode 1

- a. 100% center block white pattern(mosaic) More than 30FL
(while pressing recall button to set default brightness)
- b. Raster background Less than 0.4FL
(while pressing recall button to set default brightness)

2.5. Operation:**Main unit button**

Main power switch (power ON /OFF)
Power ON/OFF
Input Select (TV -> AV1 -> AV2 -> COMPONENT 1 ->
COMPONENT 2-> RGB -> DVI->TV run in circle)

Menu key

Select ↑,↓/CH ↑,↓

Volume -,+/Adjustment ←,→

IR Remote Control

Power on/off

MUTE

Display

Input Select (same as Main unit button)

Volume -,+

Wide :

TV/AV1/AV2/COMPONENT 1/2 480i input:

4:3/16:9/PANORAMA

(ZOOM1/ZOOM2/ZOOM3/OFF For 16:9 Only)

COMPONENT 1/2 480p/720p/1080i input: 4:3/16:9

Analog RGB input : 4:3/16:9

DVI input : 4:3/16:9

Menu -,+

Adjustment -,+

RECALL

PIP ,SOURCE,SWAP,POSITION

USE FOR TV MODE:

V-CHIP

FAV.CH,FAV.QV,CCD,MTS,CH LOCK,

SLEEP TIMER,

Number Select, CH ▲▼

DIRECT KEY:

POWER ON,POWER

OFF,RGB,TV,AV1,AV2,COMPONENT1/2,DVI

2.5.1 Adjustable Items:**AV1/AV2 Input****PICTURE:**

Picture Mode, Contrast, Brightness, Color, Tint, Sharpness

Color Temperature, Noise Reduction, Format, Image Shift

SOUND:

Bass, Treble, Balance, Volume, Surround, Speaker

Audio Output

SETUP:

Language, Sleep Timer, Pass Code, Closed Caption

V-Chip, OSD Timeout, OSD Background

Power Save(no function), Full White(no function)

INFO:

S/W Version, H-Frequency, V-Frequency, Video System

COMPONENT		PICTURE:	
480i/480p/720p/1080i input		Picture Mode, Contrast, Brightness, Color, Tint, Sharpness	
		Color Temperature, Noise Reduction, Format, Image Shift	
		V-Position, H-Size, H-Position, Clock Phase	
		SOUND (same as AV1/AV2 input)	
		SETUP:	
		Language, Sleep Timer, OSD Timeout, OSD Background	
		Power Save(no function), Full White(no function)	
		INFO:	
		S/W Version, H-Frequency, V-Frequency, Resolution	
Analog RGB input		PICTURE:	
		Picture Mode, Contrast, Brightness, Color Temperature	
		Format, Noise Reduction, V-Position, H-Size, H-Position	
		Clock Phase	
		SOUND (same as AV1/AV2 input)	
		SETUP:	
		Language, Sleep Timer, OSD Timeout, OSD Background	
		Power Save, Full White	
		INFO (same as COMPONENT 480i/480p/720p/1080i input)	
DVI input		PICTURE:	
		Picture Mode, Contrast, Brightness, Color Temperature	
		Format, Noise Reduction, V-Position(no function)	
		H-Size(no function), H-Position(no function)	
		Clock Phase(no function)	
		SOUND (same as AV1/AV2 input)	
		SETUP (same as Analog RGB input):	
		INFO (same as COMPONENT 480i/480p/720p/1080i input)	
3.	DIMENSIONS:	Without/Stand	With/Stand
		Width	1096 mm
		Height	693 mm
		Depth	105.5 mm
3.1.	Package Dimensions:	Width	1250 mm
		Height	1120 mm
		Depth	450 mm
3.2.	Weight:	Net weight	43 Kgs (w/o stand) 50 Kgs (w/ stand)
		Gross weight	61.2 Kgs
4.	ENVIRONMENT:		
4.1.	Operating:	Temperature	0~40°C (32~105°F)
		Relative humidity	20~80%
		Pressure	800~1114 hpa
4.2.	Non-Operating:	Temperature	0~40°C
		Relative humidity	20~80%
		Pressure	700~1114 hpa
		Vibration	X/Y/Z, 0.5G/10~55Hz(sweep), 10 minutes
4.3.	Acoustics:		
	(IHF A-weighted 1meter)		40dB Max.

5. SOUND:

- a. Residual hum (at volume min) 500 μ W Max.
- b. Practical max. Audio output (at 10% THD max.)
1.0vp-p 1K Hz input 5W +5W Max. /16 ohm
- c. Sound distortion (at 250 mw 1K Hz) 1% Max.
- d. Audio output (input at 1.4V_{P-P}) ≥ 1.0 V_{P-P}
- e. Max. hum (at volume max) 1000 μ W Max.
- f. Sensitivity (at volume max. O/P 1W)
at 1KHz AV Input 150mV $\pm$ 3dB
- g. Audio Fidelity (1KHz 0dB, corrected for emphasis characteristics)

WOOFER ON	60Hz	11dB $\pm$ 3dB
	10KHz	4dB $\pm$ 3dB
BBE ON	60Hz	6dB $\pm$ 3dB
	10KHz	8dB $\pm$ 3dB
WOOFER & BBE OFF	100Hz	-1dB $\pm$ 3dB
	10KHz	-1dB $\pm$ 3dB

7. Reliability Requirement:

The MTBF needs 20000hrs under operation 25 $\pm$ 5 $^{\circ}$ C (half luminosity, motion picture)

8. REGULATORY REQUIREMENTS:

8.1 Safety Requirement:

- a. UL Safety of information technology equipment including electrical business equipment
- b. CSA Safety of information technology equipment including electrical business equipment
- c. TUV

8.2 Emission Requirement:

The unit shall meet the EMI limits in all screen modes. For EMI testing, the unit must be failed with the screen pattern consisting of scrolling capital "H" characters also the brightness contrast will be adjusted to max. Level.

- a. FCC class B part 15

8.3 Transit test

- a. Drop Test 300mm max.
- b. Vibration Test
 - 1. Forward and backward 30 minutes 1000 c.p.m
 - 2. Right and left 30 minutes 1000 c.p.m
 - 3. Up and down 30 minutes 1000 c.p.m

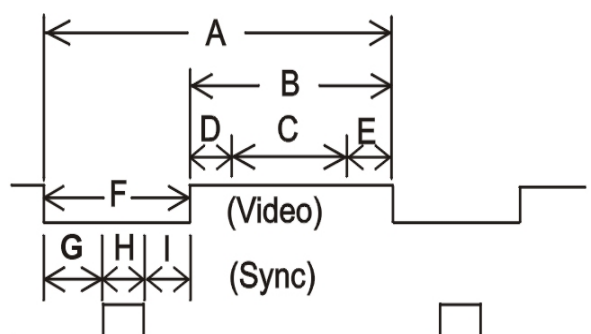
8.4 Power Management:

Mode	H-sync	V-sync	Video	Power dissipation
Normal	Pulse	Pulse	Active	Normal power
Stand-by	No pulse	No pulse	No video	Less than 6 watts
Power saving	Pulse	No pulse	Blanked	Less than 60 watts
	No pulse	Pulse		

Note: The power indicator LED color is green in normal state, yellow in stand-by and power saving state.

APPENDIX A :

Preset Timing Chart



Item	Description:
A	Total time
B	Active display area including borders
C	Active display area excluding borders
D	Left/Top border
E	Right/bottom border
F	Blanking time
G	Front porch
H	Sync-width
I	Back porch

Mode No	1	2	3	4	6	7	8	9	10	
Resolution	640	640	640	640	800	800	800	800	1024	
&	480	480	480	480	600	600	600	600	768	
Refresh Rate	60	72	75	85	60	72	75	85	60	Hz
Pixel Clock	25.175	31.500	31.500	36.000	40.000	50.000	49.500	56.250	65.000	MHz
Horizontal visible	640	640	640	640	800	800	800	800	1024	Dots
Horizontal total	800	832	840	832	1056	1040	1056	1048	1344	Dots
Horizontal front porch	16	24	16	56	40	56	16	32	24	Dots
Horizontal sync	96	40	64	56	128	120	80	64	136	Dots
Horizontal back porch	48	128	120	80	88	64	160	152	160	Dots
Horiz blanking time	144	176	200	192	256	240	256	248	320	Dots
Vertical visible	480	480	480	480	600	600	600	600	768	Lines
Vertical total	525	520	500	509	628	666	625	631	806	Lines
Vertical front porch	10	9	1	1	1	37	1	1	3	Lines
Vertical sync	2	3	3	3	4	6	3	3	6	Lines
Vertical back porch	33	28	16	25	23	23	21	27	29	Lines
Vertical blanking time	45	40	20	29	28	66	25	31	38	Lines
Horizontal frequency	31.469	37.861	37.500	43.269	37.879	48.077	46.875	53.674	48.364	KHz
Vertical frequency	59.940	72.809	75.000	85.008	60.317	72.188	75.000	85.061	60.004	Hz
Vertical sync polarity	-	-	-	-	+	+	+	+	-	TTL
Horiz sync polarity	-	-	-	-	+	+	+	+	-	TTL

Mode No	11	12	13	14	18	19	20	21	
Resolution & Refresh Rate	1024 768 70	1024 768 75	1024 768 85	1280 1024 60	720 400 70	852 480 60	1280 720p 60	1920 1080i 60(i)	Hz
Pixel Clock	75.000	78.750	94.500	108.000	28.322	30.000	74.250	74.250	MHz
Horizontal visible	1024	1024	1024	1280	720	852	1280	1920	Dots
Horizontal total	1328	1312	1376	1688	900	955	1650	2200	Dots
Horizontal front porch	24	16	48	48	18	19	110	88	Dots
Horizontal sync	136	96	96	112	108	48	40	44	Dots
Horizontal back porch	144	176	208	248	54	36	260	192	Dots
Horiz blanking time	304	288	352	408	180	103	370	280	Dots
Vertical visible	768	768	768	1024	400	480	720	540	Lines
Vertical total	806	800	808	1066	449	525	750	562.5	Lines
Vertical front porch	3	1	1	1	12	10	5	3	Lines
Vertical sync	6	3	3	3	2	2	5	5	Lines
Vertical back porch	29	28	36	38	35	33	20	15	Lines
Vertical blanking time	38	32	40	42	49	45	30	23	Lines
Horizontal frequency	56.476	60.023	68.677	63.981	31.469	31.413	45.000	33.750	KHz
Vertical frequency	70.069	75.029	84.997	60.020	70.087	59.835	60.000	60.000	Hz
Vertical sync polarity	-	+	+	+	+	-	+	+	TTL
Horiz sync polarity	-	+	+	+	-	-	+	+	TTL

Mode No	22	23	
Resolution & Refresh Rate	640 350 70	720 480p 60	Hz
Pixel Clock	25.175	27.000	MHz
Horizontal visible	640	720	Dots
Horizontal total	800	858	Dots
Horizontal front porch	16	16	Dots
Horizontal sync	96	62	Dots
Horizontal back porch	48	60	Dots
Horiz blanking time	160	138	Dots
Vertical visible	350	480	Lines
Vertical total	449	525	Lines
Vertical front porch	37	9	Lines
Vertical sync	2	6	Lines
Vertical back porch	60	30	Lines
Vertical blanking time	99	45	Lines
Horizontal frequency	31.469	31.469	KHz
Vertical frequency	70.087	59.940	Hz
Vertical sync polarity	-	+	TTL
Horiz sync polarity	+	+	TTL

1. Color Temperature Adjustment

Pre-setting Adjustment and Equipment Preparation for All Mode:

- (1) Turn on the PDP and let it warm up for at least 30 minutes.
- (2) There are 6 different modes (DVI, RGB, YpbPr 720P,YpbPr 480P,YcbCr480I, and AV) that have Color Temperature settings. For each one of these 6 modes, there are 3 different Color Temperatures (6500D, 9600K and 11000K) that can be individually adjusted. Each Color Temperature is adjusted through the dark level, bright level, Gain and Bias values.
- (3) Press the following key sequence to access the Color Temperature Adjustment OSD Menu:
 1. Press the “Factory Key” into Factory Mode
and then the “Color Temperature” OSD menu will appear on the screen.

COLOR TEMPERATURE						
0. DVI	1. RGB			2. 720P/1080		
3. 480P	4. 480I			5. AV		
	Bias			Gain		
	R	G	B	R	G	B
6. 6500D	F6	F6	F6	06	04	FE
7. 9600	F6	F6	F6	05	04	01
8. 11000	F6	F6	F6	04	04	03
9. EXIT						
↑ ↓ ADJUST ← → SELECT						

***Note:** When adjusting the Color Temperatures, press number key “1”, “2”, “3”, and “4” on the remote control to select the PDP input source that you would like to adjust, including DVI, RGB, YPbPr, and AV. When you press the number key to select the input source that you would like to adjust Color Temperature, the PDP set will switch to the to-be-adjusted input source mode automatically.

1.1 Pre-setting Adjustment and Equipment Preparation for RGB Mode:

- (1) Turn on the Color Analyzer (Minolta, Model = CA-210) and reset the Color Analyzer.
- (2) Switch the PDP input to RGB mode and press the "Recall" key on the remote control to have the PDP set recalled back to default factory settings.
- (3) Set up the Video Pattern Generator (ASTRO VG828) with the following settings:
 - A. Timing: 1024 x 768 @ 60Hz,
 - B. Make sure the Output signal is Analog (RGB)
Connect the PDP RGB input connector to the ASTRO VG828 RGB output connector.
- (1) Dark level and bright level center block definition:
 - A. Dark level center block definition: OPT2 Pattern
 - B. Bright level center block definition: OPT1 Pattern
- (2) Flatly place the Minolta Color Analyzer's Photo Detector in contact with the center of the PDP screen.

1.2 RGB Mode Color Temperature Adjustment Procedure:

- (1) With the PDP's RGB input connected to ASTRO VG828 RGB output connector, set the ASTRO VG828 to a dark level center block signal (OPT2). Enter the Color Temperature OSD menu using the same Key Sequence specified above. Press number key "2" to start RGB Color Temperature setting.
- (2) Press the Left/Right Button to switch between the Bias (R, G, B) and Gain (R, G, B) values. Use the Up/Down Buttons to change the Bias and Gain Values.
- (3) 6500D dark level center block adjustment procedure:
 - A. Select G-BIAS and adjust the G-Bias value until $Y = 0.7 \pm 0.10 \text{ FL}$
 - B. Select R-BIAS and adjust the R-Bias value until $x = 213 \pm 15$
 - C. Select B-BIAS and adjust the B-Bias value until $y = 329 \pm 15$
 - D. Repeat steps A, B and C until the following final values are obtained:
 $x = 313 \pm 15$
 $y = 329 \pm 15$
 $Y = 0.7 \pm 0.10 \text{ FL(10IRE)}$
- (4) 6500D bright level center block adjustment procedure: (Please set the ASTRO VG828 RGB bright level center block signal to OPT1)
 - A. Select G-GAIN and adjust the G-GAIN value until $Y = 36 \pm 2.5 \text{ FL}$
 - B. Select R-GAIN and adjust the R-GAIN value until $x = 313 \pm 15$
 - C. Select B-GAIN and adjust the B-GAIN value until $y = 329 \pm 15$

D. Repeat steps A, B and C until the following final values are obtained:

$$x = 313 \pm 15$$

$$y = 329 \pm 15$$

$$Y = 36 \pm 2.5 \text{ FL}(60\text{IRE})$$

- (5) Repeat Steps (3) and (4) until the 6500D Bias and Gain RGB values are all obtained, and then press number key “6” for the next Color Temperature setting of 6500D, number key “7” for the setting of 9600K, and number key “8” for the setting of 11000K sequentially.

For each color temperature setting, please repeat Steps (3) and (4) above but replace the x and y settings with the following values:

6500D: $x = 313$, $y = 329$ for Dark Level Settings

$x = 313$, $y = 329$ for Bright Level Settings

9600K: $x = 285$, $y = 295$ for Dark Level Settings

$x = 285$, $y = 295$ for Bright Level Settings

c. 11000K: $x = 275$, $y = 280$ for both Dark and Bright Level Settings

For these 3 Color Temperatures (6500D, 9600K and 11000K), adjust the Dark and Bright Levels to the following Y values:

a. Dark level $Y = 0.7 \pm 0.10 \text{ FL}(14\text{IRE})$

b. Bright level $Y = 36 \pm 2.5 \text{ FL}(60\text{IRE})$

- (6) Once all 4 Color Temperatures have been adjusted, press number key “3” to start Component YpbPr Color Temperature setting.

2.1 Pre-setting Adjustment and Equipment Preparation for Component YpbPr Mode:

- (1) Turn on the Color Analyzer (Minolta, Model = CA-210) and reset the Color Analyzer.
- (2) Switch the PDP input to Component1 mode and press the “Recall” key on the remote control to have the PDP set recalled back to default factory settings.
- (3) Set up the Video Pattern Generator (ie. ASTRO VG828) with the following settings:
 - A. Dark Level Center block definition:
 - a. Group: 3
 - b. Timing: 01
 - c. Pattern: OPT2
 - C. Bright Level Center block definition:
 - a. Group: 3
 - b. Timing: 01
 - c. Pattern: OPT1
- (4) Connect the PDP Component1 input to the VG828 Component output connector.
- (5) Flatly place the Minolta Color Analyzer's Photo Detector in contact with the center of the PDP screen.

2.2 Component YpbPr Mode Color Temperature Adjustment Procedure:

- (1) Set the VG828 to send a dark level center block signal (OPT2). Enter the Color Temperature OSD menu using the same Key Sequence specified above. Press number key "3" to start the Component YPbPr Color Temperatures setting.
 - (2) Press the Left/Right Button to switch between the Bias (R, G, B) and Gain (R, G, B) values. Use the Up/Down Buttons to change the Bias and Gain Values.
 - (3) 6500D dark level center block adjustment procedure:
 - A. Select G-BIAS and adjust the G-Bias value until $Y = 0.9 \pm 0.10 \text{ FL}(480\text{I})$ or $Y = 1.0 \pm 0.10 \text{ FL}(480\text{P}/1080\text{I})$.
 - B. Select R-BIAS and adjust the R-Bias value until $x = 313 \pm 15$
 - C. Select B-BIAS and adjust the B-Bias value until $y = 329 \pm 15$
 - D. Repeat steps A, B and C until the following final values are obtained:

$$x = 313 \pm 15$$

$$y = 329 \pm 15$$

$$Y = 0.9 \pm 0.10 \text{ FL}(480\text{I}) \text{ or } Y = 1.0 \pm 0.10 \text{ FL}(480\text{P}/1080\text{I}) \text{ (14IRE)}$$
 - (4) 6500D bright level center block adjustment procedure: (Please set the VG828 bright level center block signal to OPT1)
 - A. Select G-GAIN and adjust the G-GAIN value until $Y = 35 \pm 2.5 \text{ FL}(480\text{I}/1080\text{I})$ or $Y = 34 \pm 2.5 \text{ FL}(480\text{P})$
 - B. Select R-GAIN and adjust the R-GAIN value until $x = 332 \pm 15$
 - C. Select B-GAIN and adjust the B-GAIN value until $y = 330 \pm 15$
 - D. Repeat steps A, B and C until the following final values are obtained:

$$x = 313 \pm 15$$

$$y = 329 \pm 15$$

$$Y = 35 \pm 2.5 \text{ FL}(480\text{I}/1080\text{I}) \text{ or } Y = 34 \pm 2.5 \text{ FL}(480\text{P}) \text{ (60IRE)}$$
 - (5) Repeat Steps (3) and (4) until the 6500D Bias and Gain RGB values are all obtained, and then press number key "6" for the next Color Temperature setting of 6500D, number key "7" for the setting of 9600K, and number key "8" for the setting of 11000K sequentially.
- For each color temperature setting, please repeat Steps (3) and (4) above but replace the x, y and Y values with the following values:
- a. 6500D : $x = 313$, $y = 329$ for Dark Level Settings
 $x = 313$, $y = 329$ for Bright Level Settings
 - b. 9600K : $x = 285$, $y = 295$ for Dark Level Settings
 $x = 285$, $y = 295$ for Bright Level Settings
 - c. 11000K : $x = 275$, $y = 285$ for both Dark and Bright Level Settings
- For these 3 Color Temperatures (6500D, 9600K and 11000K), adjust the Dark and Bright Levels to the following Y values:
- a. Dark level $Y = 0.9 \pm 0.10 \text{ FL}(14\text{IRE})$
 - b. Bright level $Y = 35 \pm 2.5 \text{ FL}(480\text{I}/1080\text{I})$ or $Y = 34 \pm 2.5 \text{ FL}(480\text{P}) \text{ (60IRE)}$

- (6) Once all 4 Color Temperatures have been adjusted, press number key “4” to start AV Color Temperature setting.

3.1 Pre-setting Adjustment and Equipment Preparation for AV Mode:

- (1) Turn on the Color Analyzer (Minolta, Model = CA210) and reset the Color Analyzer.
- (2) Switch the PDP input to AV1 (Composite Video) mode and press the "Recall" key on the remote control to have the PDP set recalled back to default factory settings.
- (3) Set up the Video Pattern Generator (ie. ASTRO VG828) with the following settings:
 - A. Dark Level Center block definition:
 - a. Group: 08
 - b. Timing: 01
 - c. Pattern: OPT2
 - B. Bright Level Center block definition:
 - a. Group: 08
 - b. Timing: 01
 - c. Pattern: OPT1
- (4) Connect the PDP AV1 (Composite Video) input to the VG828 Composite output connector.
- (5) Flatly place the Minolta Color Analyzer's Photo Detector in contact with the center of the PDP screen.

3.2 AV Mode Color Temperature Adjustment Procedure:

- (1) Set the VG828 to send a dark level center block signal (OPT2). Enter the Color Temperature OSD menu using the same Key Sequence specified above. Press number key "4" to start the AV Color Temperatures setting.
- (2) Press the Left/Right Button to switch between the Bias (R, G, B) and Gain (R, G, B) values. Use the Up/Down Buttons to change the Bias and Gain Values.
- (3) 6500D dark level center block adjustment procedure:
 - A. Select G-BIAS and adjust the G-Bias value until $Y = 0.8 \pm 0.1 \text{ FL}$.
 - B. Select R-BIAS and adjust the R-Bias value until $x = 313 \pm 12$
 - C. Select B-BIAS and adjust the B-Bias value until $y = 329 \pm 12$
 - D. Repeat steps A, B and C until the following final values are obtained:
 $x = 313 \pm 12$
 $y = 329 \pm 12$
 $Y = 0.8 \pm 0.1 \text{ FL(20IRE)}$
- (4) 6500D bright level center block adjustment procedure: (Please set the VG828 bright level center block signal to OPT1)
 - A. Select G-GAIN and adjust the G-GAIN value until $Y = 30 \pm 2.5 \text{ FL}$
 - B. Select R-GAIN and adjust the R-GAIN value until $x = 313 \pm 10$
 - C. Select B-GAIN and adjust the B-GAIN value until $y = 329 \pm 10$

D. Repeat steps A, B and C until the following final values are obtained:

$$x = 313 \pm 10$$

$$y = 329 \pm 10$$

$$Y = 30 \pm 2.5 \text{ FL}(60\text{IRE})$$

(5) Repeat Steps (3) and (4) until the 6500D Bias and Gain RGB values are all obtained, and then press number key “6” for the next Color Temperature setting of 6500D, number key “7” for the setting of 9600K, and number key “8” for the setting of 11000K sequentially.

For each color temperature setting, please repeat Steps (3) and (4) above but replace the x, y and Y values with the following values:

- a. 6500D : $x = 313$, $y = 329$ for both Dark and Bright Level Settings
- b. 9600K : $x = 285$, $y = 295$ for both Dark and Bright Level Settings
- c. 11000K : $x = 275$, $y = 270$ for both Dark and Bright Level Settings

For these 3 Color Temperatures (6500D, 9600K and 11000K), adjust the Dark and Bright Levels to the following Y values:

- a. Dark level $Y = 0.8 \pm 0.1 \text{ FL}(20\text{IRE})$
- b. Bright level $Y = 30 \pm 2.5 \text{ FL}(60\text{IRE})$

(6) Once all 4 Color Temperatures have been set press number key “9” to exit the Color Temperature OSD menu.

(7) Re-enter the Color Temperature OSD menu again to double check that the Color Temperature values just adjusted are stored in the PDP display.

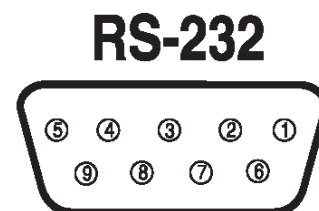
ISP Firmware Update User Manual

1. Definitions:

- a. Computer – Requires a 9-pin RS-232 port and a Windows 98/ME/XP based operating system PC.
- b. Display – A Sampo Corporation manufactured PDP.
- c. Firmware Hex Code – The firmware in hex code to be updated onto the Display. File will be provided by Sampo Corporation
- d. LED – Light Emitting Diode that is located at the lower-right corner of the front bezel of the Display. When the Display is powered OFF, the LED will not be lighted. When the Display is in Standby Mode or ISP Mode, the LED will be in orange color. When the Display is turned ON, the LED will be in solid green color.
- e. Main Power Switch – The red main power switch located on the back of the Display (either at the lower right or lower left corner).
- f. Tera Term Pro – It is a free software terminal emulator that can either be downloaded from the website or provided by Sampo Corporation.
- g. RS-232 Cable – The RS-232 serial cable to connect the Computer and the Display must be straight-through type that pin 2 (RX) and pin 3 (TX) are not reversed at one end of the cable.

The pin layout for RS-232 Terminal:

Pin 1	Received Line Signal Detector (Data Carrier Detect)
Pin 2	Received Data (RXD)
Pin 3	Transmit Data (TXD)
Pin 4	Data Terminal Ready (DTR)
Pin 5	Signal Ground
Pin 6	Data Set Ready (DSR)
Pin 7	Request to Send (RTS)
Pin 8	Clear To Send (CTS)
Pin 9	Ring Indicator



2. Application Software & Firmware Setup:

- a. Acquire the Tera Term Pro setup software and install it on the Computer.
- b. Acquire the to-be-updated Firmware Hex Code (.hex) file.
- c. Save the Firmware Hex Code in the hard drive of the Computer.

3. Hardware Setup:

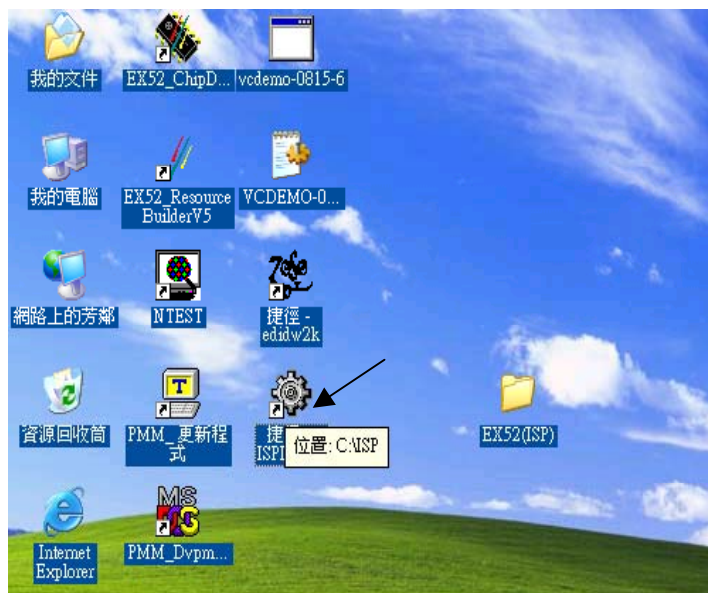
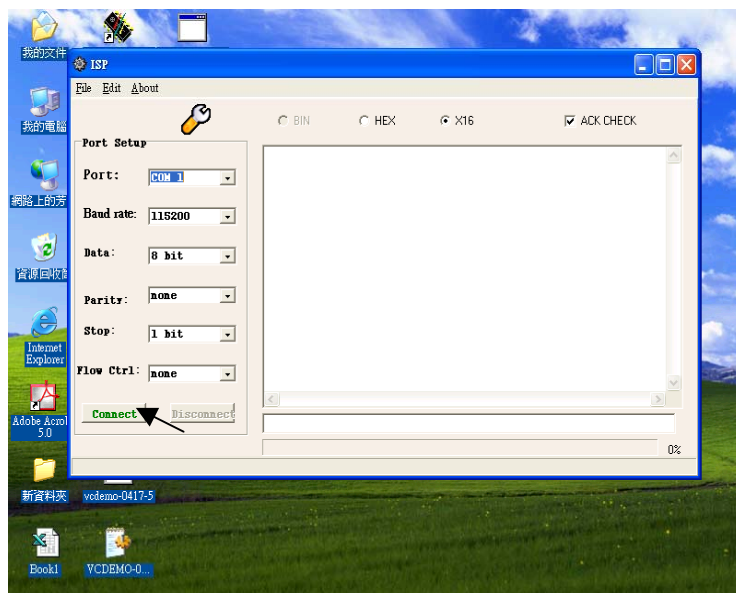
- a. Press the Main Power Switch to turn off the Display.
- b. Connect the Computer's RS-232 port (COM 1 on the PC) to the Display's RS-232 port.
- c. Press and hold both the Display's "Input" and "Volume Up" front control buttons (located at the front bezel of the Display) and at the same time turn on the Display by pressing the Main Power Switch on the back of the Display.
- d. Hold the "Input" and "Volume Up" buttons until the LED becomes orange color, which indicates the Display is in the ISP Mode.

Note: To verify if the Display enters in the ISP Mode successfully or not, push the "Power"

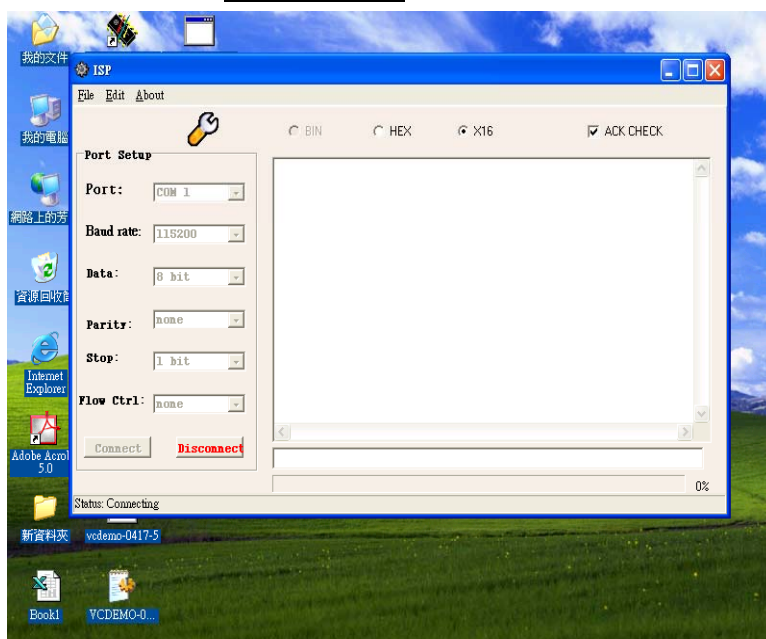
front control button at the front bezel of the Display, if the Display powers on and LED turns green, the Display is NOT in the ISP mode so you have to repeat Step #3.a to #3.c again; if the Display doesn't power on and LED stays in orange, the Display is in the right mode and ready for the next step.

