

Low Cost Triple CRT Driver



CVA2422TL

FEATURES

- Bandwidth 90MHz
- Rise/Fall Time..... 5.0ns
- Swing 70V_{P-P}
- Supply Voltage..... 90V

APPLICATIONS

- CRT driver for up to 82kHz monitors with resolution up to 1280 x 1024.

DESCRIPTION

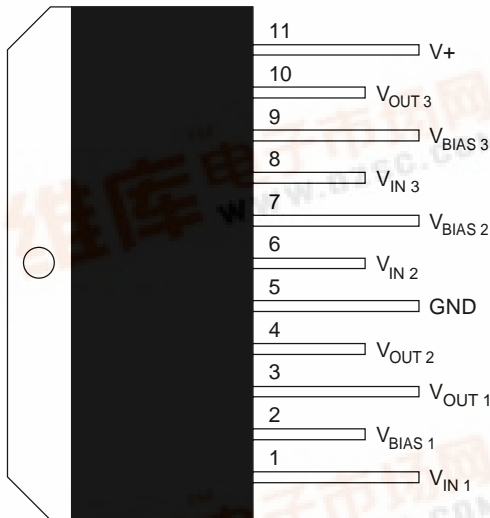
The CVA2422TL contains three cascode video driver amplifiers without a common emitter. This device is designed for ease of use, adjustable gain, controlled EMI, OSD, and external peaking.

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

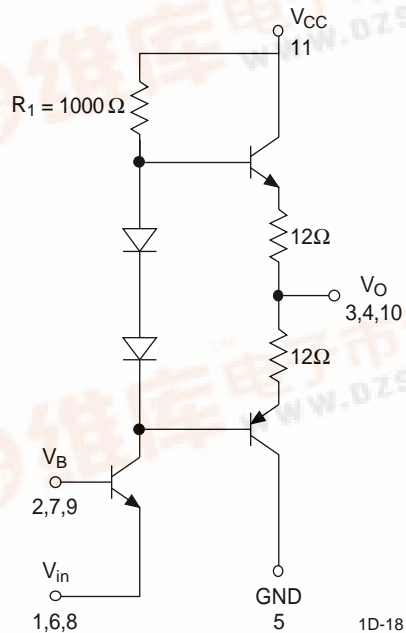
Part	Package	Temperature
CVA2422TL	T11A	-20°C to +90°C

CONNECTION DIAGRAM



TOP VIEW
T11A PACKAGE

1C-46



1D-18

ABSOLUTE MAXIMUM RATINGS

Supply Voltage 95V Operating Temperature -20°C to +90°C
 Power Dissipation 16W Lead Temperature +300°C
 Storage Temperature -25°C to +100°C

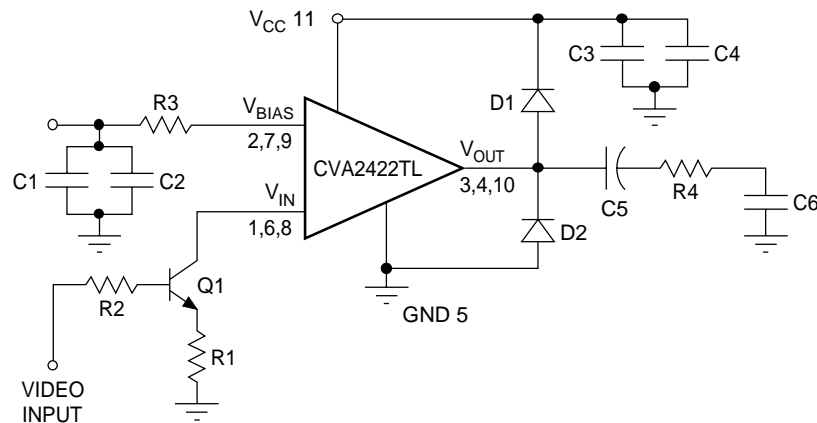
DC ELECTRICAL CHARACTERISTICS $V_s = 80V$, $C_L = 8pF$, $DC_{INPUT\ BIAS} = 12V$, $V_{IN} = 3.4V$, $V_{OUT} = 50V_{p-p}$. $T_{CASE} = +25^\circ C$.
 See Figure 1.

