

NTE323 (PNP) & NTE324 (NPN) Silicon Complementary Transistors General Purpose

Description:

The NTE323 (PNP) and NTE324 (NPN) are complementary silicon epitaxial planer transistors in a TO39 type package designed for use as drivers for high power transistors in general purpose amplifier and switching circuits.

Absolute Maximum Ratings:

Collector–Base Voltage ($I_E = 0$), V_{CBO} 120V
 Collector–Emitter Voltage, V_{CEO} 120V
 Emitter–Base Voltage ($I_C = 0$), V_{EBO} 4V
 Collector Current, I_C 1A
 Base Current, I_B 500mA
 Total Power Dissipation, P_{tot}
 $T_C = +25^\circ\text{C}$ 10W
 $T_A = +25^\circ\text{C}$ 1W
 Operating Junction Temperature, T_J $+200^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+200^\circ\text{C}$
 Thermal Resistance, Junction–to–Case, R_{thJC} 17.4°C/W
 Thermal Resistance, Junction–to–Ambient, R_{thJA} 175°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 120\text{V}$, $I_E = 0$	–	–	1	μA
	I_{CEO}	$V_{CE} = 80\text{V}$, $I_B = 0$	–	–	10	μA
	I_{CEV}	$V_{CE} = 120\text{V}$, $V_{BE} = -1.5\text{V}$	–	–	1	μA
		$V_{CE} = 120\text{V}$, $V_{BE} = -1.5\text{V}$, $T_C = +150^\circ\text{C}$	–	–	1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0$	–	–	1	μA
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 10\text{mA}$, $I_B = 0$, Note 1	120	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}$, $I_B = 25\text{mA}$, Note 1	–	–	0.6	V
		$I_C = 500\text{mA}$, $I_B = 50\text{mA}$, Note 1	–	–	1.0	V
		$I_C = 1\text{A}$, $I_B = 200\text{mA}$, Note 1	–	–	2.0	V

Note 1. Pulse Duration = $300\mu\text{s}$, Duty Cycle $\leq 2\%$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Base–Emitter Voltage	V_{BE}	$V_{CE} = 2\text{V}, I_C = 250\text{mA}$	–	–	1.0	V
DC Current Gain	h_{FE}	$V_{CE} = 2\text{V}, I_C = 250\text{mA}, \text{Note 1}$	40	–	150	–
		$V_{CE} = 2\text{V}, I_C = 1\text{A}, \text{Note 1}$	5	–	–	–
Transition Frequency	f_T	$V_{CE} = 10\text{V}, I_C = 100\text{mA}, f = 10\text{MHz}$	30	–	–	MHz
Collector–Base Capacitance	C_{cbo}	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	–	–	50	pF
Small–Signal Current Gain	h_{fe}	$V_{CE} = 1.5\text{V}, I_C = 200\text{mA}, f = 1\text{kHz}$	40	–	–	–

Note 1. Pulse Duration = $300\mu\text{s}$, Duty Cycle $\leq 2\%$.

