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

NTE2406
Silicon NPN Transistor
General Purpose Amp, Surface Mount
(Compl to NTE2407)

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

Collector–Base Voltage, V_{CBO} 75V
Collector–Emitter Voltage, V_{CEO} 40V
Emitter–Base Voltage, V_{EBO} 6V
Continuous Collector Current, I_C 600mA
Total Device Dissipation (FR–5 Board, Note 1), P_D 225mW
Derate above +25°C . . . . . 1.8mW/°C
Thermal Resistance, Junction–to–Ambient (FR–5 Board, Note 1), R_{thJA} . . . . . 556°C/W
Total Device Dissipation (Alumina Substrate, Note 2), P_D 300mW
Derate above +25°C . . . . . 2.4mW/°C
Thermal Resistance, Junction–to–Ambient (Alumina Substrate, Note 2), R_{thJA} . . . . . 417°C/W
Operating Junction Temperature Range, T_J . . . . . –55 ° to +150°C
Storage Temperature Range, T_{stg} . . . . . –55 ° to +150°C

Note 1. FR–5 = 1.000 (25.4mm) x .750 (19.05mm) x .062 (1.57mm).

Note 2. Alumina = .400 (10.2mm) x .300 (7.62mm) x .024 (.609mm), 99.5% alumina.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	75	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	40	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	6	–	–	V
Collector Cutoff Current	I_{CBO}	V_{CB} = 60V, I_E = 0	–	–	0.01	μA
		V_{CB} = 60V, I_E = 0, T_A = +125°C	–	–	10	μA
	I_{CEX}	V_{CE} = 60V, $V_{EB(off)}$ = 3V	–	–	10	nA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 3V, I_C = 0	–	–	10	nA
Base Cutoff Current	I_{BL}	V_{CE} = 60V, $V_{EB(off)}$ = 3V	–	–	20	nA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 3)						
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 0.1mA	35	–	–	
		V_{CE} = 10V, I_C = 1mA	50	–	–	
		V_{CE} = 10V, I_C = 10mA	75	–	–	
		V_{CE} = 10V, I_C = 10mA, T_A = –55°C	35	–	–	
		V_{CE} = 1V, I_C = 150mA	50	–	–	
		V_{CE} = 10V, I_C = 150mA	100	–	300	
		V_{CE} = 10V, I_C = 500mA	40	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 150mA, I_B = 15mA	–	–	0.3	V
		I_C = 500mA, I_B = 50mA	–	–	1.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 150mA, I_B = 15mA	0.6	–	1.2	V
		I_C = 500mA, I_B = 50mA	–	–	2.0	V
Small–Signal Characteristics						
Current Gain–Bandwidth Product	f_T	I_C = 20mA, V_{CB} = 20V, f = 100MHz	300	–	–	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	–	8	pF
Input Capacitance	C_{ibo}	V_{EB} = 0.5V, I_C = 0, f = 1MHz	–	–	25	pF
Input Impedance	h_{ie}	V_{CE} = 10V, I_C = 1mA, f = 1kHz	2	–	8	kΩ
		V_{CE} = 10V, I_C = 10mA, f = 1kHz	0.25	–	1.25	kΩ
Voltage Feedback Ratio	h_{re}	V_{CE} = 10V, I_C = 1mA, f = 1kHz	–	–	8	x 10^4
		V_{CE} = 10V, I_C = 10mA, f = 1kHz	–	–	4	x 10^4
Small–Signal Current Gain	h_{fe}	V_{CE} = 10V, I_C = 1mA, f = 1kHz	50	–	300	
		V_{CE} = 10V, I_C = 10mA, f = 1kHz	75	–	375	
Output Admittance	h_{oe}	V_{CE} = 10V, I_C = 1mA, f = 1kHz	5	–	35	µmhos
		V_{CE} = 10V, I_C = 10mA, f = 1kHz	25	–	200	µmhos
Collector–Base Time Constant	$rb'C_c$	V_{CB} = 20V, I_E = 20mA, f = 31.8MHz	–	–	150	ps
Noise Figure	NF	I_C = 100µA, V_{CE} = 10V, R_S = 1kΩ,,f = 1kHz	–	–	4	dB
Switching Characteristics						
Delay Time	t_d	V_{CC} = 30V, I_C = 150mA, $V_{BE(off)}$ = 0.5V, I_{B1} = 15mA	–	–	10	ns
Rise Time	t_r		–	–	25	ns
Storage Time	t_s	V_{CC} = 30V, I_C = 150mA, I_{B1} = I_{B2} = 15mA	–	–	225	ns
Fall Time	t_f		–	–	60	ns

Note 3. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.

