

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

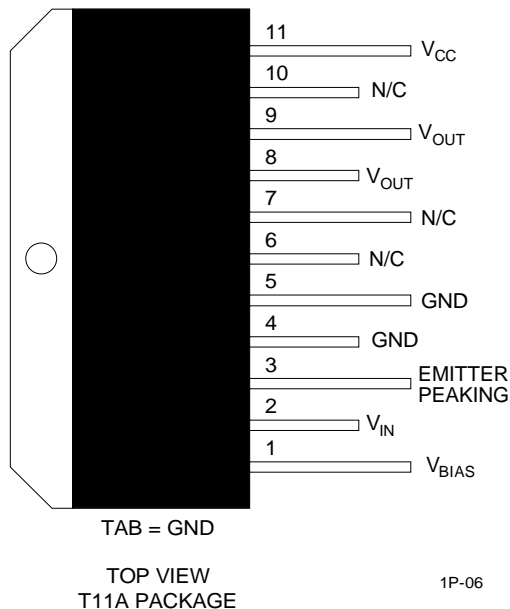
DESCRIPTION

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.

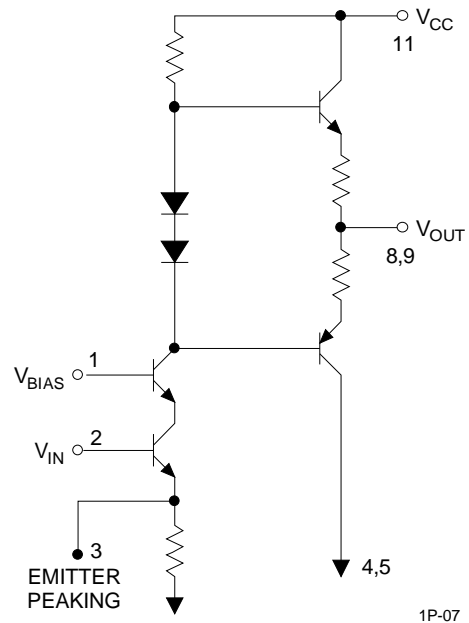
ORDERING INFORMATION

| 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.

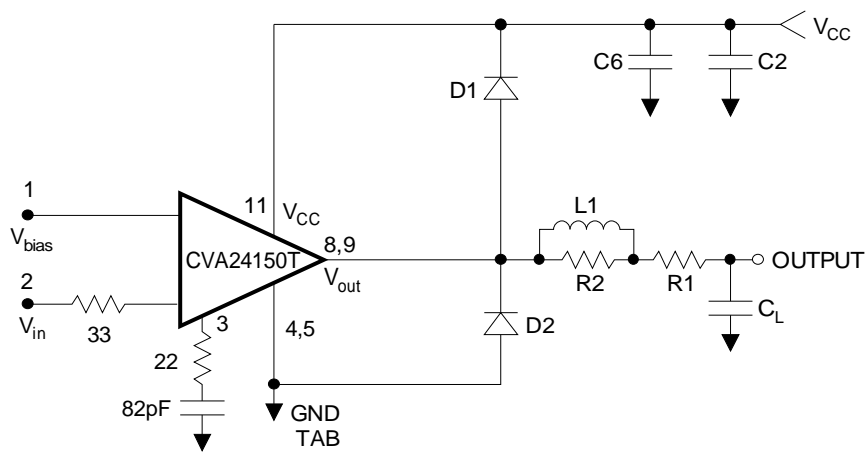
| SYMBOL | CHARACTERISTICS | MIN | TYP | MAX | UNITS |
|-------------|-----------------------|-----|-----|-----|-------|
| I_{CC} | Supply Current @ 1MHz | | 35 | 40 | mA |
| V_{outDC} | Output DC Level | 65 | 70 | 75 | V |
| A_v | Voltage Gain | 24 | 26 | 28 | V |

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



- C1 = 1.0µF
- C2 = 1.0µF
- CL = 10pF (Including Parasitics)
- R1 = 47Ω
- R2 = 5.1KΩ
- D1 = FDH400
- D2 = FDH400
- L1 = 560nH
- Q1 = 2N5770

1Q-50

FIGURE 2. APPLICATION CIRCUIT

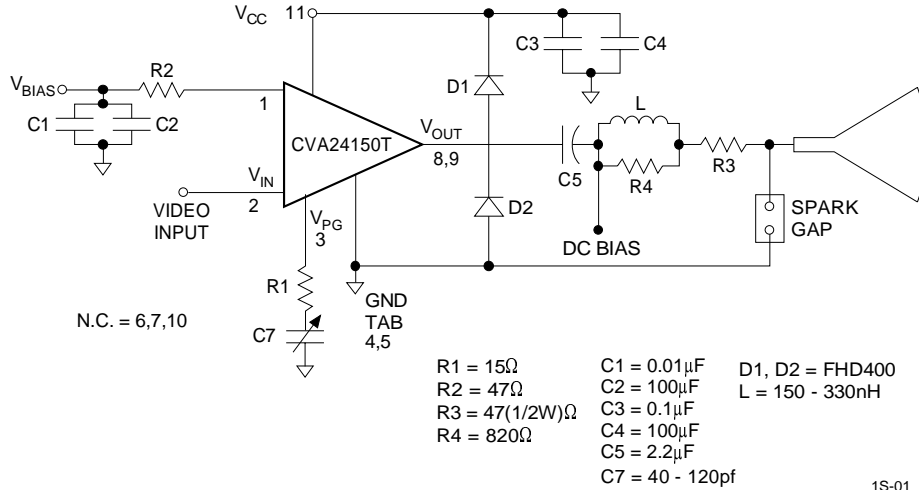
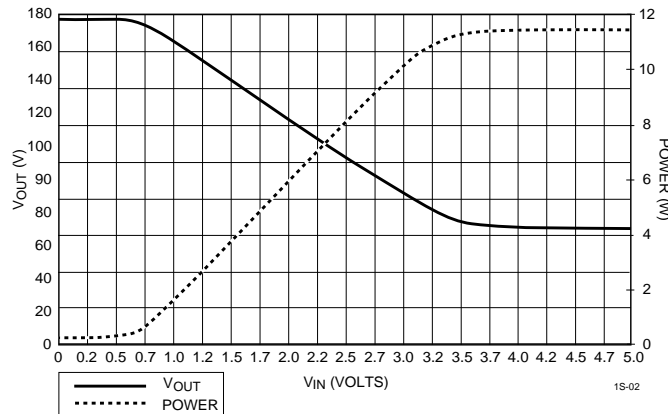


