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

NTE396
Silicon NPN Transistor
Power Amplifier & High Speed Switch
(Compl to NTE397)

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 350V
Collector–Base Voltage, V_{CBO} 450V
Emitter–Base Voltage, V_{EBO} 7V
Continuous Collector Current, I_C 1A
Base Current, I_B 500mA
Total Device Dissipation (T_A = +25°C), P_D 1W
Derate Above 25°C . . . . . 5.7mW/°C
Total Device Dissipation (T_C = +25°C), P_D 5W
Derate Above 25°C . . . . . 28.6mW/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 35°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 175°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 50mA, I_B = 0, Note 1	350	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 300V, I_B = 0	–	–	20	µA
	I_{CEX}	V_{CE} = 450V, V_{BE} = 1.5V	–	–	500	µA
	I_{CBO}	V_{CB} = 360V, I_E = 0	–	–	20	µA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 6V, I_C = 0	–	–	20	µA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	I_C = 2mA, V_{CE} = 10V	30	–	–	
		I_C = 20mA, V_{CE} = 10V	40	–	160	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 50mA, I_B = 4mA	–	–	0.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 50mA, I_B = 4mA	–	–	1.3	V

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

CAUTION: The sustaining voltage ***must not*** be measured on a curve tracer.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Small–Signal Characteristics						
Current Gain–Bandwidth Product	f_T	I_C = 10mA, V_{CE} = 10V, f = 50MHz	15	–	–	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	–	10	pF
Input Capacitance	C_{ibo}	V_{CB} = 5V, I_C = 0, f = 1MHz	–	–	75	pF
Small–Signal Current Gain	h_{fe}	I_C = 5mA, V_{CE} = 10V, f = 1MHz	25	–	–	
Real Part of Input Impedance	$Re(h_{ie})$	V_{CE} = 10V, I_C = 5mA, f = 1MHz	–	–	300	Ω