

# Triple 85MHz CRT Driver



## CVA2419TX

### FEATURES

- Bandwidth ..... 85MHz
- Rise/Fall Time..... <5.0ns
- Swing ..... 50 V<sub>P-P</sub>
- Supply Voltage..... 80V
- Pin to Pin Compatible with CVA2415, CVA2416, CVA2417, LM2416 and LM2419

### APPLICATIONS

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

### DESCRIPTION

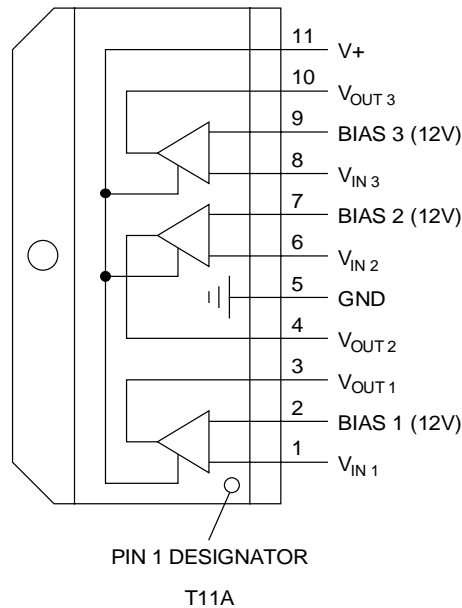
The CVA2419TX contains three wide bandwidth, large signal amplifiers designed specially to drive high resolution color monitors. This device will provide excellent drive capability for the 1280 x 1024 and 1024 x 768 color monitor. The CVA2419TX is a low cost CRT driver designed to replace discrete solutions.

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
CVA2419TX	T11A	-20°C to +90°C

### CONNECTION DIAGRAM



**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage . . . . . 85V      Operating Temperature . . . . . -20°C to +90°C  
 Storage Temperature . . . . . -25°C to +100°C      Lead Temperature . . . . . +300°C

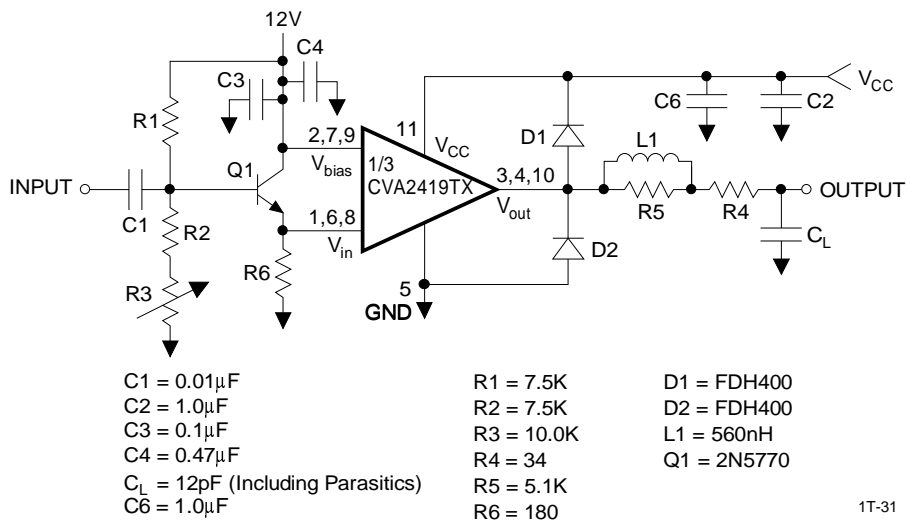
**DC ELECTRICAL CHARACTERISTICS**  $V_S = 80V$ ,  $C_L = 12pF$ ,  $DC_{input\ bias} = 12V$ ,  $V_{in} = 3.9V$ ,  $V_{out} = 50V_{p-p}$ ,  $T_{case} = +25°C$ .  
 See Figure 1.

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
I <sub>cc</sub>	Supply Current @ 1MHz		28	36	mA
I <sub>cc</sub>	Supply Current @ 50MHz		50		mA
V <sub>outDC</sub>	Output DC Level	45	50	55	V
A <sub>v</sub>	Voltage Gain	12	15	17	V
	Gain Matching		0.2		dB

**AC ELECTRICAL CHARACTERISTICS**  $V_S = 80V$ ,  $C_L = 12pF$ ,  $DC_{input\ bias} = 12V$ ,  $V_{in} = 3.9V$ ,  $V_{out} = 50V_{p-p}$ ,  $T_{case} = +25°C$ .  
 See Figure 1.

