

## NTE293 (NPN) & NTE294 (PNP) Silicon Complementary Transistors Audio Amplifier and Driver

**Description:**

The NTE293 (NPN) and NTE294 (PNP) are silicon complementary transistors in a Giant TO92 type package designed for use in low-frequency power amplification and drive applications.

**Features:**

- Low Collector–Emitter Saturation Voltage

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

Collector–Base Voltage, $V_{CBO}$ .....	60V
Collector–Emitter Voltage, $V_{CEO}$ .....	50V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	1A
Peak .....	1.5A
Collector Power Dissipation, $P_C$ .....	1W
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–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	60	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 2\text{mA}, I_B = 0$	50	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5	–	–	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 20\text{V}, I_E = 0$	–	–	0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}, I_C = 500\text{mA}, \text{Note 2}$	120	–	240	
		$V_{CE} = 5\text{V}, I_B = 1\text{A}, \text{Note 2}$	50	100	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}, \text{Note 2}$	–	0.2	0.4	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}, \text{Note 2}$	–	0.85	1.2	V
Current–Gain Bandwidth Product	$f_T$	$V_{CB} = 10\text{V}, I_E = 50\text{mA}, f = 200\text{MHz}$	–	200	–	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_e = 0, f = 1\text{MHz}$	–	11	20	pF

Note 1. NTE293MP is a matched pair of NTE293 with their DC Current Gain ( $h_{FE}$ ) matched to within 10% of each other.

Note 2. Pulse measurement.

