


SANYO Semiconductors

DATA SHEET

LV7980 — Bi-CMOS IC For CRT-TV 3 in 1 RGB Driver

Overview

The LV7980 is a 3 in 1 RGB driver for CRT-TV.

Functions

- 3 in 1 RGB driver
- Wide bandwidth: 4.5MHz ($V_O = 60V_{p-p}$)

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{DD \text{ max}}$		250	V
Output voltage	$V_{OUT \text{ max}}$		0 to V_{DD}	V
Input Voltage	$V_{IN \text{ max}}$		10	V
Allowable power dissipation	$P_d \text{ max}$	$T_a \leq 25^\circ\text{C}$, With infinite heat sink	6	W
Thermal resistance	θ_{jc}		11	$^\circ\text{C/W}$
Operating temperature	T_{opr}		-20 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{DD}		200	V
Operating supply voltage range	$V_{DD \text{ op}}$		180 to 210	V

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LV7980

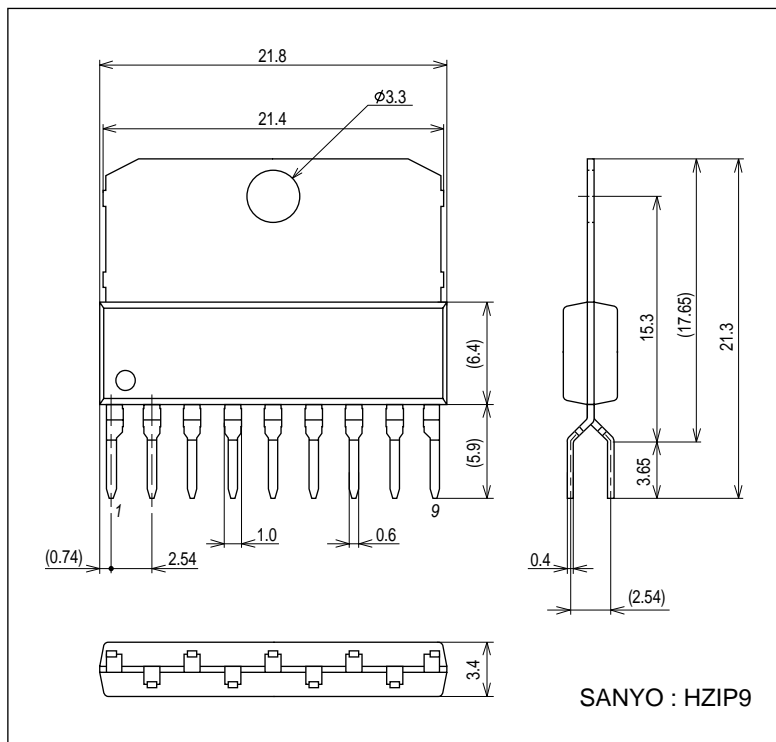
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{DD} = 200\text{V}$, $V_{OUT} = 1/2V_{DD}$, $C_{cath} = 10\text{pF}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply current	I_Q	No signal	8.0	9.4	11.0	mA
Internal reference voltage	V_{ref}			2.5		V
Input resistance	R_i			1.5		k Ω
Amplifier gain	G_v		76	84	92	
Output voltage	V_O	No signal	84	94	104	V
Differential Output voltage between each channels	ΔV_O		-5	0	+5	V
Idet offset current	I_{do}	$V_{Idet} = 1.8\text{V to } 5\text{V}$	-50		+50	μA
Idet linearity	I_{dlin}	$I_O = -100\mu\text{A to } +100\mu\text{A}$, $V_{Idet} = 1.8\text{V to } 5\text{V}$	-0.9	-1.0	-1.1	
		$I_O = -100\mu\text{A to } +10\text{mA}$, $V_{Idet} = 1.8\text{V to } 4\text{V}$	-0.9	-1.0	-1.1	
Maximum output current	$I_O \text{ max}$			20		mA
Maximum output voltage	$V_O \text{ max}$		$V_{DD}-15$			V
Minimum output voltage	$V_O \text{ min}$				10	V
Frequency bandwidth	F1	$V_O = 60\text{Vp-p}$		4.5		MHz
	F2	$V_O = 100\text{Vp-p}$		3.5		MHz
Slew rate	SR	$V_i = 2.5\text{Vp-p}$ square wave		800		V/ μs
Propagation time	T_{pco}	$V_O = 100\text{Vp-p}$ square wave		80		ns
Settling time	T_{st}	$V_O = 100\text{Vp-p}$ square wave			350	ns
Rise time	T_r	$V_O = 50\text{V to } 150\text{V}$ square wave		100		ns
Fall time	T_f	$V_O = 150\text{V to } 50\text{V}$ square wave		100		ns
Output voltage overshoot	O_v	$V_O = 100\text{Vp-p}$ square wave		2		%
Ripple rejection	PSRR	$f = 10\text{kHz}$		43		dB
Cross talk between channels	CT			30		dB

