calogic
CORPORATION

Improved Triple 85MHz CRT Driver

CVA2417TL

FEATURES

- **Bandwidth 85MHz**
- **Fall Time 3.8ns**
- **RiseTime 4.4ns**
- **Swing . . . . . 50 V_{P-P}**
- **Excellent Gray Scale Linearity**
- **Supply Voltage 80V**
- **Pin to Pin Compatible with CVA2417TX**

APPLICATIONS

- **CRT Driver for 1280 x 1024 and 1024 x 768 Color Monitors**

DESCRIPTION

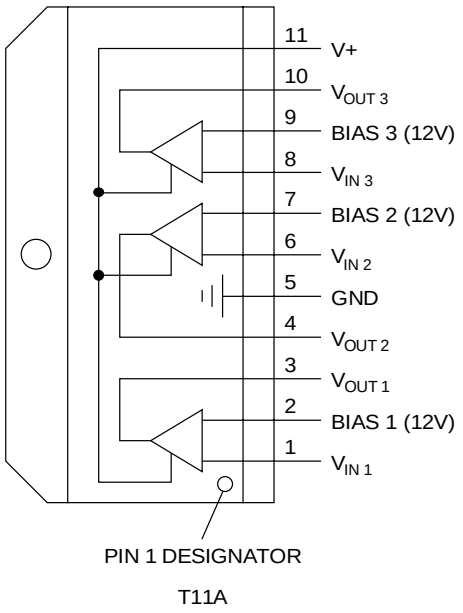
The CVA2417TL is an improved version that features excellent gray scale linearity with no crossover distortion and less EMI. Designed especially to drive high resolution monitor for resolution up to 1280 x 1024 (non-interlaced) with pixel frequency up to 160MHz.

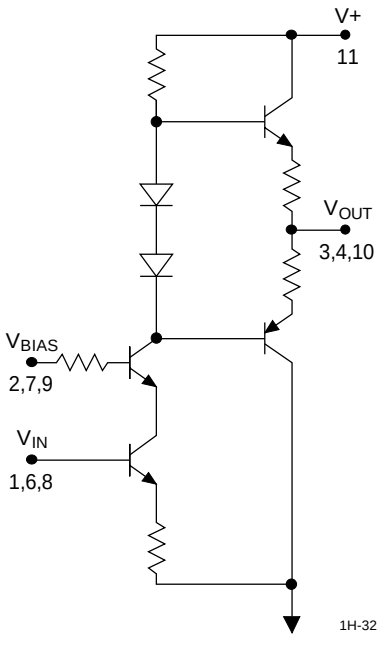
The part is housed in the industry standard 11-lead TO-220 molded power package. The heat sink is floating and may be grounded for ease of manufacturing and RFI shielding.

ORDERING INFORMATION

Part	Package	Temperature
CVA2417TL	T11A	-20°C to +100°C

CONNECTION DIAGRAM AND SIMPLIFIED SCHEMATIC





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ABSOLUTE MAXIMUM RATINGS

Supply Voltage 90V
Storage Temperature . . . . . -25°C to +100°C
Operating Temperature . . . . . -20°C to +100°C
Lead Temperature . . . . . +300°C

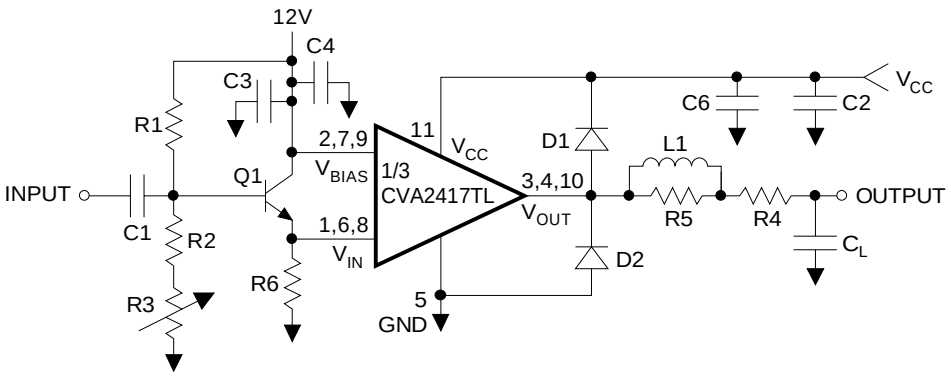
DC ELECTRICAL CHARACTERISTICS V_S = 80V, C_L = 12pF, V_{bias} = 12V, V_{in} = 3.4V, T_{case} = +25°C. See Figure 1.

