

NTE49 (NPN) & NTE50 (PNP) Silicon Complementary Transistors General Purpose, High Voltage Amp, Driver

Description:

The NTE49 (NPN) and NTE50 (PNP) are silicon complementary transistors in a TO202 type case designed for general purpose, high voltage amplifier and driver applications.

Features:

- High Collector Breakdown Voltage: $V_{(BR)CEO} = 100V$ Min @ $I_C = 1mA$
- High Power Dissipation: $P_D = 10W$ @ $T_C = +25^\circ C$

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	100V
Collector–Base Voltage, V_{CB}	120V
Emitter–Base Voltage, V_{EB}	4V
Continuous Collector Current, I_C	2A
Total Power Dissipation ($T_A = +25^\circ C$), P_D	1W
Derate Above $25^\circ C$	8mW/ $^\circ C$
Total Power Dissipation ($T_C = +25^\circ C$), P_D	10W
Derate Above $25^\circ C$	80mW/ $^\circ C$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$
Thermal Resistance, Junction–to–Case, R_{thJC}	12.5 $^\circ C/W$
Thermal Resistance, Junction–to–Ambient, R_{thJA}	125 $^\circ C/W$

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	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0$	100	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}$, $I_C = 0$	4	–	–	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 40\text{V}$, $I_E = 0$	–	–	100	nA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 50\text{mA}$, $V_{CE} = 1\text{V}$	80	125	–	
		$I_C = 250\text{mA}$, $V_{CE} = 1\text{V}$	60	100	–	
		$I_C = 500\text{mA}$, $V_{CE} = 1\text{V}$	–	55	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}$, $I_B = 10\text{mA}$	–	0.18	0.4	V
		$I_C = 250\text{mA}$, $I_B = 25\text{mA}$	–	0.1	–	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 250\text{mA}$, $V_{CE} = 5\text{V}$	–	0.74	1.2	V
Small–Signal Characteristics						
Current Gain–Bandwidth Product	f_T	$I_C = 250\text{mA}$, $V_{CE} = 5\text{V}$, $f = 100\text{MHz}$, Note 1	50	150	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 100\text{kHz}$	–	6	12	pF

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