Package Dimensions

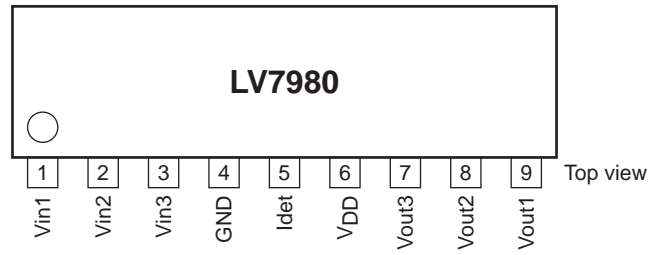
unit : mm (typ)

3374

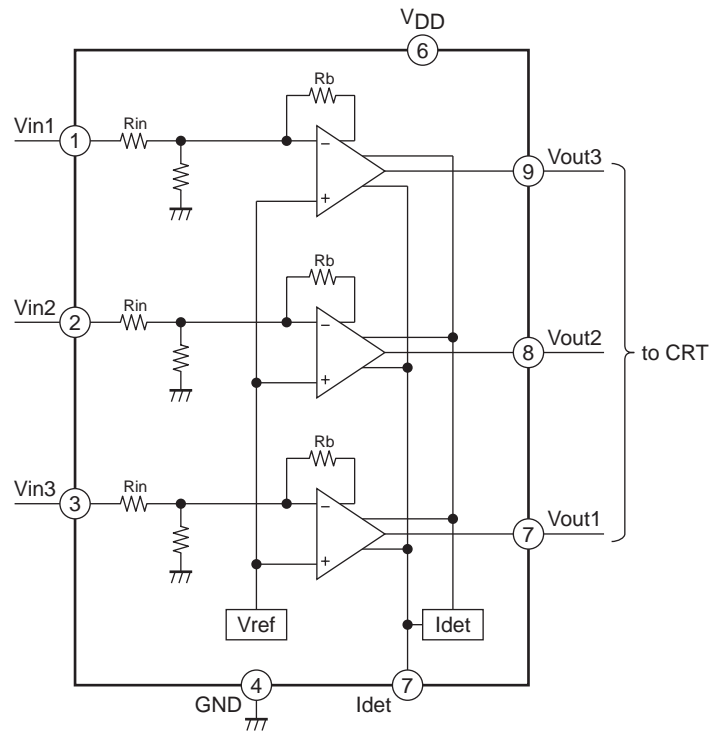


LV7980

Pin Assignment



Block Diagram



LV7980

Pin Function

Pin No.	Pin name	Function	Equivalent circuit
1 2 3	Vin1 Vin2 Vin3	Inverting input.	
4	GND	Ground.	
5	Idet	Cathode current output	
6	VDD	Supply voltage	
7 8 9	Vout3 Vout2 Vout1	Output.	

