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NTE130 (NPN) & NTE219 (PNP)
Silicon Power Transistor
Audio Power Amp, Medium Speed Switch

Description:

The NTE130 (NPN) and NTE219 (PNP) are silicon complementary transistors in a TO3 type case designed for general purpose switching and amplifier applications.

Features:

- DC Current Gain: h_{FE} = 20 – 70 @ I_C = 4A
- Collector–Emitter Saturation Voltage: $V_{CE(sat)}$ = 1.1V (Max) @ I_C = 4A
- Excellent Safe Operating Area

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 60V
Collector–Emitter Voltage, V_{CER} 70V
Collector–Base Voltage, V_{CB} 100V
Emitter–Base Voltage, V_{EB} 7V
Continuous Collector Current, I_C 15A
Base Current, I_B 7A
Total Device Dissipation (T_C = +25°C), P_D 115W
Derate Above 25°C . . . . . 0.657W/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.52°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 = 200mA, I_B = 0, Note 1	60	–	–	V
Collector–Emitter Sustaining Voltage	$V_{CER(sus)}$	I_C = 200mA, R_{BE} = 100Ω, Note 1	70	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 30V, I_B = 0	–	–	0.7	mA
	I_{CEX}	V_{CE} = 100V, $V_{BE(off)}$ = 1.5V	–	–	1.0	mA
		V_{CE} = 100V, $V_{BE(off)}$ = 1.5V, T_C = +150°C	–	–	5.0	mA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 7V, I_C = 0	–	–	5.0	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 = 4A, V_{CE} = 4V	20	–	70	
		I_C = 10A, V_{CE} = 4V	5	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 4A, I_B = 400mA	–	–	1.1	V
		I_C = 10A, I_B = 3.3A	–	–	3.0	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 4A, V_{CE} = 4V	–	–	1.5	V
Second Breakdown						
Second Breakdown Collector Current with Base Forward Biased	$I_{s/b}$	V_{CE} = 40V, t = 1.0s; Nonrepetitive	2.87	–	–	A
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	I_C = 500mA, V_{CE} = 10V, f = 1MHz	2.5	–	–	MHz
Small–Signal Current Gain	h_{fe}	I_C = 1A, V_{CE} = 4V, f = 1kHz	15	–	120	
Small–Signal Current Gain Cutoff Frequency	f_{hfe}	V_{CE} = 4V, I_C = 1A, f = 1kHz	10	–	–	kHz

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

Note 2. NTE130MP is a matched pair of NTE130 with their DC Current Gain (h_{FE}) matched to within 10% of each other.

Note 3. NTE219MCP is a matched complementary pair containing 1 each of NTE219 (PNP) and NTE130 (NPN).

