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NTE6402
Programmable Unijunction Transistor (PUT)

Description:

The NTE6402 is a 3–terminal silicon planer passivated PNP device available in the standard plastic low cost TO98 and TO92 type packages. The terminals are designated as anode, anode gate, and cathode.

This device has been characterized as a Programmable Unijunction Transistor (PUT), offering many advantages over conventional unijunction transistors. The designer can select R_1 and R_2 to program unijunction characteristics such as intrinsic standoff ratio, Interbase resistance, peak–point emitter current, and valley–point current to meet his particular needs.

PUT's are specifically charactrized for long interval timers and other applications requiring low leakage and low peak point current. PUT's similar types have been characterized

Applications:

- SCR Trigger
- Pulse and Timing Circuits
- Oscillators
- Sensing Circuits
- Sweep Circits

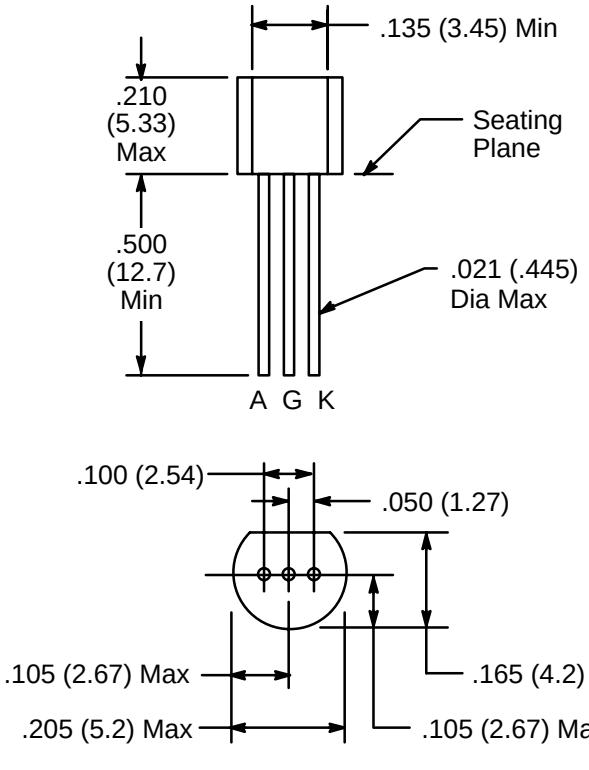
Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Gate–Cathode Forward Voltage . . . . . +40V
Gate–Cathode Reverse Voltage . . . . . –5V
Gate–Anode Reverse Voltage . . . . . +40V
Anode–Cathode Voltage . . . . . ±40V
DC Anode Current (Note 1) 150mA
Peak Anode, Recurrent Forward Current
  Pulse Width = 100μs, Duty Cycle = 1% 1A
  Pulse Width = 20μs, Duty Cycle = 1% 2A
Peak Anode, Non–Recurrent Forward Current (10μs) . . . . . ±20mA
Capacitive Discharge Energy (Note 2) 250μJ
Total Average Power (Note 1) 300mW
Operating Ambient Temperature Range (Note 1) . . . . . –50° to +100°C

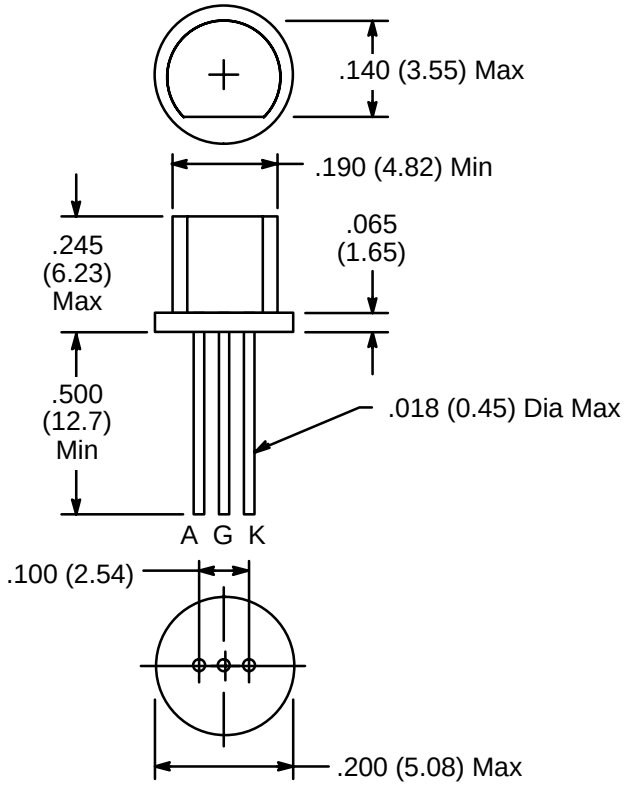
Note 1. Derate currents and powers 1%/°C above 25°C.
Note 2. E = 1/2 CV^2 capacitor discharge energy with no current limiting.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Current	I_P	V_S = 10V, R_G = 1MΩ	–	–	2	µA
		V_S = 10V, R_G = 10kΩ	–	–	5	µA
Offset Voltage	V_T	V_S = 10V, R_G = 1MΩ	0.2	–	1.6	V
		V_S = 10V, R_G = 10kΩ	0.2	–	0.6	V
Valley Current	I_V	V_S = 10V, R_G = 1MΩ	–	–	50	µA
		V_S = 10V, R_G = 10kΩ	70	–	–	µA
		V_S = 10V, R_G = 200Ω	1.5	–	–	mA
Anode Gate–Anode Leakage Current	I_{GAO}	V_S = 40V, T_A = +25°C	–	–	10	nA
		V_S = 40V, T_A = +75°C	–	–	100	nA
Gate–Cathode Leakage Current	I_{GKS}	V_S = 40V, Anode–Cathode Short	–	–	100	nA
Forward Voltage	V_F	I_F = 50mA	–	–	1.5	V
Pulse Output Voltage	V_O		6	–	–	V
Pulse Voltage Rate of Rise	t_r		–	–	80	ns



TO92



TO98