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NTE241 (NPN) & NTE242 (PNP)
Silicon Complementary Transistors
Audio Power Amplifier, Switch

Description:

The NTE241 (NPN) and NTE242 (PNP) are silicon complementary transistors in a TO220 type package designed for use in power amplifier and switching circuits.

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 80V
Collector–Base Voltage, V_{CB} 80V
Emitter–Base Voltage, V_{EB} 5V
Collector Current, I_C 4A
Base Current, I_B 1A
Total Power Dissipation (T_C = +25°C), P_D 60W
Derate Above 25°C . . . . . 320mW/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +150°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, $R_{\Theta JC}$ . . . . . 3.12°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 100mA, I_B = 0, Note 1	80	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 80V, I_B = 0	–	–	1.0	mA
	I_{CEX}	V_{CE} = 80V, $V_{EB(off)}$ = 1.5V	–	–	0.1	mA
		V_{CE} = 80V, $V_{EB(off)}$ = 1.5V, T_C = +125°C	–	–	2.0	mA
	I_{CBO}	V_{CB} = 80V, I_E = 0	–	–	0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 5V, I_C = 0	–	–	1.0	mA

Note 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	I_C = 1.5A, V_{CE} = 2V	20	–	80	
		I_C = 4.0A, V_{CE} = 2V	7	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1.5A, I_B = 150mA	–	–	0.6	V
		I_C = 4.0A, I_B = 1A	–	–	1.4	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 1.5A, V_{CE} = 2V	–	–	1.2	V
Dynamic Characteristics						
Small–Signal Current Gain	h_{fe}	I_C = 100mA, V_{CE} = 2V, f = 1kHz	25	–	–	
Current–Gain Bandwidth Product	f_T	I_C = 1A, V_{CE} = 4V, f = 1MHz	2.5	–	–	MHz

Note 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.