4. Uploading Firmware:

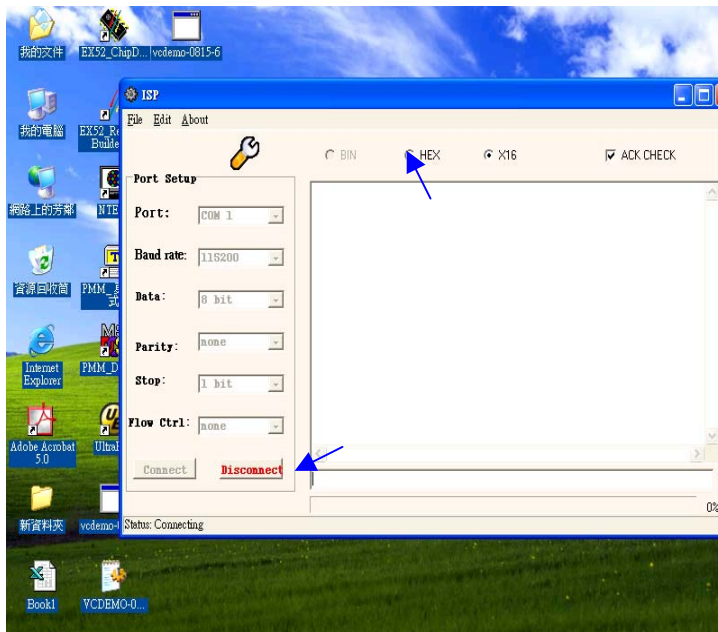
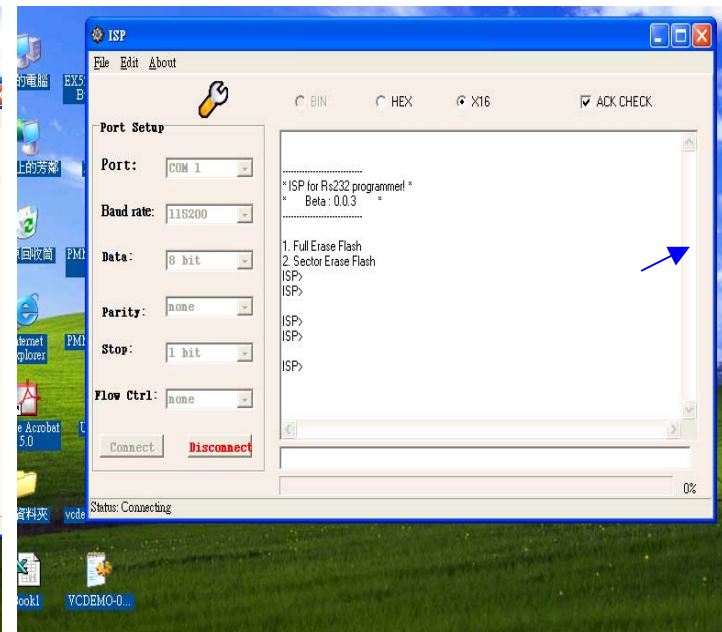
1. **Power off the PDP**, prepare a piece of RS232 cable line (with **female to female** pin-out) and connect the PDP set with RS232 **male** pin-out **com1** to your computer with RS232 **male** pin-out **com1**.
2. Select/Double-click ISP icon (arrow marked, if you have already setup the **ISP_Setup_Ver1.0** software tool on the CD-ROM in-appendix) in Figure F. 1 and the screen in Figure F. 2 will pop up.

FIGURE F. 1**FIGURE F. 2**

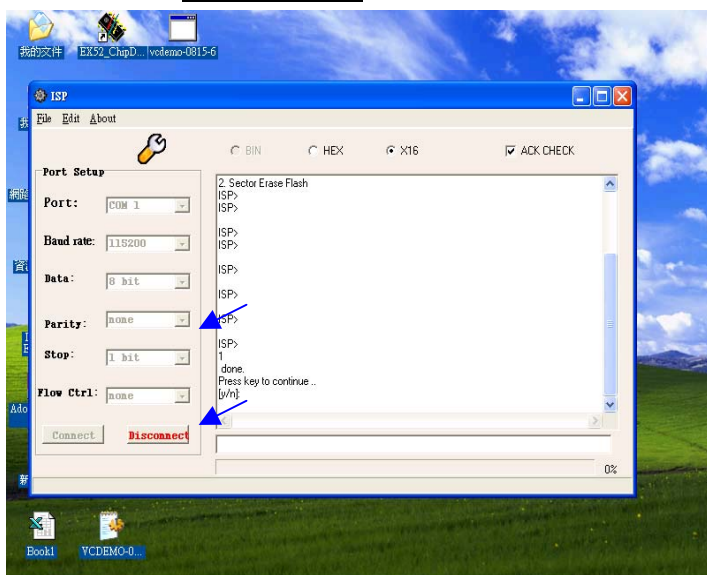
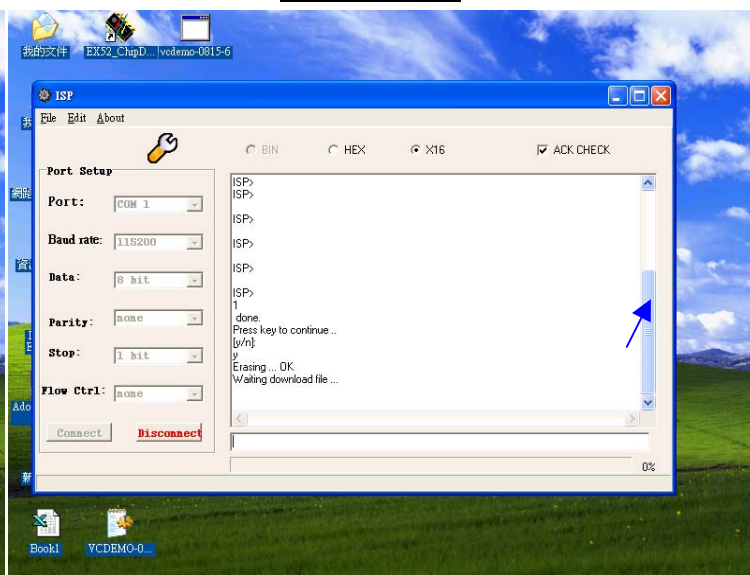
3. Select one of the items **Connect** (as shown in Figure F. 2, arrow marked) and the screen in Figure F. 3 will pop up.

FIGURE F. 3

4. Place the cursor to the point on the word frame in the long square size (lower arrow marked) and select/click one of the items **HEX** (upper arrow marked), and then, the screen in Figure F. 4 will pop up.

FIGURE F. 4**FIGURE F. 5**

5. Press-and-hold up the keying **ESC** from the keyboard and **power on the PDP**, and then, the Figure F. 5 (as shown above) screen's dialogue box will pop up some choosing items if you move the cursor to the right straight menu bar from up to down (right arrow marked).
6. Press both the Arabic number **1** (as shown Figure F. 6, upper arrow marked) and then press the character **Y** or **y** (as shown Figure F. 6, lower arrow marked), and the screen in Figure F. 7 will pop up if you move the cursor to the right menu bar from up to down (right arrow marked).

FIGURE F. 6**FIGURE F. 7**

7. Select **File, Send file** from the left-and-top menu bar (as shown in Figure F. 8) and the screen in Figure F. 9 will pop up.

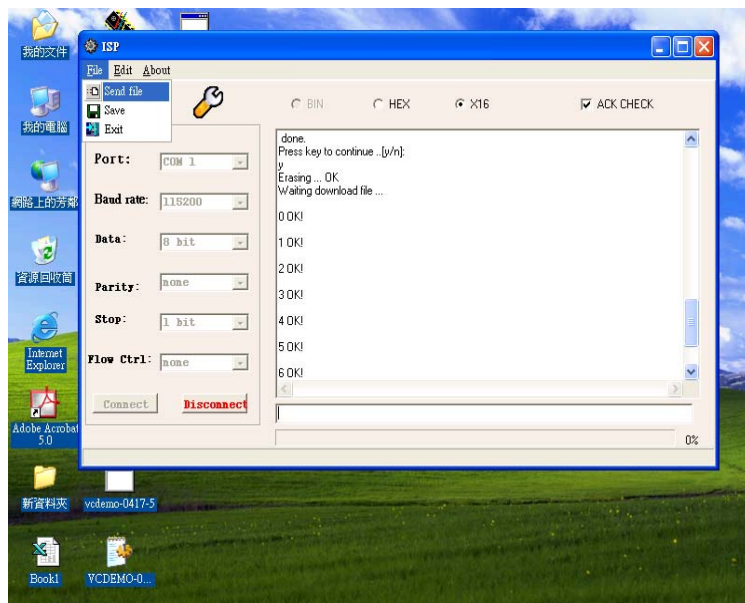


FIGURE F. 8

8. Select sub-file name **.hex** (for example: 123.hex) and click one of the items **Enter** (arrow marked) from Figure F.9 to execute /burn-in your program and the screen in Figure F. 10 will pop up if you move the cursor to the right menu bar from up to down (arrow marked).

FIGURE F. 9

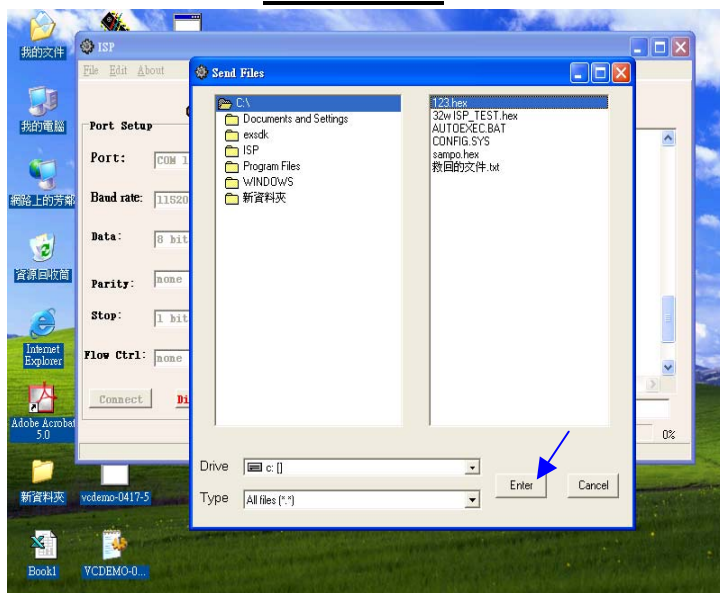
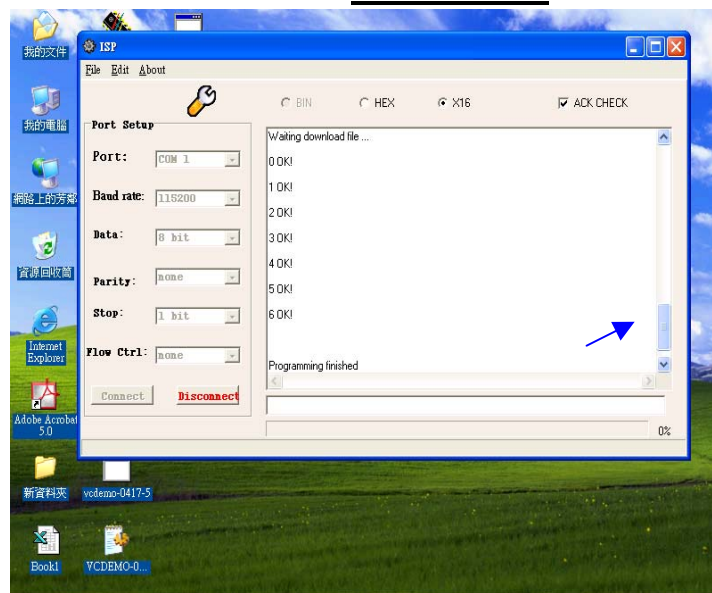


FIGURE F. 10



9. Press both the keying “**Shift and Arabic number 8**” to terminate/exit burning program code if you had finished it.

Overview

This monitor is equipped with an RS-232 serial terminal for using the monitor with computer controls. The RS-232 serial terminal conforms to the RS-232C interface specification. The computer will require software application (such as HyperTerminal for RS-232) which allows the computer to send and receive control data that can support the communication parameters described in this section.

Interface Parameters

Specification	RS-232C
Sync Method	Synchronous
Baud Rate	9600 bps
Parity	None
Character Length	8 Bits
Stop Bit	1 Bit

RS-232C Pin Layout

Pin 1	Received Line Signal Detector (Data Carrier Detect)
Pin 2	Received Data (RXD)
Pin 3	Transmit Data (TXD)
Pin 4	Data Terminal Ready (DTR)
Pin 5	Signal Ground
Pin 6	Data Set Ready (DSR)
Pin 7	Request To Send (RTS)
Pin 8	Clear To Send (CTS)
Pin 9	Ring Indicator

Command Sequence
PC Side
Display Side

Command: Data ->

<-RCV (Received acknowledgement) or BZY (Busy)

<-CFM or FAL or (Actual Data)

Notes:

1. If PC side sends command data to Display while display is not busy and receives the command, display is to send RCV to confirm receipt of command
 - a. If PC side does not receive RCV from display, then PC side is to re-send data
2. If PC Side sends command data to Display while Display is processing, display to return: BZY
 - a. When PC side received BZY, then PC side needs to stop and wait until Display sends status.
3. When Display side has completed processing, display side sends either CFM (confirmed processing) or FAL (Failure) or Actual data (if REA command is used)

Example: Read Power status Data, followed by Power On command, and input select to TV1 with disruption

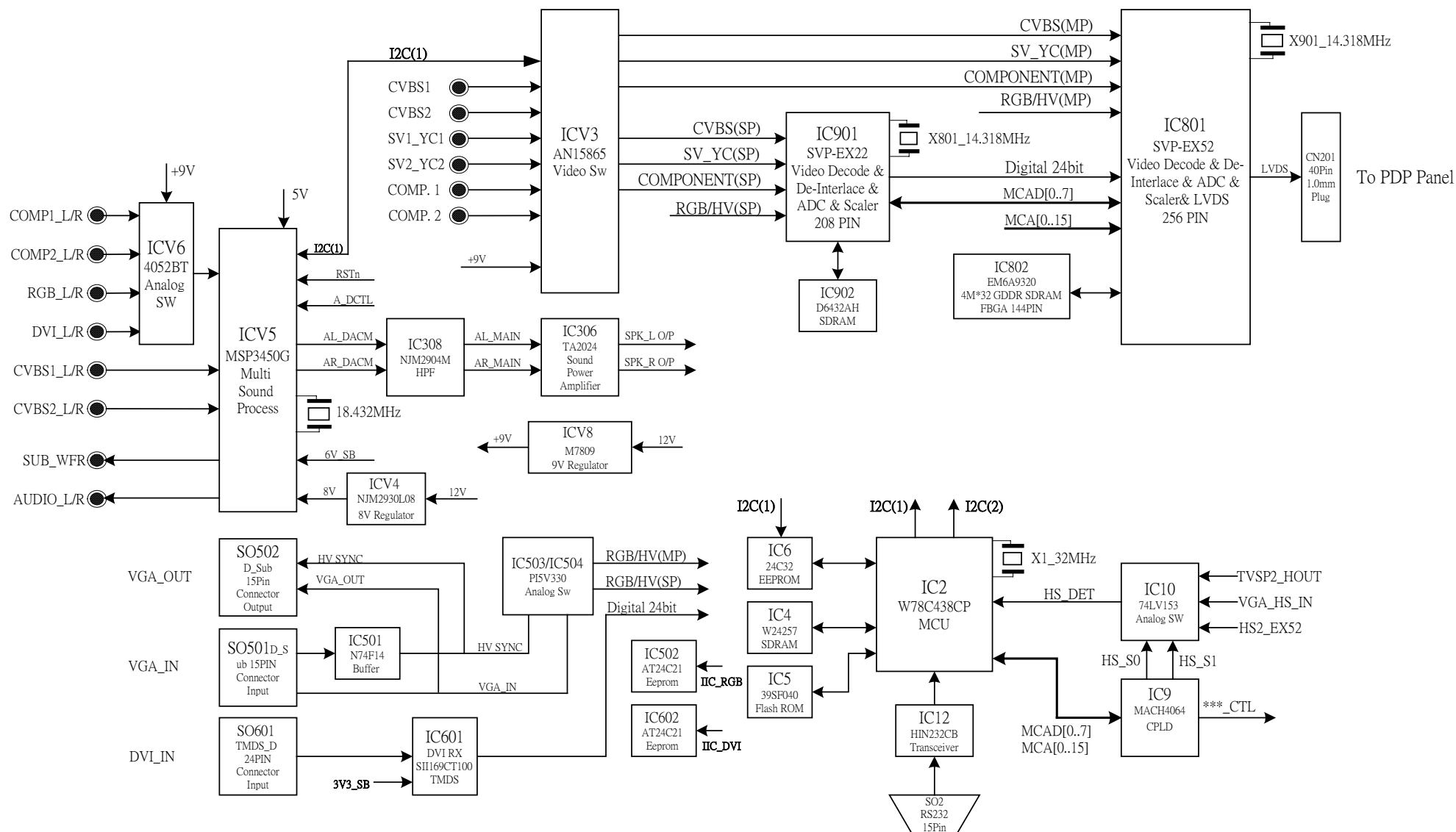
PC Side	Display Side	PC Status	Display Status
REA:PWR ->		PC sends command	Monitor is powered off & receives command
	<- RCV	PC waits ack	Monitor sends receipt of command
	<- OFF	PC waits for actual data	Monitor returns OFF data to PC
PWR:PON ->		PC sends command	Monitor receives command
	<- RCV	PC waits ack	Monitor sends receipt of command
	<- CFM	PC waits for confirmation	Monitor processes command and confirms
INP:TV1 ->		PC sends command	Monitor receives command
	<- RCV	PC waits ack	Monitor sends receipt of command
INP:TV2 ->		PC sends command	Monitor is still processing previous command
	<- BZY	PC waits ack	Monitor sends back busy status with prev command
	<- CFM	PC ack buzzy and waits to resend	Monitor sends confirmation of prev command
INP:TV2 ->		PC resends previous buzzy comnd	Monitor receives new command
	<- RCV	PC waits ack	Monitor sends receipt of command
	<- CFM	PC waits for confirmation	Monitor processes command and confirms

Priority	Description	Command	Data
Must	Read Data	REA	VOL,PWR,BRT,CON,CLR,TNT,SHP,INP VSZ,VPS, HSZ, HPS,RCL,SAV,MUT, LNG,TMP,BAS,TRB,BAL,TS1,CSR, TV1,CCD,ZOM,PIP,POP,PIS,POF, SIN,SWP,RGN,GGN,BGN,RBS, GBS,BBS,FPL, ,STS, ,BI3 BI4, PTM, POS, POV
Must	Volume	VOL	001...100
Must	Power On	PWR	PON=Power On OFF=Power off
2	Brightness	BRT	001...100
2	Contrast	CON	001...100
2	Color	CLR	001...100
2	Tint	TNT	001...100
2	Sharpness	SHP	001...100

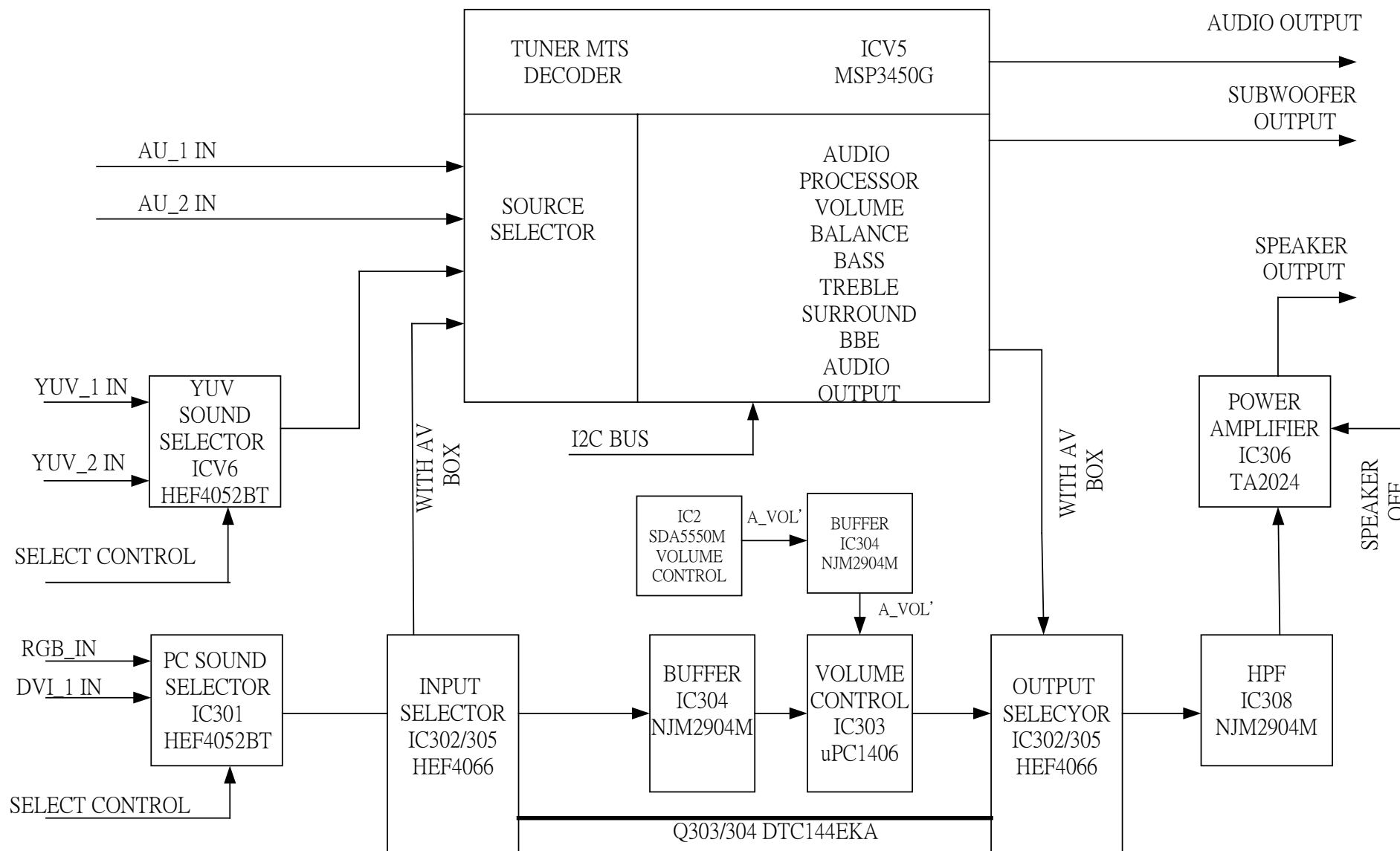
Must	Input Select	INP	TV1=Tuner 1 AV1=AV Input 1 AV2=AV Input 2 CP1=Component 1 CP2=Component 2 RG1=RGB1 DV1=DVI1
2	V-Size	VSZ	001...100
2	V-Position	VPS	001...100
2	H-Size	HSZ	001...100
2	H-Position	HPS	001...100
Must	Recall	RCL	000
4	Save	SAV	000
Must	Mute	MUT	MON=On OFF=Off
3	Language	LNG	ENG=English SPA=Spanish FFR=French TCH=Traditional Chinese
2	Color Temp	TMP	MID=Natural (9300 x=290, y=293) HIG=Cool (13,800 x=270, y=273) 65D=Warm (6500D x=313, y=316)
3	Bass	BAS	001...100
3	Treble	TRB	001...100
3	Balance	BAL	001...100
Must	Tuner 1 Source	TS1	AIR=Air CBL=Cable
3	Channel Search	CSR	TV1=Channel Search TV1
Must	Tuner 1 Channel Change	TV1	001...125
2	Closed Captioning	CCD	OFF CC1 CC2 CC3 CC4 TX1 TX2 TX3 TX4
3	Aspect Ratio	ZOM	WID=16:9 PAN=Panorama Stretch NOR=4:3 with black bars ZO1=Zoom1 ZO2=Zoom2 ZO3=Zoom3
2	PIP	PIP	PON=PIP On OFF=PIP Off
2	POP	POP	PON=POP On OFF=POP Off

2	PIP Position	PIS	PS1=Position 1 PS2=Position 2 PS3=Position 3 PS4=Position 4
2	POP Format	POF	PF1=Full size PF2=16:9 Format PF3=4:3 Format
2	Sub-Source	SIN	TV1=Tuner 1 AV1=AV Input 1 AV2=AV Input 2 CP1=Component 1 CP2=Component 2 RG1=RGB1 DV1=DVI1
2	Sub-Swap	SWP	000
4	R-Gain	RGN	001...256
4	G-Gain	GGN	001...256
4	B-Gain	BGN	001...256
4	R-Bias	RBS	001...256
4	G-Bias	GBS	001...256
4	B-Bias	BBS	001...256
Must	Front Panel Lock	FPL	FO1=Panel Lock On for All OFF=Panel Lock Off for All
Must	Status Display	STS	SON=Status On OFF=Status Off
Must	Image Shift (Screen Saver)	BI3 PDP Only	OFF=Turn off 10S=10 Sec 20S=20 Sec 30S=30 Sec
Must	Full White (Screen Saver)	BI4 PDP Only	OFF=Turn off 10M=10 Min 1HR=1 Hour
Must	Picture Mode	PTM	CNM=Cinema VVD=Vivid STD=Standard USR=User
Must	Power On Source	POS	OFF=Turn off TV1=Tuner 1 AV1=AV Input 1 AV2=AV Input 2 CP1=Component 1 CP2=Component 2 RG1=RGB1 DV1=DVI1
Must	Power On Volume	POV	001...100

