

## NTE186 (NPN) & NTE187 (PNP) Silicon Complementary Transistors General Purpose Output & Driver for Audio Amplifier

**Description:**

The NTE186 (NPN) and NTE187 (PNP) are silicon complementary transistors in a TO202 type case designed for use as output and driver stages of amplifiers operating at frequencies from DC to greater than 1MHz, series, shunt, and switching regulators, low and high frequency inverters/converters, and many other general purpose applications.

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

Collector–Emitter Voltage, $V_{CEO}$ .....	60V
Collector–Emitter Voltage, $V_{CES}$ .....	70V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	3A
Peak .....	5A
Power Dissipation, $P_T$	
$T_C = +25^\circ\text{C}$ .....	12.5W
$T_A = +25^\circ\text{C}$ .....	2.1W
Operating Junction Temperature Range, $T_J$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 1/16" from case for 10sec max), $T_L$ .....	$+260^\circ\text{C}$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	$10^\circ\text{C/W}$
Thermal Resistance, Junction–to–Ambient, $R_{thJA}$ .....	$60^\circ\text{C/W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Current Gain	$h_{FE}$	$V_{CE} = 1\text{V}, I_C = 200\text{mA}$	100	–	220	
		$V_{CE} = 1\text{V}, I_C = 2\text{A}$	20	–	–	
Collector Saturation Voltage	$V_{CE(sat)}$	$I_C = 1\text{A}, I_B = 50\text{mA}$	–	–	0.5	V
Base Saturation Voltage	$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$	–	–	1.3	V
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 70\text{V}, T_J = +25^\circ\text{C}$	–	–	10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, T_J = +25^\circ\text{C}$	–	–	100	$\mu\text{A}$
Collector Capacitance	$C_{cbo}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	–	100	pF
Current Gain–Bandwidth Product	$f_T$	$V_{CE} = 4\text{V}, I_C = 20\text{mA}$	–	50	–	MHz
Delay Time	$t_d$	$I_C = 1\text{A}, I_{B1} = I_{B2} = 100\text{mA}$	–	100	–	ns
Rise Time	$t_r$		–	100	–	ns
Storage Time	$t_s$		–	500	–	ns
Fall Time	$t_f$		75	–	–	ns

