

CVA24150T

FEATURES

- Fall Time ($C_{LOAD} = 10\text{pf}$) 10ns
- RiseTime ($C_{LOAD} = 10\text{pf}$) 7ns
- Fall Time ($C_{LOAD} = 20\text{pf}$) 13ns
- RiseTime ($C_{LOAD} = 20\text{pf}$) 10ns
- Fall Time ($C_{LOAD} = 30\text{pf}$) 15ns
- RiseTime ($C_{LOAD} = 30\text{pf}$) 13ns
- Swing Voltage 100Vp-p
- Supply Voltage 180V

BENEFITS

- Low Power
- Smaller Package

APPLICATIONS

- High Definition Television
- Projection Television
- Arcades
- TV Monitors

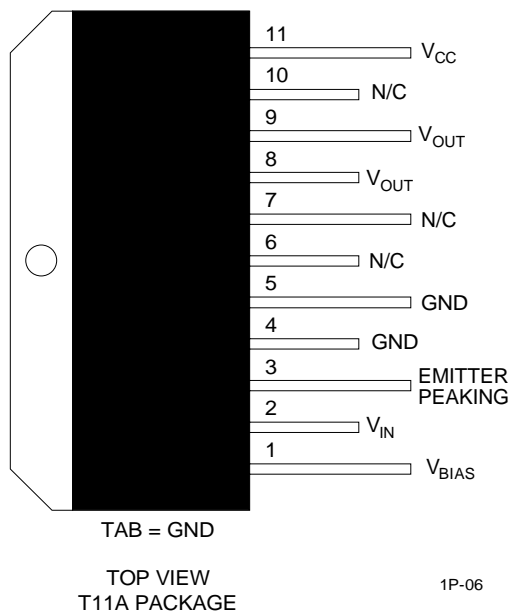
DESCRIPTION

The CVA24150T is a single channel, very high voltage amplifier, designed to drive a CRT. It is capable of delivering 65MHz at 100V_{P-P}. It features no cross-over distortion for excellent linearity. Emitter peaking option is available to adjust the high frequency response. CVA24150T features high gain to match existing pre-amplifier drive capability.

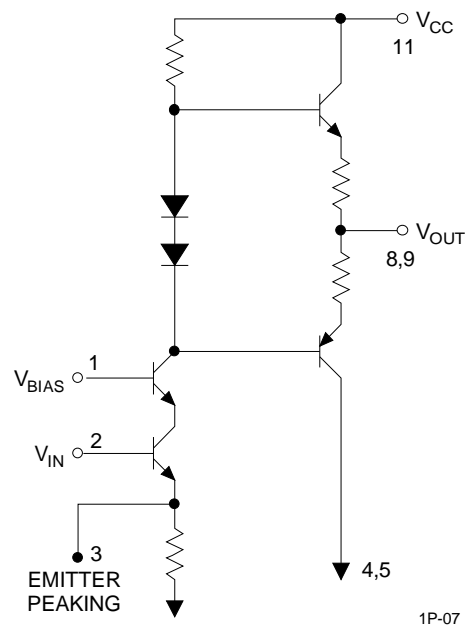
ORDERING INFORMATION

Part	Package	Temperature
CVA24150T	T11A	-20°C to +100°C

CONNECTION DIAGRAM



SIMPLIFIED SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Supply Voltage 200V Operating Temperature -20°C to +100°C
 Storage Temperature -25°C to +100°C Lead Temperature +300°C

DC ELECTRICAL CHARACTERISTICS $V_S = 180V$, $C_L = 10pF$, $DC_{input\ bias} = 12V$, $V_{in} = 3.4V$, $V_{out} = 100p-p$, $T_{case} = +25°C$.
 See Figure 1.

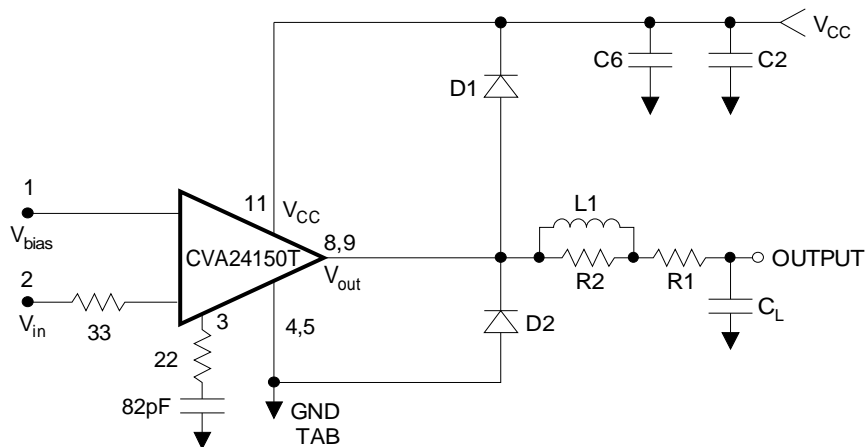
SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
I_{CC}	Supply Current @ 1MHz		35	40	mA
V_{outDC}	Output DC Level	65	70	75	V
A_v	Voltage Gain	24	26	28	V

AC ELECTRICAL CHARACTERISTICS $V_S = 180V$, $C_L = 10pF$, $DC_{input\ bias} = 12V$, $V_{in} = 3.4V$, $V_{out} = 100V_{p-p}$, $T_{case} = +25°C$.
 See Figure 1.

