ELECTRONICS, INC.
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NTE2581
Silicon NPN Transistor
High Speed Switching Regulator

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

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Collector–Base Voltage, V_{CBO} 500V
Collector–Emitter Voltage, V_{CEO} 400V
Emitter–Base Voltage, V_{EBO} 7V
Collector Current, I_C
  Continuous 12A
  Pulsed (Note 1) 25A
Base Current, I_B 4A
Collector Dissipation, P_C
  T_A = +25°C 1.75W
  T_C = +25°C 70W
Operating Junction Temperature, T_J . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Note 1. 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 = 1.6A	20	–	40	
		V_{CE} = 5V, I_C = 8A	10	–	–	
		V_{CE} = 5V, I_C = 10mA	10	–	–	
Current Gain–Bandwidth Product	f_T	V_{CE} = 10V, I_C = 1.6A	–	20	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, f = 1MHz	–	160	–	pF
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 8A, I_B = 1.6A	–	–	0.8	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 8A, I_B = 1.6A	–	–	1.5	V

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	500	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, R_{BE} = ∞	400	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 1mA, I_C = 0	7	–	–	V
Collector–Emitter Sustaining Voltage	$V_{CEX(sus)}$	I_C = 6A, I_{B1} = 0.6A, I_{B2} = –2.4A, L = 500µH, Clamped	400	–	–	V
Turn–On Time	t_{on}	I_C = 10A, I_{B1} = 2A, I_{B2} = –4A, R_L = 20Ω, V_{CC} = 200V, Note 2	–	–	0.5	µs
Storage Time	t_{stg}		–	–	2.5	µs
Fall Time	t_f		–	–	0.3	µs

Note 2. Pulse Width = 20µs, Duty Cycle ≤ 1%.