



**ELECTRONICS, INC.**  
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## NTE2594 Silicon NPN Transistor High Voltage, High Current Switch

**Features:**

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

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

Collector–Base Voltage, $V_{CBO}$ .....	800V
Collector–Emitter Voltage, $V_{CEO}$ .....	500V
Emitter–Base Voltage, $V_{EBO}$ .....	7V
Collector Current, $I_C$	
Continuous .....	15A
Pulsed ( $PW \leq 300\mu\text{s}$ , Duty Cycle $\leq 10\%$ ) .....	25A
Base Current, $I_B$ .....	4A
Collector Dissipation, $P_C$	
$T_A = +25^\circ\text{C}$ .....	3W
$T_C = +25^\circ\text{C}$ .....	55W
Operating Junction Temperature, $T_J$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 500\text{V}$ , $I_E = 0$	–	–	10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}$ , $I_C = 0$	–	–	10	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 5\text{V}$ , $I_C = 1.2\text{A}$	15	–	50	
		$V_{CE} = 5\text{V}$ , $I_C = 6\text{A}$	8	–	–	
Gain Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}$ , $I_C = 1.2\text{A}$	–	18	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$	–	160	–	pF
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 6\text{A}$ , $I_B = 1.2\text{A}$	–	–	1.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 6\text{A}$ , $I_B = 1.2\text{A}$	–	–	1.5	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}$ , $I_E = 0$	800	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 5\text{mA}$ , $R_{BE} = \infty$	500	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}$ , $I_C = 0$	7	–	–	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Sustaining Voltage	$V_{CEX(sus)}$	$I_C = 5\text{A}$ , $I_{B1} = I_{B2} = 2\text{A}$ , $L = 500\mu\text{H}$ , Clamped	500	-	-	V
Turn-On Time	$t_{on}$	$5I_{B1} = -2.5I_{B2} = I_C = 7\text{A}$ , $V_{CC} = 200\text{V}$ , $R_L = 28.6\Omega$	-	-	0.5	$\mu\text{s}$
Storage Time	$t_{stg}$		-	-	3.0	$\mu\text{s}$
Fall Time	$t_f$		-	-	0.3	$\mu\text{s}$

