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NTE283
Silicon NPN Transistor
Horizontal Output, Switch

Description:

The NTE283 is a silicon NPN transistor in a TO3 type package designed for high–voltage, high–speed, power switching in inductive circuits where fall time is critical. Typical applications include switching regulators, PWM inverters, solenoid and relay drivers.

Absolute Maximum Ratings:

Collector–Emitter Voltage (I_B = 0), V_{CEO} 325V
Collector–Emitter Voltage (V_{BE} = 0), V_{CES} 800V
Emitter–Base Voltage, V_{EBO} 8V
Collector Current, I_C
  Continuous 10A
  Peak ($t_p \le 10$ms) 15A
Base Current, I_B 3A
Total Power Dissipation ($T_C \le +25°C$), P_{tot} 100W
Operating Junction Temperature, T_J . . . . . +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.75°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CES}	V_{CEV} = 800V, V_{BE} = 0	–	–	1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 8V, I_C = 0	–	–	1	mA
Collector–Base Voltage	V_{CBO}	I_C = 1mA, I_E = 0	800	–	–	V
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 100mA, I_B = 0, Note 1	325	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 8A, I_B = 2.5A, Note 1	–	–	3.3	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 8A, I_B = 2.5A, Note 1	–	–	2.2	V
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 2.5A, Note 1	15	–	–	
Current Gain–Bandwidth Product	f_T	V_{CE} = 10V, I_C = 500mA	–	10	–	MHz
Second Breakdown Collector Current	$I_{S/b}$	V_{CE} = 25V, Note 2	4	–	–	A

Note 1. Pulse test: Pulse Width = 300μs, Duty Cycle = 1.5%.
Note 2. Pulsed: 1sec, non–repetitive pulse.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn–On Time	t_{on}	V_{CC} = 250V, I_C = 5A, I_{B1} = 1A	–	0.2	–	µs
Storage Time	t_s	V_{CC} = 250V, I_C = 5A, $I_{B1} = -I_{B2}$ = 1A	–	1.7	–	µs
Fall Time	t_f		–	0.3	–	µs
Fall Time	t_f	V_{CC} = 40V, I_C = 8A, $I_{B1} = -I_{B2}$ = 2.5A	–	–	1.0	µs