ELECTRONICS, INC.
44 FARRAND STREET
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NTE48
Silicon NPN Transistor
Darlington, General Purpose Amplifier, High Current

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CES} 50V
Collector–Base Voltage, V_{CBO} 60V
Emitter–Base Voltage, V_{EBO} 12V
Continuous Collector Current, I_C 1000mA
Total Device Dissipation (T_A = +25°C), P_D 1.0W
Derate Above 25°C . . . . . 8.0mW/°C
Total Device Dissipation (T_C = +25°C), P_D 2.5W
Derate Above 25°C . . . . . 20mW/°C
Operating Junction Temperature Range, T_J . . . . . –55° to +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 50°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 125°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C = 1mA, I_B = 0, Note 1	50	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 1.0μA, I_E = 0	600	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	12	–	–	V
Collector Cutoff Voltage	I_{CBO}	V_{CB} = 40V, I_E = 0	–	–	100	nA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 10V, I_C = 0	–	–	100	nA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	I_C = 200mA, V_{CE} = 5V	25,000	–	–	
		I_C = 1000mA, V_{CE} = 5V	4,000	–	40,000	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1000mA, I_B = 2mA	–	–	1.5	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 1000mA, V_{CE} = 5V	–	–	2.0	V
Small–Signal Characteristics						
Current Gain–Bandwidth Product	f_T	I_C = 200mA, V_{CE} = 5V, f = 100MHz	100	–	1000	MHz
Collector–Base Capacitance	C_{cb}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	–	10	pF

Note 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

