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NTE70
Silicon NPN Transistor
High Voltage Power Amp, Switch

Description:

The NTE70 is a silicon NPN transistor in a TO63 type case utilizing C2R processing which describes a manufacturing technology that provides surface stabilization for high voltage operation and enhances long term reliability.

Absolute Maximum Ratings:

Collector–Base Voltage, V_{CBO} 180V
Collector–Emitter Voltage, V_{CEO} 150V
Emitter–Base Voltage, V_{EBO} 6V
Continuous Collector Current, I_C 20A
Continuous Base Current, I_B 20A
Total Power Dissipation (T_C = +25°C), P_D 250W
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} . . . . . 0.7°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 50mA	150	–	–	V
Emitter Cutoff Current	I_{EBO}	V_{EB} = 6V	–	–	100	μA
Collector Cutoff Current	I_{CEX}	V_{CE} = Rated V_{CB}, V_{EB} = 1.5V	–	–	10	μA
		V_{CE} = Rated V_{CB}, V_{EB} = 1.5V, T_C = +150°C	–	–	1.0	mA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	V_{CE} = 4V, I_C = 20A	50	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 50A, I_B = 10A	–	–	3.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 20A, I_B = 2A	–	–	1.8	V
		I_C = 50A, I_B = 10A	–	–	3.5	V

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
Dynamic Characteristics						
Small–Signal Current Gain	h_{fe}	V_{CE} = 10V, I_C = 1A, f = 1MHz	3.0	–	–	
Collector–Base Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 0.1MHz	–	–	600	pF
Rise Time	t_r	V_{CC} = 80V, I_C = 20A, I_{B1} = 2A, I_{B2} = 2A	–	–	0.35	µs
Storage Time	t_s		–	–	0.80	µs
Fall Time	t_f		–	–	0.25	µs