FIGURE 3. CVA24150T Transfer DC Characteristics



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.

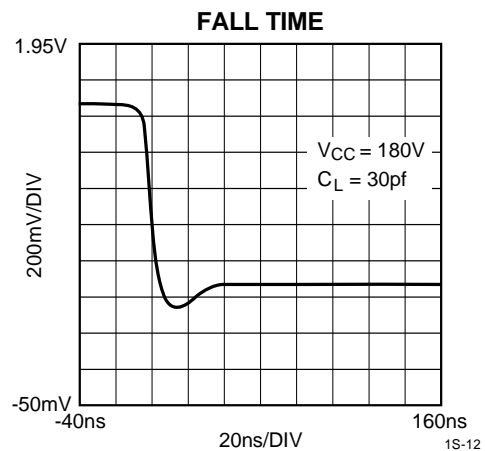
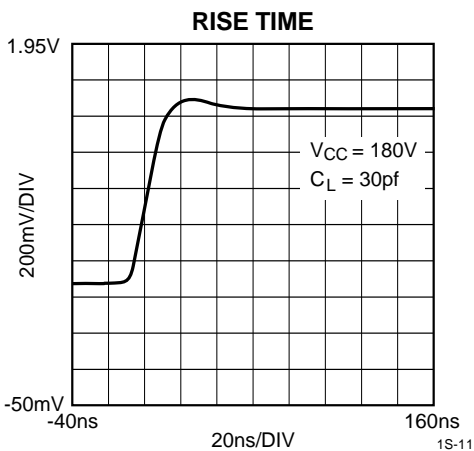
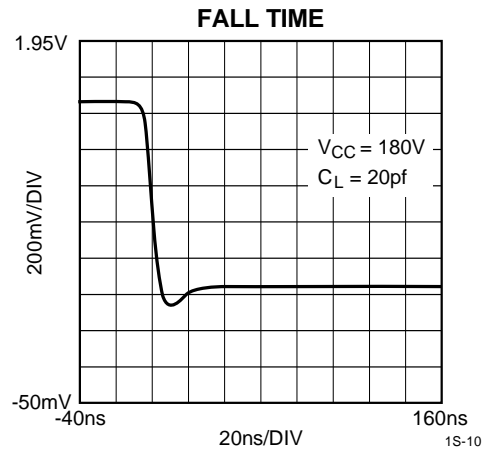
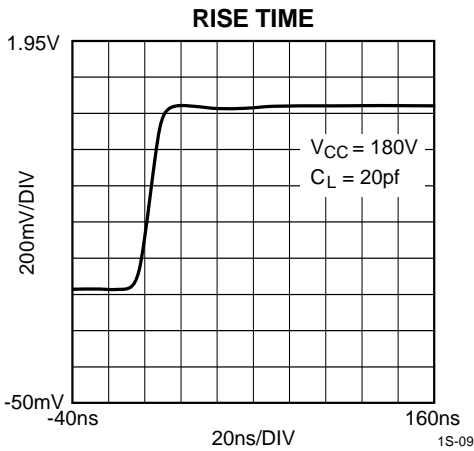
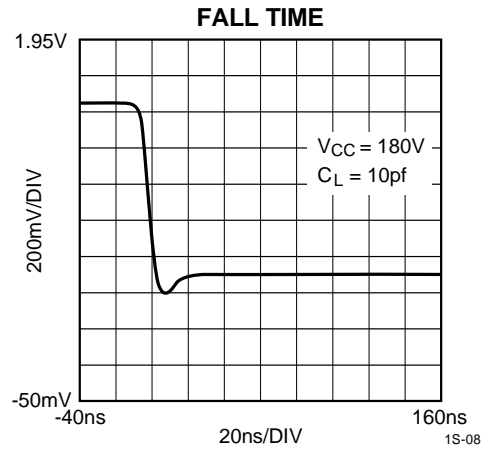
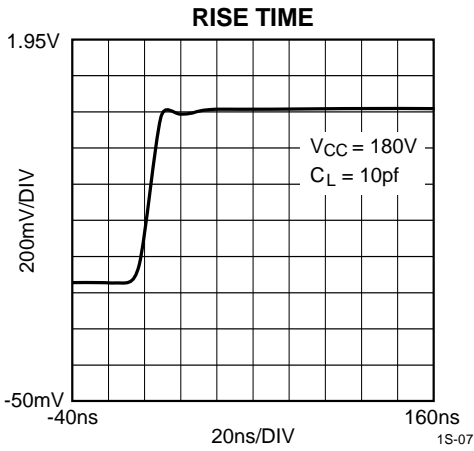
The CVA24150T cannot be used without heat sinking. Figure 3 shows the power dissipated in each channel over the operating voltage range of the device. Under white screen conditions, i.e.: 70V output, dissipation increases to 11W total. The CVA24150T case temperature must be maintained below +100°C. If 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)

