

## NTE2580 Silicon NPN Transistor High Voltage, High Current Switch

**Features:**

- High Breakdown Voltage, High Reliability
- Fast Switching Speed
- Wide ASO Range

**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 .....	7A
Peak (Note 1) .....	14A
Base Current, $I_B$ .....	3A
Collector Power Dissipation, $P_C$	
$T_A = +25^\circ\text{C}$ .....	1.65W
$T_C = +25^\circ\text{C}$ .....	50W
Operating Junction Temperature, $T_J$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$

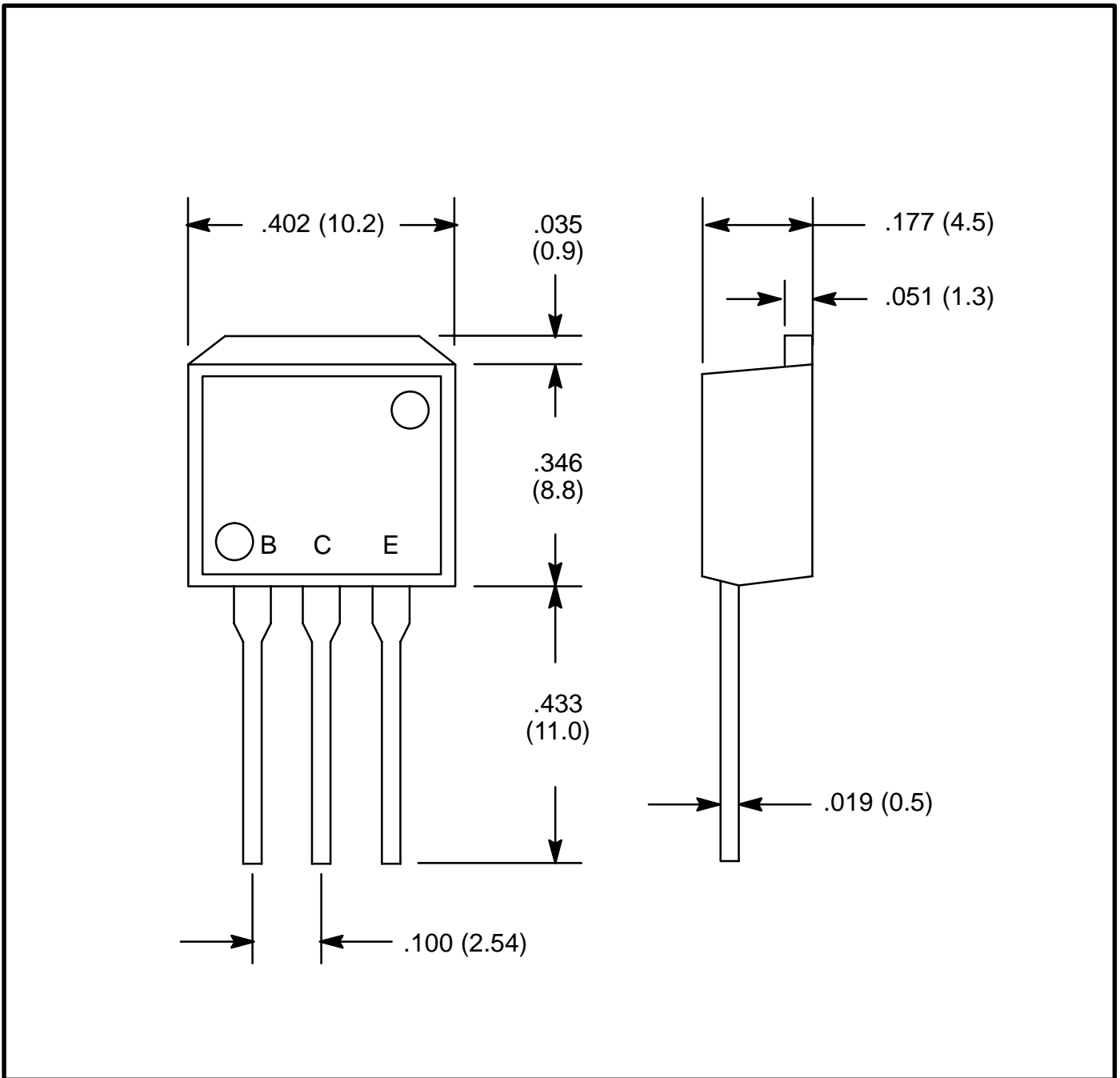
Note 1. Pulse Test: Pulsed Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 10\%$ .

**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	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 800\text{mA}$	20	–	50	
		$V_{CE} = 5\text{V}, I_C = 4\text{A}$	10	–	–	
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	10	–	–	
Gain–Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 800\text{mA}$	–	20	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	80	–	pF
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4\text{A}, I_B = 800\text{mA}$	–	–	0.8	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4\text{A}, I_B = 800\text{mA}$	–	–	1.5	V
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	$V_{CEX(sus)}$	$I_C = 3\text{A}, I_{B1} = -0.3\text{A}, L = 1\text{mH}, I_{B2} = -1.2\text{A}, \text{Clamped}$	400	–	–	V
Turn-On Time	$t_{on}$	$V_{CC} = 200\text{V}, I_C = 5\text{A}, I_{B1} = 1\text{A}, I_{B2} = -2\text{A}, R_L = 40\Omega$	–	0.5	–	$\mu\text{s}$
Storage Time	$t_{stg}$		–	2.5	–	$\mu\text{s}$
Fall Time	$t_f$		–	0.3	–	$\mu\text{s}$



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