Input Signal and Output Waveform

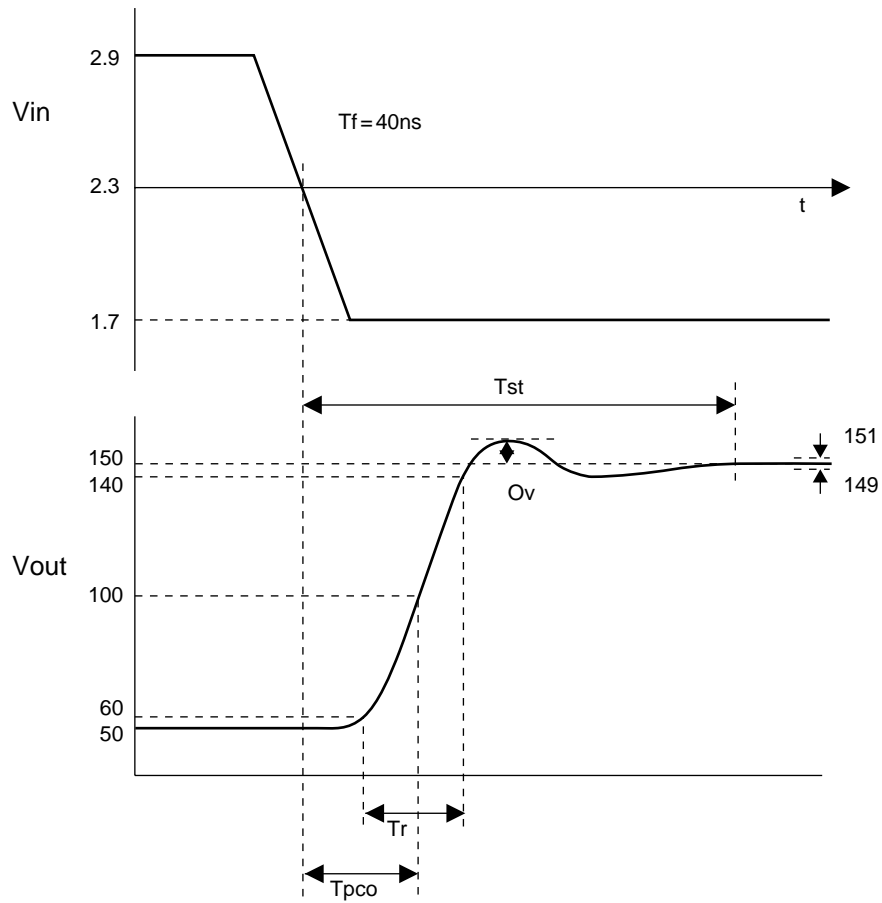


Fig.1

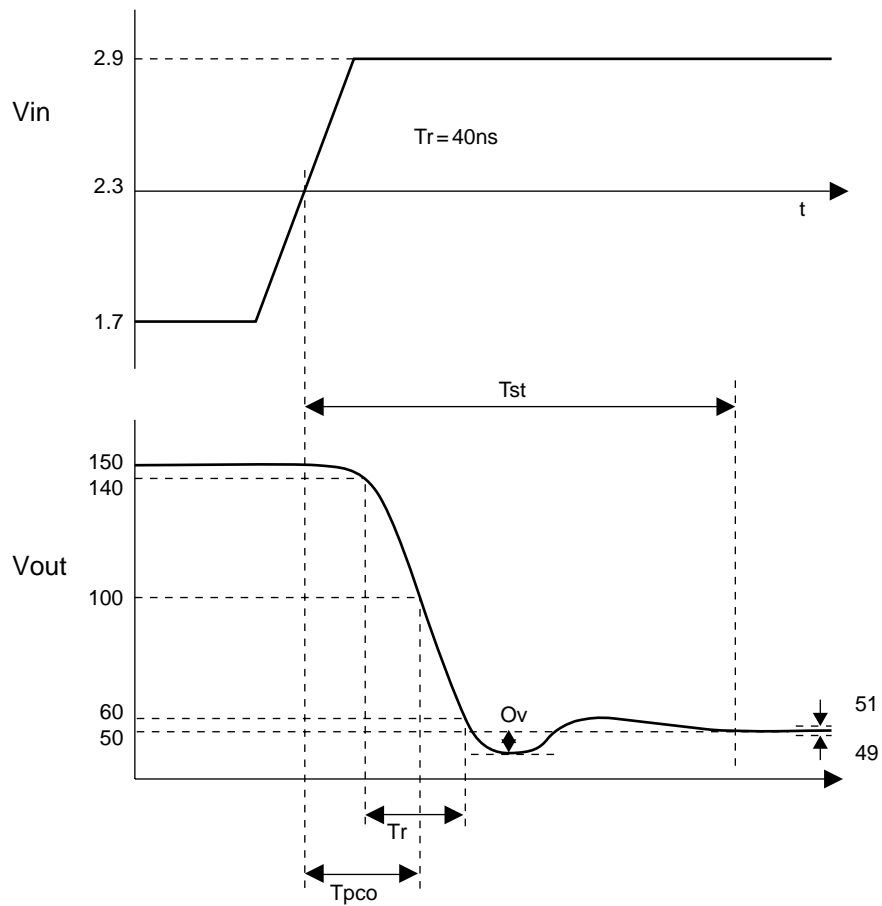
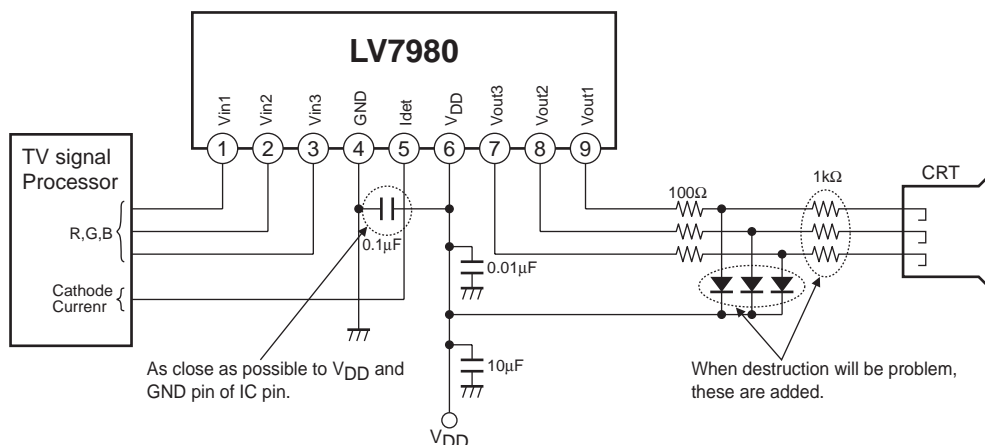


Fig.2

Application Circuit Example



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