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNITS
t_r	Rise Time		10	12	ns
t_f	Fall Time		10	12	ns
BW	Bandwidth (Note 1)		70		MHz
Le	Linearity		2	5	%
OS	Overshoot		3	7	%

Note 1: -3dB at $V_{p-p} = 100V$

FIGURE 1. TEST CIRCUIT



$C_1 = 1.0\mu F$
 $C_2 = 1.0\mu F$
 $C_L = 10pF$ (Including Parasitics)

$R_1 = 47\Omega$
 $R_2 = 5.1K\Omega$

$D_1 = FDH400$
 $D_2 = FDH400$
 $L_1 = 560nH$
 $Q_1 = 2N5770$

1Q-50

FIGURE 2. APPLICATION CIRCUIT

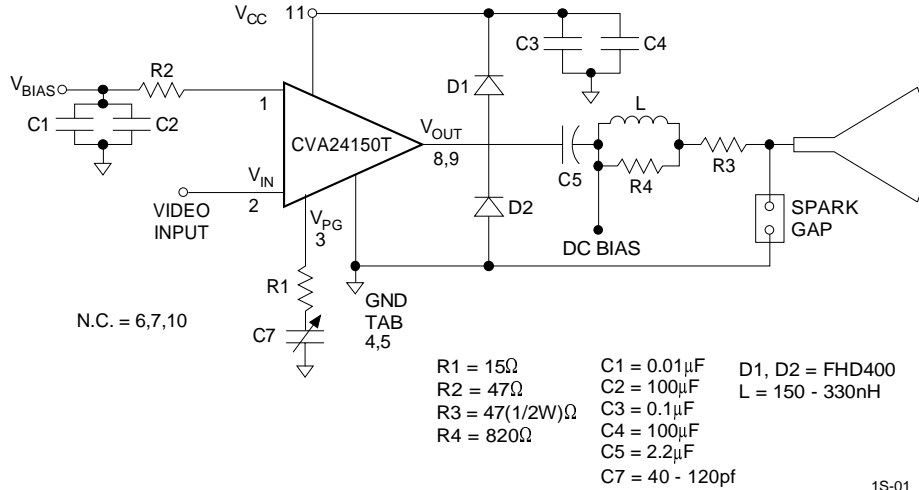
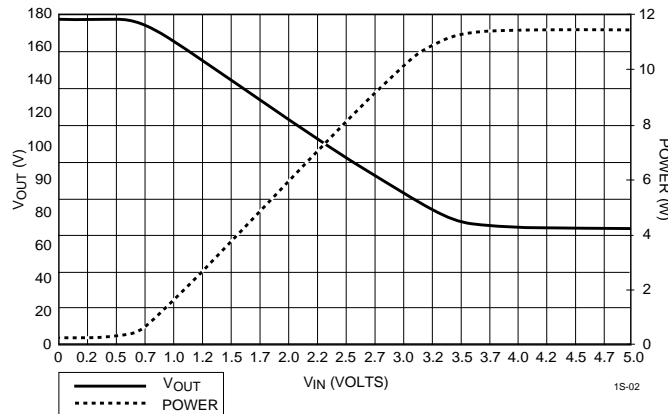


FIGURE 3. CVA24150T Transfer DC Characteristics



APPLICATION INFORMATION

The CVA24150T is a very high voltage amplifier. Using standard Cascode topology, it is designed primarily to meet the requirement of High Definition Television (HDTV), Projection Television, arcade displays, etc. CVA24150T can deliver 100V_{P-P} yet require only 180V supply voltage. CVA24150T frequency response is excellent, can energize 20ns pixels at 100V_{P-P} into 10pf. At 40pf load, rise time is 18ns.

CVA24150T has very high gain (~34) to match any of the available pre-amplifiers. An emitter peaking option is also provided to adjust the high frequency response.

The product is housed in industry standard 11 lead TO-220 power package.

Thermal Considerations

The transfer characteristics of the amplifier are shown in Figure 3. Since this is a class A input stage, power supply

current increases as the input signal increases and consequently power dissipation also increases.

