

PUTs

Planar, TO-18 Hermetic

U13T1-U13T2

FEATURES

- Voltage Ratings: to 100V
- Maximum Peak Current: 150nA
- Valley Current: as low as 25 μ A
- Low Forward Voltage Drop
- Nano-Amp Leakage
- Hermetically Sealed TO-18 Metal Can

DESCRIPTION

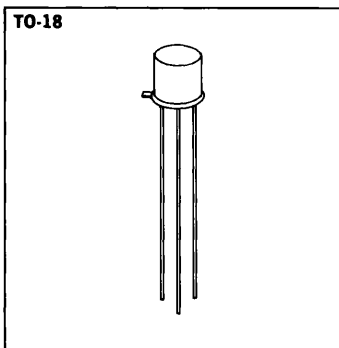
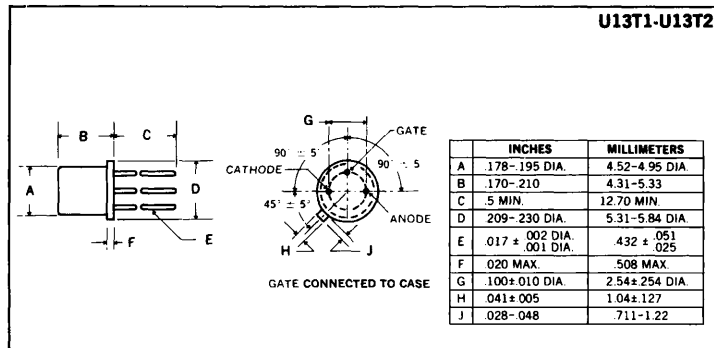
The Unitorde hermetically sealed TO-18 metal can series of programmable unijunction transistors feature blocking voltages to 100V, the highest available to designers. These PUTs are functionally equivalent to standard unijunction transistors, with the added advantages of programming versatility. External resistors can be added to program η , R_{BB} , I_B and I_V , depending upon your design requirements. All units are fully planar passivated. This series features a hermetically sealed TO-18 package for optimum reliability in all environmental conditions. Applications include pulse and timing circuits, SCR trigger circuits, relaxation oscillators, and sensing circuits. For further application information see Unitorde's Application Note U-66.

ABSOLUTE MAXIMUM RATINGS

Anode-to-Cathode Forward Voltage, V_{AK}	40V
Anode-to-Cathode Reverse Voltage, V_{AKR}	40V
Gate-to-Cathode Forward Voltage, V_{GK}	40V
Gate-to-Anode Reverse Voltage, V_{GAR}	40V
Gate-to-Cathode Reverse Voltage, V_{GKR}	5V
Peak Recurrent Forward Current	
10 μ s 1% Duty Cycle	8A
100 μ s 1% Duty Cycle	5A
Power Dissipation	
25°C Ambient	400mW
Derating Factor	3.2mW/°C
Storage Temperature Range	-55°C to +150°C
Operating Temperature Range	-55°C to +150°C

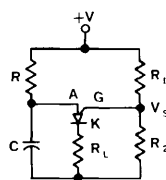
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MECHANICAL SPECIFICATIONS

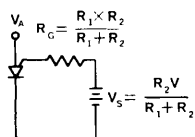


ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

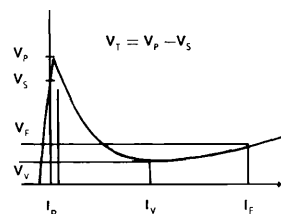
Test	Symbol	Fig.	U13T1		U13T2		Units	Test Conditions
			Min.	Max.	Min.	Max.		
Peak Current	I_P	1	—	5	—	1.0	μA	$R_G = 10k, V_s = 10V$
Valley Current	I_V	1	70	—	25	—	μA	$R_G = 10k, V_s = 10V$
Offset Voltage	V_T	1	0.2	0.6	0.2	0.6	V	$R_G = 10k, V_s = 10V$
			0.2	1.6	0.2	0.6	V	$R_G = 1 \text{ Meg.}$
Gate-to-Anode Leakage	I_{GAO}	2	—	10	—	10	nA	$T = 25^\circ C, V_s = \text{rating}$
			—	100	—	100	nA	$T = 75^\circ C$
Gate-to-Cathode Leakage	I_{GKS}	3	—	100	—	100	nA	$V_s = \text{rating}$
Forward Voltage	V_F	4	—	1.5	—	1.5	V	$I_F = 50mA$
Pulse Output Voltage	V_o	5	6	—	6	—	V	
Pulse Output Rate of Rise	t_r	5	—	80	—	80	nS	



a) Typical Circuit



b) Equivalent Test Circuit



c) Characteristic Curve

Figure 1

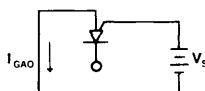


Figure 2

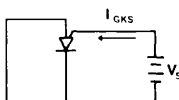


Figure 3

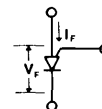


Figure 4

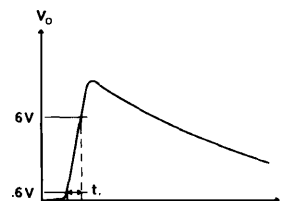
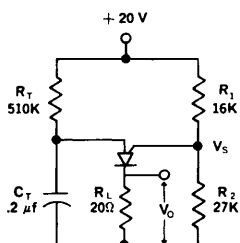


Figure 5