

NTE2584 Silicon NPN Transistor High Voltage, High Speed 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}	800V
Collector Emitter Voltage, V_{CEO}	500V
Emitter Base Voltage, V_{EBO}	7V
Collector Current, I_C	
Continuous	5A
Peak (Note 1)	10A
Base Current, I_B	2A
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°C
Storage Temperature Range, T_{stg}	-55° to +150°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}	$V_{CB} = 500\text{V}, I_E = 0$	-	-	10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	-	-	10	μA
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 600\text{mA}$	20	-	50	
		$V_{CE} = 5\text{V}, I_C = 3\text{A}$	8	-	-	
Gain-Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 600\text{mA}$	-	18	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	80	-	pF
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 600\text{mA}$	-	-	1.0	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	$V_{BE(sat)}$	$I_C = 3\text{A}, I_B = 600\text{mA}$	–	–	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
Collector Emitter Sustaining Voltage	$V_{CO(sus)}$	$I_C = 5\text{A}, I_B = 1\text{A}, L = 50\mu\text{H}$	500	–	–	V
	$V_{CEX(sus)}$	$I_C = 2.5\text{A}, I_{B1} = -I_{B2} = 1\text{A}, L = 1\text{mH}, \text{Clamped}$	500	–	–	V
Turn-On Time	t_{on}	$V_{CC} = 200\text{V}, I_C = 4\text{A}, I_{B1} = 0.8\text{A}, I_{B2} = -1.6\text{A}, R_L = 50\Omega$	–	–	0.5	μs
Storage Time	t_{stg}		–	–	3.0	μs
Fall Time	t_f		–	–	0.3	μs

