

NTE331 (NPN) & NTE332 (PNP) Silicon Complementary Transistors Audio Power Amp, Switch

Description:

The NTE331 (NPN) and NTE332 (PNP) are silicon epitaxial-base complementary power transistors in a TO-220 plastic package intended for use in power linear and switching applications.

Absolute Maximum Ratings:

Collector-Base Voltage ($I_E = 0$), V_{CBO} 100V
 Collector-Emitter Voltage ($I_B = 0$), V_{CEO} 100V
 Emitter-Base Voltage ($I_C = 0$), V_{EBO} 5V
 Emitter Current, I_E 15A
 Collector Current, I_C 15A
 Base Current, I_B 5A
 Total Power Dissipation ($T_C \leq +25^\circ\text{C}$), P_D 90W
 Operating Junction Temperature, T_J $+150^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Thermal Resistance Junction-to-Case, R_{thJC} 1.4°C/W Max

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$I_E = 0$, $V_{CB} = 100\text{V}$	—	—	500	μA
		$I_E = 0$, $V_{CB} = 100\text{V}$, $T_C = +150^\circ\text{C}$	—	—	5	mA
Collector Cutoff Current	I_{CEO}	$I_B = 0$, $V_{CE} = 50\text{V}$	—	—	1	mA
Emitter Cutoff Current	I_{EBO}	$I_C = 0$, $V_{EB} = 5\text{V}$	—	—	1	mA
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_B = 0$, $I_C = 100\text{mA}$, Note 1	100	—	—	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}$, $I_B = 0.5\text{A}$, Note 1	—	—	1	V
		$I_C = 10\text{A}$, $I_B = 2.5\text{A}$, Note 1	—	—	3	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{A}$, $I_B = 2.5\text{A}$, Note 1	–	–	2.5	V
Base–Emitter Voltage	V_{BE}	$I_C = 5\text{A}$, $V_{CE} = 4\text{V}$, Note 1	–	–	1.5	V
DC Current Gain	h_{FE}	$I_C = 0.5\text{A}$, $V_{CE} = 4\text{V}$, Note 1	40	–	250	
		$I_C = 5\text{A}$, $V_{CE} = 4\text{V}$, Note 1	15	–	150	
		$I_C = 10\text{A}$, $V_{CE} = 4\text{V}$, Note 1	5	–	–	
Transistion Frequency	f_T	$I_C = 0.5\text{A}$, $V_{CE} = 4\text{V}$	3	–	–	MHz

Note 1. Pulsed; Pulse Duration = $300\mu\text{s}$, Duty Cycle = 1.5%.

