



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 ($t_p \leq 10ms$)	15A
Base Current, I_B	3A
Total Power Dissipation ($T_C \leq +25^\circ C$), 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: ($T_C = +25^\circ C$ 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	$V_{CEO(su)}$	$I_C = 100mA$, $I_B = 0$, 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 = 300 μ s, Duty Cycle = 1.5%.

Note 2. Pulsed: 1sec, non-repetitive pulse.

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

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

