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NTE6410
Unijunction Transistor (UJT)

Description:

The NTE6410 is a PN unijunction transistor in a TO92 type package designed for use in pulse and timing circuits, sensing circuits and thyristor trigger circuits.

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

RMS Power Dissipation, P_D 300mW
Derate Above 25°C . . . . . 3.0mW/°C
RMS Emitter Current, I_E 50mA
Peak–Pulse Emitter Current (Note 1), I_E 1.5A
Emitter Reverse Voltage, V_{B2E} 30V
Interbase Voltage (Note 2), V_{B2B1} 35V
Operating Junction Temperature Range, T_J . . . . . –65° to +125°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

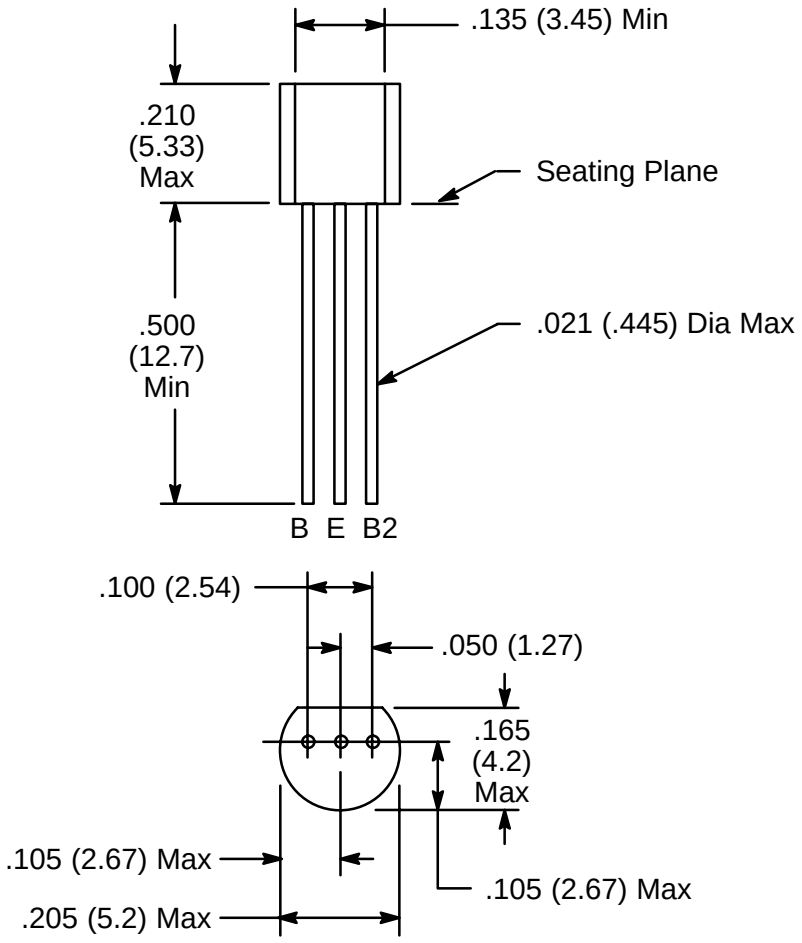
Note 1. Duty cycle ≤ 1%, PRR = 10 PPS
Note 2. Based upon power dissipation at T_A = +25°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Intrinsic Standoff Ratio	η	V_{B2B1} = 10V, Note 3	0.70	–	0.85	
Interbase Resistance	R_{BB}		4.0	6.0	9.1	kΩ
Interbase Resistance Temperature Coefficient	αR_{BB}		0.1	–	0.9	%/°C
Emitter Saturation Voltage	$V_{BE1(sat)}$	V_{B2B1} = 10V, I_E = 50mA, Note 4	–	2.5	–	V
Modulated Interbase Current	$I_{B2(Mod)}$	V_{B2B1} = 10V, I_E = 50mA	–	15	–	mA
Emitter Reverse Current	I_{EB2O}	V_{B2E} = 30V, I_{B1} = 0	–	0.005	1.0	μA
Peak–Point Emitter Current	I_P	V_{B2B1} = 25V	–	1.0	5.0	μA
Valley–Point Current	I_V	V_{B2B1} = 20V, R_{B2} = 100Ω, Note 4	4.0	7.0	–	mA
Base–One Peak Pulse Voltage	V_{OB1}		5.0	8.0	–	V

Note 3. Intrinsic standoff ratio, is defined in terms of peak–point voltage, V_P, by means of the equation: $V_P = \eta V_{B2B1} - V_F$, where V_F is approximately 0.49 volts at +25°C @ I_F = 10μA and decreases with temperature at approximately 2.5mV/°C. Components R_1, C_1, and the UJT form a relaxation oscillator, the remaining circuitry serves as a peak–voltage detector. The forward drop of Diode D_1 compensates for V_F. To use, the “call” button is pushed, and R_3 is adjusted to make the current meter, M_1, read full scale. When the “call” button is released, the value of η is read directly from the meter, if full scale on the meter reads 1.0.

Note 4. Use pulse techniques: PW ~ 300μs, duty cycle ≤ 2.0% to avoid internal heating, which may result in erroneous readings.


.135 (3.45) Min
.210
(5.33)
Max
Seating Plane
.500
(12.7)
Min
.021 (.445) Dia Max
B E B2
.100 (2.54)
.050 (1.27)
.165
(4.2)
Max
.105 (2.67) Max
.105 (2.67) Max
.205 (5.2) Max