



ELECTRONICS, INC.

44 FARRAND STREET  
BLOOMFIELD, NJ 07003  
(973) 748-5089  
http://www.nteinc.com

## NTE165 Silicon NPN Transistor TV Horizontal Output

### **Description:**

The NTE165 is a silicon NPN transistor in a TO3 type package designed for use in color TV horizontal output applications.

### **Features:**

- High Voltage
- High Power
- High Switching Speed
- Good Stability

### **Applications:**

- Consumer
- Power Supply
- Color TV Horizontal Deflection

### **Absolute Maximum Ratings:**

Collector–Emitter Voltage ( $V_{BE} = 0$ ),  $V_{CES}$  ..... 1500V  
 Collector–Emitter Voltage ( $I_B = 0$ ),  $V_{CEO}$  ..... 700V  
 Emitter–Base Voltage ( $I_C = 0$ ),  $V_{EB}$  ..... 10V  
 Collector Current,  $I_C$   
     Continuous ..... 8A  
     Peak ( $t_p < 5ms$ ) ..... 15A  
 Total Device Dissipation ( $T_C = +25^\circ C$ ),  $P_{tot}$  ..... 150W  
 Maximum Operating Junction Temperature,  $T_J$  .....  $+175^\circ C$   
 Storage Temperature Range,  $T_{stg}$  .....  $-65^\circ$  to  $+175^\circ C$   
 Maximum Thermal Resistance, Junction–to–Case,  $R_{thJC}$  .....  $1.0^\circ C/W$

### **Electrical Characteristics:** ( $T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 1500V, V_{BE} = 0$	–	–	1.0	mA
		$V_{CE} = 1500V, V_{BE} = 0, T_C = +125^\circ C$	–	–	2.0	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	–	–	100	$\mu A$
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA$	700	–	–	V
Emitter–Base Voltage	$V_{EBO}$	$I_E = 10mA, I_C = 0$	10	–	–	V

Note 1. Pulse test: Pulse Width =  $300\mu s$ , Duty Cycle  $\leq 1.5\%$ .

**Electrical Characteristics (Cont'd):** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4.5\text{A}, I_B = 2\text{A}, \text{Note 1}$	–	–	1.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4.5\text{A}, I_B = 2\text{A}, \text{Note 1}$	–	–	1.3	V
Current Gain–Bandwidth Product	$f_T$	$V_{CE} = 5\text{V}, I_C = 100\text{mA}, f = 5\text{MHz}$	–	7	–	MHz
<b>Switching Characteristics (Inductive Load)</b>						
Storage Time	$t_s$	$V_{CC} = 140\text{V}, I_C = 4.5\text{A}, h_{FE} = 2.5,$ $L_C = 0.9\text{mH}, L_B = 3\mu\text{H}$	–	7.0	–	$\mu\text{s}$
Fall Time	$t_f$		–	0.55	–	$\mu\text{s}$

Note 1. Pulse test: Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 1.5\%$ .