MAIN BOARD BLOCK DIAGRAM

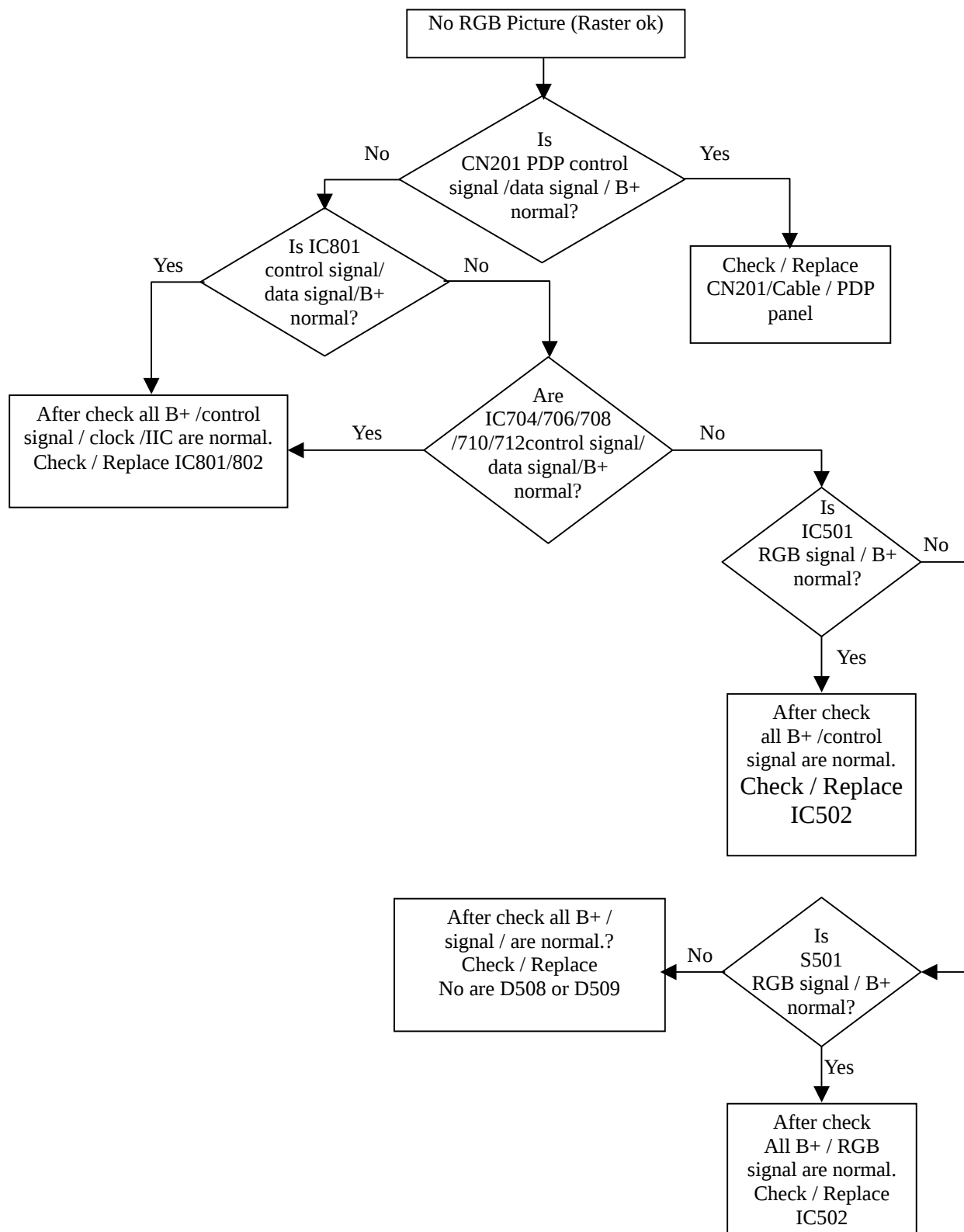


SOUND BLOCK DIAGRAM

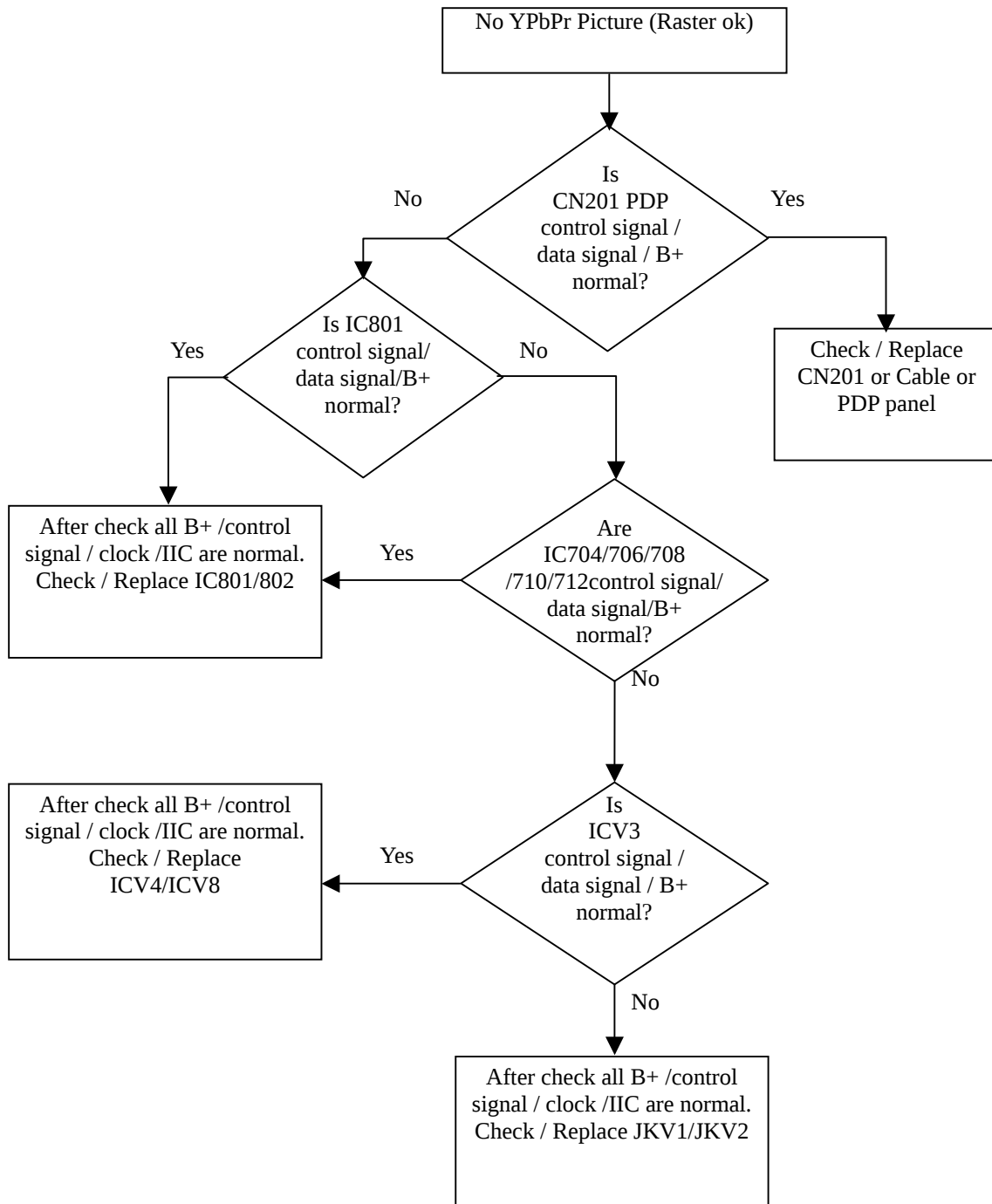


1 No Picture

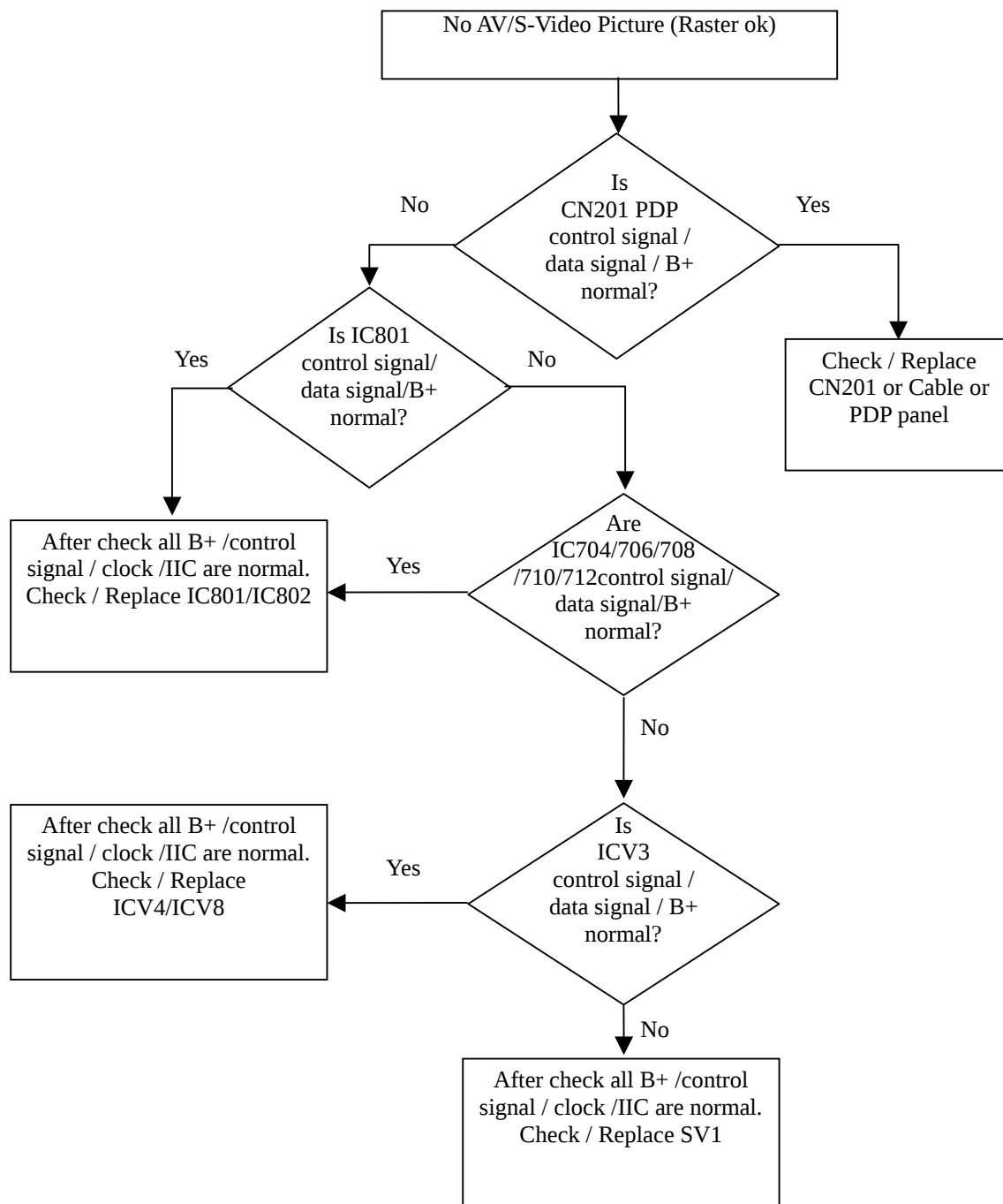
1-1 No RGB Picture



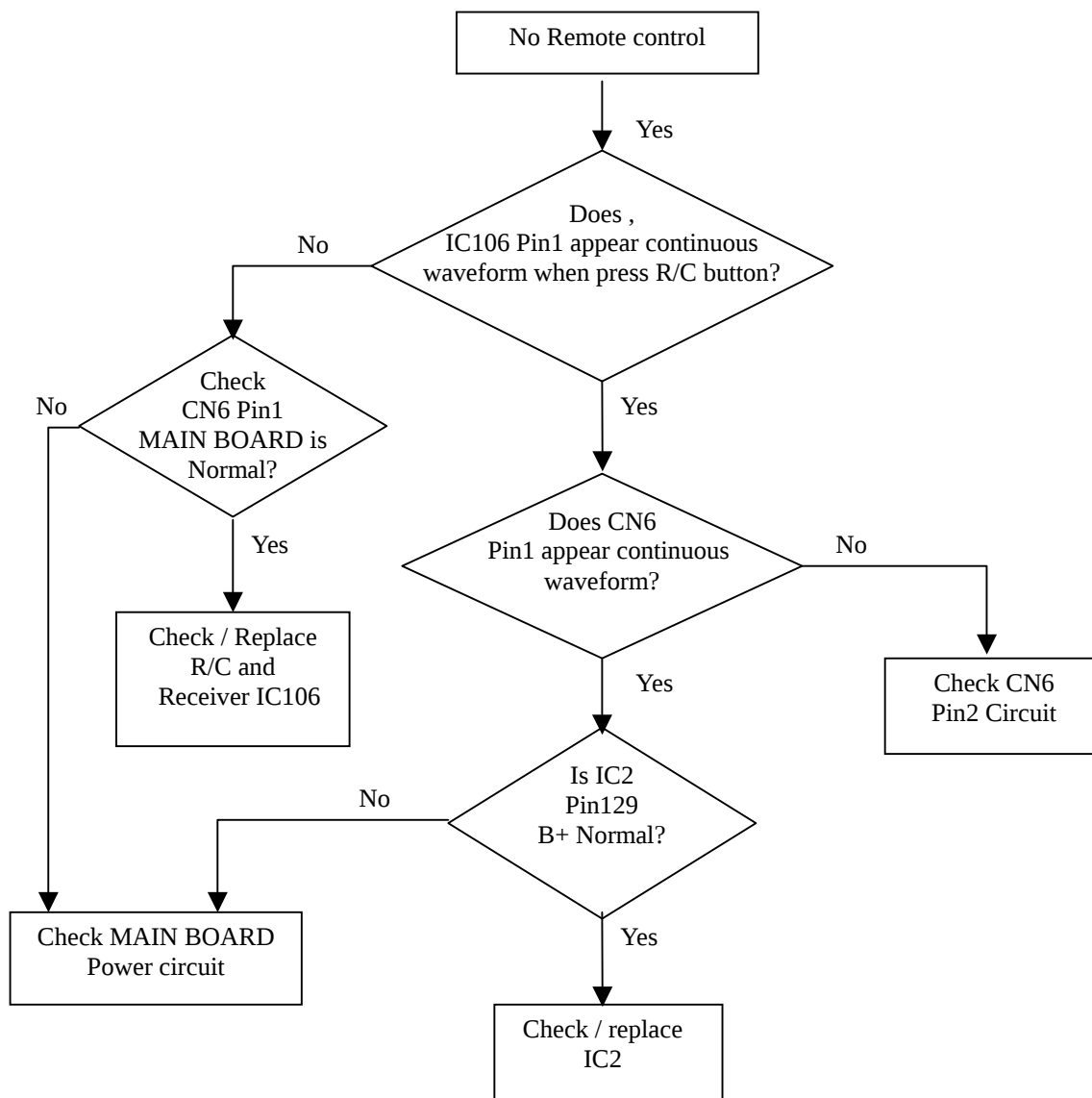
1-2 No COMP Picture



1-3 No AV/S-Video Picture

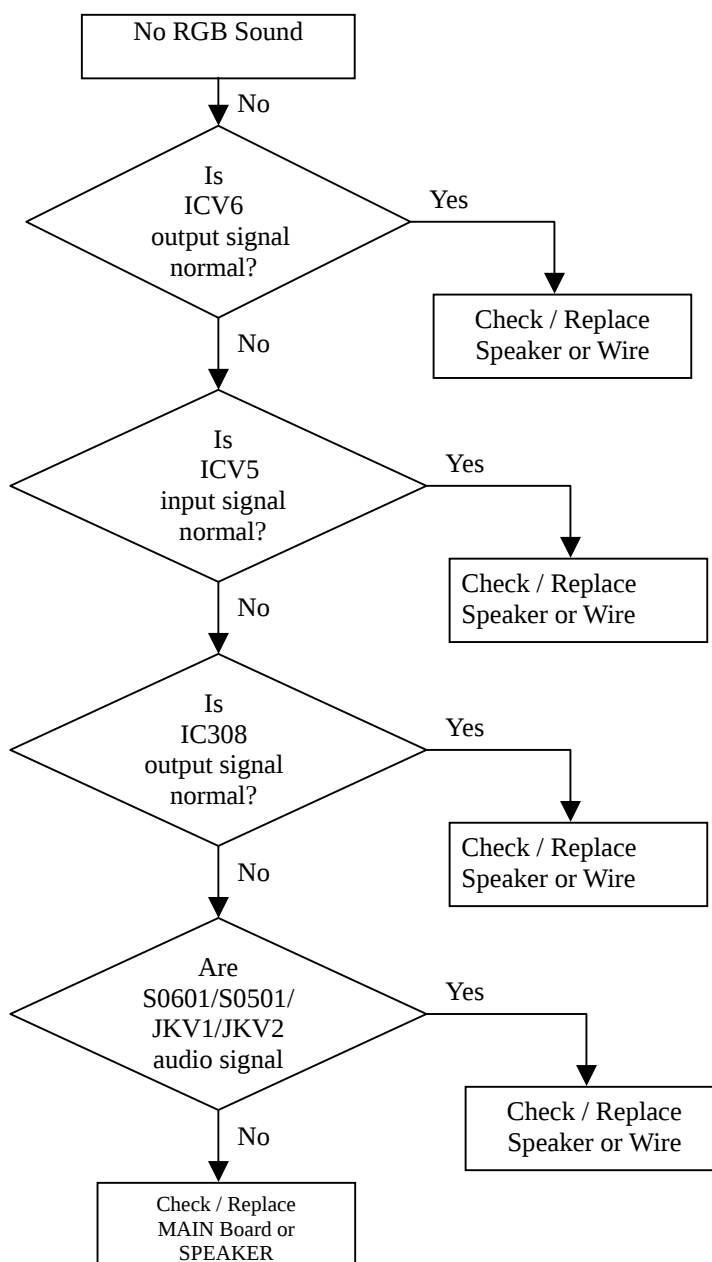


2. No Remote control

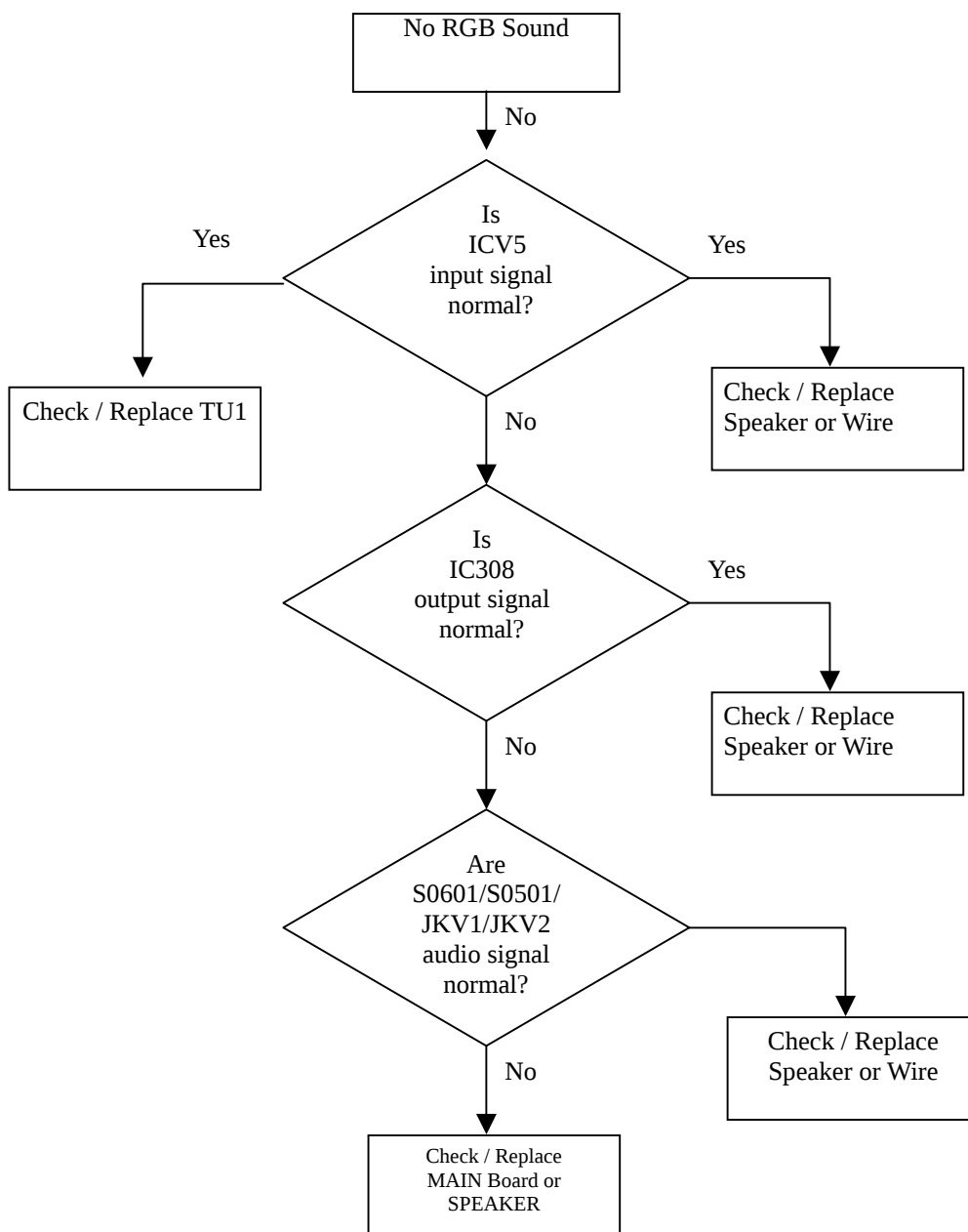


3. No Sound

3-1. No RGB/COMP/DVI Sound



3-2. No S-VIDEO/AV/AUDIO OUTPUT/TV/SUBWOOFER OUTPUT Sound

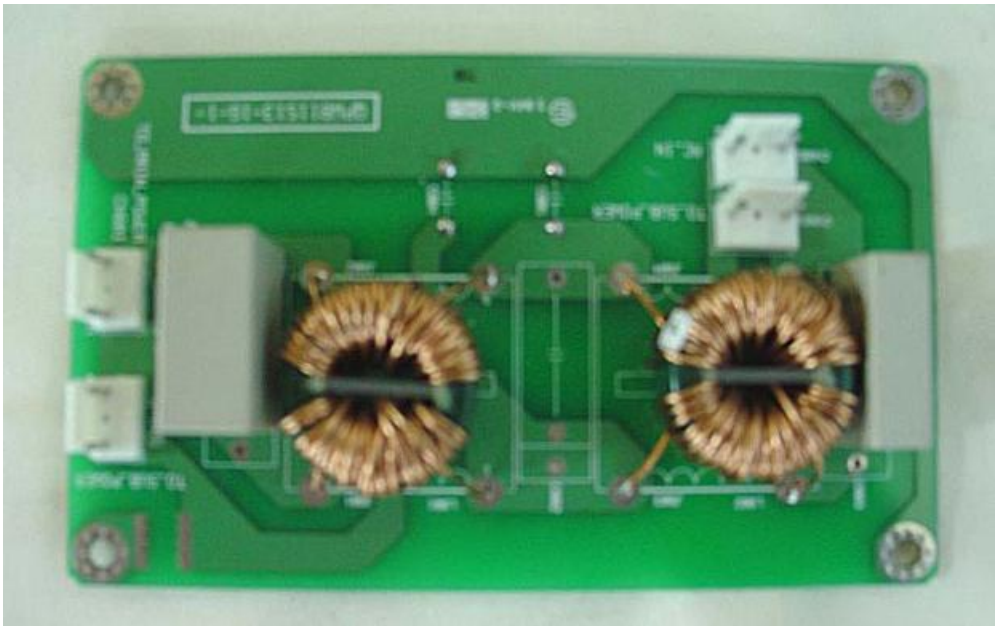




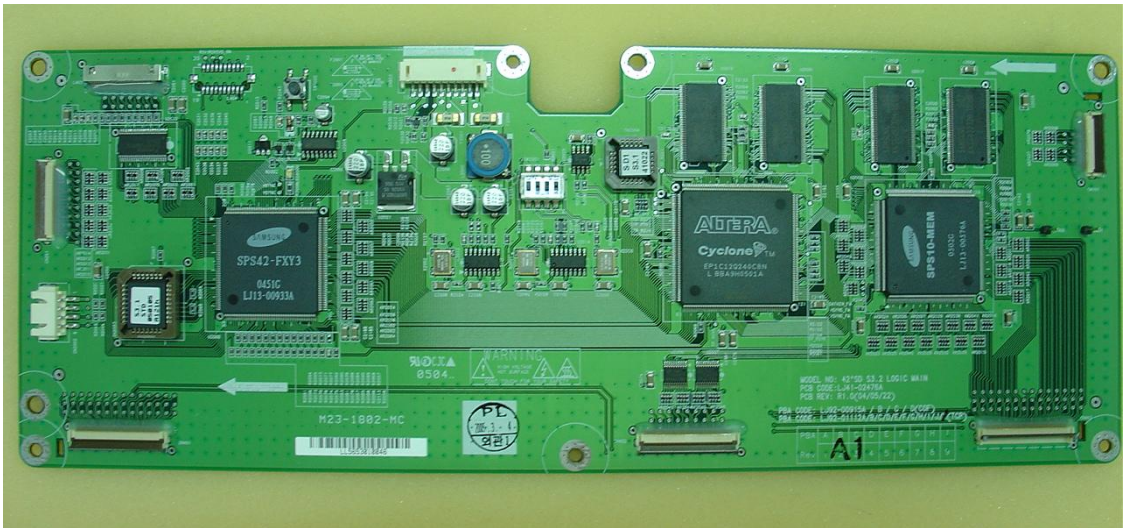
MODULE NAME	PARTS NO.
IMAGE BOARD ASS'Y	DPWB11526-MPS--



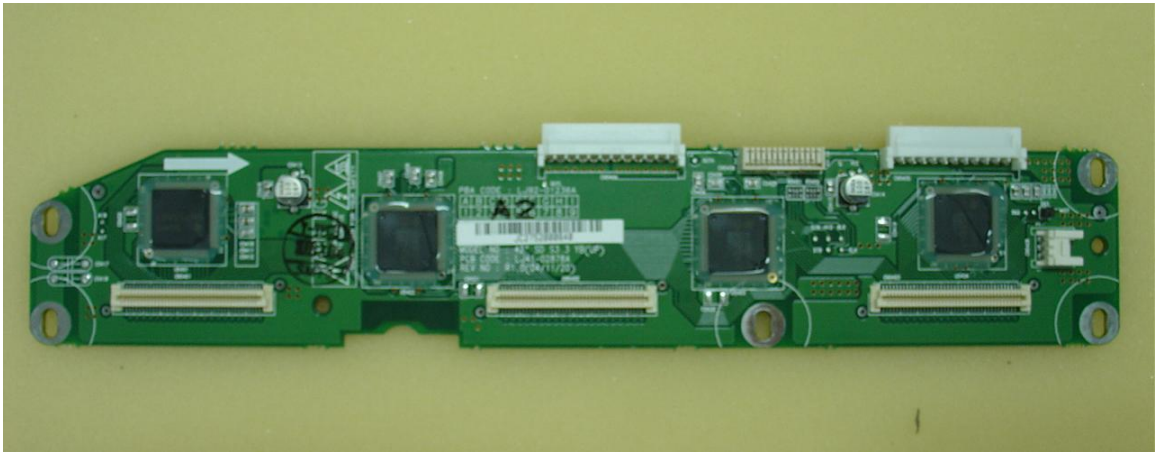
MODULE NAME	PARTS NO.
FORNT BUTTON CONTROL BOARD ASS'Y	DPWB11421-KPS-A



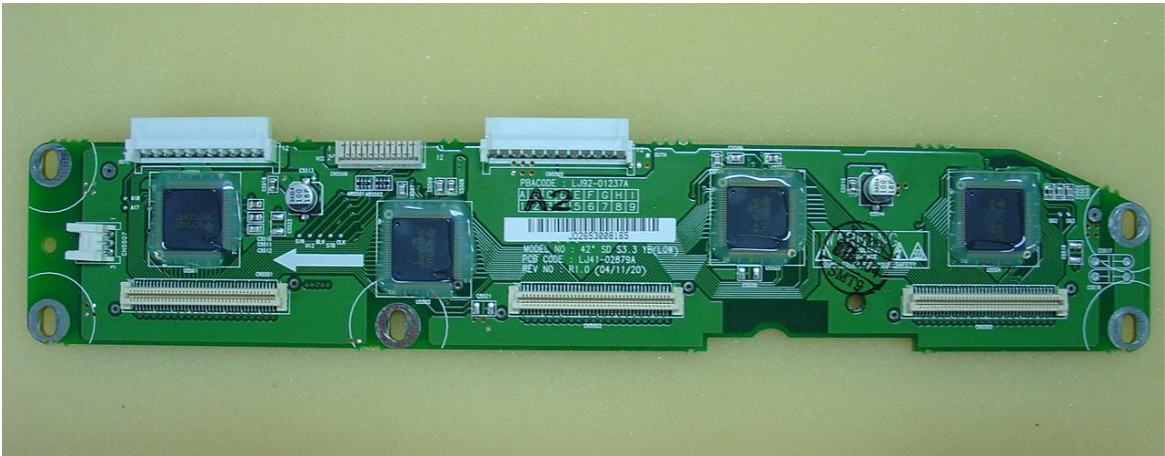
MODULE NAME	PARTS NO.
POWER FILTER BOARD ASS'Y	DPWB11513-PPS-A



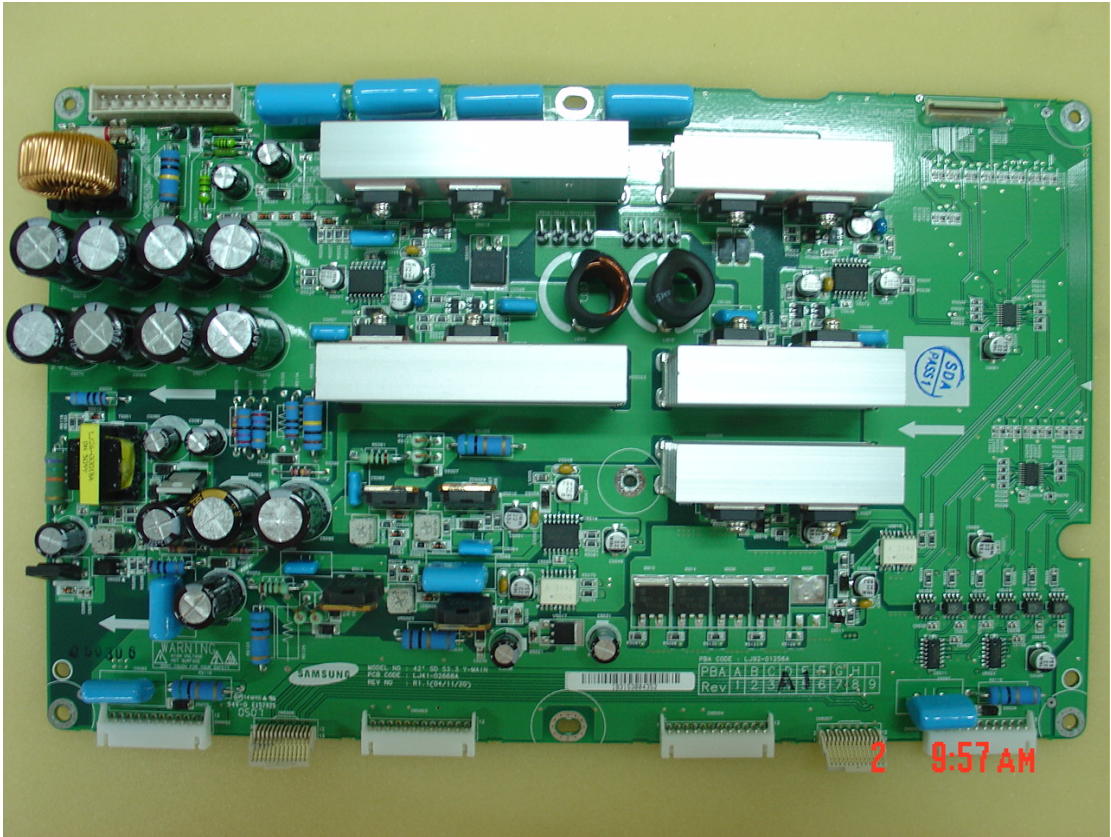
MODULE NAME	PARTS NO.
LOGIC BOARD ASS'Y	LJ92-00915A



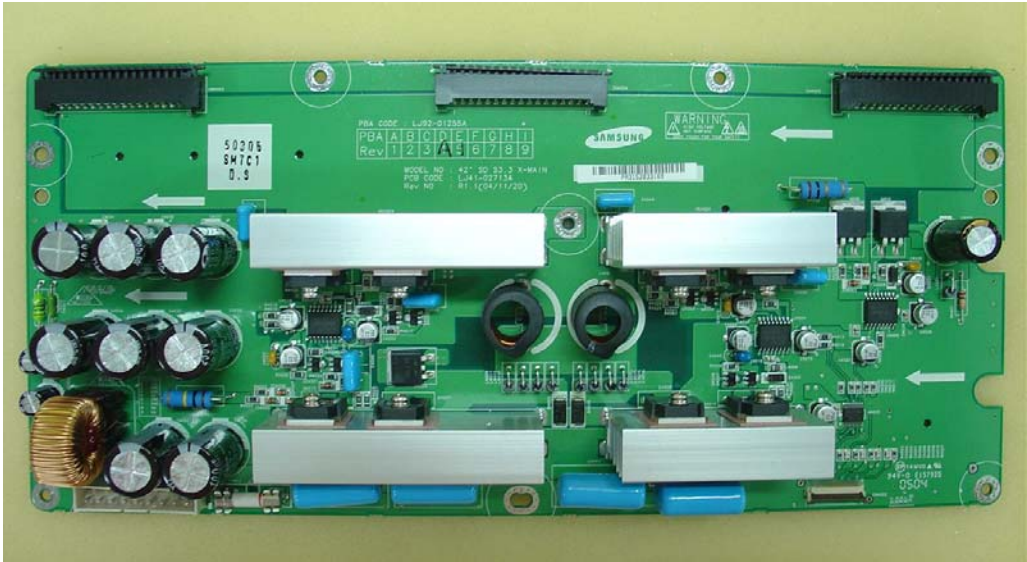
MODULE NAME	PARTS NO.
Y DRV_TOP BOARD ASS'Y	LJ92-01236A



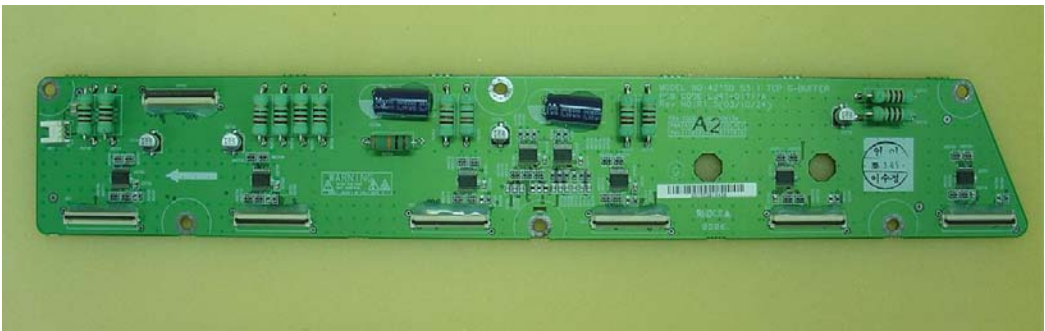
MODULE NAME	PARTS NO.
Y DRV_BOTTOM BOARD ASS'Y	LJ92-001237A



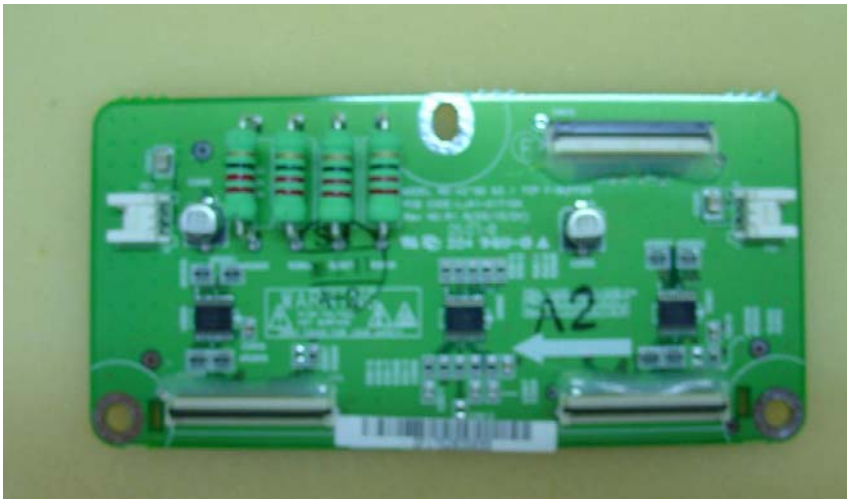
MODULE NAME	PARTS NO.
Y-SUS BOARD ASS'Y	LJ92-01256A



