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## NTE289 (NPN) & NTE290 (PNP) Silicon Complementary Transistors Audio Power Amplifier, Switch

### **Applications:**

- 1W Audio Power Amplifier Applications
- Switching Applications

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

Collector–Base Voltage, $V_{CBO}$ .....	35V
Collector–Emitter Voltage, $V_{CEO}$ .....	30V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$ .....	800mA
Emitter Current, $I_E$ .....	800mA
Collector Power Dissipation, $P_C$ .....	600mW
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–55° to +150°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	30	–	–	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 35\text{V}, I_E = 0$	–	–	0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$	–	–	0.1	$\mu\text{A}$
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 2\text{V}, I_C = 50\text{mA}, \text{Note 2}$	120	–	240	
	$h_{FE(2)}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}, \text{Note 2}$	35	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 20\text{mA}, \text{Note 2}$	–	–	0.8	V
Base–Emitter Voltage	$V_{BE}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}, \text{Note 2}$	–	–	1.1	V
Current–Gain Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	–	140	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	–	22	30	pF
Switching Time		$V_{CC} = 10\text{V}, V_{BB} = 3\text{V}, \text{Duty Cycle} \leq 2\%$				
Turn–On	$t_{on}$		–	50	–	ns
Storage	$t_{stg}$		–	400	–	ns
Fall	$t_f$	–	40	–	ns	

Note 1. NTE289MP is a matched pair of NTE289 with their DC Current Gain ( $h_{FE}$ ) matched to within 10% of each other.

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