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
I_{CC}	Supply Current @ 1MHz		32	38	mA
I_{CC}	Supply Current @ 50MHz		55		mA
V_{outDC}	Output DC Level	40	45	50	V
A_V	Voltage Gain	11	13	15	V
	Gain Matching		0.2		dB

AC ELECTRICAL CHARACTERISTICS V_S = 80V, C_L = 12pF, V_{bias} = 12V, T_{case} = +25°C. See Figure 1.

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
t_r	Rise Time		4.4	6.0	ns
t_f	Fall Time		3.8	5.0	ns
BW	Bandwidth		85		MHz
Le	Linearity		8		%
OS	Overshoot		10		%

FIGURE 1. TEST CIRCUIT



C1 = 0.01µF
C2 = 0.01µF
C3 = 0.1µF
C4 = 0.47µF
C_L = 12pF (Including Parasitics)
C6 = 1.0µF

R1 = 8.2kΩ
R2 = 2.7kΩ
R3 = 10.0KΩ
R4 = 34Ω
R5 = 1.5kΩ
R6 = 150Ω

D1 = FDH400
D2 = FDH400
L1 = 560nH
Q1 = 2N5770

1L-06

APPLICATION INFORMATION

The CVA2417TL is a high voltage triple CRT driver suitable for VGA, Super VGA, IBM® 8514, 1280 x 1024 and 1024 x 768 non-interlaced display applications. The CVA2417TL features 80V operation and low power dissipation. The part is housed in the industry standard 11 lead TO-220 molded power package. The heat sink is floating and may be grounded for ease of manufacturing and RFI shielding.

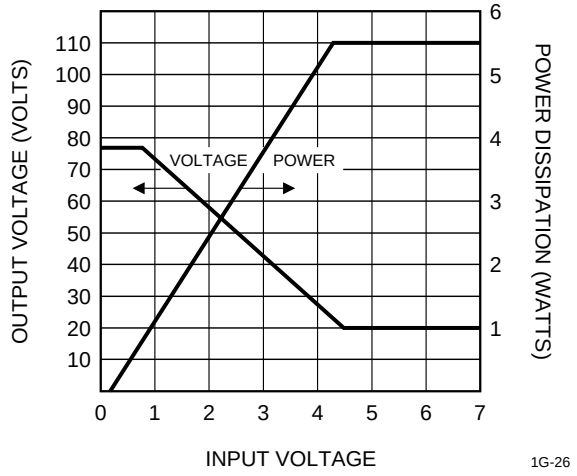
Thermal Considerations

The transfer characteristics of the amplifier are shown in *Figure 2.* Since this is a class A input stage, power supply current increases as the input signal increases and consequently power dissipation also increases. Average dissipation per stage is 2.8W, increasing to 4.8W at minimum output voltage.