MODULE NAME	PARTS NO.
X DRV BOARD ASS'Y	LJ92-01255A



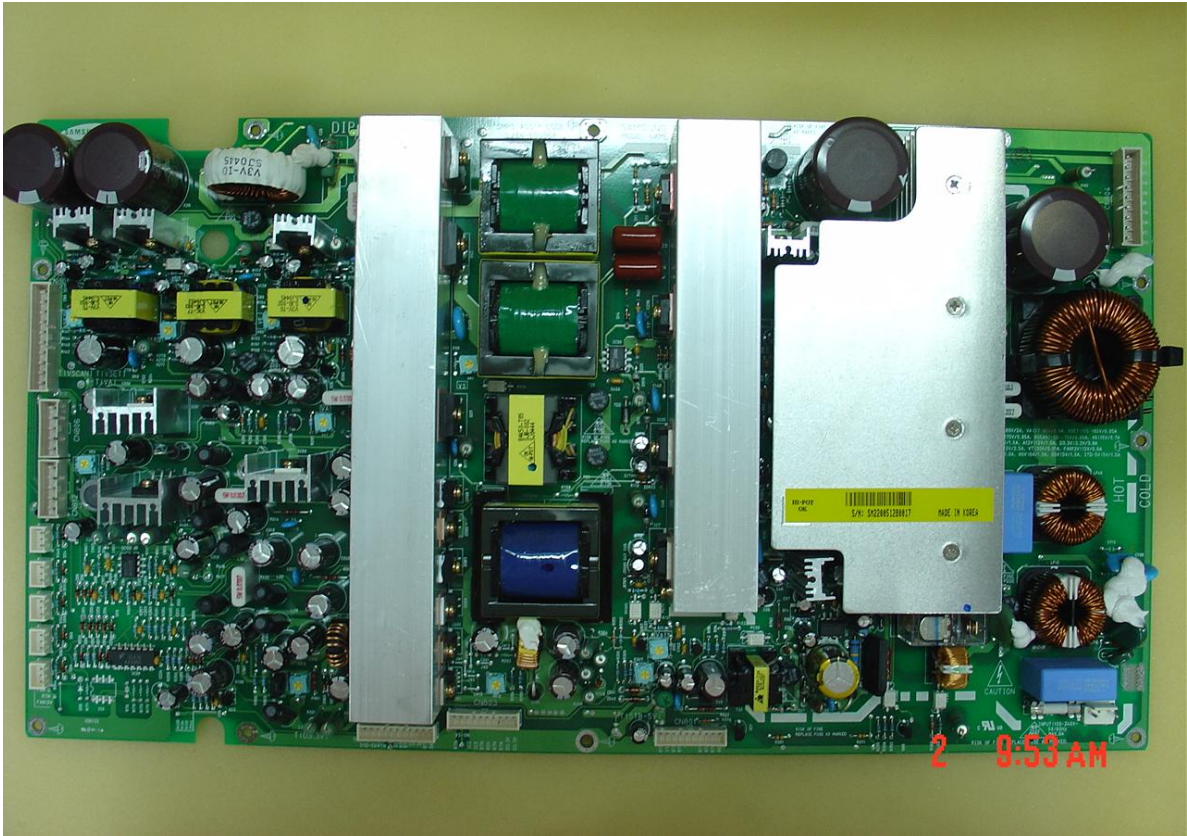
MODULE NAME	PARTS NO.
X DRV_RIGHT_BOTTOM BOARD ASS'Y	LJ92-00813A



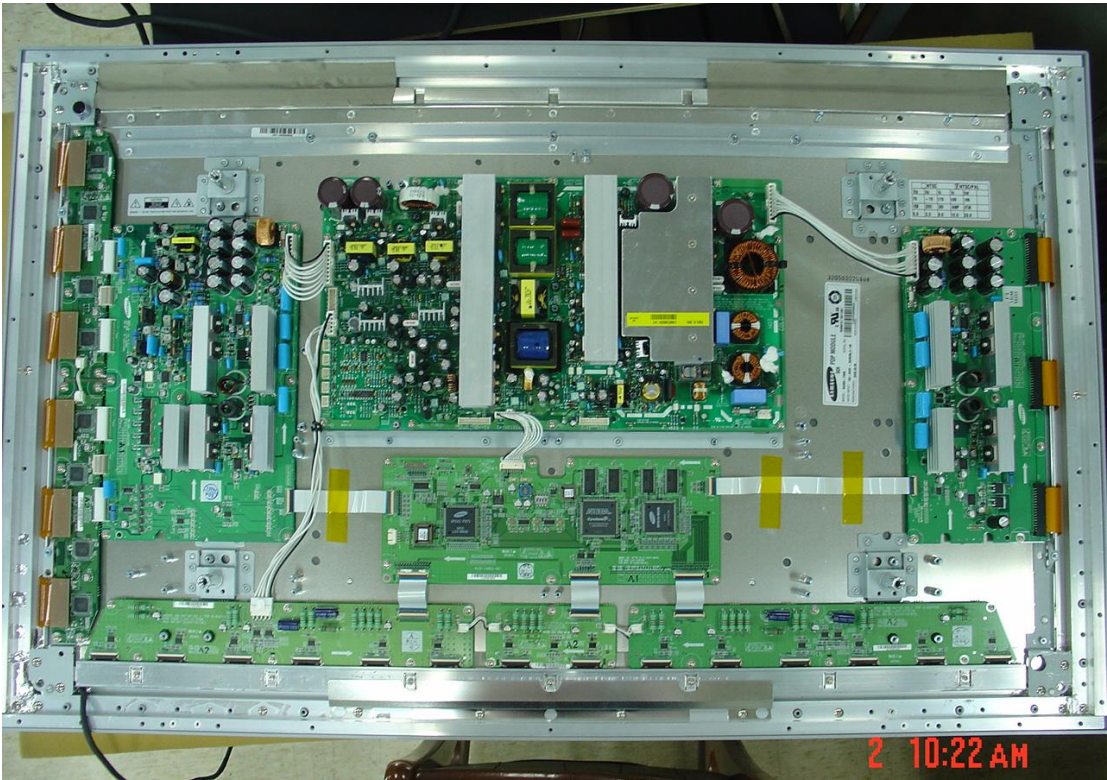
MODULE NAME	PARTS NO.
X DRV_CENTER_BOTTOM BOARD ASS'Y	LJ92-00812A



MODULE NAME	PARTS NO.
X DRV_LEFT_BOTTOM BOARD ASS'Y	LJ92-00811A



MODULE NAME	PARTS NO.
MAIN POWER BOARD ASS'Y	LJ44-00096A

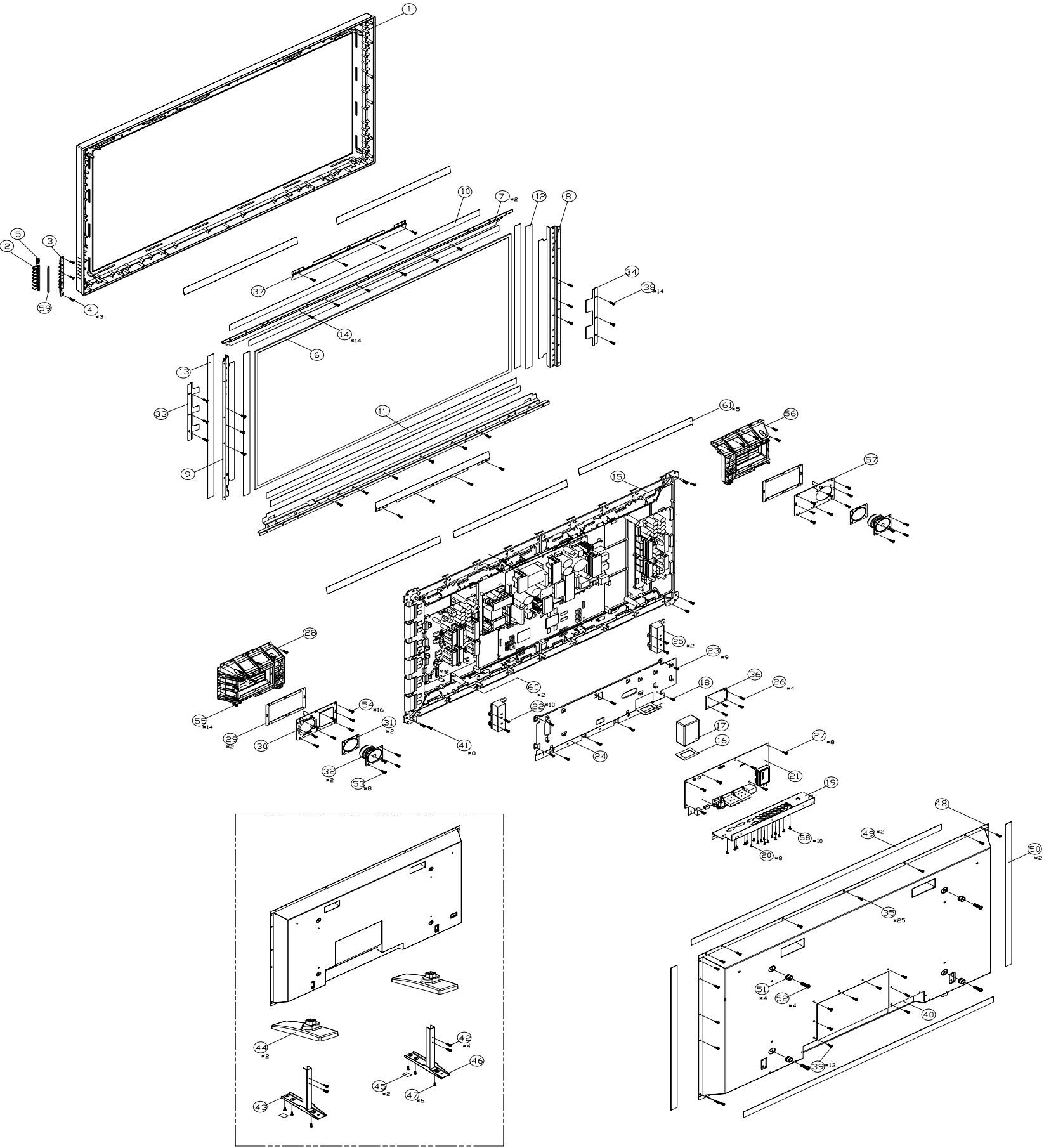


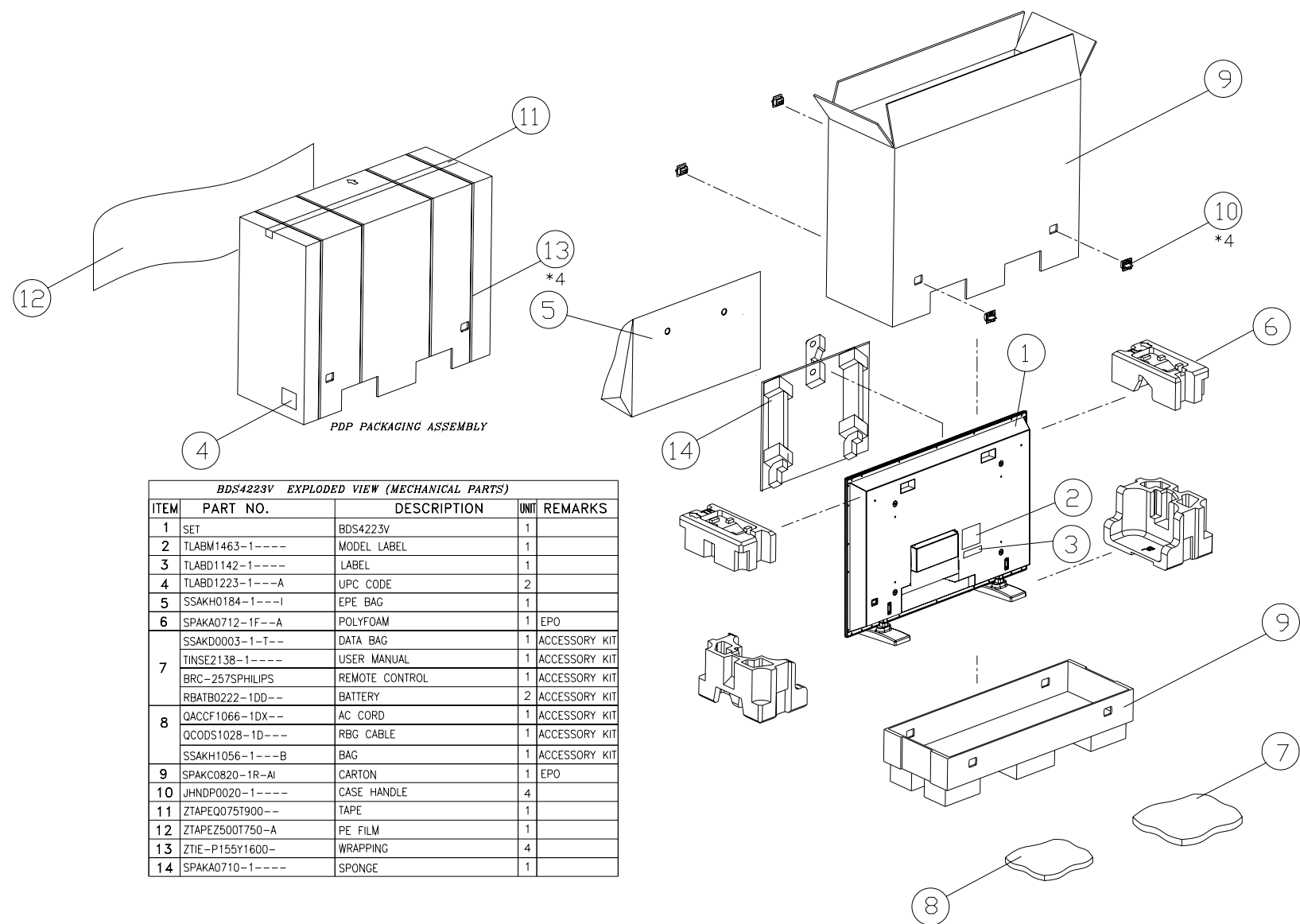
MODULE NAME	PARTS NO.
PDP PANEL MODULE BOARD ASS'Y	VVEPP42SD-YD05-

Model Name: BDS4223V/27

No.	Module Name	Supplier	Supplier's Ass'y Part No.	Quantity Per Final Assembly
1	Image Board	Sampo	DPWB11526-MPS--	1
2	Front Button Control Board	Sampo	DPWB11421-KPS-A	1
3	Power Filter Board	Sampo	DPWB11513-PPS-A	1
4	Logic Board	Samsung	LJ92-00915A	1
5	Y DRV_Top	Samsung	LJ92-01236A	1
6	Y DRV_Bottom	Samsung	LJ92-01237A	1
7	Y-SUS	Samsung	LJ92-01256A	1
8	X DRV	Samsung	LJ92-01255A	1
9	X DRV_Right_Bottom	Samsung	LJ92-00813A	1
10	X DRV_Center_Bottom	Samsung	LJ92-00812A	1
11	X DRV_Left_Bottom	Samsung	LJ92-00811A	1
12	Main Power	Samsung	LJ44-00096A	1
13	Full Set PDP Panel Module	Samsung	VVEPP42SD-YD05-	1
14	Glass Filter	Sampo	PGLS-0020-1- - - -	1
15	Speaker	Sampo	RSPKES011-17FL	2
16	Front Bezel	Sampo	DMSKP0132-1F- -L	1
17	Rear Cover	Sampo	GCABB0317-1P-AC	1
18	Plasma Stand Assembly	Sampo	GSTN-0032-1F- -D	2

BDS4223V EXPLODED VIEW (MECHANICAL PARTS)			
ITEM	PART NO.	DESCRIPTION	UNIT
1	DMSKP0132-1F--L	BEZEL ASS'LY	1
2	JKNBP0677-1F--B	FRONT BUTTON	1
3	DPWB11421-KPS-A	SCREW FOR FUNCTION KEY PWB	1
4	XEASN30P10000--	SCREW FOR FUNCTION PWB	3
5	PREFL0081-1F---	R/C LENS	1
6	PGLS-0020-1----	GLASS	1
7	LANGQ0034-1P--A	COLOR FILTER ANGLE(T/B)	2
8	LANGQ0034-1P--H	COLOR FILTER ANGLE(L)	1
9	LANGQ0034-1P--I	COLOR FILTER ANGLE(R)	1
10	PCUSS0110-1---D	COLOR FILTER SHIELDING (T/B)	2
11	PSLDM0383-1---A	EMI DHIELDING(TOP/BOTTOM)	2
12	PCUSS0110-1---E	COLOR FILTER SHIELDING (L/R)	2
13	PSLDM0384-1---A	EMI SHIELDING(L/R)	2
14	XETSN40P16000--	SCREW FOR COLOR FILTER ANGLE	14
15	VVEPP42SD-YD05-	PDP PANEL	1
16	PCUSS0159-1P---	AC FILTER CUSHION	1
17	RFIL-1092-1----	AC LINE FILTER	1
18	XBPSC40P10JS---	GROUNDING SCREW	1
19	LANGF1082-1P--A	AV ANGLE	1
20	LX-BZ1034-1----	SCREW FOR DVI PWB ANGLE	8
21	DPWB11526-MPS--	MAIN BOARD	1
22	XBPSN40P10JS0--	SCREW LEG SUPPORT	12
23	XBPSN30P08JS0--	SCREW FOR PWB ANGLE	9
24	LANGP0223-1P--A	MAIN BOARD ANGLE	1
25	LANGF1013-1C--B	LEG SUPPORT	2
26	XBPSN30P08JS0--	SCREW POWER PWB	4
27	XBPSN30P08JS0--	SCREW INTERFACE ANGLE	8
28	LHLDP0094-1F---	PDP HOLDER(TL)	1
29	PCUSU0140-1P---	SPK CUSHION	2
30	LFRMS1020-1F---	SPK FIX(L)	1
31	PCUSU0139-1P---	SPK CUSHION	2
32	RSPKES011-17FL-	SPEAKER	2
33	PSLDM0374-1P---	GROUNDING ANGLE(L)	1
34	PSLDM0375-1P---	GROUNDING ANGLE(R)	1
35	XTTSQ40P20W00--	SCREW FOR REAR COVER	25
36	DPWB11513-PPS-A	POWER PWB	1
37	PSLDM0356-1P--A	GROUNDING ANGLE(T/B)	2
38	XETSN40P16000--	SCREW GROUNDING ANGLE	12
39	XBJSQ30P06000--	SCREW FOR CAB-B	13
40	HINDP0415-1P--C	POWER INDICATOR	1
41	XETSN40P16000--	SCREW PANEL FOR ANGLE	8
42	XBPSQ40P45JS0--	SCREW FOR FOOT FIX	4
43	LANGF0981-1P--K	STAND(L)	1
44	GSTN-0030-1F--D	STAND(PLASTIC)	2
45	GLEGG1016-1----	CUSHION FOR STAND	2
46	LANGF0981-1P--K	STAND(R)	1
47	XETSN40P10000--	SCREW FOR STAND	6
48	GCABB0317-1P-AC	CAB-B	1
49	PSLDM0354-1---A	EMI SHIECDING FOR REAR COVER(T/B)	2
50	PSLDM0355-1----	EMI SHIECDING FOR REAR COVER(L/R)	2
51	LHLD-0288-1---B	WALL MOUNT HOLDER	4
52	XBPSQ80P45JS0--	SCREW FOR WALL MOUNT HOLDER	4
53	XEASN30P10000--	SCREW FOR SPEAKER	8
54	XEASN30P10000--	SCREW FOR SPK FIX	16
55	XETSN40P16000--	SCREW FOR HOLDER	14
56	LHLDP0095-1F---	PDP HOLDER(TR)	1
57	LFRMS1021-1F---	SPK FIX(R)	1
58	XJASN30P10000--	SCREW AV JACK	10
59	PCUSS0146-1P--A	FUNCTION KNOB CUSHION	1
60	LBSH-0016-1----	FIX PANEL	2
61	PSLDM0451-1----	CUSHION	5



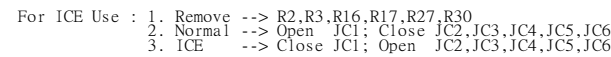


BDS4223V EXPLODED VIEW (MECHANICAL PARTS)				
ITEM	PART NO.	DESCRIPTION	UNIT	REMARKS
1	SET	BDS4223V	1	
2	TLABM1463-1----	MODEL LABEL	1	
3	TLABD1142-1----	LABEL	1	
4	TLABD1223-1---A	UPC CODE	2	
5	SSAKH0184-1---I	EPE BAG	1	
6	SPAKA0712-1F--A	POLYFOAM	1	EPO
7	SSAKD0003-1-T--	DATA BAG	1	ACCESSORY KIT
	TINSE2138-1----	USER MANUAL	1	ACCESSORY KIT
	BRC-257SPHILIPS	REMOTE CONTROL	1	ACCESSORY KIT
	RBATB0222-1DD--	BATTERY	2	ACCESSORY KIT
8	QACCF1066-1DX--	AC CORD	1	ACCESSORY KIT
	QCODS1028-1D---	RGB CABLE	1	ACCESSORY KIT
	SSAKH1056-1---B	BAG	1	ACCESSORY KIT
9	SPAKC0820-1R-AI	CARTON	1	EPO
10	JHNDP0020-1----	CASE HANDLE	4	
11	ZTAPEQ0751900--	TAPE	1	
12	ZTAPEZ500T750-A	PE FILM	1	
13	ZTIE-P155Y1600--	WRAPPING	4	
14	SPAKA0710-1----	SPONGE	1	

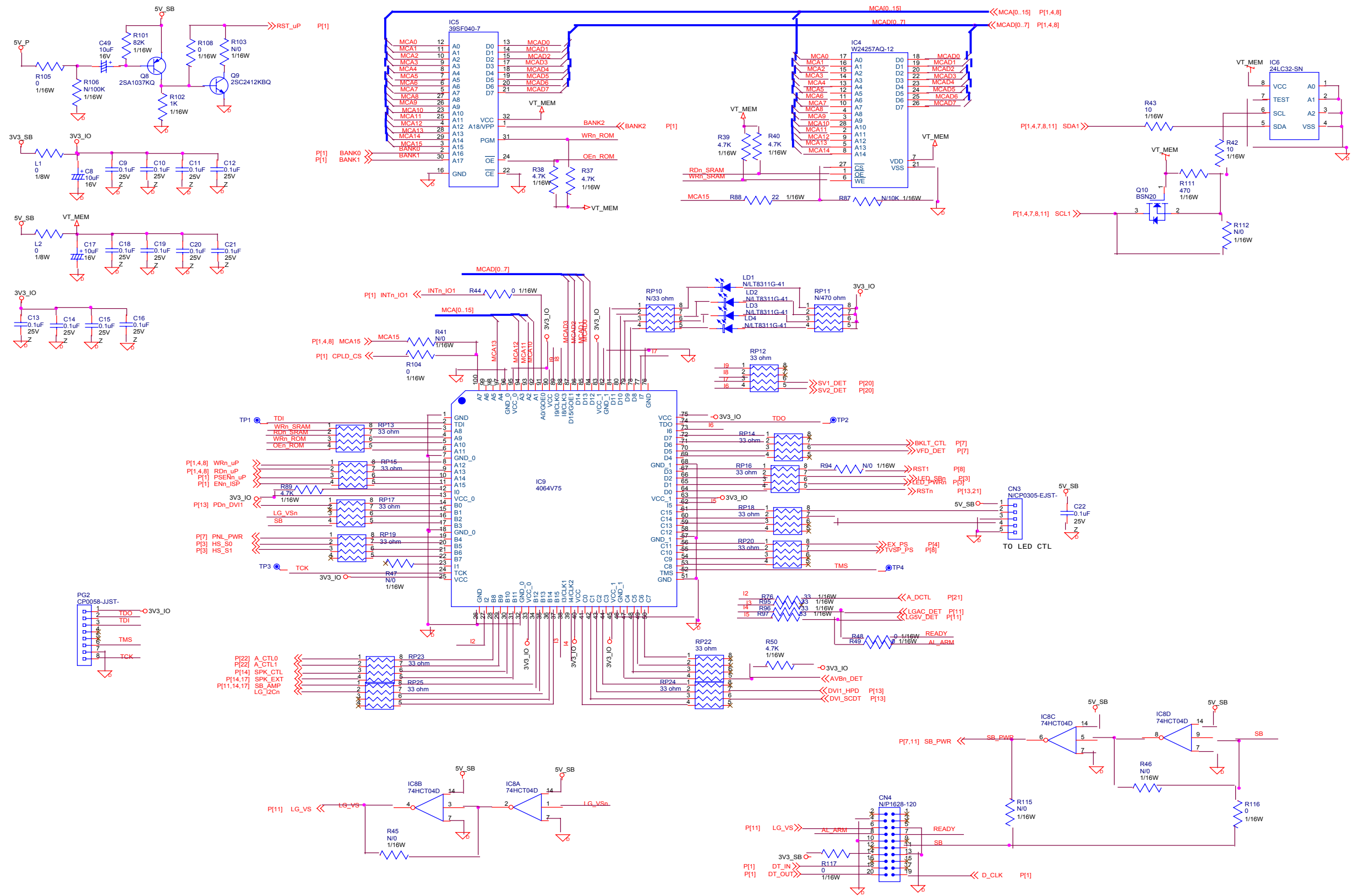
CONTENT OF ATTACHMENTS

- 1. Main Board**
- 2. Front Button Control Board**
- 3. Power Filter Board**

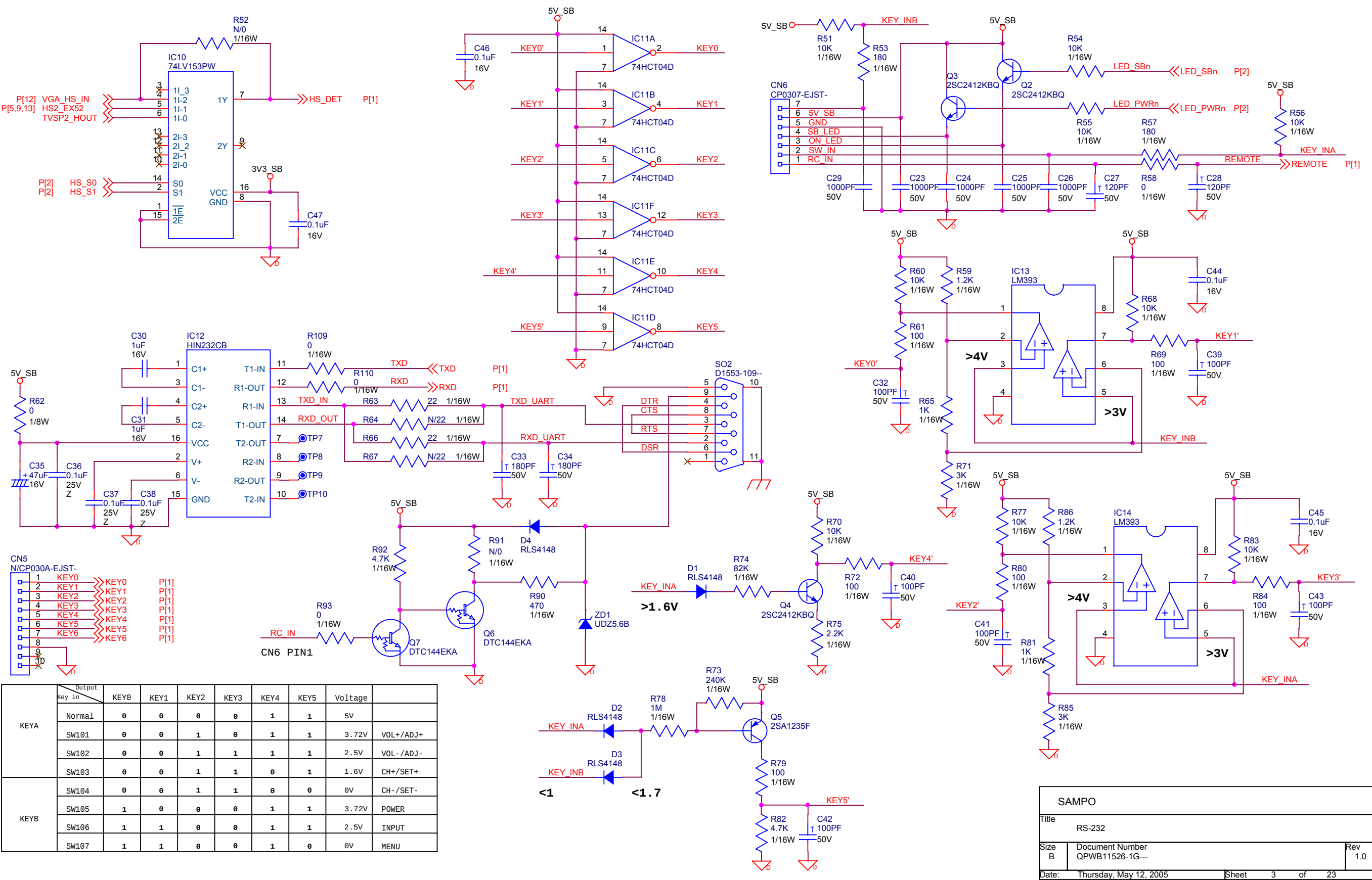
1. Image Board



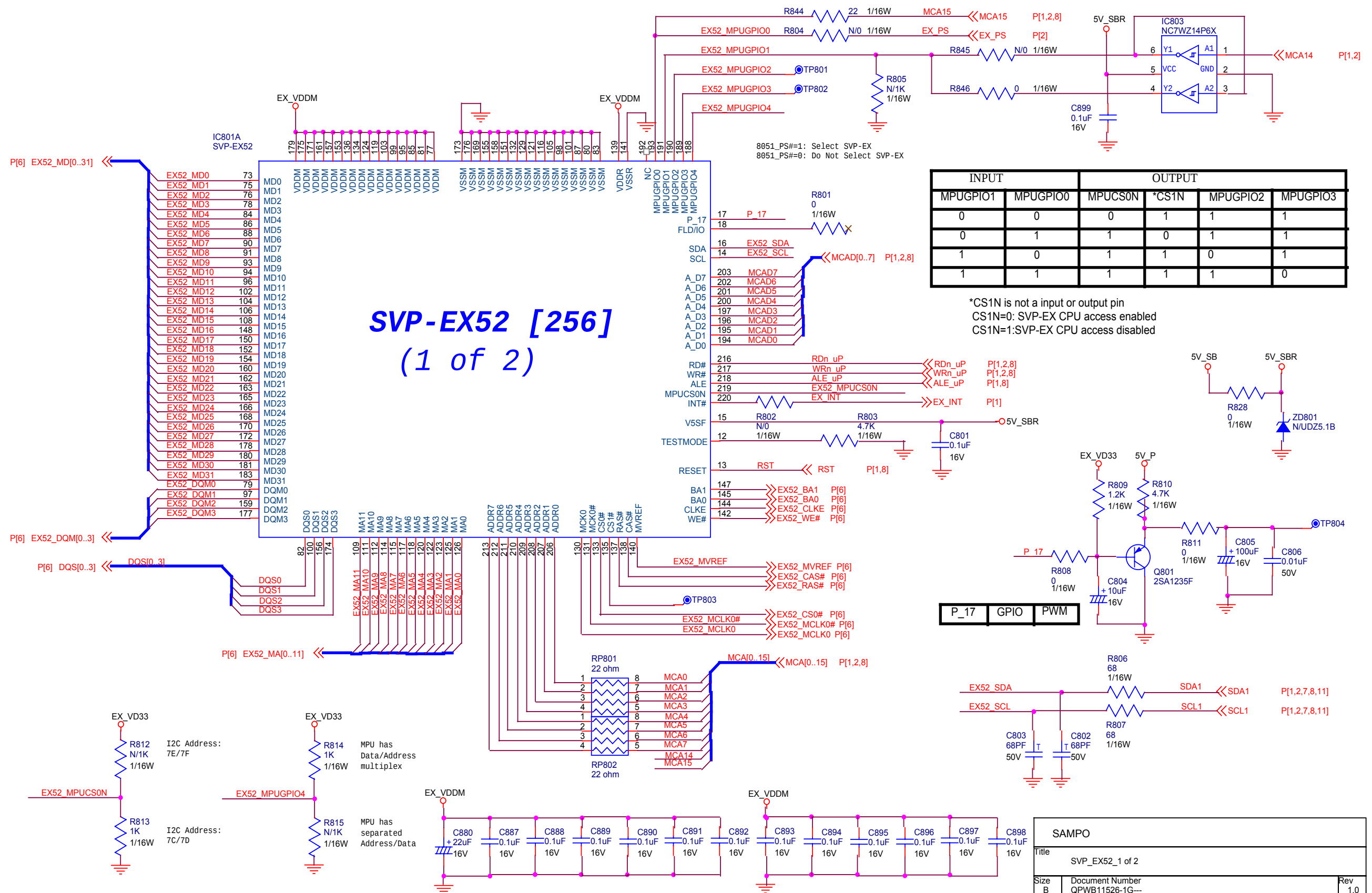
SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