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
I_{CC}	Supply Current @ 1MHz		34	40	mA
I_{CC}	Supply Current @ 50MHz		58		mA
$V_{OUT\ DC}$	Output DC Level	40	45	50	V
A_v	Voltage Gain	12	15	17	V
	Gain Matching		0.2		dB

AC ELECTRICAL CHARACTERISTICS $V_s = 80V$, $C_L = 8pF$, $DC_{INPUT\ BIAS} = 12V$, $V_{IN} = 3.4V$, $V_{OUT} = 50V_{p-p}$. $T_{CASE} = +25^\circ C$.
 See Figure 1.

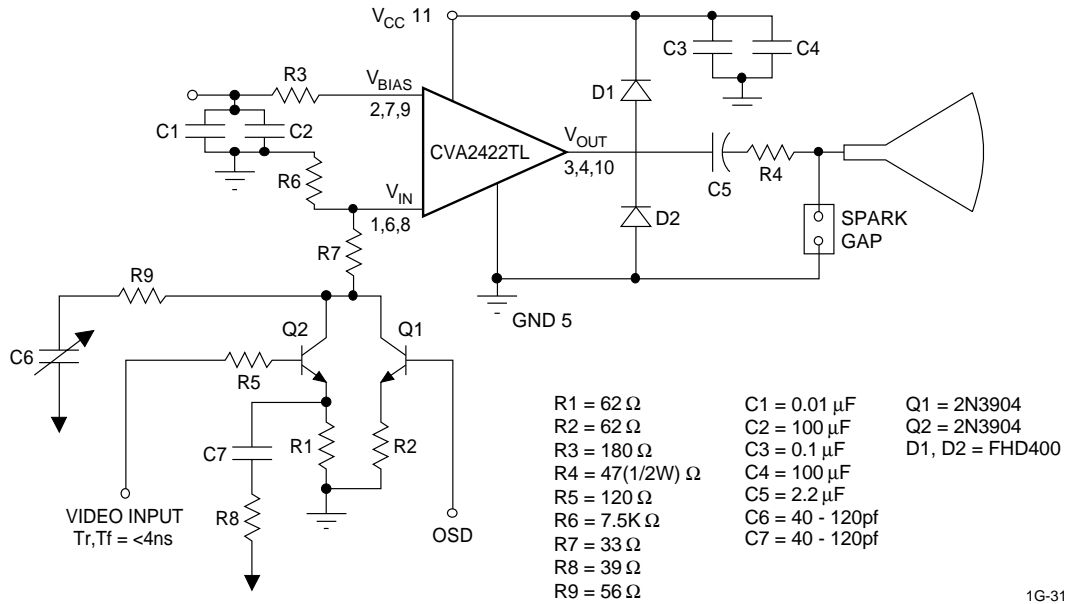
SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
T_r	Rise Time		5	6	ns
T_f	Fall Time		5	6	ns
BW	Bandwidth		90		MHz
L_e	Linearity		6		%
OS	Overshoot		6		%

