

NTE232 Silicon PNP Transistor Darlington Amplifier, Preamp

Description:

The NTE232 is a silicon, planar, epitaxial passivated PNP Darlington transistor in a TO92 type package designed for preamplifier input applications where high impedance is a requirement.

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

Collector–Emitter Voltage, V_{CES}	30V
Emitter–Base Voltage, V_{EBO}	8V
Collector–Base Voltage, V_{CBO}	30V
Collector Current, I_C	300mA
Total Power Dissipation ($T_A = +25^\circ\text{C}$), P_T	625mW
Derate above $+25^\circ\text{C}$	5mW/ $^\circ\text{C}$
Total Power Dissipation ($T_C = +25^\circ\text{C}$), P_T	1500mW
Derate above $+25^\circ\text{C}$	12mW/ $^\circ\text{C}$
Operating Junction Temperature range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature range, T_{stg}	-55° to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 1/16" \pm 1/32" from case, 10sec), T_L	$+230^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 100\mu\text{A}$, $I_B = 0$	30	–	–	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	–	–	100	nA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 8\text{V}$, $I_C = 0$	–	–	100	nA
Forward Current Transfer Ratio	h_{FE}	$I_C = 10\text{mA}$, $V_{CE} = 5\text{V}$	50k	–	–	
		$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$	20k	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 0.1\text{mA}$	–	0.9	1.5	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$, Note 1	–	1.45	2.00	V

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	$I_C = 30\text{mA}$, $V_{CE} = 10\text{V}$, $f = 50\text{MHz}$	100	125	–	MHz
Output Capacitance	C_{cb}	$I_{CB} = 10\text{mA}$, $I_E = 0$, $f = 100\text{MHz}$	–	2.5	–	pF
Noise Figure	NF	$I_C = 1\text{mA}$, $V_{CE} = 5\text{V}$, $R_S = 100\text{k}\Omega$, $f = 1\text{kHz}$	–	2	–	dB