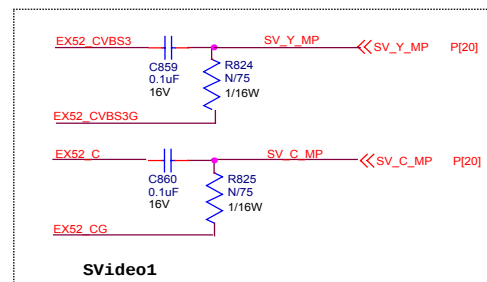
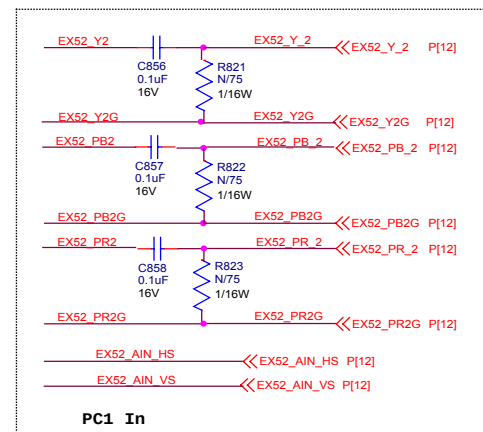
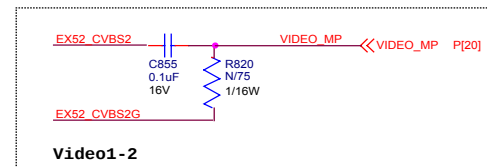
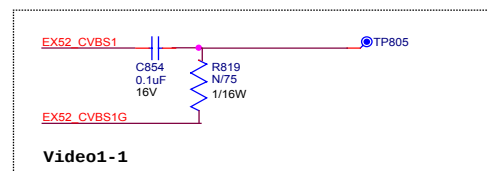
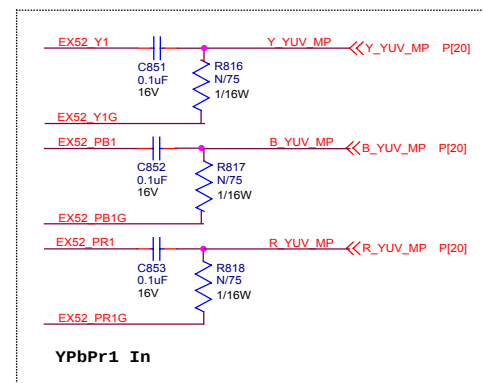
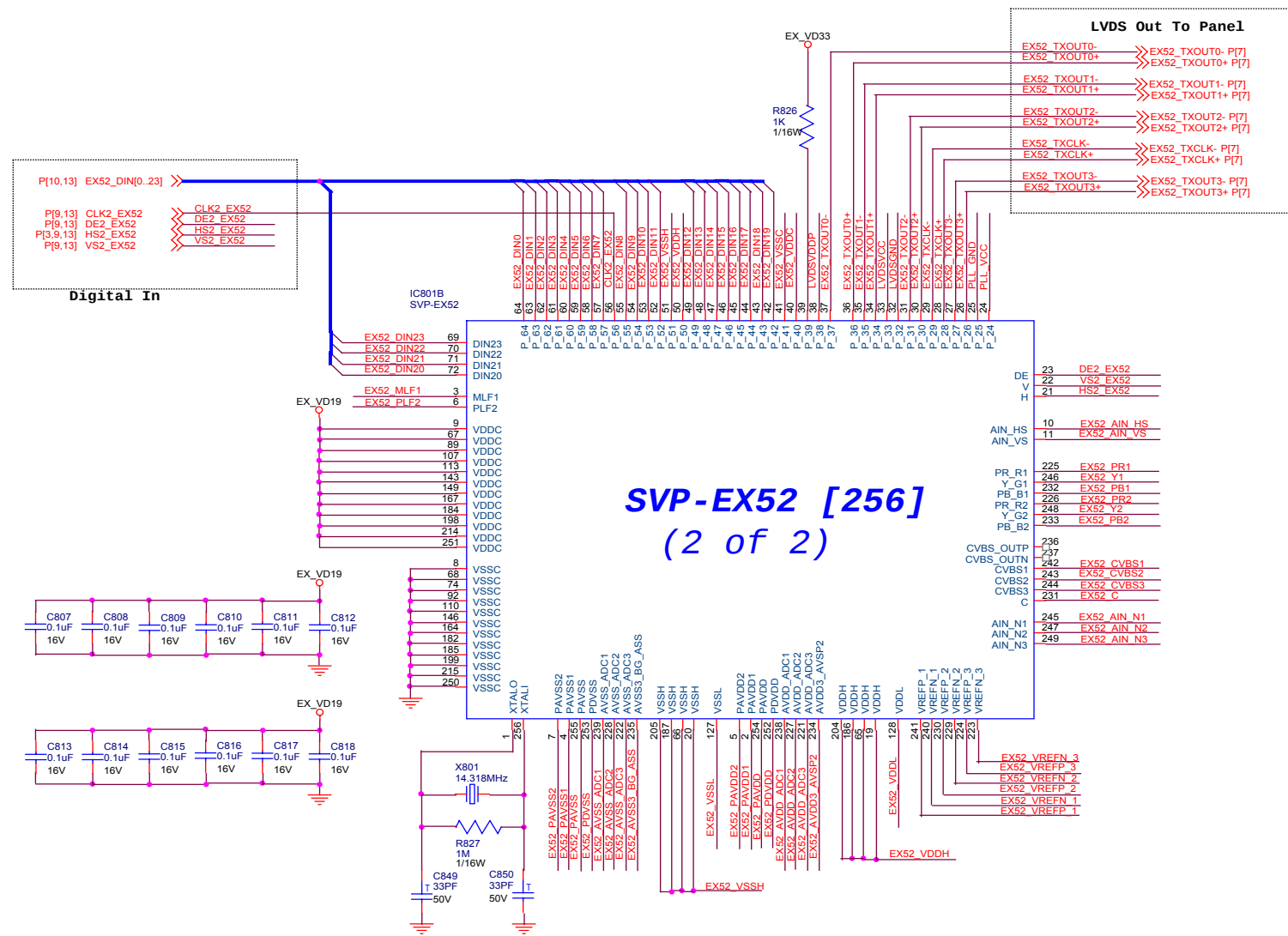


INPUT		OUTPUT			
MPUGPIO1	MPUGPIO0	MPUCS0N	*CS1N	MPUGPIO2	MPUGPIO3
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0	1	1	0	1	1
1	0	1	1	0	1
1	1	1	1	1	0

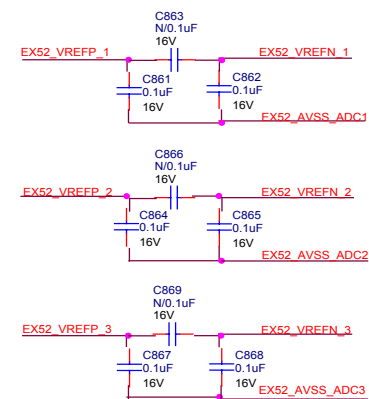
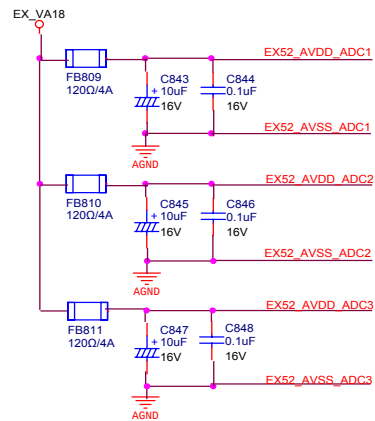
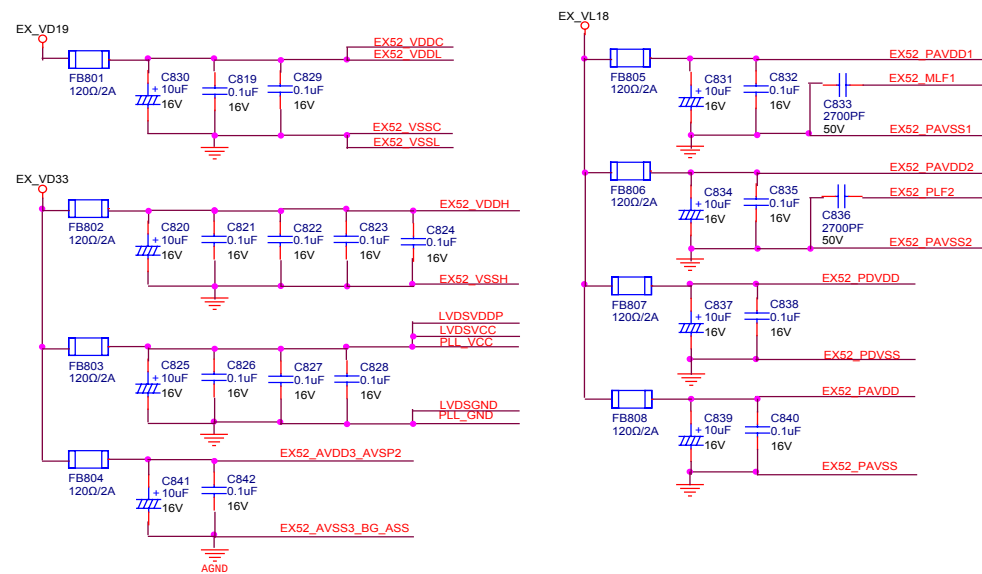
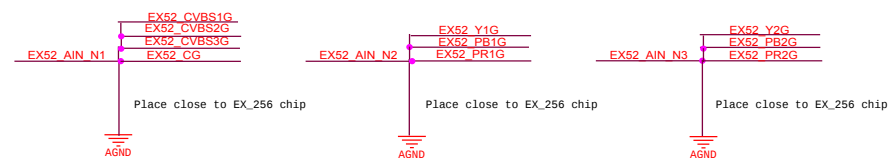
*CS1N is not a input or output pin
CS1N=0: SVP-EX CPU access enabled
CS1N=1:SVP-EX CPU access disabled

SAMPO			
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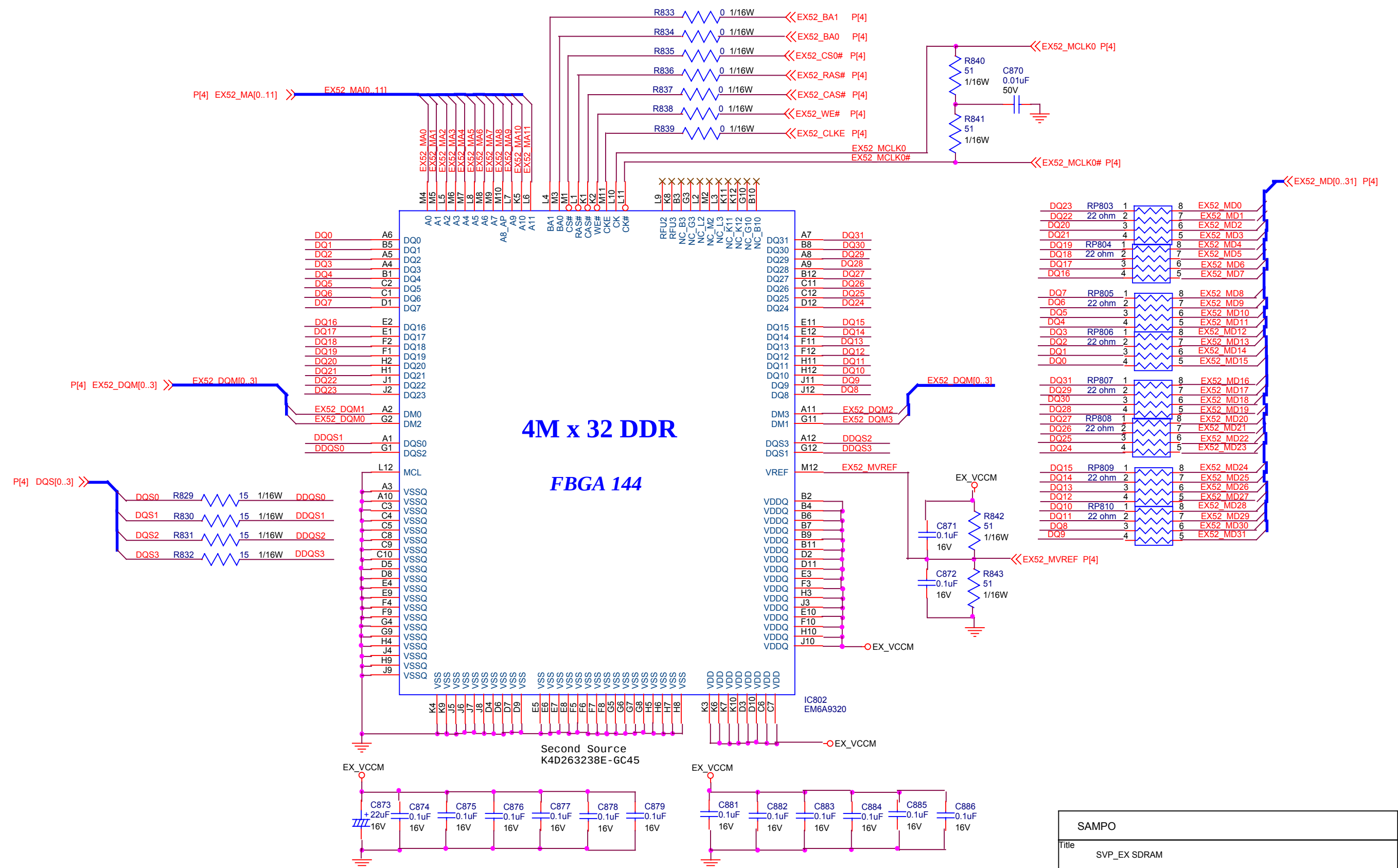


Place 75 ohm
resistors close
to SVP-EX



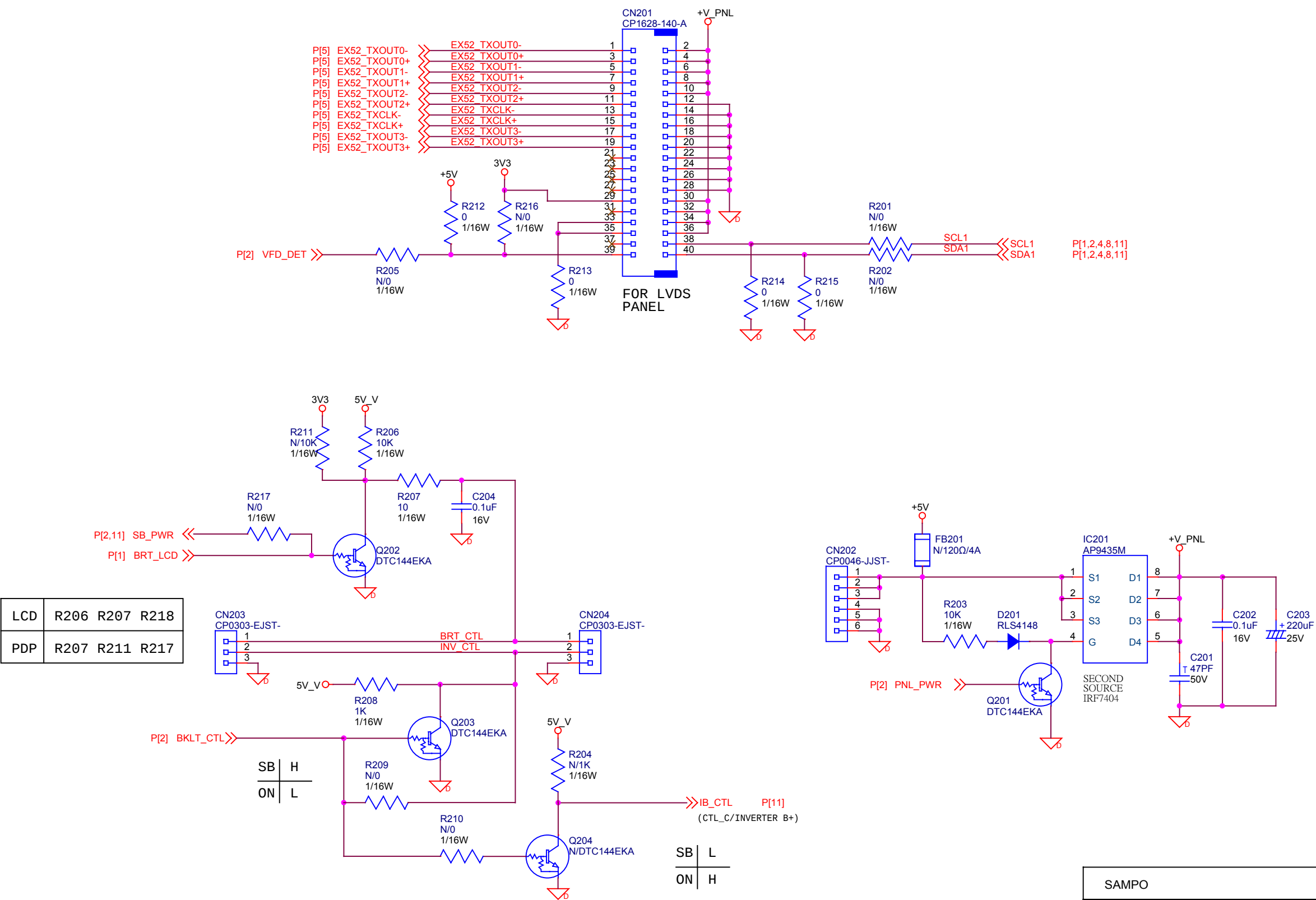
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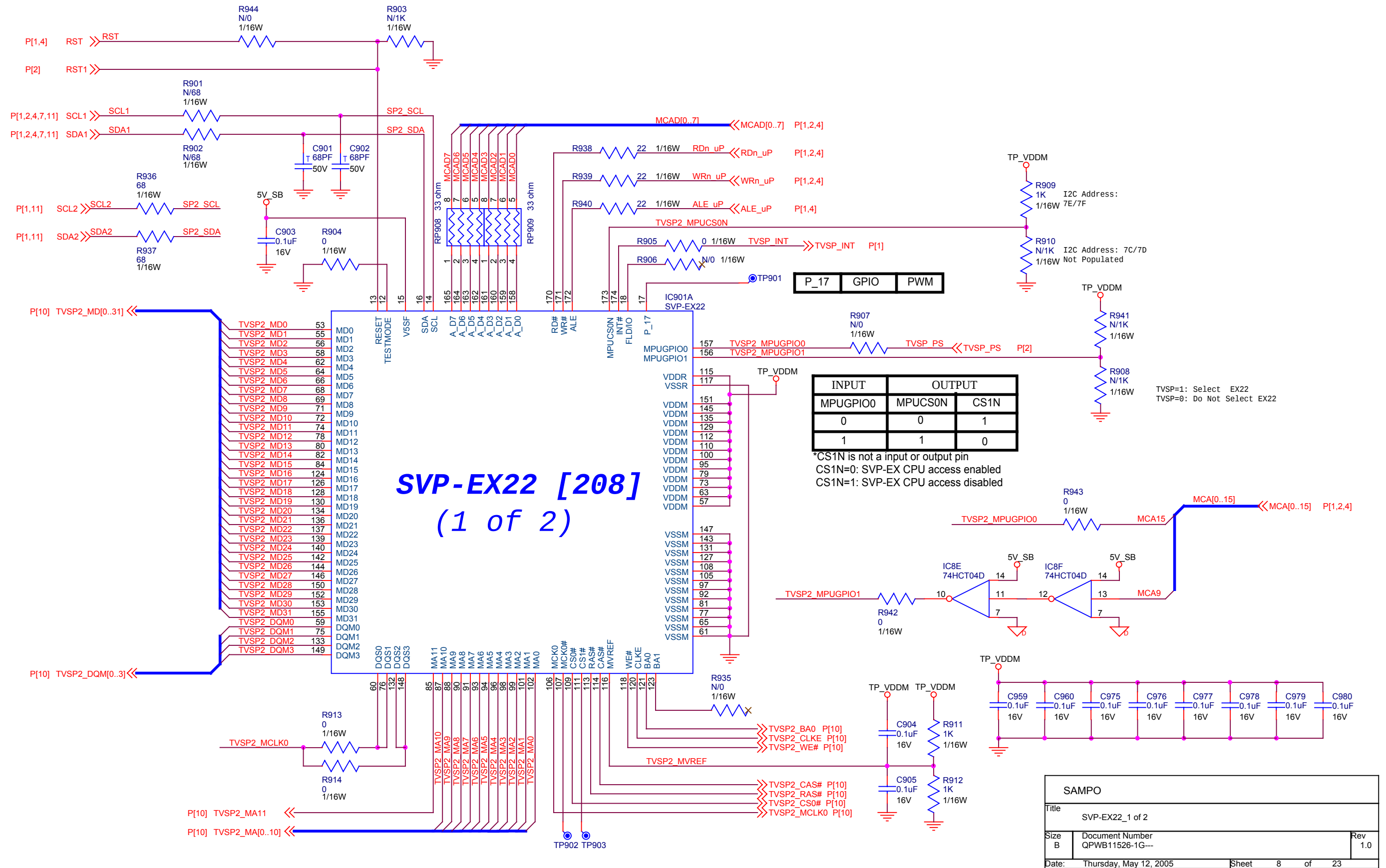
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Size	Document Number	Rev
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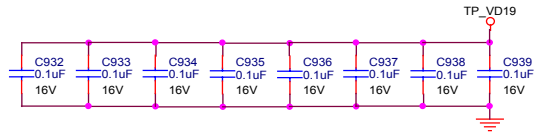
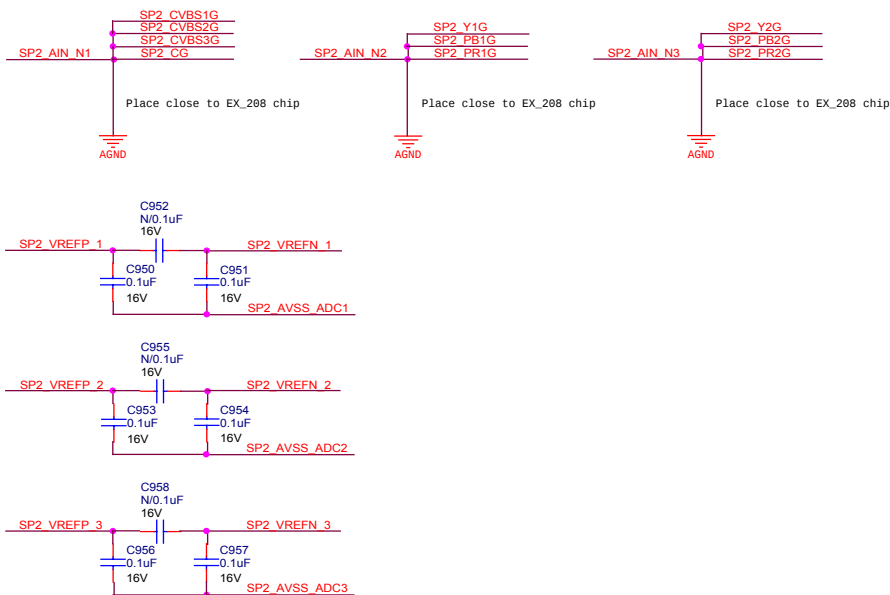
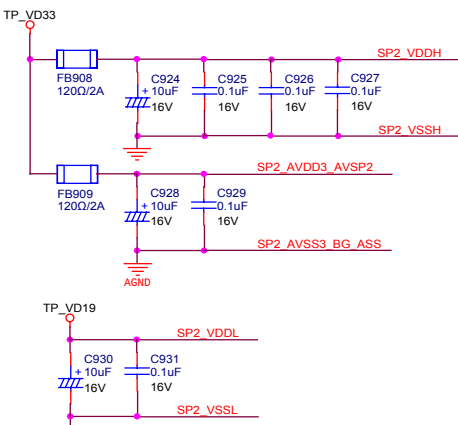
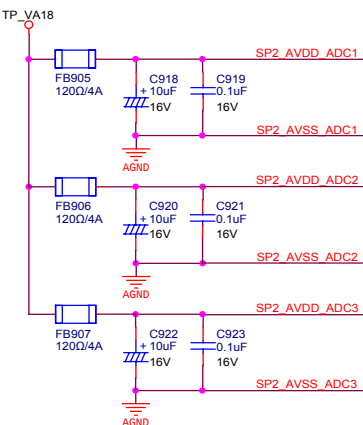
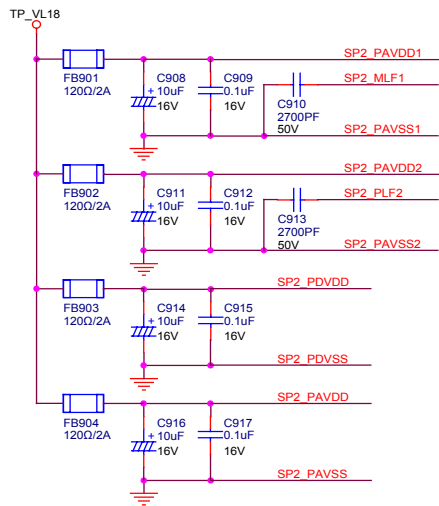
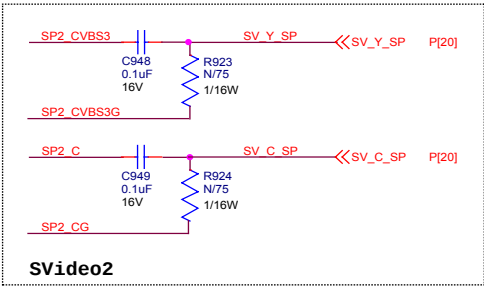
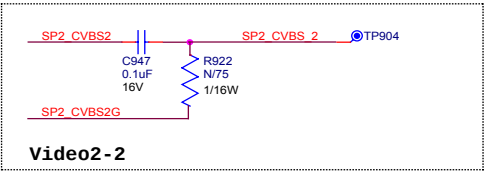
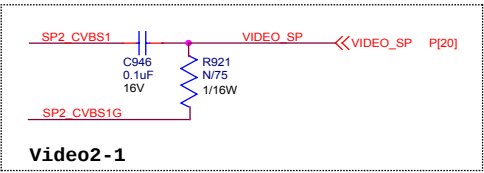
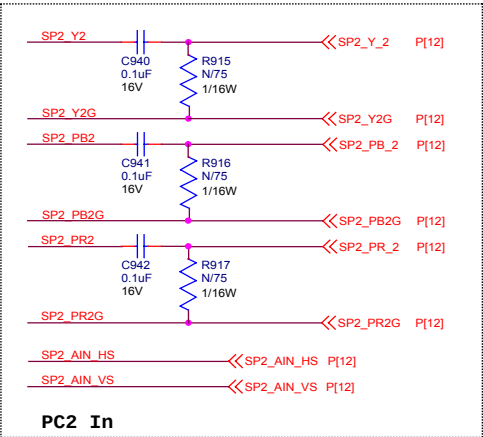
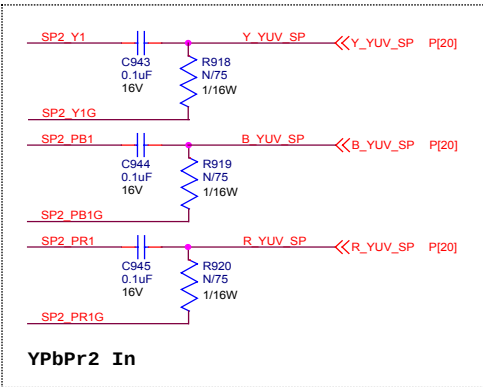
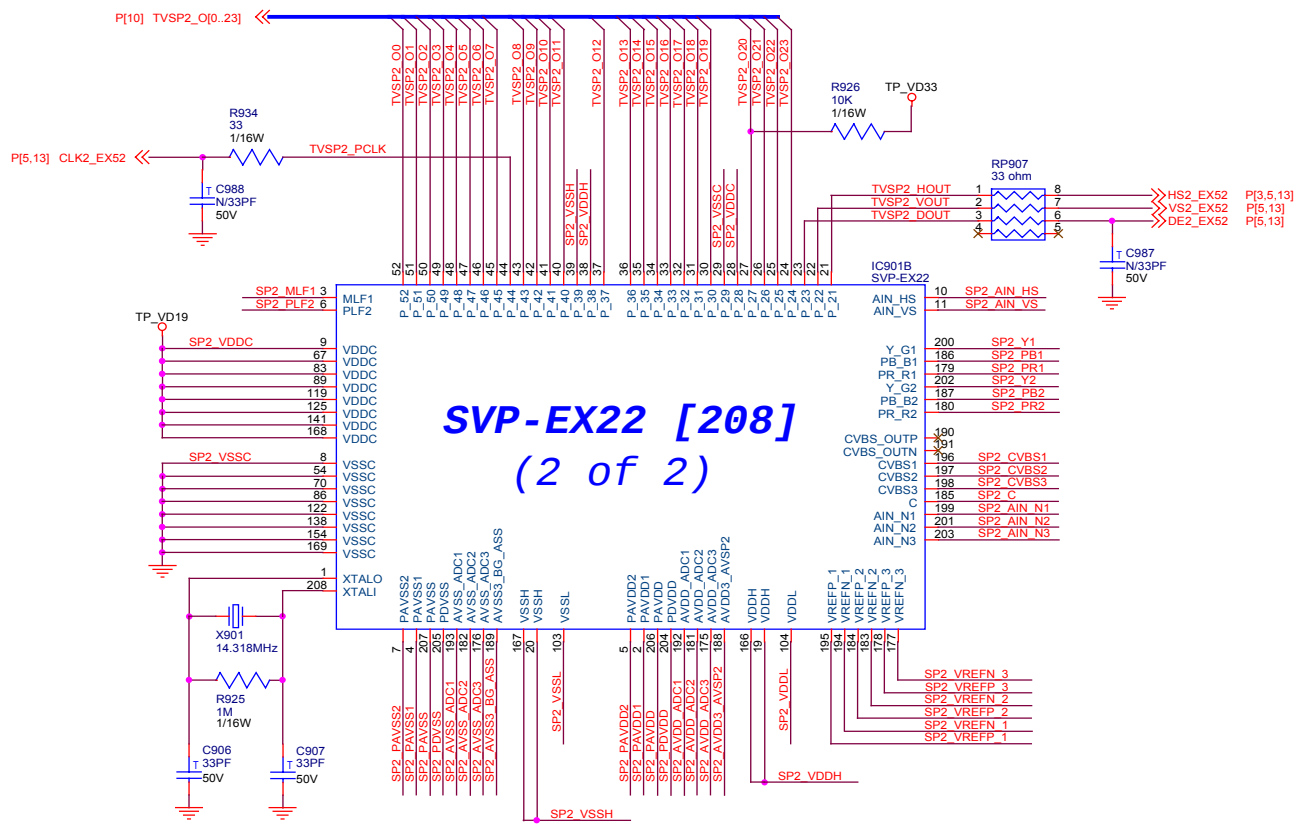


