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

NTE6401
Unijunction Transistor

Description:
The NTE6401 is designed for use in pulse and timing circuits, sensing circuits and thyristor trigger circuits.

Features:
- Low Peak Point Current: 5μA (Max)
- Low Emitter Reverse Current: .005μA (Typ)
- Passivated Surface for Reliability & Uniformity

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

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

Note 1 Derate 3mW/°C increase in ambient temperature. The total power dissipation (available power to Emitter and Base–Two) must be limited by the external circuitry.

Note 2 Capacitor discharge – 10μF or less, 30 volts or less

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Intrinsic Standoff Ratio	η	V_{B2B1} = 10V, Note 3	0.56	–	0.75	–
Interbase Resistance	r_{BB}	V_{B2B1} = 3V, I_E = 0	4.7	7.0	9.1	kΩ
Interbase Resistance Temperature Coefficient	ar_{BB}		0.1	–	0.9	%/°C

Note 3. Intrinsic standoff ratio, η is defined by equation:

$$\eta = \frac{V_P - V_F}{V_{B2B1}}$$

where V_P = Peak Point Emitter Voltage
V_{B2B1} = Interbase Voltage
V_F = Emitter to Base–One Junction Diode Drop (~ 0.45V @ 10μA)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Emitter Saturation Voltage	$V_{EB1(sat)}$	V_{B2B1} = 10V, I_E = 50mA, Note 4	–	3.5	–	V
Modulated Interbase Current	$I_{B2(mod)}$	V_{B2B1} = 10V, I_E = 50mA	–	15	–	mA
Emitter Reverse Current	I_{EB20}	V_{B2E} = 30V, I_{B1} = 0	–	0.005	12	µA
Peak Point Emitter Current	I_P	V_{B2B1} = 25V	–	1	5	µA
Valley Point Current	I_V	V_{B2B1} = 20V, R_{B2} = 100Ω	4	6	–	mA
Base–One Peak Pulse Voltage	V_{OB1}		3	5	–	V

Note 4. Use pulse techniques: Pulse Width ~ 300µs, duty cycle ≤ 2% to avoid internal heating due to interbase modulation which may result in erroneous readings.