

PUTs

Planar, TO-18, Hermetic

2N6119-2N6120

FEATURES

- Hermetically Sealed TO-18 Metal Can
- Programmable Eta , R_{BB} , I_p and I_V
- Maximum Peak Point Current: 150nA
- Minimum Valley Current to 1.5mA
- Nano-Amp Leakage
- Passivated Planar Construction for Maximum Reliability and Parameter Uniformity

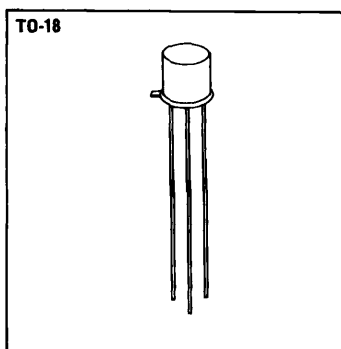
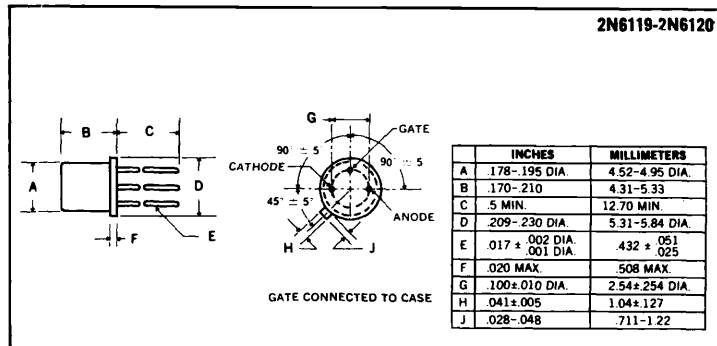
DESCRIPTION

Functionally equivalent to standard unijunction transistors, Unitrode's Programmable Unijunction Transistors offer the distinct advantage of versatile programming. External resistors can be added to meet the designer's needs in programming Eta , R_{BB} , I_p and I_V functions. This series also 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 additional information see Unitrode Application Note U-66.

ABSOLUTE MAXIMUM RATINGS

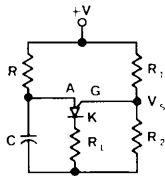
Anode-to-Cathode Voltage, V_{AK}	$\pm 40V$
Gate-to-Cathode Forward Voltage, V_{GK}	40V
Gate-to-Anode Reverse Voltage, V_{GAR}	40V
Gate-to-Cathode Reverse Voltage, V_{GKR}	-5V
Peak Recurrent Forward Current	
10 μ s, 1% Duty Cycle	8A
100 μ s, 1% Duty Cycle	5A
Power Dissipation	
25°C Ambient	400mW
Derating Factor	3.2mW/°C
Storage Temperature	-55°C to +125°C
Operating Temperature Range	-55°C to +125°C

MECHANICAL SPECIFICATIONS

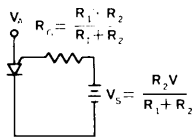


ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

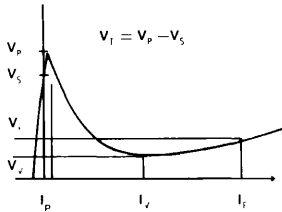
Test	Symbol	Fig.	2N6119		2N6120		Units	Test Conditions
			Min.	Max.	Min.	Max.		
Peak Current	I_P	1	—	5 2	—	1.0 0.15	μA μA	$R_G = 10k, V_S = 10V$ $R_G = 1 \text{ Meg.}$
Valley Current	I_V	1	70 — 1.5	— 50 —	25 — 1.0	— 25 —	μA μA mA	$R_G = 10k, V_S = 10V$ $R_G = 1 \text{ Meg.}$ $R_G = 200\Omega$
Offset Voltage	V_T	1	0.2 0.2	0.6 1.6	0.2 0.2	0.6 0.6	V V	$R_G = 10k, V_S = 10V$ $R_G = 1 \text{ Meg.}$
Gate-to-Anode Leakage	I_{GAO}	2	—	10 100	—	10 100	nA nA	$T = 25^\circ C, V_S = 40V$ $T = 75^\circ C$
Gate-to-Cathode Leakage	I_{GKS}	3	—	100	—	100	nA	$V_S = 40V$
Forward Voltage	V_F	4	—	1.0	—	1.0	V	$I_F = 50mA$
Pulse Output Voltage	V_O	5	9	—	9	—	V	
Pulse Output Rate of Rise	t_r	5	—	80	—	80	ns	



