

## NTE2325 Silicon NPN Transistor High Voltage Switch

**Features:**

- High Reverse Voltage:  $V_{CBO} = 900V$  (Max)
- High Speed Switching:  $t_f = 0.7\mu s$  (Max)

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

Collector–Base Voltage, $V_{CBO}$ .....	900V
Collector–Emitter Voltage, $V_{CEO}$ .....	800V
Emitter–Base Voltage, $V_{EBO}$ .....	7V
Collector Current, $I_C$ .....	3A
Peak Collector Current (Note 1), $i_{cp}$ .....	10A
Base Current, $I_B$ .....	1.5A
Collector Power Dissipation ( $T_C = +25^\circ C$ ), $P_C$ .....	50W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–55° to +150°C

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1mA, I_E = 0$	900	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 5mA, R_{BE} = \infty$	800	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	7	–	–	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 800V, I_E = 0$	–	–	10	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	–	–	10	$\mu A$
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 3A, L = 500\mu H, I_B = 1A$	800	–	–	V
	$V_{CEX(sus)1}$	$I_C = 1A, I_{B1} = 200mA, I_{B2} = -200mA,$ $L = 2mH, \text{Clamped}$	800	–	–	V
	$V_{CEX(sus)2}$	$I_C = 500mA, I_{B1} = 100mA, I_{B2} = -100mA,$ $L = 5mH, \text{Clamped}$	900	–	–	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE1}$	$V_{CE} = 5\text{V}, I_C = 200\text{mA}$	10	–	–	
	$h_{FE2}$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	8	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1.5\text{A}, I_B = 300\text{mA}$	–	–	2.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1.5\text{A}, I_B = 300\text{mA}$	–	–	1.5	V
<b>Dynamic Characteristics</b>						
Current Gain–Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 200\text{mA}$	–	15	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	60	–	pF
<b>Switching Characteristics</b>						
Turn–On Time	$t_{on}$	$I_C = 2\text{A}, I_{B1} = 400\text{mA}, I_{B2} = 800\text{mA}, R_L = 200\Omega, V_{CC} = 400\text{V}$	–	1.0	–	$\mu\text{s}$
Storage Time	$t_{stg}$		–	3.0	–	$\mu\text{s}$
Fall Time	$t_f$		–	0.7	–	$\mu\text{s}$