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
t <sub>r</sub>	Rise Time		4.5	6.0	ns
t <sub>f</sub>	Fall Time		4.9	6.0	ns
BW	Bandwidth		85		MHz
Le	Linearity		6		%
OS	Overshoot		6		%

**FIGURE 1. TEST CIRCUIT**



## APPLICATION INFORMATION

The CVA2419TX 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 CVA2419TX 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.

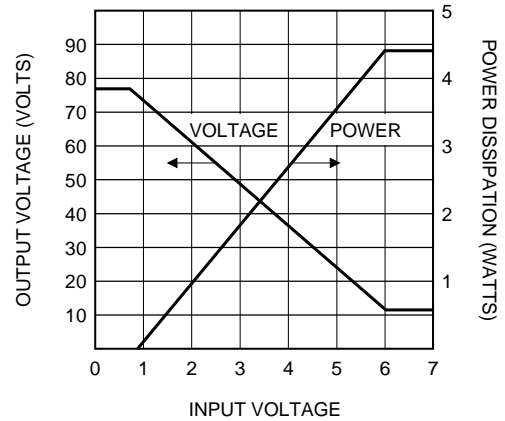
### Thermal Considerations

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 2.5W, increasing to 4.4W at minimum output voltage.

The CVA2419TX cannot be used without heat sinking. *Figure 2* shows the power dissipated in each channel over the operating voltage range of the device, Typical "average" power dissipation with the device output voltage at one half the supply voltage is 2.5W per channel for a total dissipation of 7.5W package dissipation. Under white screen conditions, i.e.: 20V output, dissipation increases to 5.4W per channel or 16W total. The CVA2419TX 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:

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

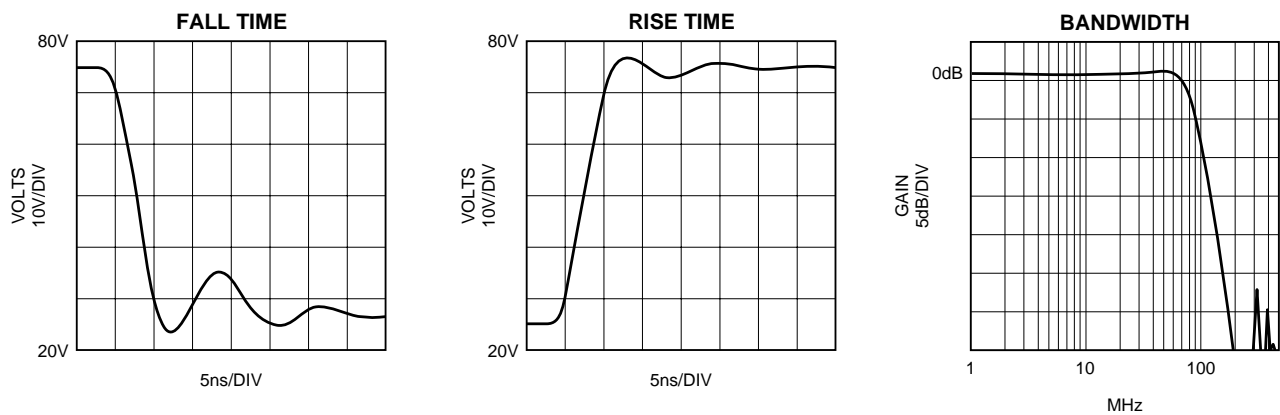
**FIGURE 2. CVA2419TX DC Characteristics**



The Thermalloy #14754 is one example of a heatsink that meets this requirement.

The output of CVA2419TX is not short circuit proof. Any resistance to V<sup>+</sup> or Ground should be > 600Ω.

