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NTE394
Silicon NPN Transistor
Power Amp, High Voltage Switch
TO–3PN Type Package

Description:

The NTE394 is a silicon multiepitaxial mesa NPN transistor in a TO–3PN type package designed for use in high voltage, fast switching applications.

Absolute Maximum Ratings:

Collector–Emitter Voltage (V_{BE} = 0), V_{CES} 500V
Collector–Emitter Voltage (I_B = 0), V_{CEO} 400V
Emitter–Base Voltage (I_C = 0), V_{EB} 5V
Collector Current, I_C
Continuous 3A
Peak 5A
Continuous Base Current, I_B 600mA
Total Power Dissipation (T_C = +25°C), P_{tot} 100W
Operating Junction Temperature, T_J . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.25°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Cutoff Current	I_{CEO}	V_{CE} = 300V, I_B = 0	–	–	1	mA
	I_{CES}	V_{CE} = 500V, V_{EB} = 0	–	–	1	mA
Emitter–Base Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0	–	–	1	mA
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 30mA, I_B = 0, Note 1	400	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 3A, I_B = 0.6A, Note 1	–	–	1.5	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 3A, V_{CE} = 10V, Note 1	–	–	1.5	V
DC Current Gain	h_{FE}	I_C = 0.3A, V_{CE} = 10V	30	150	–	
		I_C = 3A, V_{CE} = 10V	10	–	–	

Note 1. Pulse Test: Pulse Width = 300μs, Duty Cycle = 1.5%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Small−Signal Current Gain	h_{fe}	I_C = 0.2A, V_{CE} = 10V, f = 1kHz	30	–	–	
		I_C = 0.2A, V_{CE} = 10V, f = 1MHz	2.5	–	–	
Second Breakdown Unclamped Energy	$E_{s/b}$	V_{BE} = 20V, R_{BE} = 100Ω, l = 30mH	100	–	–	mJ
Turn−On Time	t_{on}	I_C = 1A, I_{B1} = 100mA, V_{CC} = 200V	–	0.2	–	μs
Turn−Off Time	t_{off}	I_C = 1A, I_{B1} = −I_{B2} = 100mA, V_{CC} = 200V	–	0.2	–	μs