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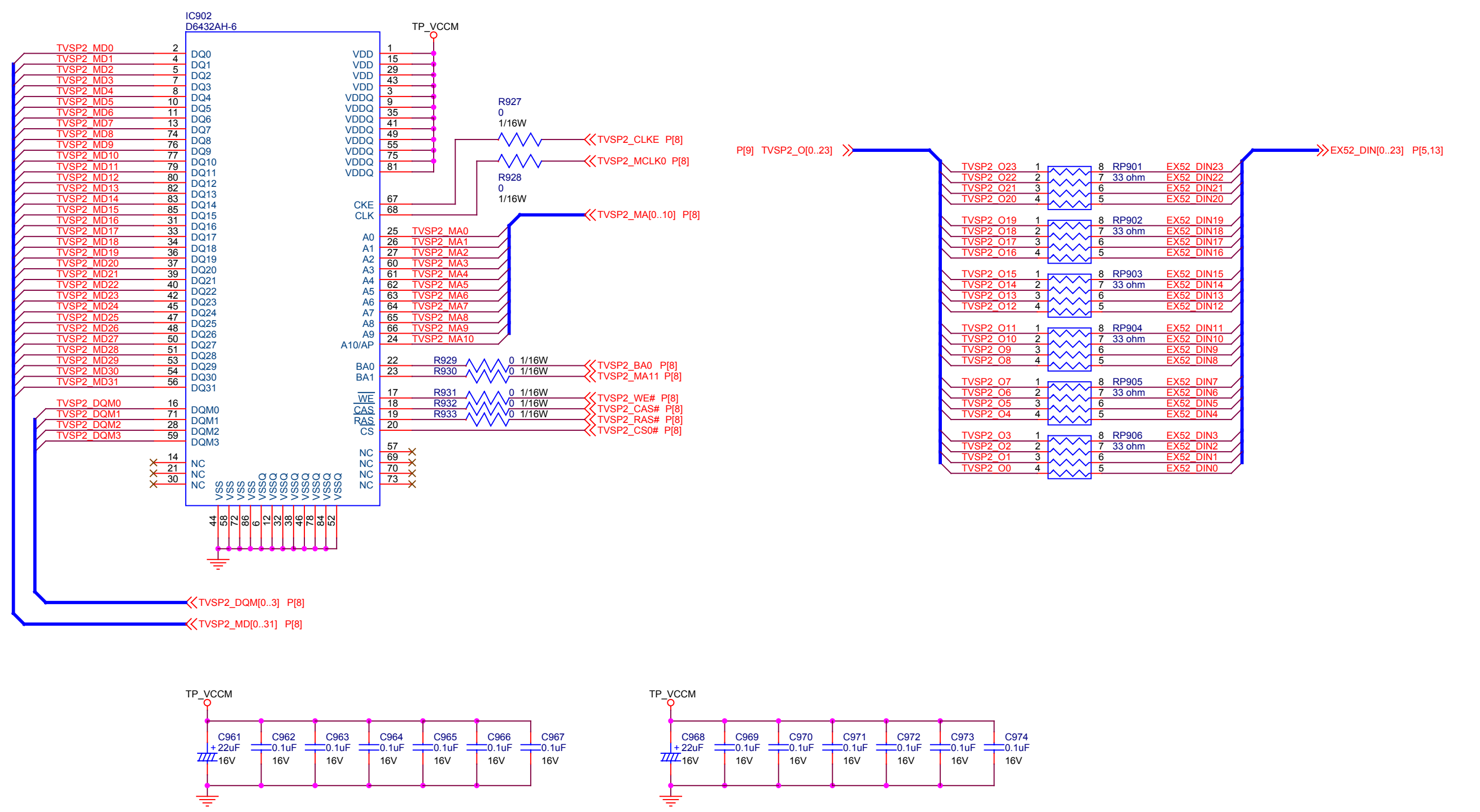


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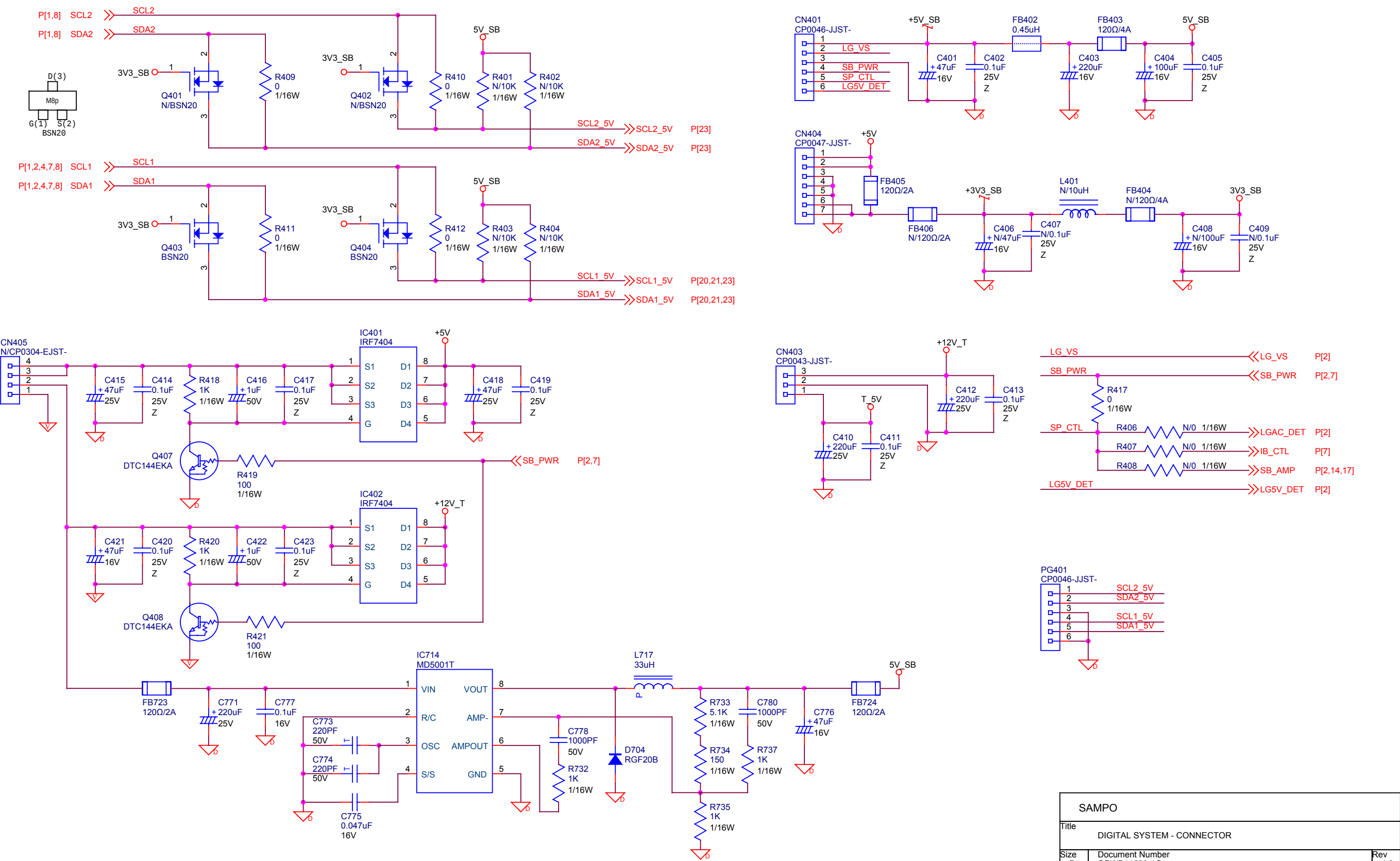
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SDRAM DECOUPLING CAPACITORS

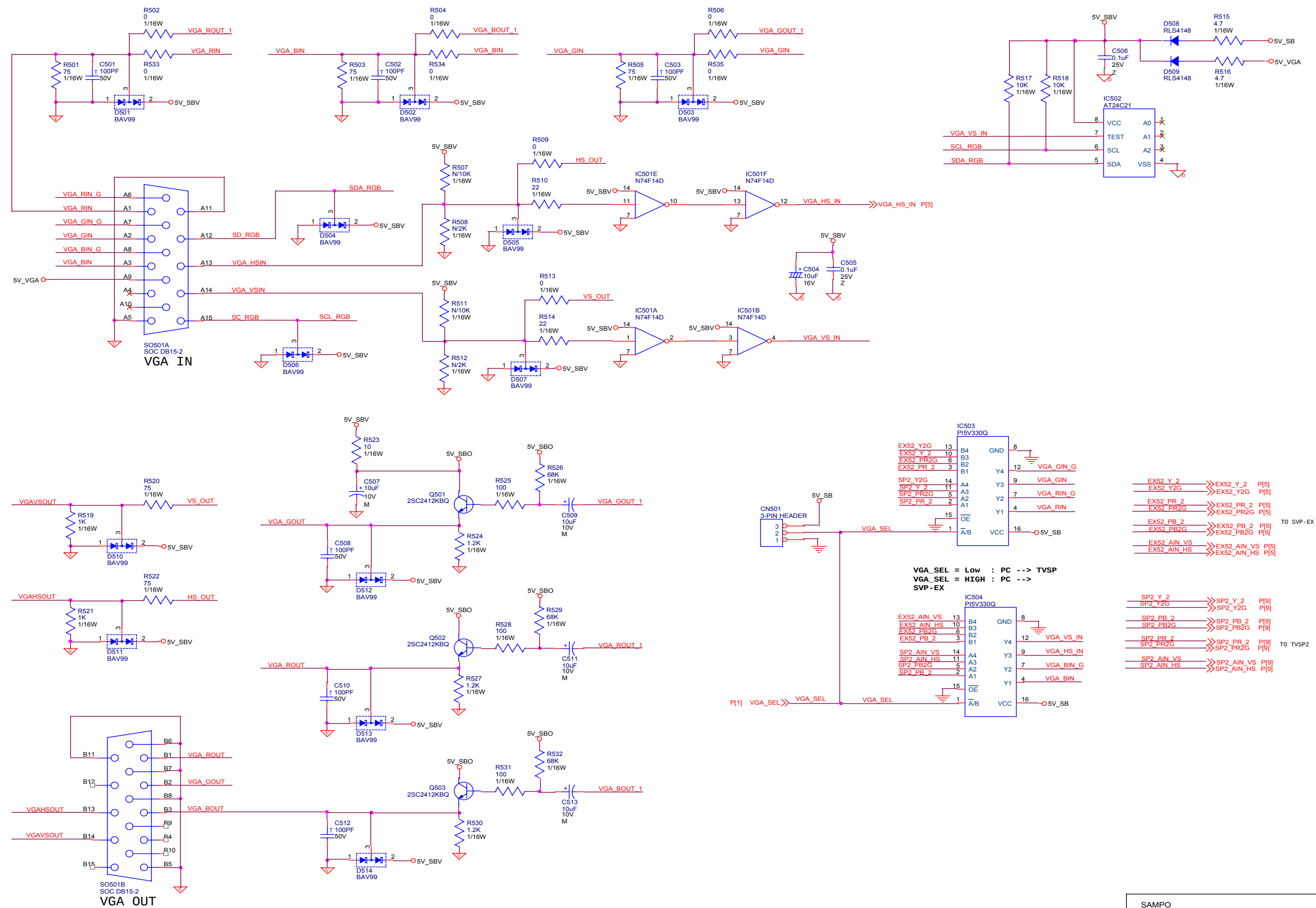
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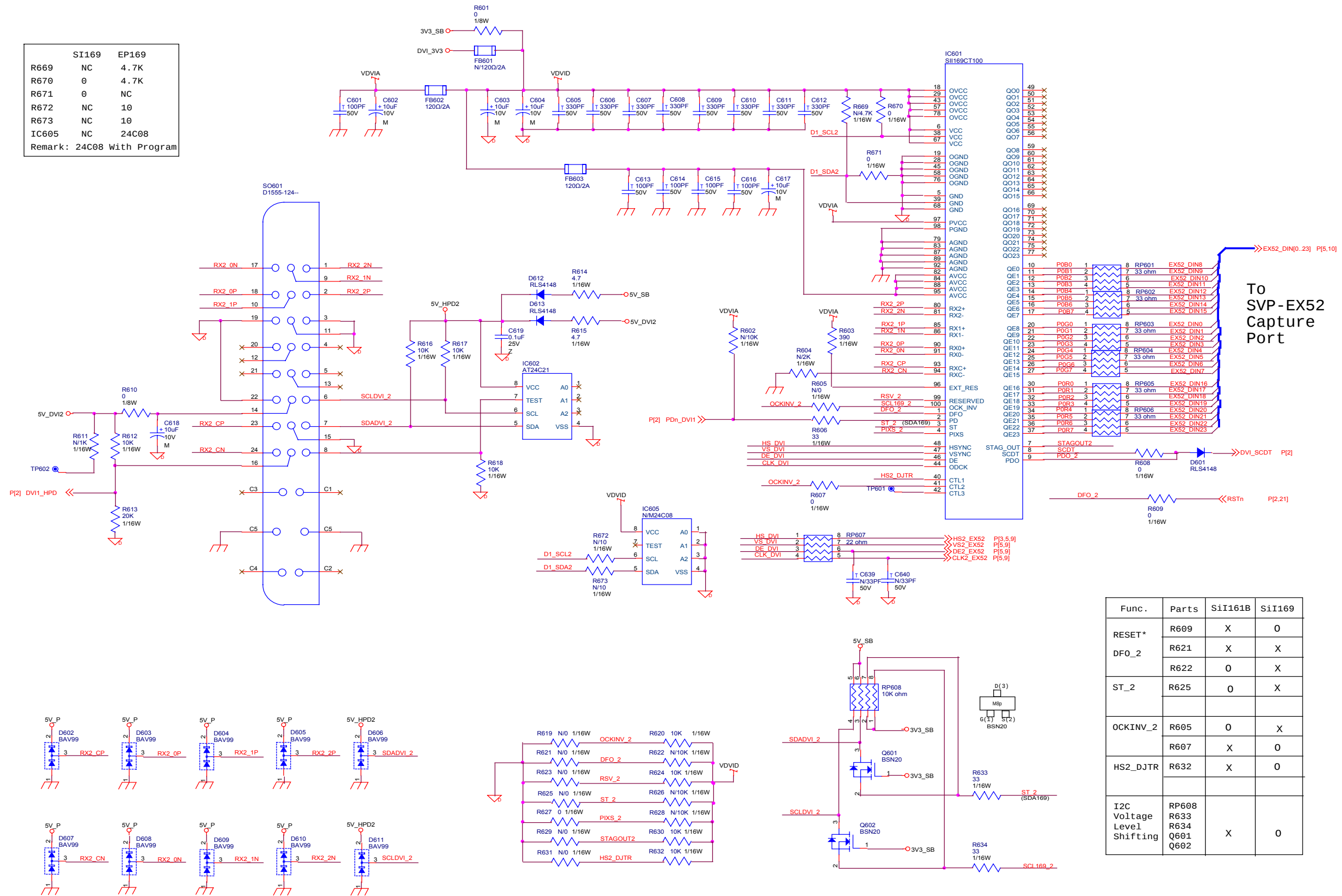
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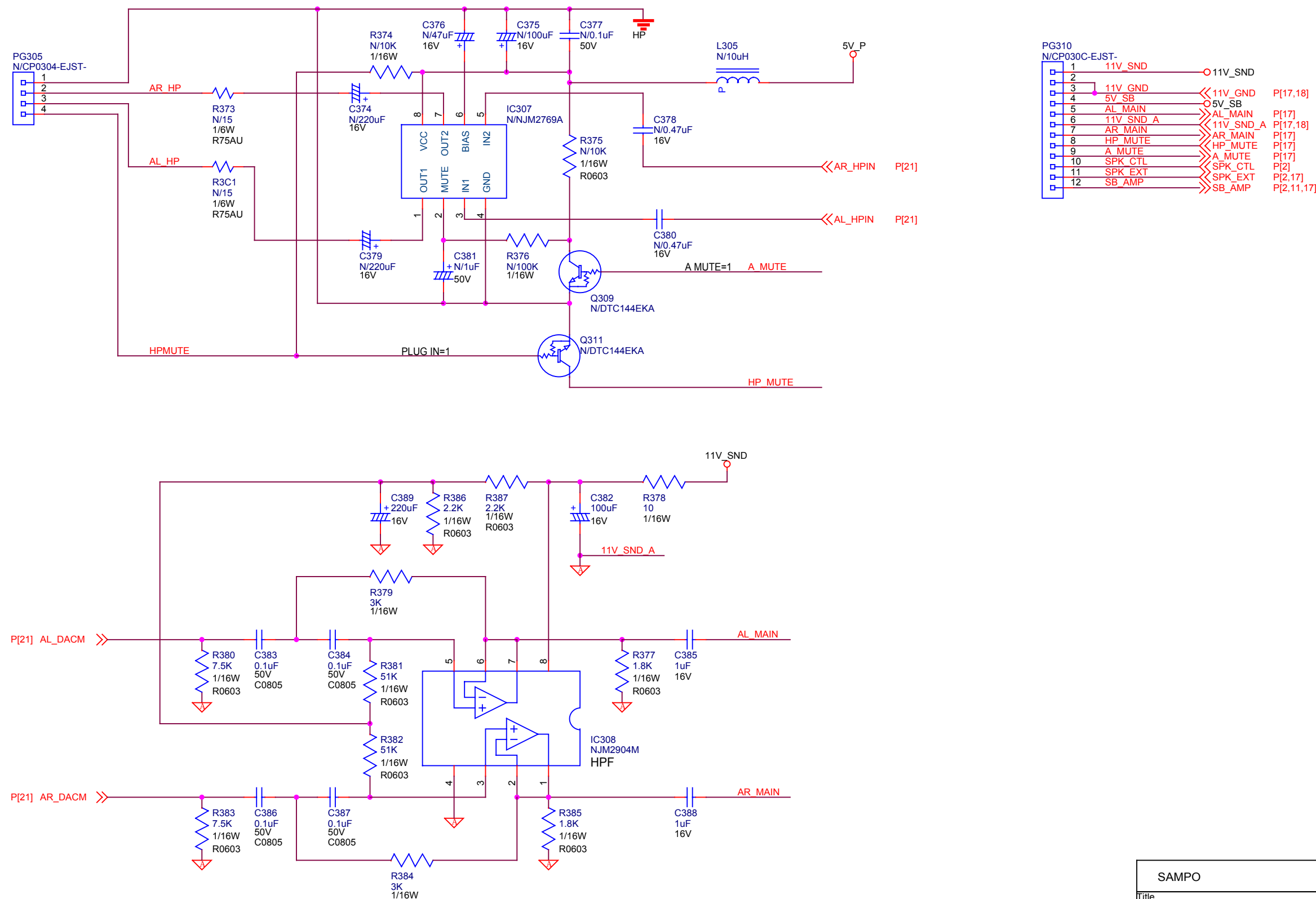
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R669	NC	4.7K
R670	0	4.7K
R671	0	NC
R672	NC	10
R673	NC	10
IC605	NC	24C08
Remark: 24C08 With Program		



Func.	Parts	SiI161B	SiI169
RESET* DFO_2	R609	X	0
	R621	X	X
	R622	0	X
ST_2	R625	0	X
OCKINV_2	R605	0	X
	R607	X	0
HS2_DJTR	R632	X	0
I2C Voltage Level Shifting	RP608 R633 R634 Q601 Q602	X	0

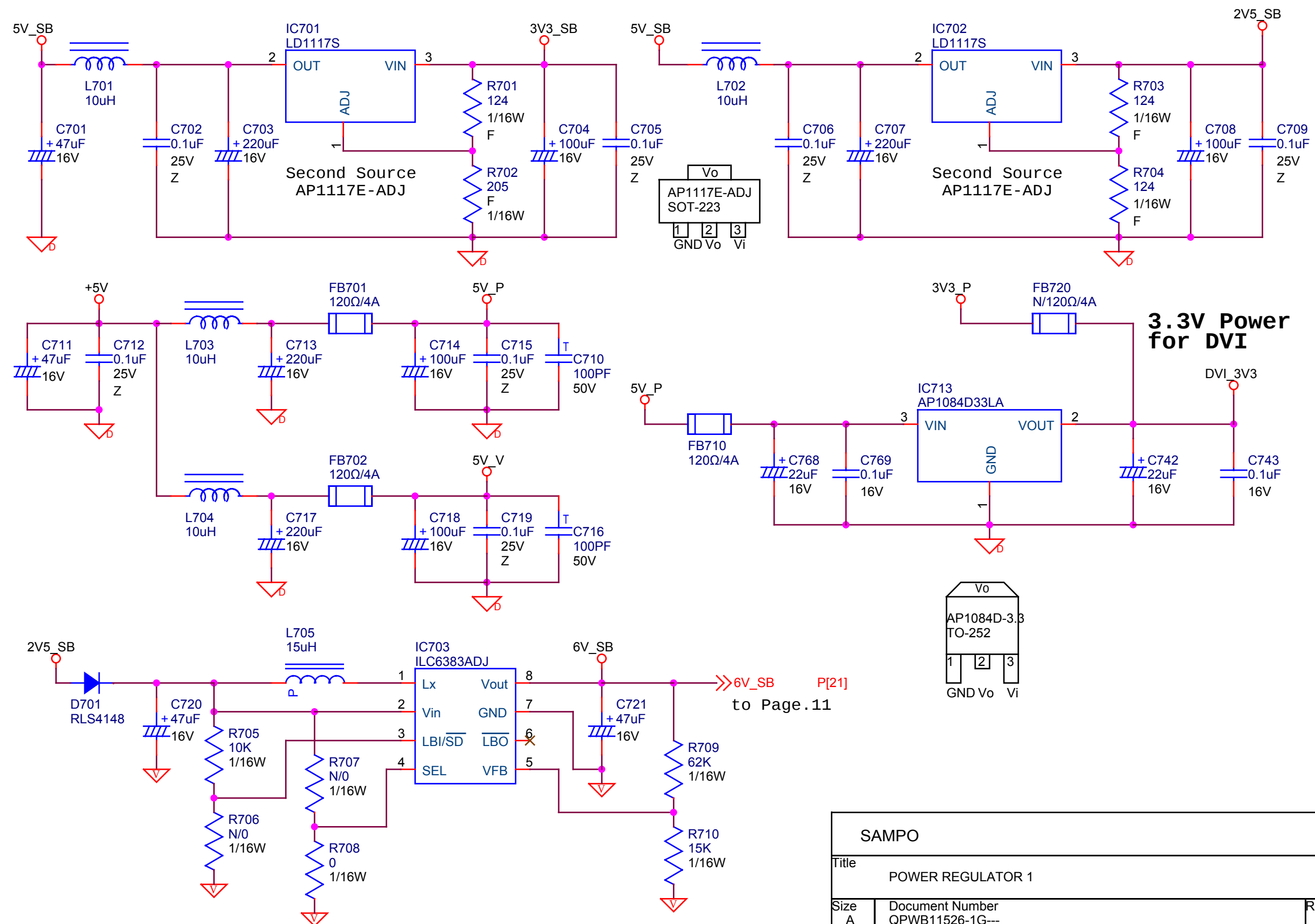
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Size C	Document Number QPWB11526-1G---			Rev 1.0
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Title		
AUDIO 1		
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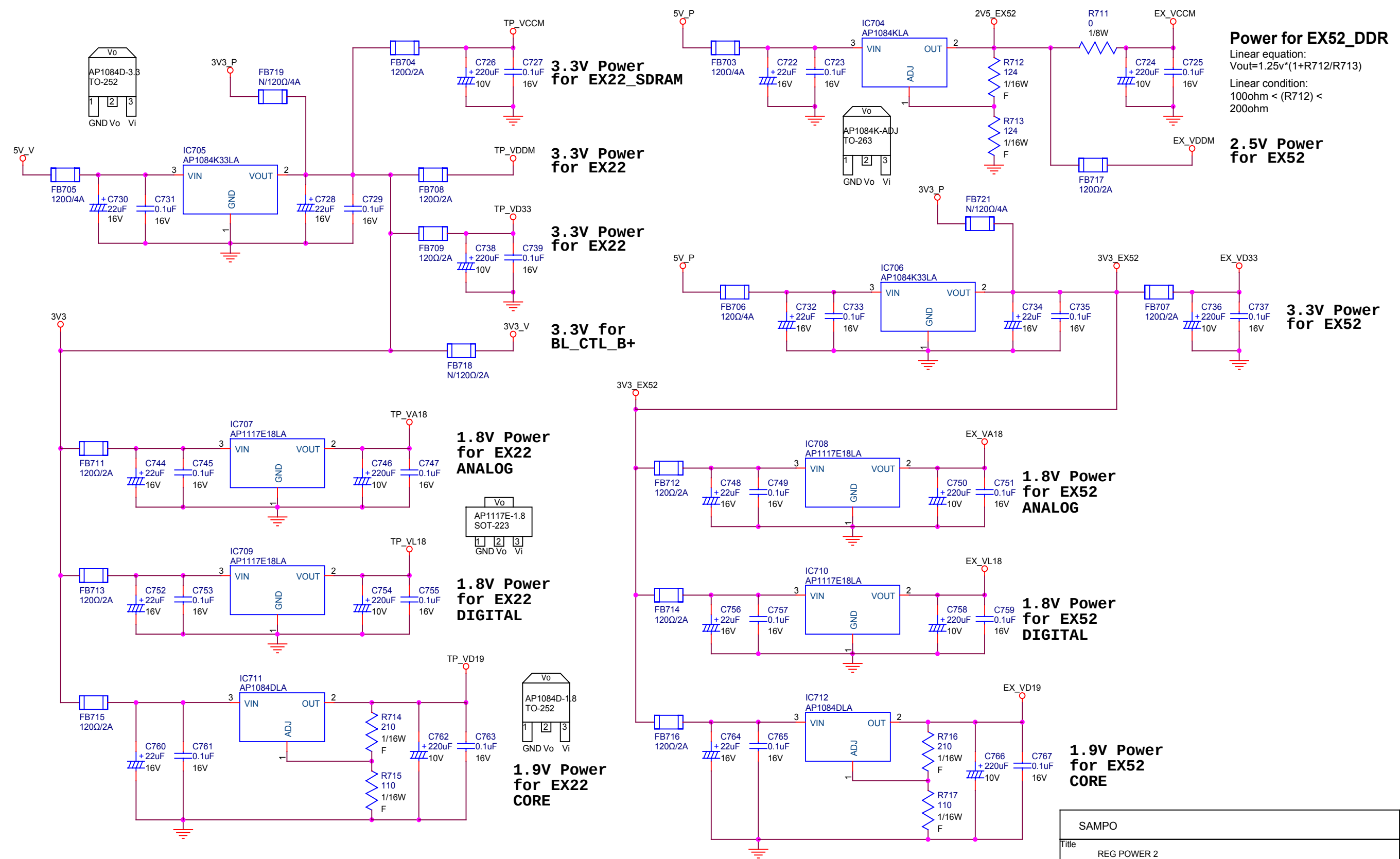
SCHEMATIC DIAGRAM