a) Typical Circuit



b) Equivalent Test Circuit



c) Characteristic Curve

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Figure 1

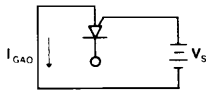


Figure 2

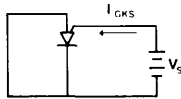


Figure 3

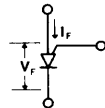


Figure 4

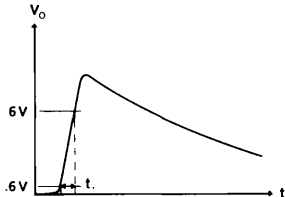
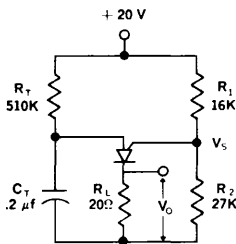
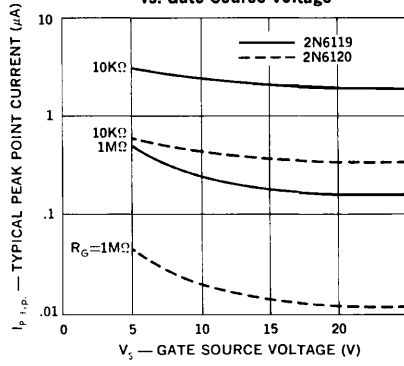
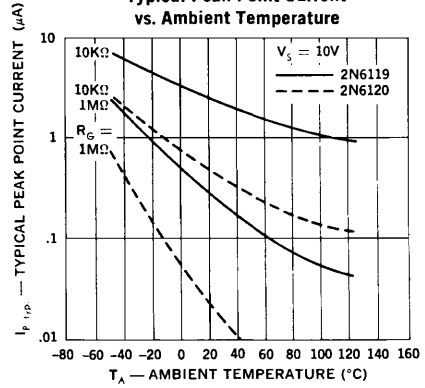


Figure 5

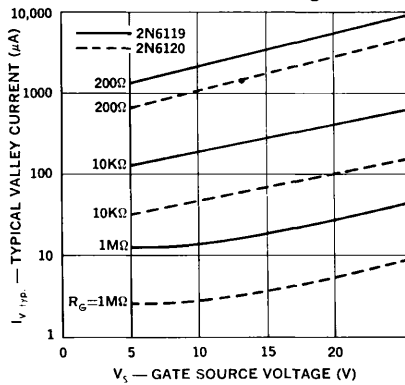
**Typical Peak Point Current
vs. Gate Source Voltage**



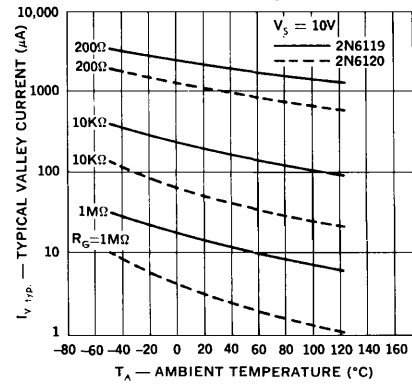
**Typical Peak Point Current
vs. Ambient Temperature**



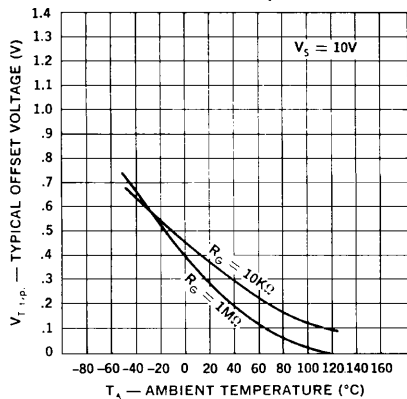
**Typical Valley Current
vs. Gate Source Voltage**



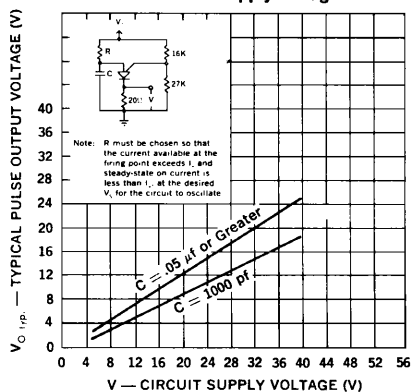
**Typical Valley Current
vs. Ambient Temperature**



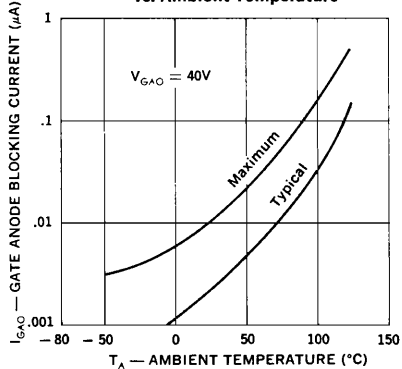
**Typical Offset Voltage
vs. Ambient Temperature**



**Typical Pulse Output
vs. Circuit Supply Voltage**



**Gate-Anode Blocking Current
vs. Ambient Temperature**



Typical On-State Current vs. Voltage