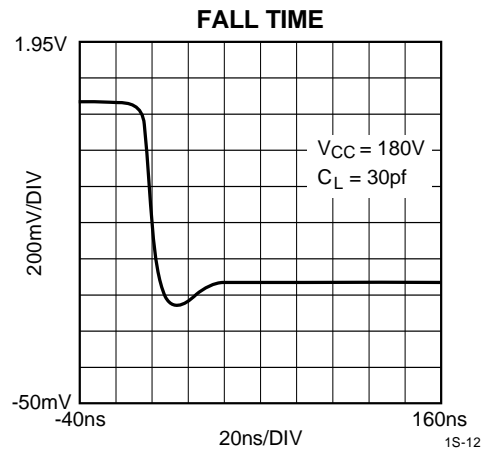
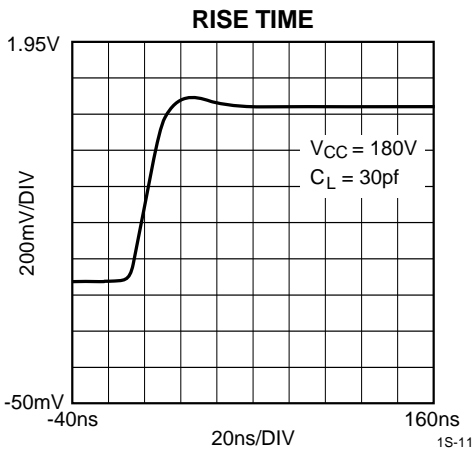
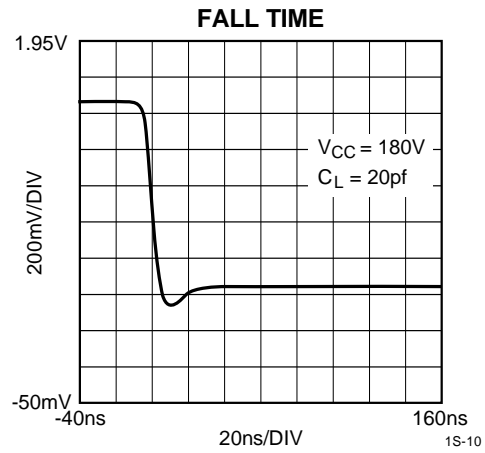
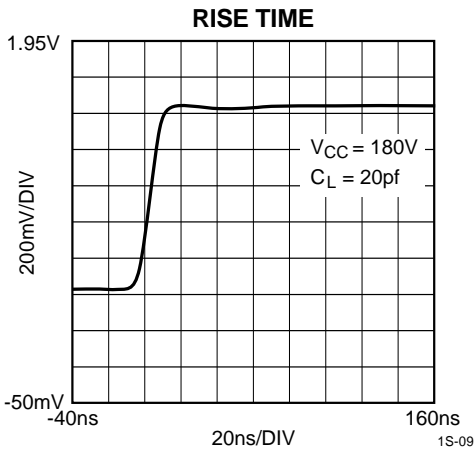
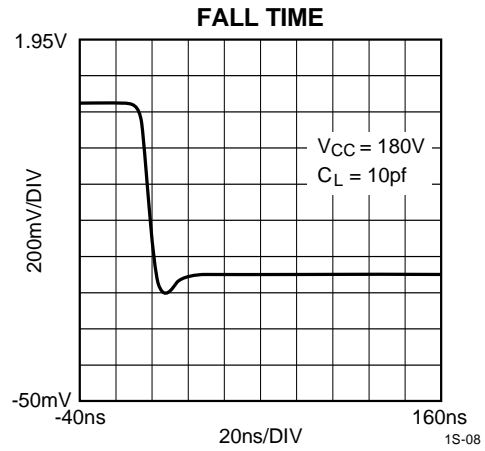
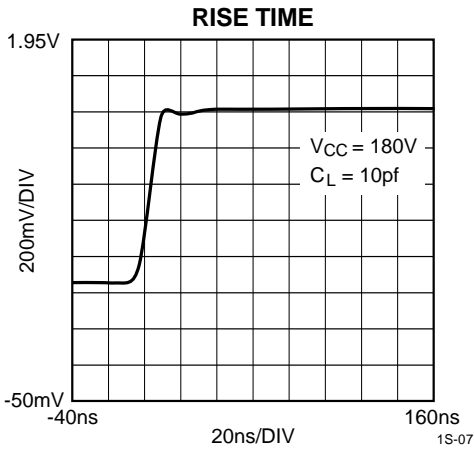
The CVA24150T cannot be used without heat sinking. Figure 3 shows the power dissipated in each channel over the operating voltage range of the device. Under white screen conditions, i.e.: 70V output, dissipation increases to 11W total. The CVA24150T case temperature must be maintained below +100°C. If the maximum expected ambient temperature is +50°C, then a heat sink is needed with thermal resistance equal to or less than:

$$R_{th} = \frac{(100 - 50^{\circ}C)}{11W} = 4.5^{\circ}C/W$$

The CVA24150T maximum load is 600Ω to ground or V⁺.

The output of CVA24150T is not short circuit proof. Any resistance to V⁺ or Ground should be > 600Ω.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (continued)