FIGURE 1. TEST CIRCUIT



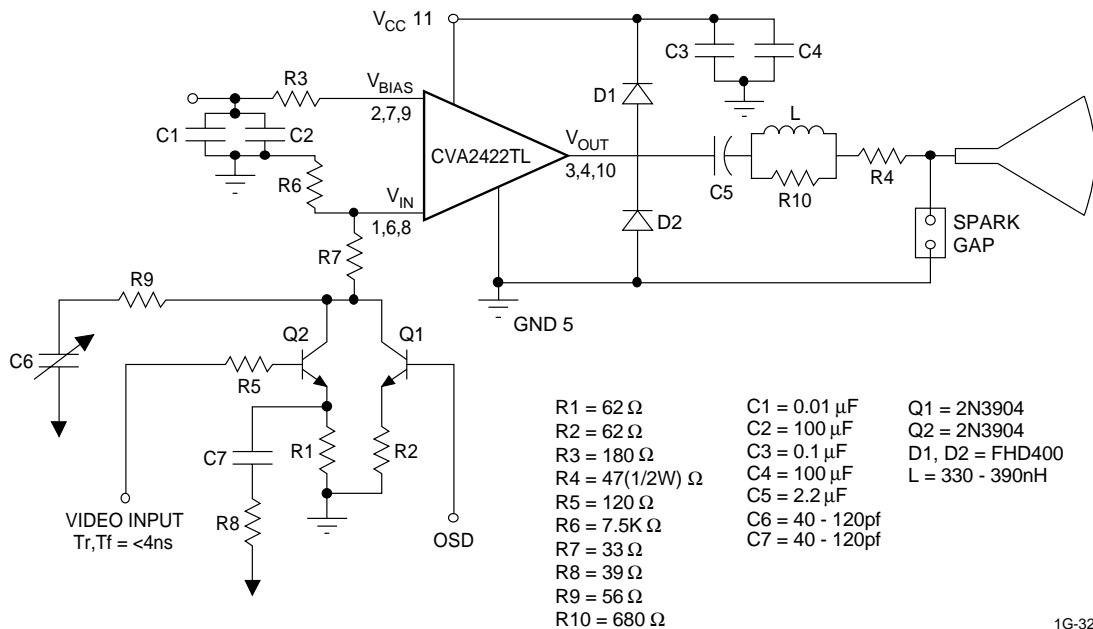
- C1 = 0.01 μF
- C2 = 100 μF
- C3 = 0.1 μF
- C4 = 100 μF
- C5 = 2.2 μF
- C6 = 8pF (INCLUDING PARASITIC)
- R1 = 62
- R2 = 120
- R3 = 180
- R4 = 47
- Q1 = 2N3904
- D1, D2 = FHD400

FIGURE 2. APPLICATION CIRCUIT



1G-31

FIGURE 3. APPLICATION CIRCUIT



1G-32

APPLICATION INFORMATION

The CVA2422TL 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 CVA2422TL features 80V operation. 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 4*. Since this is a class A input stage, power supply current increases as the input signal increases and consequently power dissipation also increases.

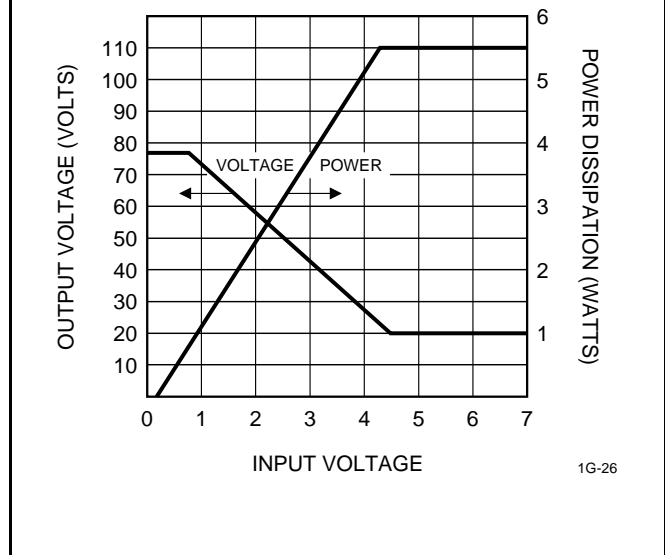
The CVA2422TL cannot be used without heat sinking. *Figure 2* shows the power dissipated in each channel over the operating voltage range of the device. Under white screen conditions, i.e.: 20V output, dissipation increases to 16W total. The CVA2422TL case temperature must be maintained below +90°C. If the maximum expected ambient temperature is +50°C, then a heat sink is needed with thermal resistance equal to or less than:

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

The CVA2422TL maximum load is 600Ω to ground or V⁺.

