

**NTE2331**  
**Silicon NPN Transistor**  
**Color TV Horizontal Deflection Output**  
**w/Damper Diode**

**Applications:**

- Color TV Horizontal Deflection Output
- Color Display Horizontal Deflection Output

**Features:**

- High Speed ( $t_f = 100\text{nsec}$ )
- High Breakdown Voltage ( $V_{CBO} = 1500\text{V}$ )
- High Reliability
- On-Chip Damper Diode

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Collector-Base Voltage, $V_{CBO}$ .....	1500V
Collector-Emitter Voltage, $V_{CEO}$ .....	800V
Emitter-Base Voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	6A
Peak .....	20A
Collector Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_C$ .....	60W
Operating Junction Temperature, $T_J$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 1500\text{V}$	–	–	1.0	mA
	$I_{CBO}$	$V_{CB} = 800\text{V}$	–	–	10	$\mu\text{A}$
Collector Sustain Voltage	$V_{CEO(sus)}$	$I_C = 100\text{mA}, I_B = 0$	800	–	–	V
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4\text{V}$	40	–	130	mA
Saturation Voltage Collector to Emitter	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 1.0\text{A}$	–	–	5	V
Saturation Voltage Base to Emitter	$V_{BE(sat)}$	$I_C = 5\text{A}, I_B = 1.0\text{A}$	–	–	1.5	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Current Gain	$h_{FE1}$	$V_{CE} = 5V, I_C = 1A$	8	—	—	
	$h_{FE2}$	$V_{CE} = 5V, I_C = 5A$	5	—	10	
Diode Forward Voltage	$V_F$	$I_{EC} = 6A$	—	—	2	V
Fall Time	$t_f$	$I_C = 4A, I_{B1} = 0.8A, I_{B2} = 1.6A$	—	0.1	0.3	$\mu\text{s}$