**FIGURE 3.**

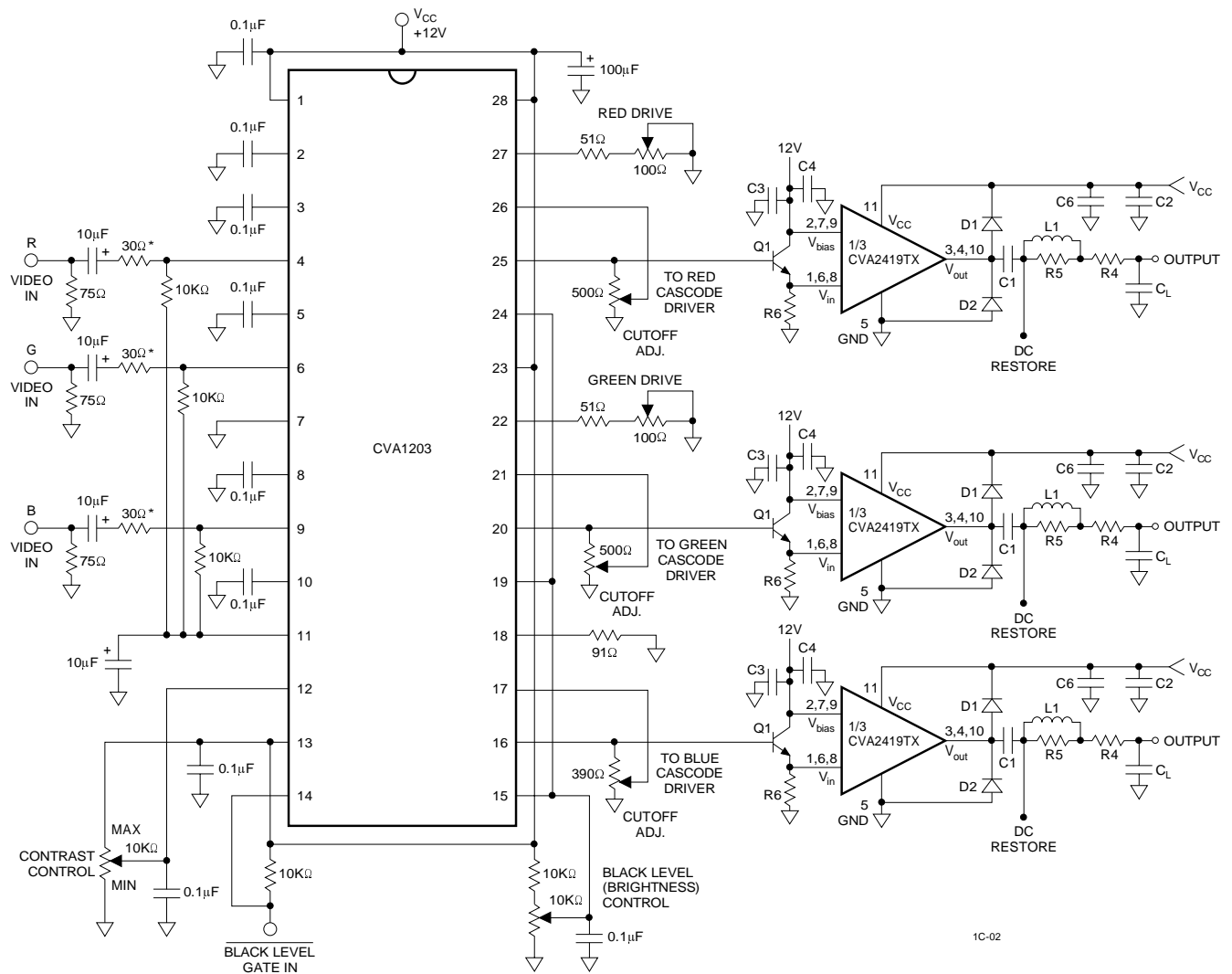


**TYPICAL APPLICATION**

A typical application of the CVA2419TX is shown in *Figure 4*. Used in conjunction with a CVA1203, a complete video channel from monitor input to CRT cathode is shown. In this application, feedback is local to the CVA1203. An alternative

scheme would be feedback from the output of the CVA2419 to the positive clamp inputs of the CVA1203. This would provide slightly better black level control of the system.

**FIGURE 4. TYPICAL APPLICATION**



	C1 µF	C2 µF	C3 µF	C4 µF	CL* pF	C6 µF	R1 KΩ	R2 KΩ	R3 KΩ	R4 Ω	R5 KΩ	R6 Ω	D1	D2	L1 nH	Q1
<b>CVA2419TX</b>	1.0	1.0	0.1	0.47	12	1.0	7.5	7.5	10.0	34	5.1	180	FDH400	FDH400	500	2N5770



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