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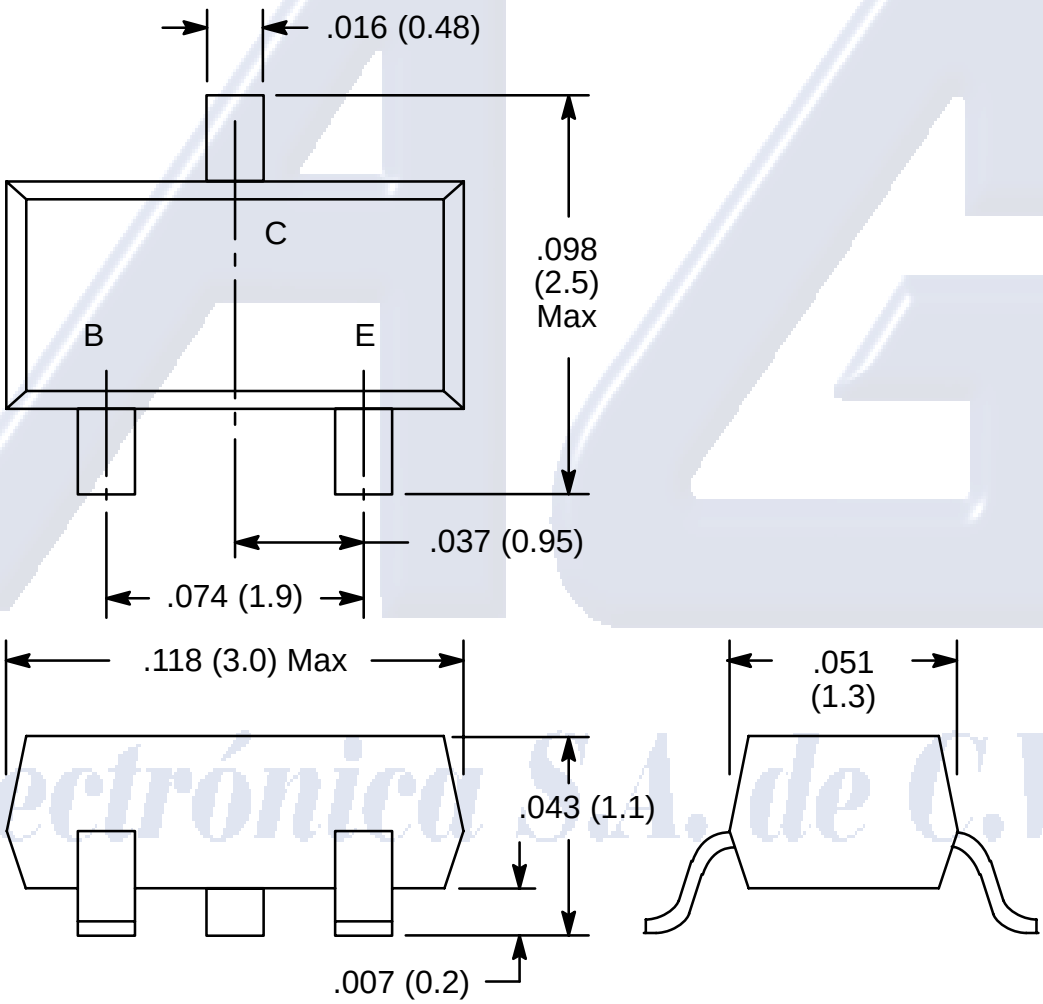

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