

NTE296 Silicon PNP Transistor General Purpose Amplifier

Description:

The NTE296 is a silicon PNP transistor in a TO202 type case designed for general purpose applications requiring high breakdown voltages, low saturation voltages and low capacitance.

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	300V
Collector–Base Voltage, V_{CB}	300V
Emitter–Base Voltage, V_{EB}	5V
Continuous Collector Current, I_C	500mA
Total Power Dissipation ($T_A = +25^\circ\text{C}$), P_D	2W
Derate Above 25°C	16mW/ $^\circ\text{C}$
Total Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	10W
Derate Above 25°C	80mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient, R_{thJA}	62.5 $^\circ\text{C/W}$
Thermal Resistance, Junction–to–Case, R_{thJC}	12.5 $^\circ\text{C/W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0$, Note 1	300	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$, $I_E = 0$	300	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$, $I_C = 0$	5	–	–	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 200\text{V}$, $I_E = 0$	–	–	0.2	μA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 3\text{V}$, $I_C = 0$	–	–	0.1	μA

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	$I_C = 1\text{mA}, V_{CE} = 10\text{V}$	25	—	—	
		$I_C = 10\text{mA}, V_{CE} = 10\text{V}$	30	—	—	
		$I_C = 30\text{mA}, V_{CE} = 10\text{V}$	30	—	—	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 30\text{mA}, I_B = 3\text{mA}$	—	—	0.75	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 30\text{mA}, I_B = 3\text{mA}$	—	—	0.9	V
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	$I_C = 10\text{mA}, V_{CE} = 20\text{V}, f = 10\text{MHz}$	45	—	—	MHz
Collector–Base Capacitance	C_{cb}	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	—	—	8	pF

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

