



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	$+150^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$

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
OFF Characteristics						
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	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	–	–	10	μA
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
ON Characteristics						
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
Dynamic Characteristics						
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
Switching Characteristics						
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	–	μs
Storage Time	t_{stg}		–	3.0	–	μs
Fall Time	t_f		–	0.7	–	μs

