

## NTE171 Silicon NPN Transistor Audio/Video Amplifier

### **Description:**

The NTE171 is a silicon NPN transistor in a TO202 type case designed for high-voltage TV video and chroma output circuits, high-voltage linear amplifiers, and high-voltage transistor regulators.

### **Features:**

- High Collector-Emitter Breakdown Voltage:  $V_{(BR)CER} = 300V @ I_C = 1mA$
- Low Collector-Base Capacitance:  $C_{cb} = 3pF \text{ Max @ } V_{CB} = 20V$

### **Absolute Maximum Ratings:**

Collector-Emitter Voltage ( $I_C = 1mA, R_{BE} = 10k\Omega$ , Note 1), $V_{CER}$ .....	300V
Collector-Base Voltage, $V_{CBO}$ .....	300V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	100mA
Peak .....	700mA
Base Current, $I_B$ .....	250mA
Total Power Dissipation ( $T_A = +25^\circ C$ ), $P_D$ .....	1.67W
Derate Above $25^\circ C$ .....	13.3mW/ $^\circ C$
Total Power Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	6.25W
Derate Above $25^\circ C$ .....	50mW/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-55^\circ$ to $+150^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ C$
Thermal Resistance, Junction to Ambient, $R_{\theta JA}$ .....	$75^\circ C/W$
Thermal Resistance, Junction to Case, $R_{\theta JC}$ .....	$20^\circ C/W$
Lead Temperature (During Soldering, 1/16" from case, 10sec), $T_L$ .....	$+260^\circ C$

Note 1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	$I_C = 1\text{mA}, I_B = 0$ , Note 1	300	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 300\text{V}, I_E = 0$	-	-	10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 5\text{V}, I_C = 0$	-	-	10	$\mu\text{A}$
<b>ON Characteristics (Note 1)</b>						
DC Current Gain	$h_{FE}$	$I_C = 4\text{mA}, V_{CE} = 10\text{V}$	20	-	-	
		$I_C = 20\text{mA}, V_{CE} = 10\text{V}$	30	-	150	
		$I_C = 40\text{mA}, V_{CE} = 10\text{V}$	20	-	-	
<b>Dynamic Characteristics</b>						
Current Gain-Bandwidth Product	$f_T$	$I_C = 20\text{mA}, V_{CE} = 10\text{V}, f = 20\text{MHz}$	50	-	-	MHz
Collector-Base Capacitance	$C_{cb}$	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	3	pF

Note 1. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