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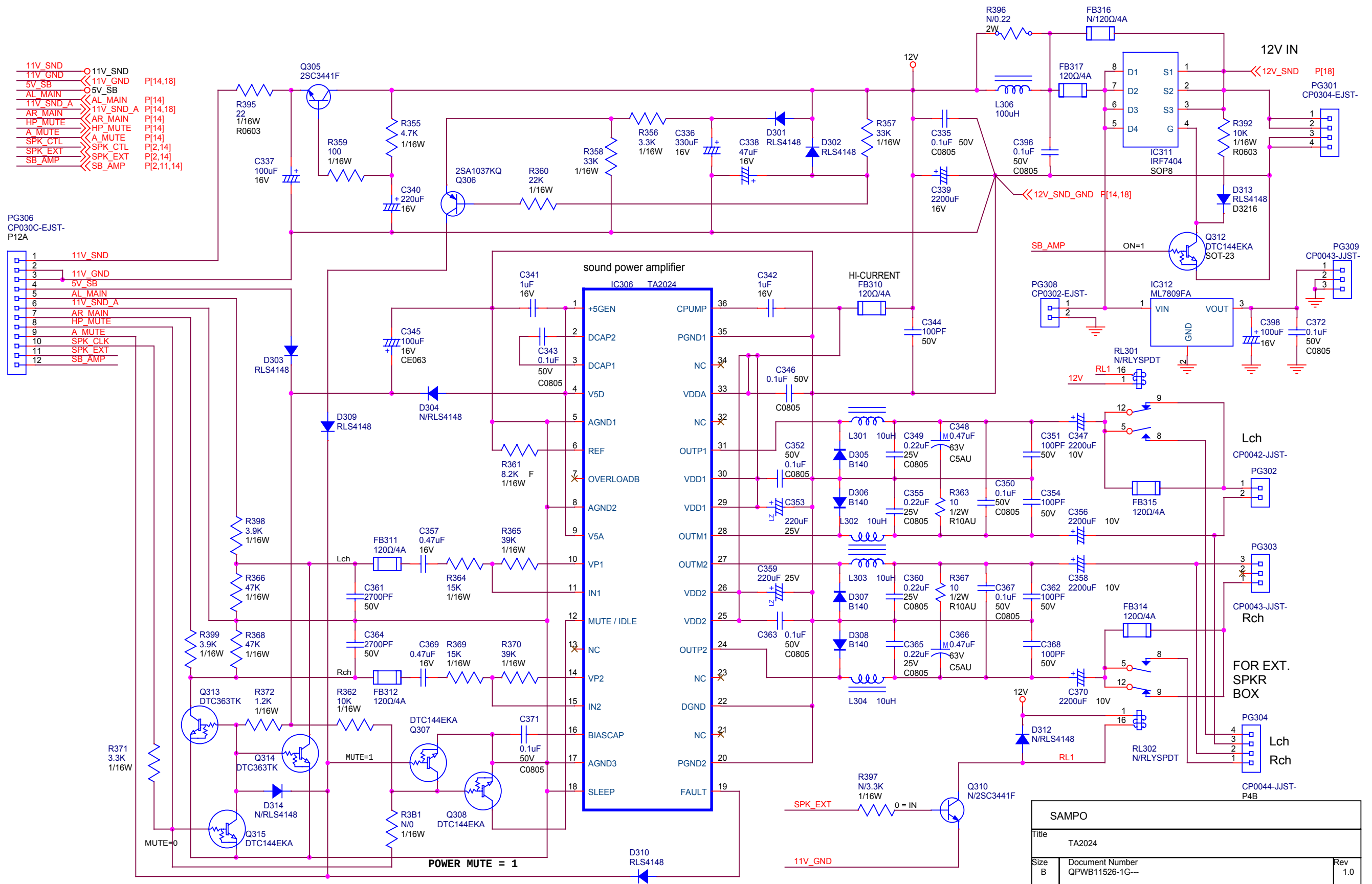
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Size A	Document Number QPWB11526-1G---	Rev 1.0
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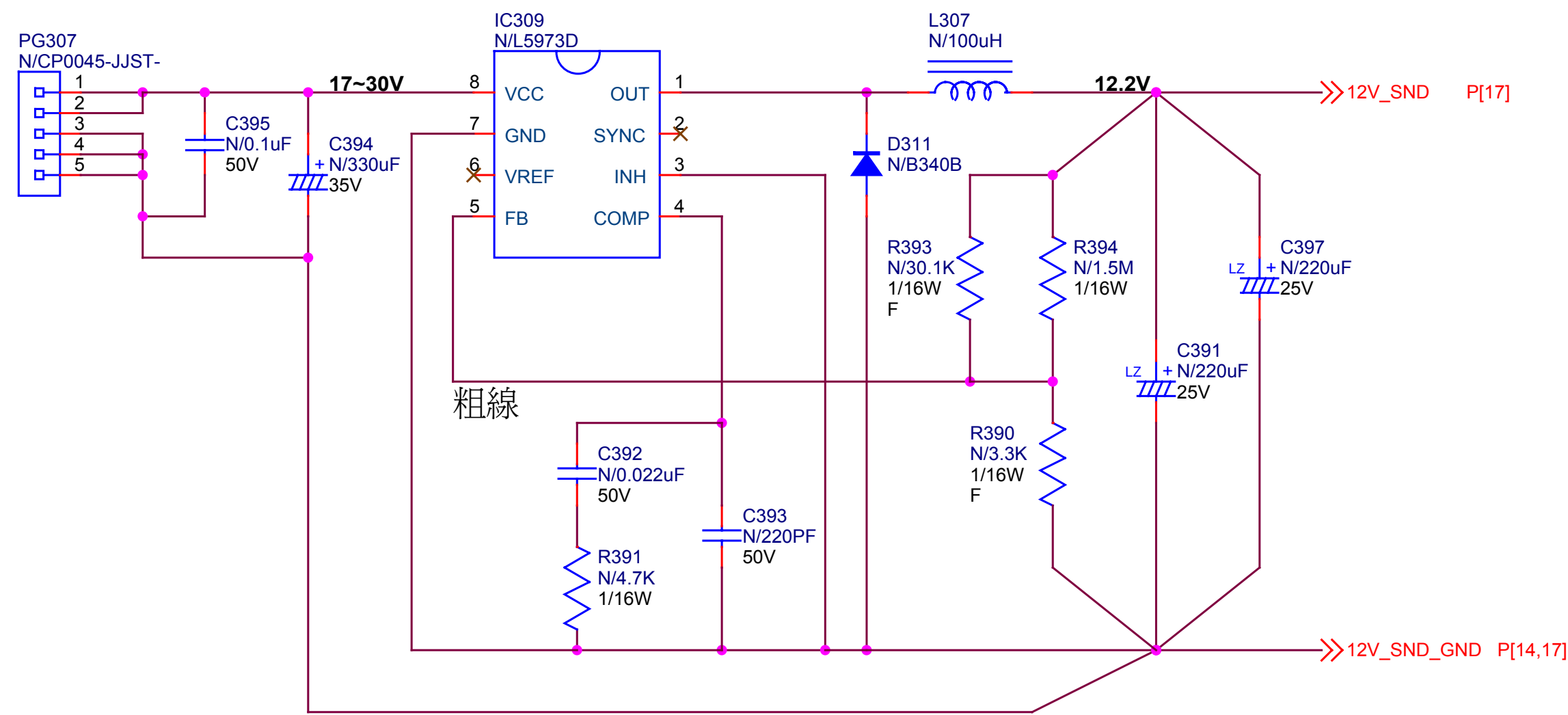
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Size B	Document Number QPWB11526-1G---	Rev 1.0
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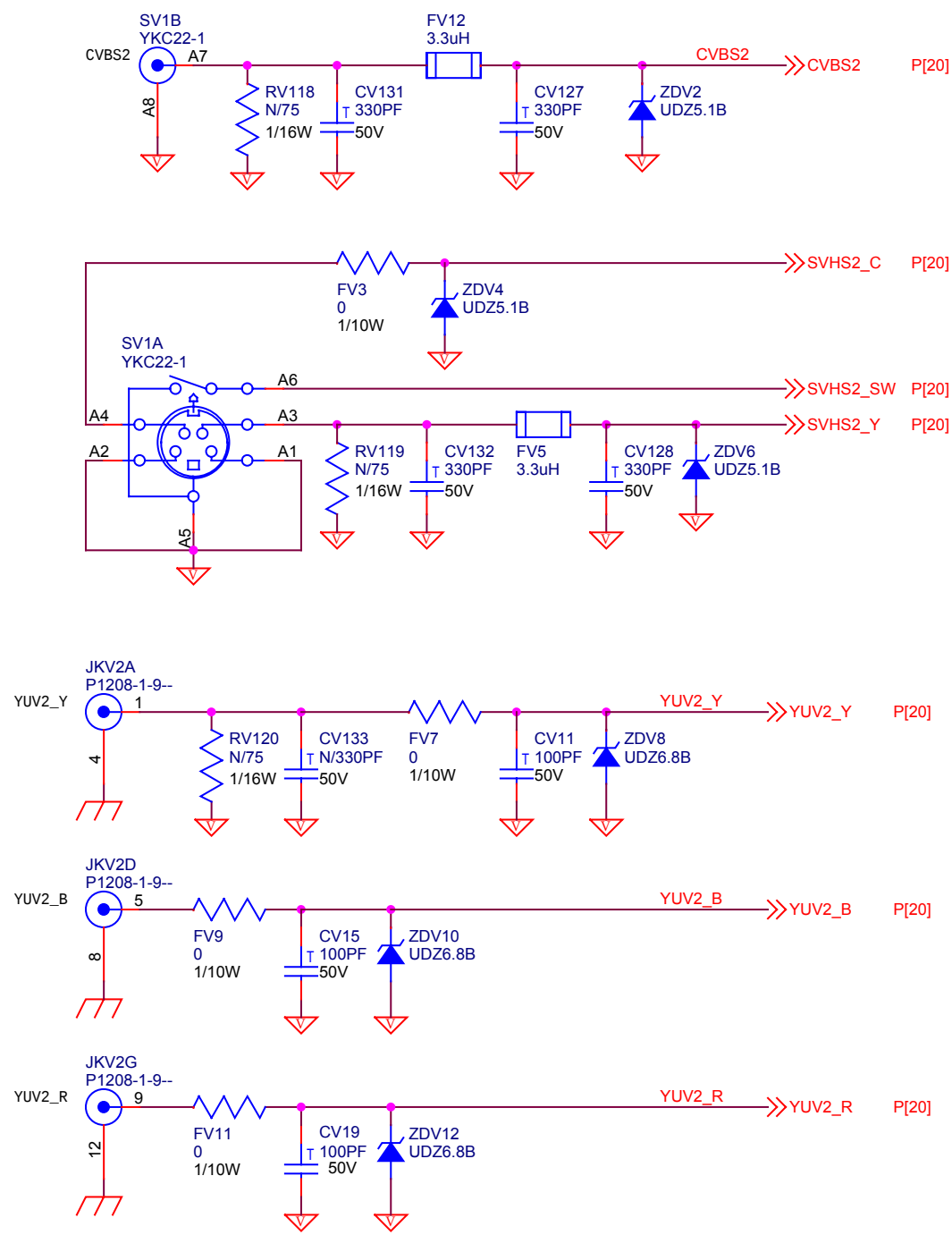
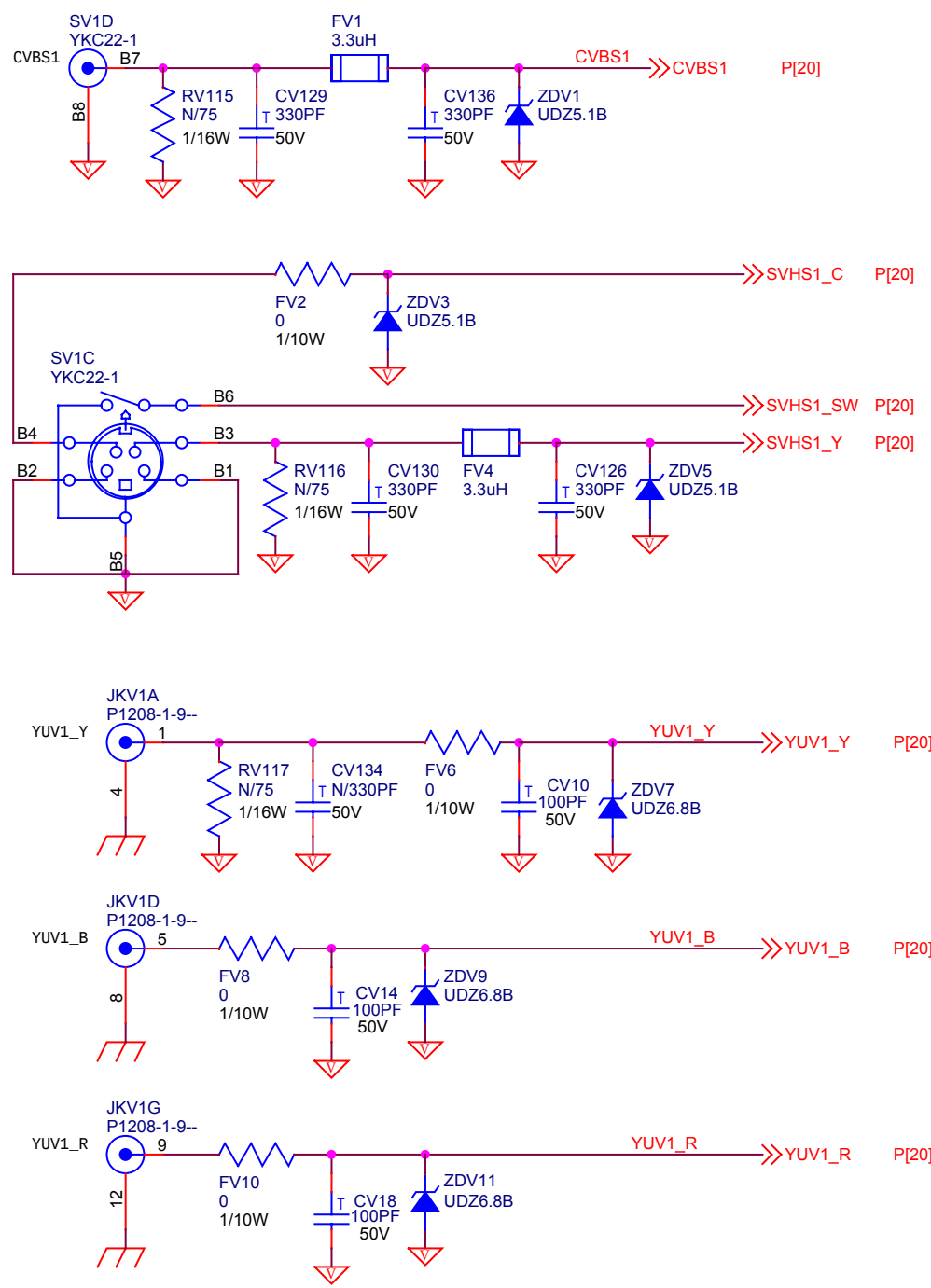
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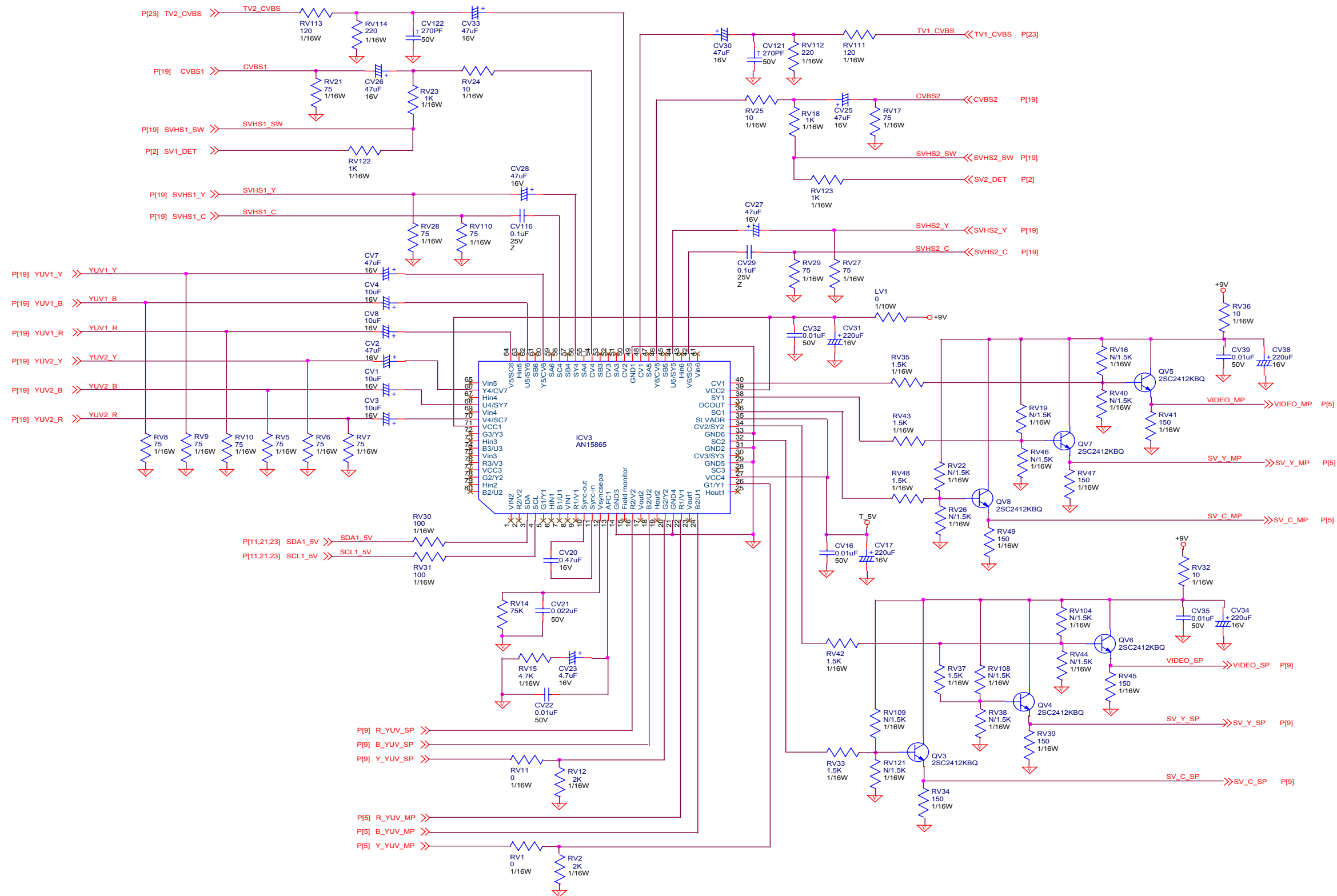
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Size A	Document Number QPWB11526-1G---	Rev 1.0
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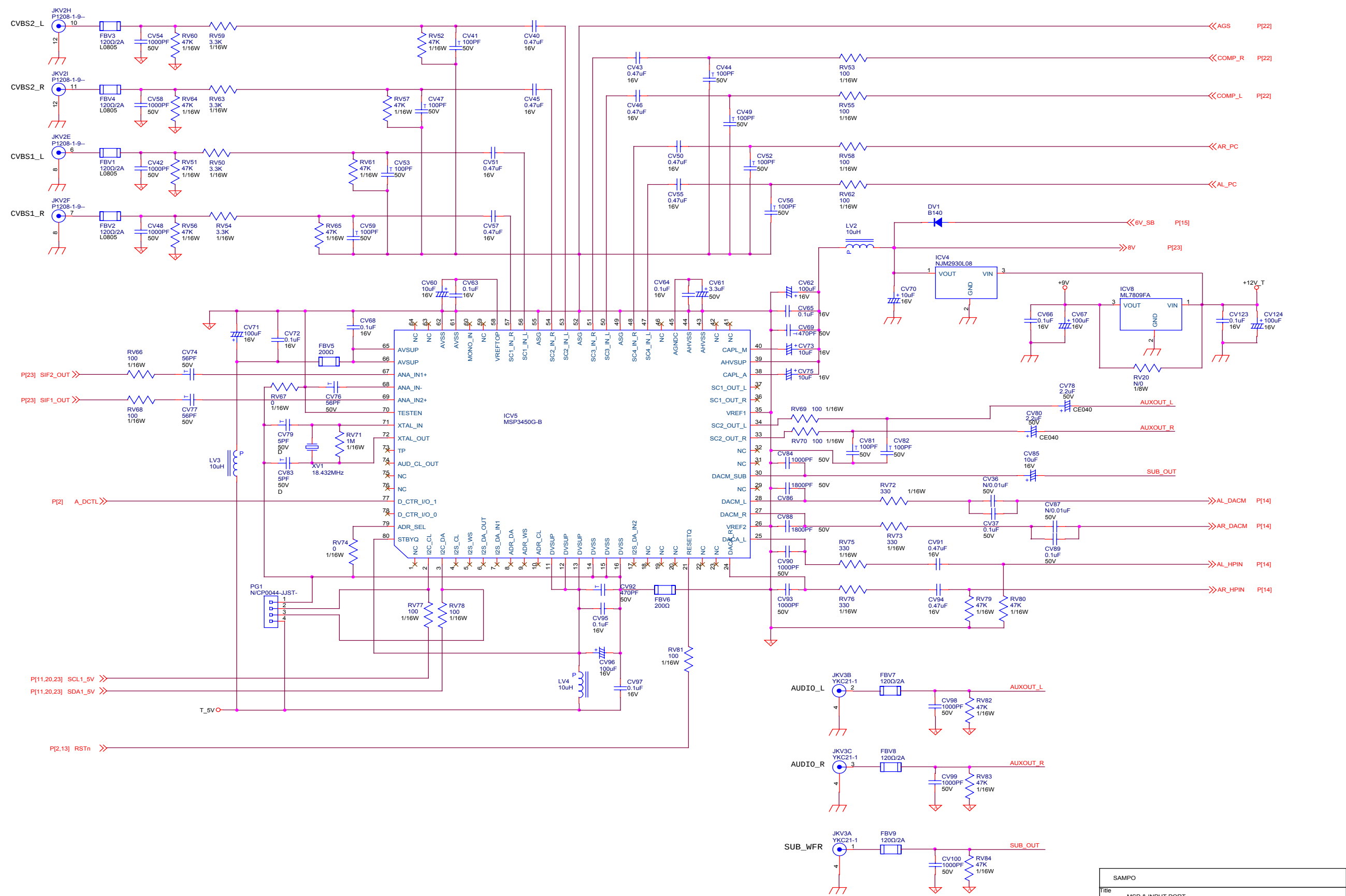
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Size B	Document Number QPWB11526-1G---	Rev 1.0
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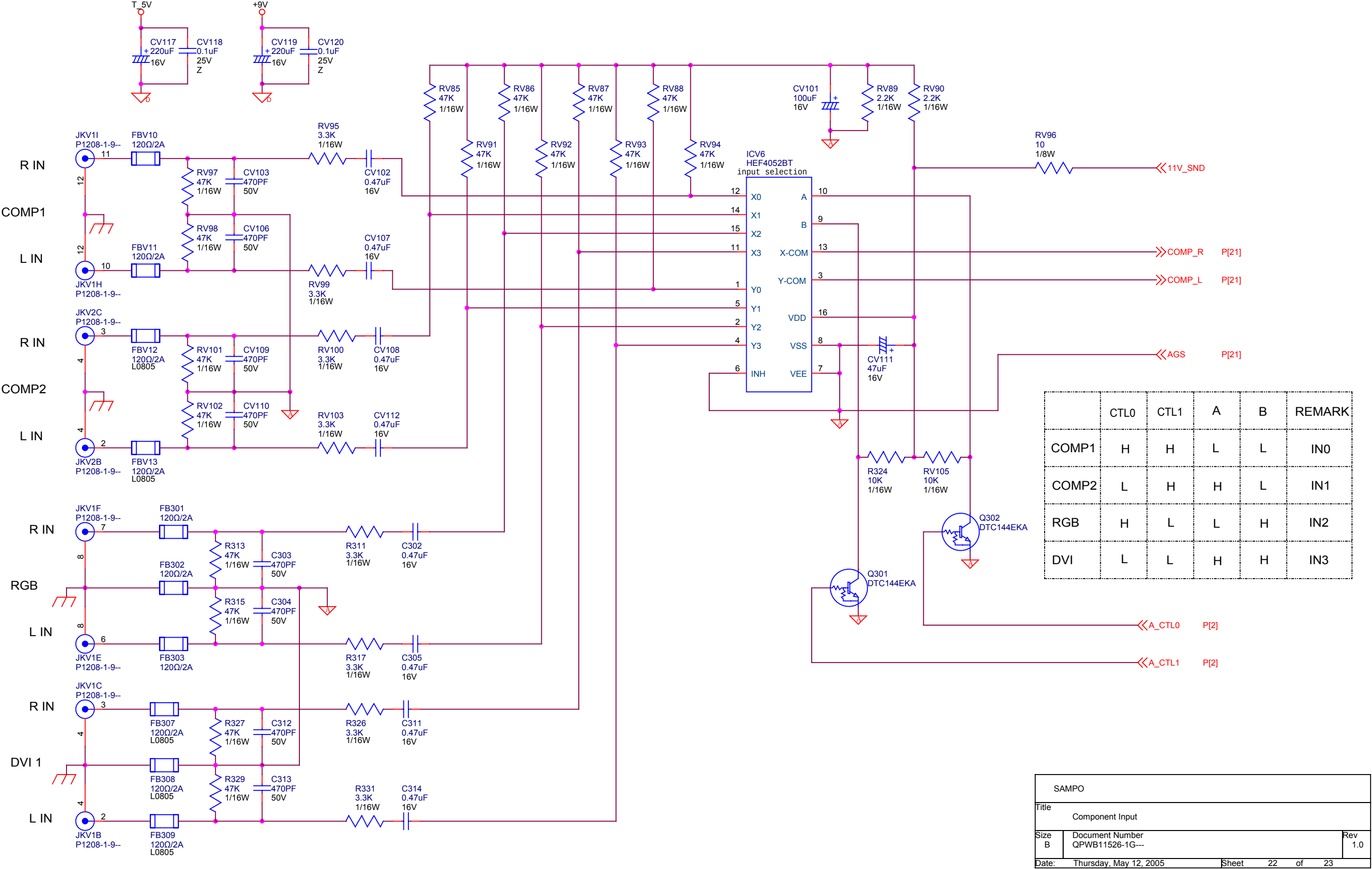
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Size C	Document Number QPWB11526-1G---		Rev 1.0
Date:	Thursday, May 12, 2005	Sheet 20 of 23	

SCHEMATIC DIAGRAM

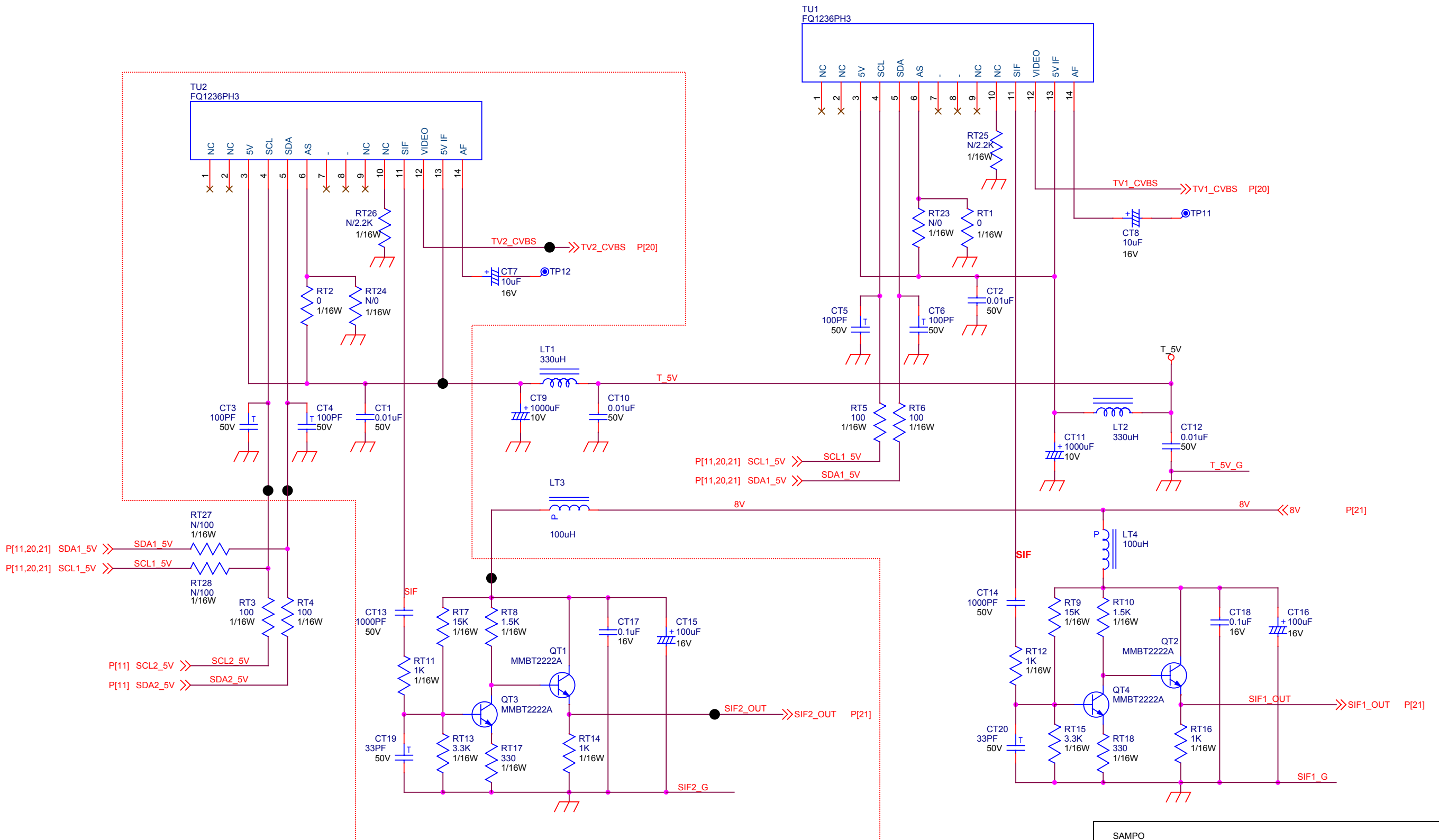


SAMPO		
Title MSP & INPUT PORT		
Size C	Document Number QPWB11526-1G---	Rev 1.0
Date: Thursday, May 12, 2005	Sheet 21	of 23

SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

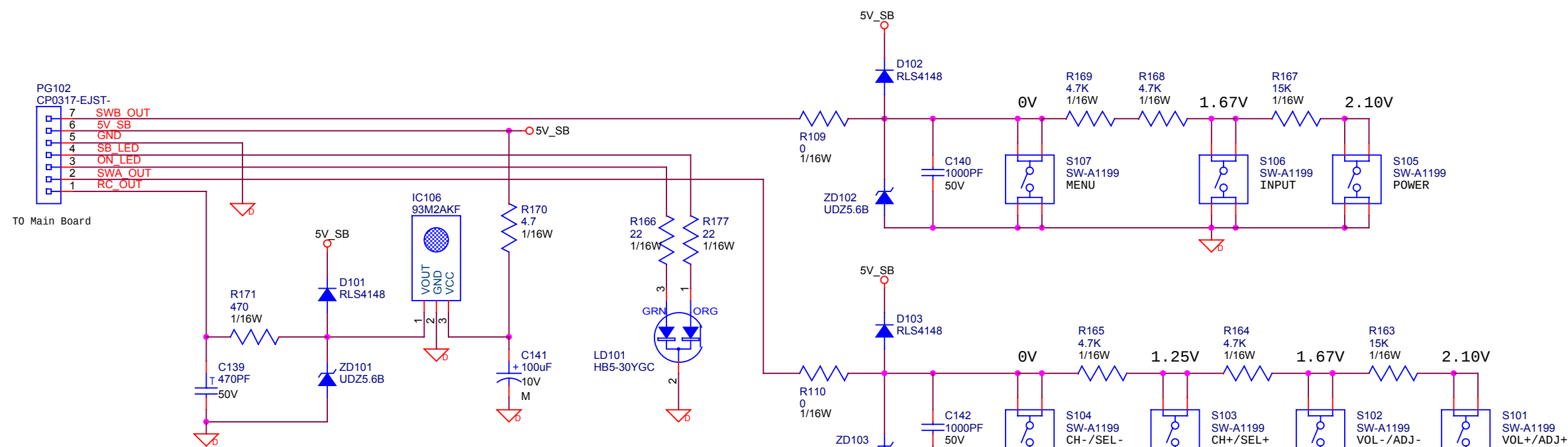


SAMPO			
Title AV & TUNER			
Size B	Document Number QPWB11526-1G---	Rev 1.0	
Date:	Thursday, May 12, 2005	Sheet	23 of 23

SCHEMATIC DIAGRAM

2. Front Button Control Board

KEYPAD BOARD

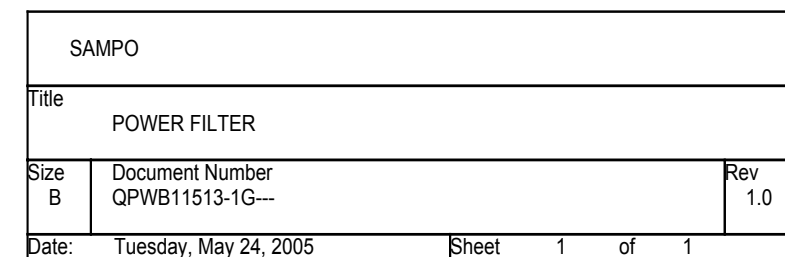


NOTE(V0.1A):
1.TRAINSITION KEY PAD FROM PARALLEL MODE TO SERIAL MODE
2.ADD DIODE and ZENER DIODE for ESD
3.CHANGE LED RESISTOR TO ANODE

VOLT	PIN	SWA_OUT	SWB_OUT
2.50V		NONE	NONE
2.10V		VOL+/ ADJ+	POWER
1.67V		VOL-/ ADJ-	INPUT
1.25V		SEL+/ CH+	-----
0V		SEL-/ CH-	MENU

sampo			
Title KEYPAD			
Size B	Document Number QPWB11418-1G-1-		Rev 2.0
Date:	Monday, May 09, 2005	Sheet 1	of 1

3. Power Filter Board



CONTENT OF ATTACHMENTS

- 1. Notice of Authorization to apply the UL mark**
- 2. Test Report for P4202YD05**
- 3. CB Test Report for P4202YD05 (950)**



**UL International, L.L.C.,
Taiwan Branch**

美商優力安全認證有限公司台灣分公司
UL International, L.L.C., Taiwan Branch
台北市 112 北投區大業路 260 號 1 樓
1st Fl 260 Da-Yeh Road Beitou Taipei City Taiwan 112
tel: 886-2-2896-7790 fax: 886-2-2891-7644
<http://www.ul.com.tw>

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

May 17, 2005

To: Sampo Corp.
1st Factory 216 Chung Shan Rd Sec 1 Pan Chiao City
Taipei Hsien Taiwan 220
Fax number: (02)8227-2626
Reference: File E189561 Project 05CA13030
Product: Plasma Multimedia Display Monitor, Model P4202YD05XXX employing the alternate R/C
Power, Relay Tuner, EMI board, and new model designation BDS4223V/27 for UL/C-UL
Investigation

Dear Ms. Jane Huang,

Any information and documentation provided to you involving UL Mark services are provided on behalf of Underwriters Laboratories Inc.

UL's investigation of your product has been completed under the above project number and the subject product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Listing Mark only at the factory under UL's Follow-Up Services Program to the subject product which is constructed as described below:

Similar to products covered in the UL Follow-Up Services Procedure, File E189561, Volume X3, Report Reference E189561-A13-UL-1 Amendment3, except for employing the alternate R/C Power, Relay Tuner, EMI board, and new model designation BDS4223V/27.

To provide the manufacturer with the intended authorization to use the UL Mark, the addressee must send a copy of this Notice and all attached material to each manufacturing location as currently authorized in File E189561, Volume X3.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Sincerely,

Reviewed by:

Tristan Wang

Tristan Wang (Ext. 62116)
Engineer
UL International, L.L.C., Taiwan Branch
Tel: (02)2896-7790
Fax: (02)2891-7644
E-mail: tristan.wang@tw.ul.com

Alex Liang

Alex Liang (Ext. 62283)
Project Engineer
UL International, L.L.C., Taiwan Branch
E-mail: alex.liang@tw.ul.com

CC: Sporton International Inc.
Fax: (02)8227-2626
Attn: Ms. Claire Chang

An independent organization working for a safer world with integrity, precision and knowledge.



Issue Date: 2004-10-16
Amendment 2 2005-02-17

Page 1 of 2

Report Reference #

E189561-A13-UL-1

COVER PAGE FOR TEST REPORT

Product Category:	Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	NWGQ, NWGQ7
Complementary Product Categories:	Audio/Video Apparatus(AZSQ, AZSQ7)
Test Procedure:	Listing
Product:	Plasma Multimedia Display Monitor
Model/Type Reference:	VS10001, P4202YD05XXX, 42MF7000/XX and 42MF7010/XXX where X may be any alphanumeric character or blank
Rating(s):	100-240 V ac, 4.0 A, 50/60 Hz.
Standards:	UL60950, Third Edition (2000) CAN/CSA-C22.2 No. 60950-00, Third Edition (2000)
Applicant Name and Address:	SAMPO CORP 1ST FACTORY 216 CHUNG SHAN RD, SEC 1 PAN CHIAO CITY TAIPEI HSIEN TAIWAN
This Report includes the following parts, in addition to this cover page:	
1. Specific Technical Criteria	
2. Critical Components	
3. Enclosures	



Ref. Certif. No.

