

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° 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	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$	–	–	10	μA
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	μs
Storage Time	t_{stg}		–	–	3.0	μs
Fall Time	t_f		–	–	0.3	μs