The CVA2417TL cannot be used without heat sinking. *Figure 2* shows the power dissipated in each channel over the operating voltage range of the device. Under white screen conditions, i.e.: 20V output, dissipation increases to 16W total. The CVA2417TL case temperature must be maintained below +90°C. If the maximum expected ambient temperature is +50°C, then a heat sink is needed with thermal resistance equal to or less than:

$$R_{th} = \frac{(90 - 50^{o}C)}{16W} = 2.5^{o}C/W$$

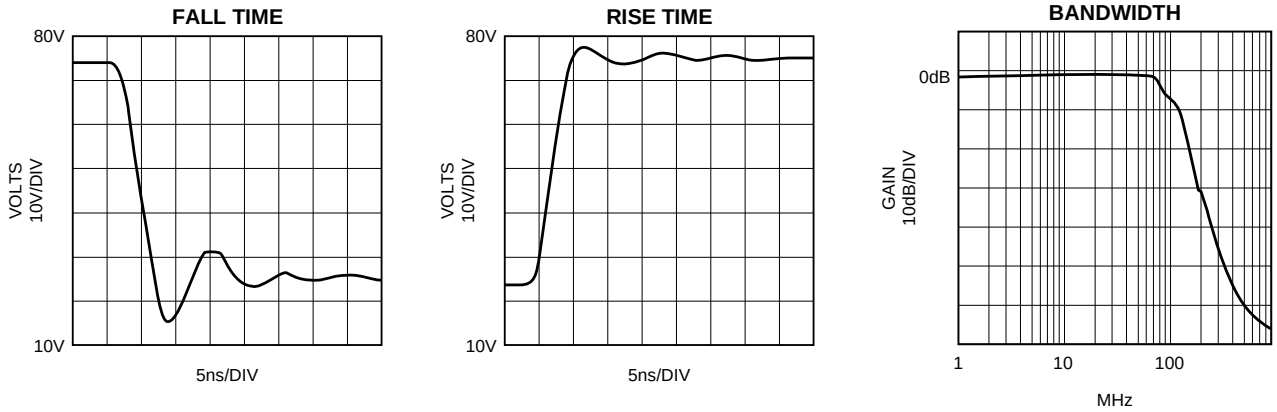
FIGURE 2. CVA2417TL DC Characteristics



The CVA2417TL maximum load is 600Ω to ground or V^+.

The output of CVA2417TL is not short circuit proof. Any resistance to V^+ or Ground should be > 600Ω.

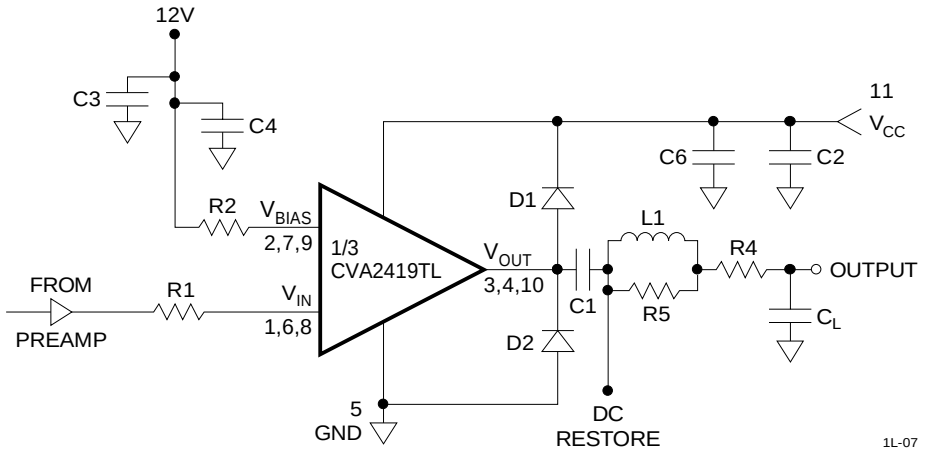
FIGURE 3.



TYPICAL APPLICATION

A typical application of the CVA2417TL is shown in *Figure 4.*

FIGURE 4. TYPICAL APPLICATION



	C1 µF	C2 µF	C3 µF	C4 µF	CL* pF	C6 µF	R1 Ω	R2 Ω	R4 Ω	R5 KΩ	D1	D2	L1 nH	Q1
CVA2417	1.0	0.01	0.1	0.43	12	1.0	22	47	34	1.5	FDH400	FDH400	560	2N5770

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