JPTUV-009273

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product
Produit

Plasma Display Monitor

Name and address of the applicant
Nom et adresse du demandeur

Sampo Corporation
26, Ting-Hu Rd., Ta-Kang Tsun
Kuei-Shan Hsiang, Taoyuan 333 Taiwan

Name and address of the manufacturer
Nom et adresse du fabricant

Sampo Corporation
26, Ting-Hu Rd., Ta-Kang Tsun
Kuei-Shan Hsiang, Taoyuan 333 Taiwan

Name and address of the factory
Nom et adresse de l'usine

Sampo Corporation
No. 55, Chung Cheng Road
Tu-Cheng City, Taipei 236 Taiwan

Rating and principal characteristics
Valeurs nominales et caractéristiques principales

AC 100-240V; 50/60Hz; 4A; Class I

Trade mark (if any)
Marque de fabrique (si elle existe)

SAMPO

Model/type Ref.
Ref. de type

1) P4202YD05XXX , 2) 42MF7000/XX , 3) 42MF7010/XXXX ,
(X can be 0-9, A-Z or blank)

Additional information (if necessary)
Information complémentaire (si nécessaire)

For model differences, refer to the test report.

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

IEC 60950:1999
inclusive CENELEC Common Modifications
National differences see test report

As shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue une partie de ce Certificat

12007879 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



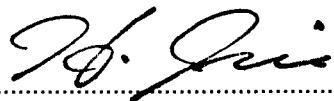
TÜV Rheinland Group

TÜV Rheinland Japan Ltd.
Shin Yokohama Daini Center Bldg.
3-19-5, Shin Yokohama, Kohoku-ku
Yokohama 222-0033 Japan
Phone + 81 45 470-1850
Fax + 81 45 473-5221
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 21.10.2004

Signature:

Yoshihiro Takahata

TEST REPORT IEC 60950 and/or EN 60950 Safety of information technology equipment	
Report reference No	<12007879 001>
Tested by (printed name and signature)	H. Irie 
Approved by (printed name and signature)	M. Kera 
Date of issue	Oct. 4, 2004
Testing Laboratory Name	TÜV Rheinland Japan Ltd., Yokohama Laboratory
Address	Festo Bldg. 5F, 1-26-10 Hayabuchi, Tsuzuki-ku, Yokohama 224-0025, Japan
Testing location	CBTL ☒ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above.
Applicant's Name	Sampo Corporation
Address	26, Ting-Hu Rd, Ta-Kang Tsun, Kuei-Shan Hsiang, Taoyuan 333, Taiwan.
Test specification	
Standard	IEC 60950:1999 + Corr. Jan. 2000 EN 60950:2000 + Corr. Feb. 2002 AS/NZS 60950:2000, CAN/CSA C22.2 No. 60950/UL 60950 third edition, J60950 (H14), K60950, UL 60950
Test procedure	CB- scheme
Procedure deviation	Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Ireland, Israel, Italy, Japan, Korea, Malaysia, The Netherlands, Norway, Poland, Portugal, Russian Federation, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States of America
Non-standard test method	N.A.
Test Report Form No.....	IECEN60950A
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03
Copyright © 2003 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved. This publication may be produced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context	
Test item description	Plasma Display Monitor
Manufacturer	Same as applicant
Trademark	SAMPO
Model and/or type reference	P4202YD05XXX, 42MF7000/XX, 42MF7010/XXXX (X can be 0-9, A-Z or blank)
Serial number	Pre-production sample without serial numbers.
Rating(s)	100-240VAC, 50/60Hz, 4A

Particulars: test item vs. test requirements

Equipment mobility : Stationary
 Operating condition : Continuous
 Mains supply tolerance (%) : +10%, -10%
 Tested for IT power systems : Yes (for Norway)
 IT testing, phase-phase voltage (V) : IT, 230V (for Norway)
 Class of equipment : Class I
 Mass of equipment (kg)..... : 35.5
 Protection against ingress of water : IPX0

Test case verdicts

Test case does not apply to the test object..... : **N**(.A.)
 Test item does meet the requirement..... : **P**(ass)
 Test item does not meet the requirement : **F**(ail)

Testing

Date of receipt of test item : February, 2004
 Date(s) of performance of test : February - October, 2004

General remarks

"This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB, in accordance with IECEE 02".

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a point is used as the decimal separator.

Comments

Factory(ies):

Sampo Corporation.

No. 55, Chung Cheng Road, Tu-Cheng City, Taipei 236 Taiwan.

Brief description of the test sample:

The equipment model P4202YD05XXX, where X can be 0-9, A-Z or blank for marketing purpose, is a 42" Plasma Display Monitor with optional TV tuner for general office use.

Models 42MF7000/XX and 42MF7010/XXXX are identical to model P4202YD05XXX except for model number.

The color plasma display module and internal building-in switching power supply (SPS) are certified and CB Scheme tested by TÜV Product Service according to IEC 60950: 1999. See appended 1.5.1. for details. This Plasma Display contains elements mentioned above and Image board, AV module board, Audio board, Front button control board, EMI filter, power switch board, power switch, remote controller and speakers.

All tests were carried out with model P4202YD05XXX to represent the other models if no else specified.

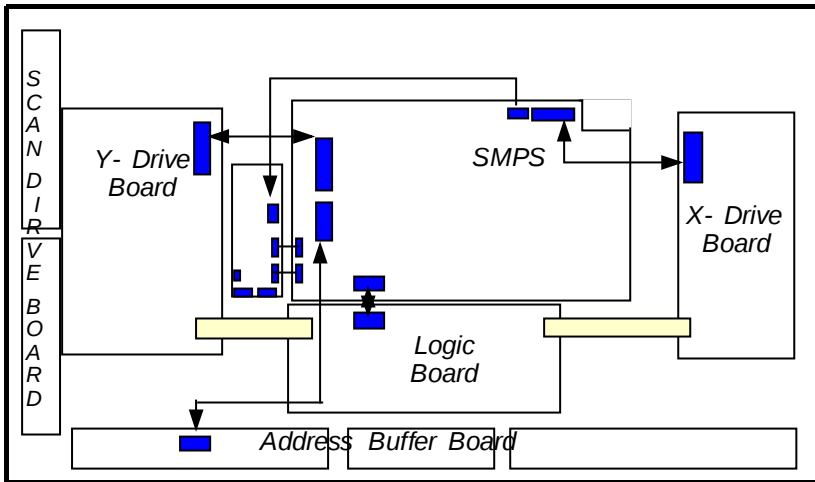
This Plasma Display Monitor contains a TV tuner (Philips, type FQ1216ME, FQ1236). Therefore the IEC Guide 112:2000 for multimedia equipment has been considered. The surge test, insulation resistance test and dielectric strength test are conducted according to sub-clause 10.1, 10.2 and 10.3 of IEC 60065:1998. After 50 discharges at a maximum rate of 12 per minute, from a 1nF capacitor charged to 10kV, the insulation resistance between primary and antenna terminal was more than 100M Ω and subject to DC 4240V of electric strength test.

CONTENT OF ATTACHMENTS

- 1. SMP POWER SUPPLY SPECIFICATON**
- 2. SMP POWER SUPPLY SCHEMATIC DIAGRAM**
- 3. PHOTOS for INTERNAL and EXTERIOR WIRING**

SMPS SPECIFICATIONS

1. Connector Location



[Note]

1. Layout Schematic is viewed from back side of PDP Module.
2. The Output Power for Image board is separated from Main SMPS.
3. The Power for Image board is output by DC link Voltage boosted through PFC.
4. The Input Power Connector in Y-Drive Board is named as "SY".
5. The Input Power Connector in X-Drive Board is named as "SX".
6. The Input Power Connector in Logic Board is named as "SL".
7. The Input Power Connector in Address Buffer Board is named as "BUFFER"..

2 DC outputs for Image Scaler Board

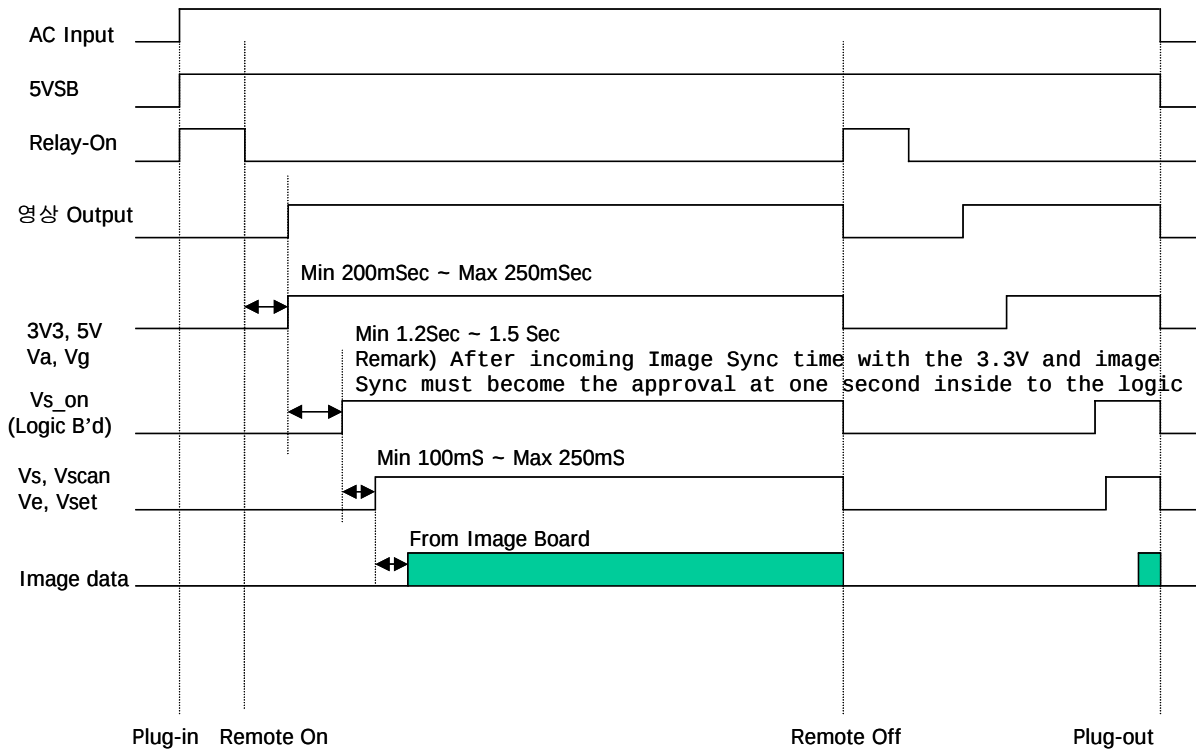
Name	Voltage [V]	Ripple [mVpp]	Current[A]			Remarks
			Min.	Typ.	Max.	
D3V3	3.3	100	1.0	1.0	1.5	
D6V	6.0	100	0.7	1.4	2.0	
Vaudb	12.0	100	0.0	2.0	3.5	
Vfan	12.0		0.0	–	1.0	Same with Vaudb
Vt	33.0	–			0.001	Voltage for Tunner
5VSB	5.0	100	0.1	–	1.0	
A6V	6.0	100	0.1	–	1.0	
A12V	12.0	200	0.1		1.0	

3 Pin assignment of connectors for Power Supply

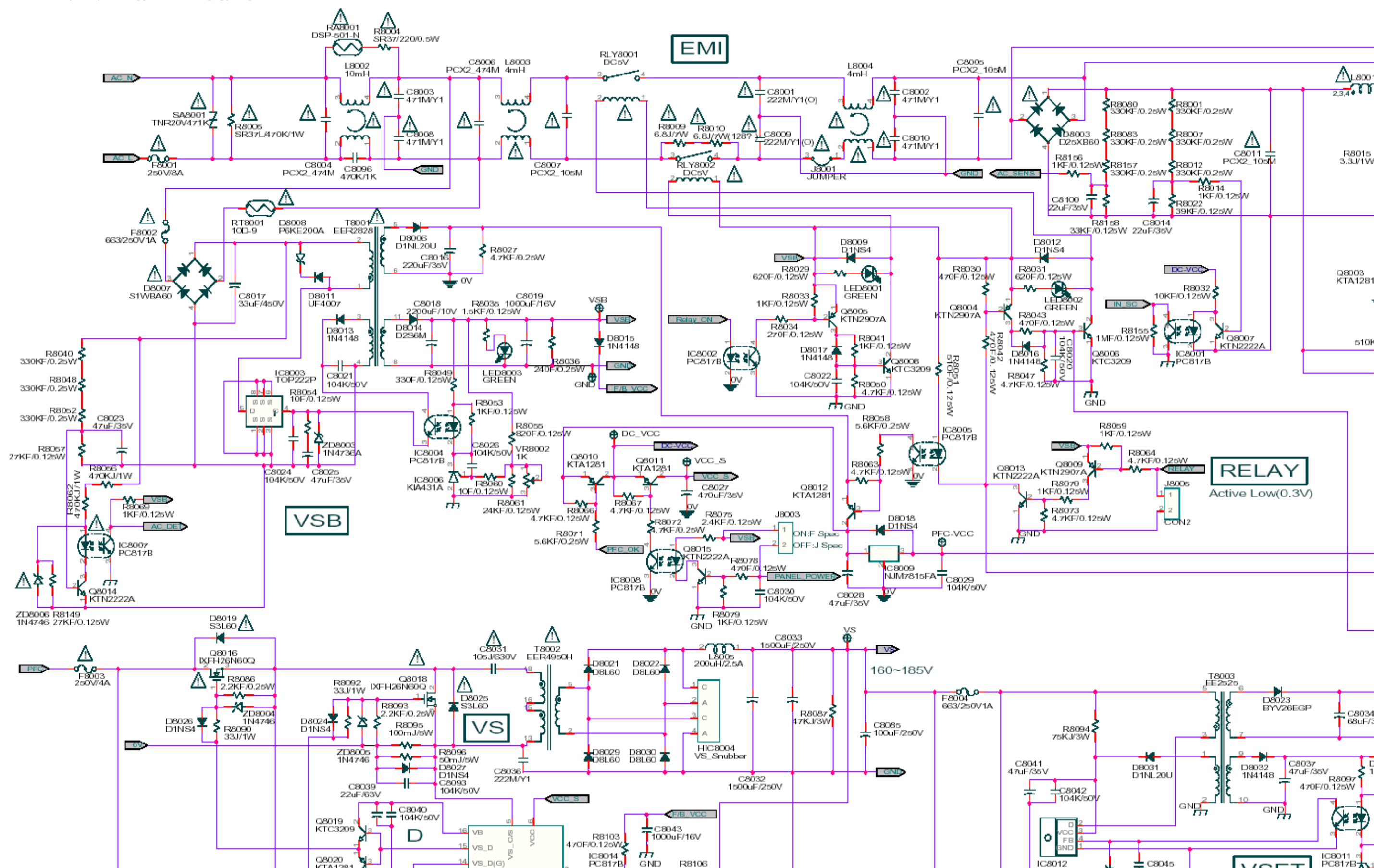
: IMAGE BOARD Output Connector & Pin Assignment(USER ONLY)

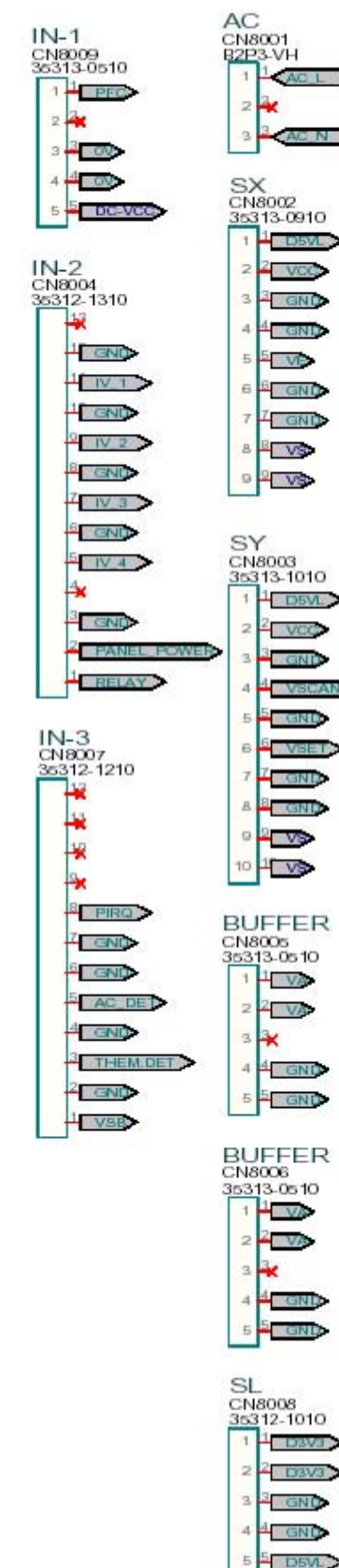
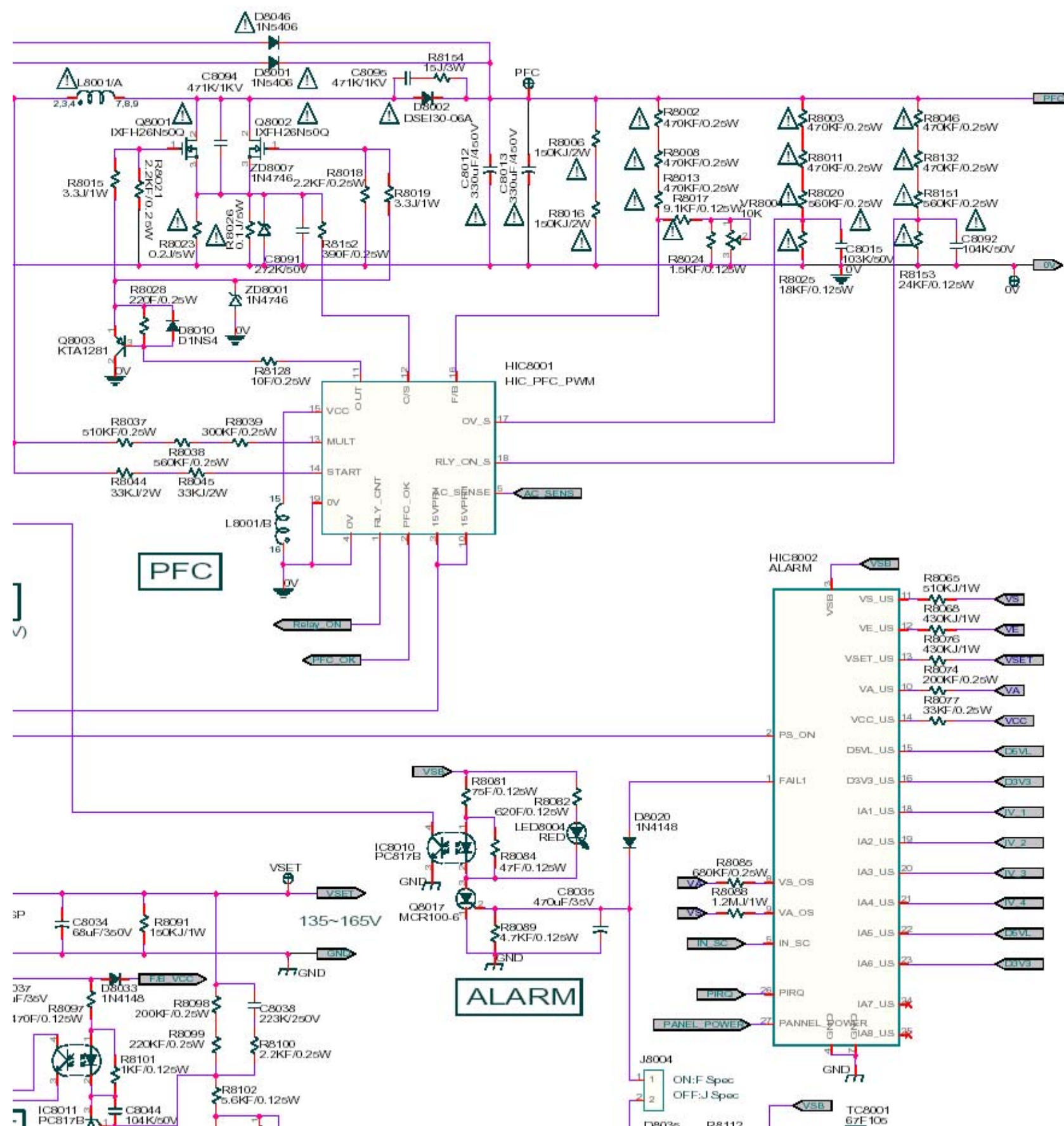
Location Num.	CN9003	CN9004	CN9005
Function	AUDIO	IMAGE_D	DC_LINK
Pin Num.	10 Pin	11 Pin	5 Pin
Connector Type	MOLEX 35313-10P	MOLEX 35313-11P	Molex 35313-0510
Pin No.	Pin Name	Pin Name	Pin Name
1	A6V	D6V	PFC
2	GND	GND	N,C
3	A12V	D3V3	0V
4	GND	D3V3	0V
5	Vamp	GND	DC-Vcc
6	Vamp	GND	
7	GND	(12V)	
8	GND	Relay_ON	
9	33Vt	GND	
10	GND	5VSB	
11		THERM_DET	

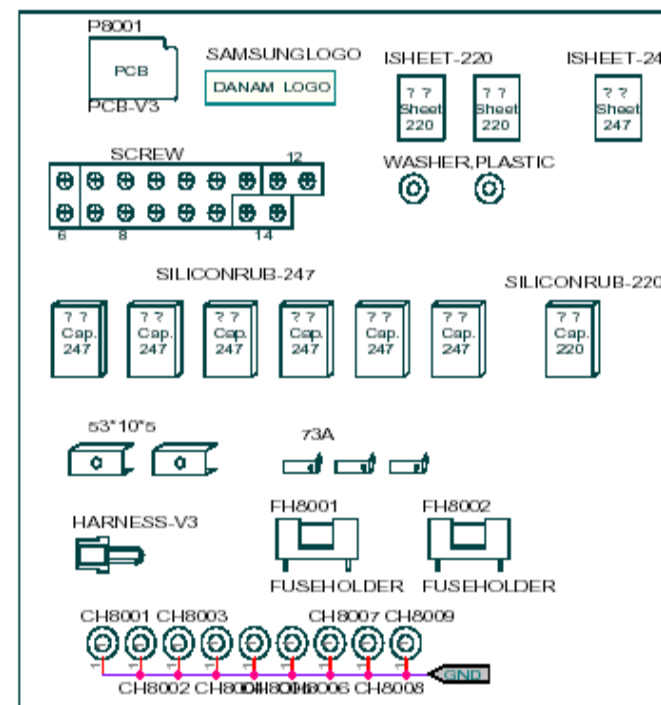
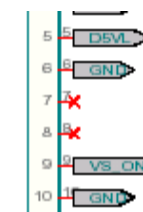
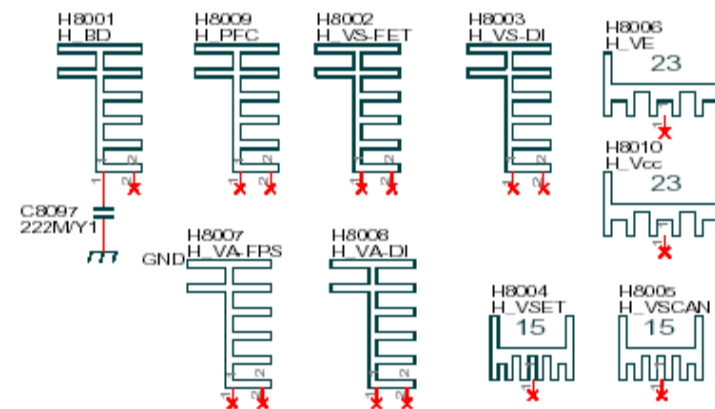
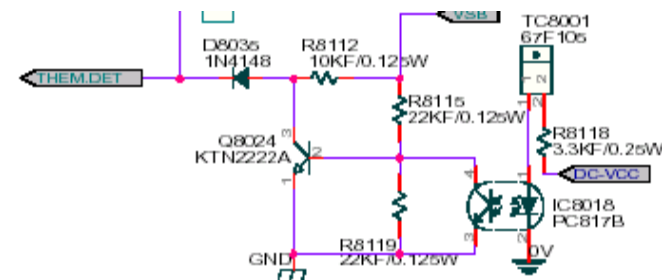
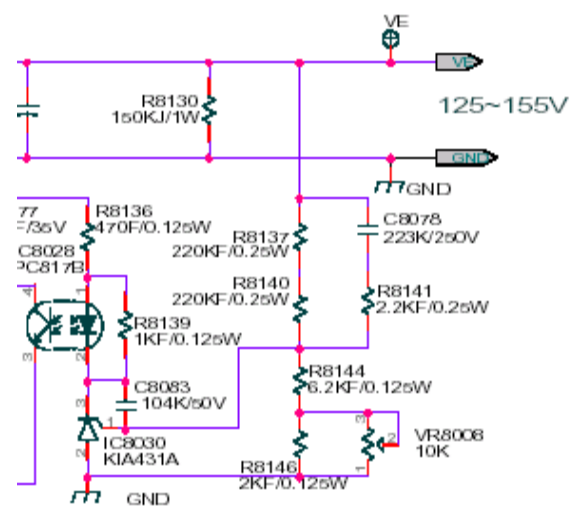
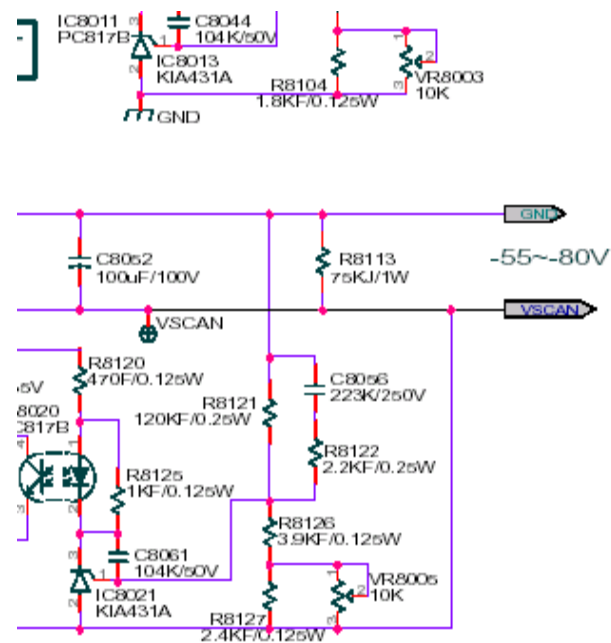
4 Power Applying Sequence



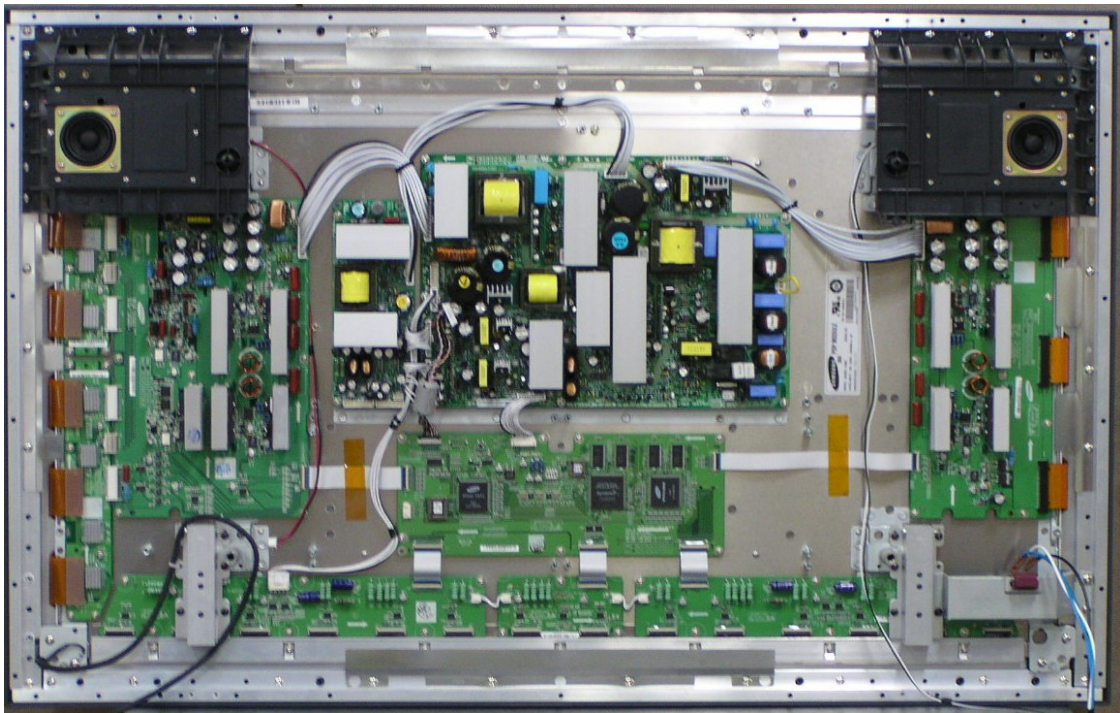
1.1. Main Board



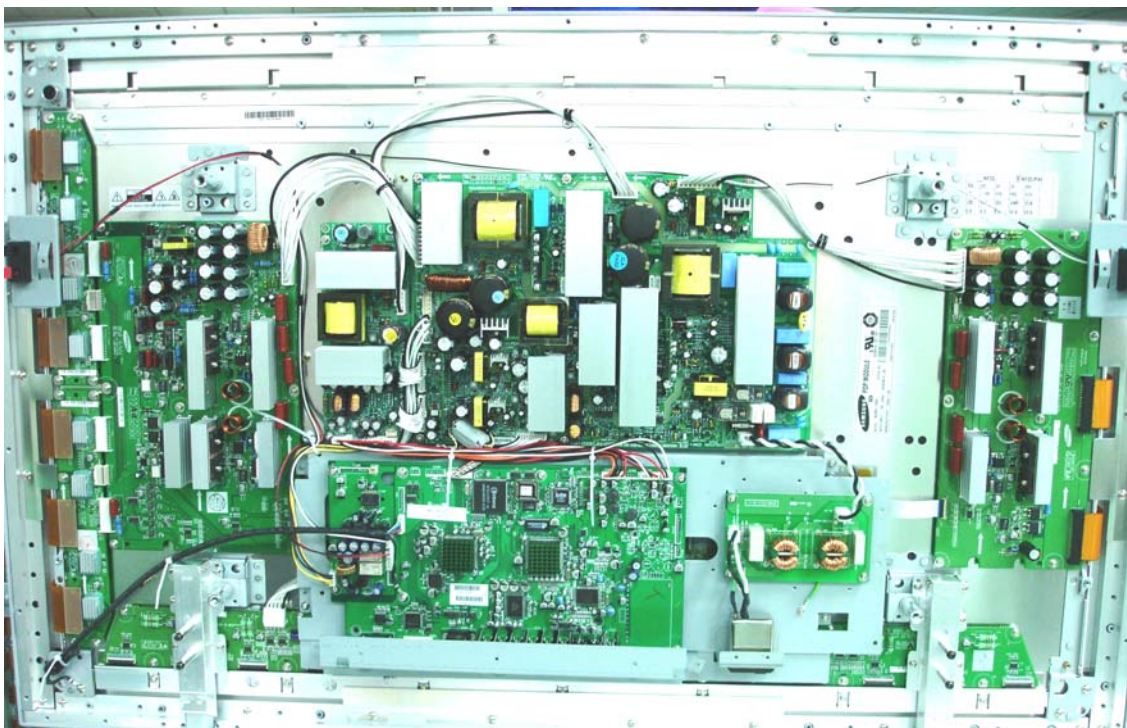




1. REAR COVER WITH POWER SUPPLY UNIT.



2. REAR COVER WITH POWER SUPPLY AND SEPARATE BOARD



3.IMAGE BOARD

