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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 ($T_C \le +25°C$), P_D 90W
Operating Junction Temperature, T_J . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance Junction–to–Case, R_{thJC} . . . . . 1.4°C/W Max

Electrical Characteristics: (T_C = +25°C unless otherwise specified)

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

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

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

Note 1. Pulsed; Pulse Duration = 300μs, Duty Cycle = 1.5%.

