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## NTE2583 Silicon NPN Transistor High Speed Switching Regulator TO-220 Full Pack

**Features:**

- High Breakdown Voltage and High Reliability
- Fast Switching Speed
- Wide ASO

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Collector-Base Voltage, $V_{CBO}$ .....	500V
Collector-Emitter Voltage, $V_{CEO}$ .....	400V
Emitter-Base Voltage, $V_{EBO}$ .....	7V
Collector Current, $I_C$	
Continuous .....	10A
Pulsed (Note 1) .....	20A
Collector Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_C$ .....	2W
Collector Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_C$ .....	35W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +150°C

Note 1. Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 10\%$ .

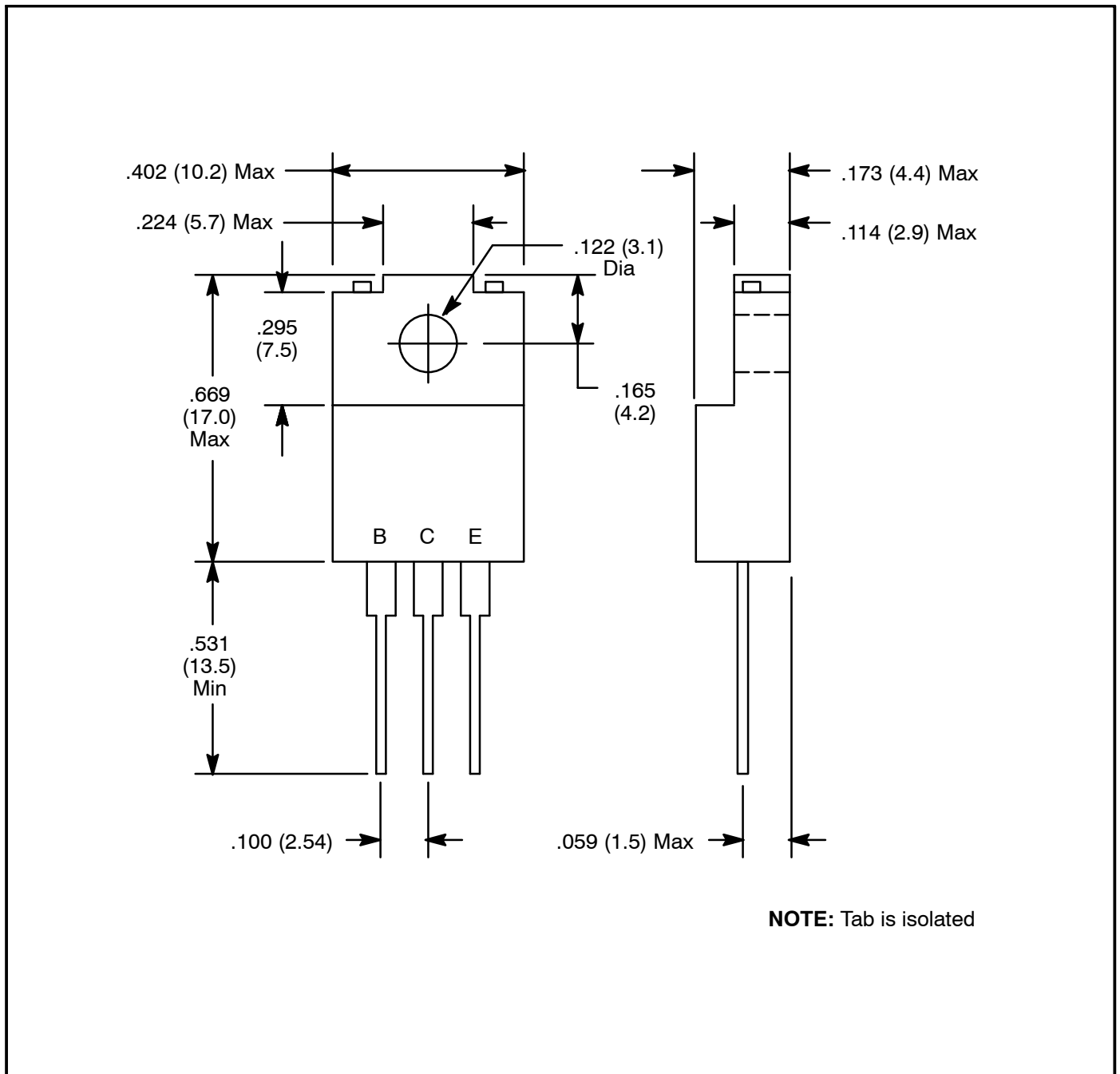
**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 400\text{V}, I_E = 0$	-	-	10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$	-	-	10	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 1.6\text{A}$	20	-	50	
		$V_{CE} = 5\text{V}, I_C = 8\text{A}$	10	-	-	
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	10	-	-	
Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 1.6\text{A}$	-	20	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	120	-	pF
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 6\text{A}, I_B = 1.6\text{A}$	-	-	0.8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 6\text{A}, I_B = 1.6\text{A}$	-	-	1.5	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	500	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 5\text{mA}, R_{BE} = \infty$	400	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	7	-	-	V
Collector-Emitter Sustaining Voltage	$V_{CEX(sus)}$	$I_C = 4.5\text{A}, I_{B1} = 0.45\text{A}, I_{B2} = -1.8\text{A}, L = 500\mu\text{H}, \text{Clamped}$	400	-	-	V
Turn-On Time	$t_{on}$	$I_C = 7\text{A}, I_{B1} = 1.4\text{A}, I_{B2} = 2.8\text{A}, R_L = 28.6\Omega, V_{CC} = 200\text{V}, \text{Note 2}$	-	-	0.5	$\mu\text{s}$
Storage Time	$t_{stg}$		-	-	2.5	$\mu\text{s}$
Fall Time	$t_f$		-	-	0.3	$\mu\text{s}$

Note 2. Pulse Width =  $20\mu\text{s}$ , Duty Cycle  $\leq 1\%$ .



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