ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE2309
Silicon NPN Transistor
High Voltage, High Current Switch

Features:
- High Breakdown Voltage
- Fast Switching Speed
- Wide ASO

Absolute Maximum Ratings: (T_A = +25°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
Continuous 12A
Peak (Note 1) 25A
Base Current, I_B 4A
Collector Dissipation (T_A = +25°C), P_C 2.5W
Collector Dissipation (T_C = +25°C), P_C 100W
Operating Junction Temperature, T_J . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Note 1. Pules test: Pulse Width ≤ 300μs, Duty Cycle ≤ 10%.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	V_{CB} = 400V, I_E = 0	–	–	10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0	–	–	10	μA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 0.4A	10	–	–	
		V_{CE} = 5V, I_C = 2A	8	–	–	
Current Gain–Bandwidth Product	f_T	V_{CE} = 10V, I_C = 0.4A	–	15	–	MHz
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 3A, I_B = 0.6A	–	–	2.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 3A, I_B = 0.6A	–	–	1.5	V
Output Capacitance	C_{ob}	V_{CB} = 10V, f = 1MHz	–	120	–	pF

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 1mA, I_E = 0	900	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CBO}$	I_C = 5mA, R_{BE} = ∞	800	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 1mA, I_C = 0	7	–	–	V
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 6A, I_B = 2A, L = 200µH	800	–	–	V
	$V_{CEX(sus)}$	I_C = 2A, I_{B1} = 0.4A, L= 1mH, I_{B2} = –0.4A, Clamped	800	–	–	V
		I_C = 1A, I_{B1} = 0.2A, L= 2mH, I_{B2} = –0.2A, Clamped	900	–	–	V
Turn–On Time	t_{on}	V_{CC} = 400V, I_C = 4A, I_{B1} = 0.8A, I_{B2} = –1.6A, R_L = 100Ω	–	–	1.0	µs
Storage Time	t_{stg}		–	–	3.0	µs
Fall Time	t_f		–	–	0.7	µs