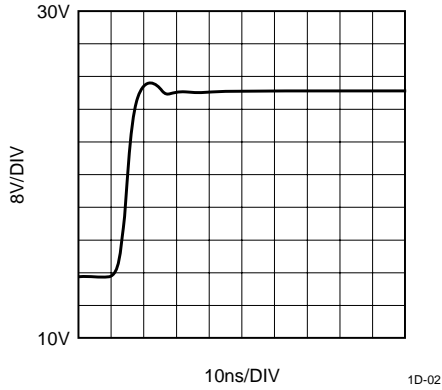
The output of CVA2422TL is not short circuit proof. Any resistance to V⁺ or Ground should be > 600Ω.

FIGURE 4. CVA2422TL DC Characteristics

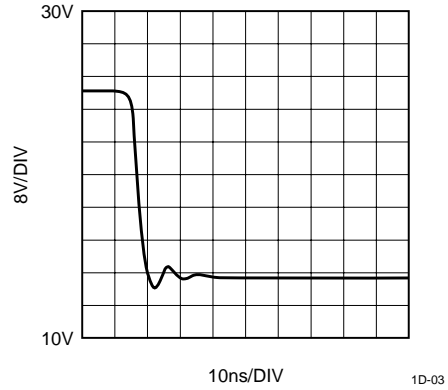


TYPICAL CHARACTERISTICS

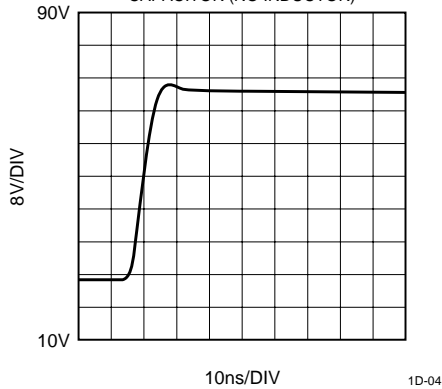
RISE TIME
WITH PEAKING
INDUCTOR & CAPACITOR



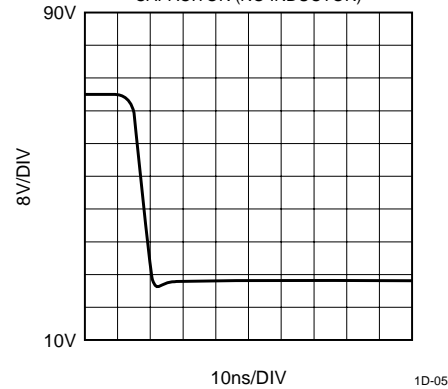
FALL TIME
WITH PEAKING
INDUCTOR & CAPACITOR



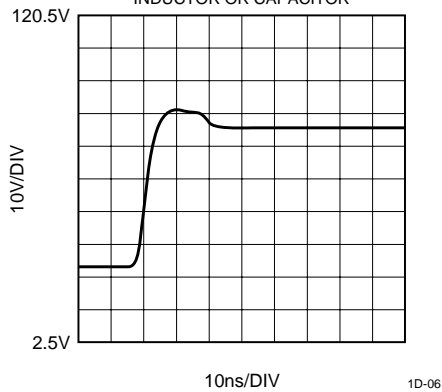
RISE TIME
WITH PEAKING
CAPACITOR (NO INDUCTOR)



FALL TIME
WITH PEAKING
CAPACITOR (NO INDUCTOR)



RISE TIME
NO PEAKING
INDUCTOR OR CAPACITOR



FALL TIME
NO PEAKING
INDUCTOR OR CAPACITOR

