

2N6116-2N6118

SILICON PROGRAMMABLE UNIJUNCTION TRANSISTORS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive peak forward current 100μs pulse width, 1.0% duty cycle 20μs pulse width, 1.0% duty cycle	I_{TRM}	1.0 2.0	Amp
Non repetitive peak forward current 10μs pulse width	I_{TSM}	5.0	Amp
DC forward anode current Derate above 25°C	I_T	200 2.0	mA mA/°C
DC gate current	I_G	±20	mA
Gate to cathode forward voltage	V_{GKF}	40	Volt
Gate to cathode reverse voltage	V_{GKR}	5.0	Volt
Gate to anode reverse voltage	V_{GAR}	40	Volt
Anode to cathode voltage	V_{AK}	±40	Volt
Forward power dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_F $1/\theta_{JA}$	250 2.5	mW mW/°C
Operating junction temperature range	T_J	-55 to 125	°C
Storage temperature range	T_{stg}	-65 to 200	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit
Offset voltage ($V_S = 10\text{Vdc}$, $R_G = 1.0\text{M}\Omega$) 2N6116 2N6117 2N6118 ($V_S = 10\text{Vdc}$, $R_G = 10\text{k}\Omega$) All types	V_T	0.2 0.2 0.2 0.2	0.70 0.50 0.40 0.35	1.6 0.6 0.6 0.6	Volts
Gate to anode leakage current ($V_S = 40\text{Vdc}$, $T_A = 25^\circ\text{C}$, cathode open) ($V_S = 40\text{Vdc}$, $T_A = 75^\circ\text{C}$, cathode open)	I_{GAO}	- -	1.0 30	5.0 75	nAdc
Gate to cathode leakage current ($V_S = 40\text{Vdc}$, anode to cathode shorted)	I_{GKS}	-	5.0	50	nAdc
Peak current ($V_S = 10\text{Vdc}$, $R_G = 1\text{M}\Omega$) 2N6116 2N6117 2N6118 ($V_S = 10\text{Vdc}$, $R_G = 10\text{k}\Omega$) 2N6116 2N6117 2N6118	I_p	- - - - - -	1.25 0.19 0.08 4.00 1.20 0.70	2.00 0.30 0.15 5.00 2.00 1.00	μA

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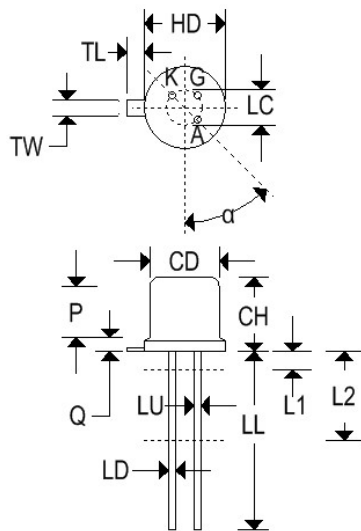
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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit
Valley current ($V_S = 10\text{Vdc}$, $R_G = 1\text{M}\Omega$) 2N6116, 2N6117 2N6118 ($V_S = 10\text{Vdc}$, $R_G = 10\text{k}\Omega$) 2N6116 2N6117, 2N6118	I_V	- - 70 50	18 18 270 270	50 25 - -	μA
Forward voltage ($I_F = 50\text{mA peak}$)	V_F	-	0.8	1.5	Volts
Peak output voltage ($V_B = 20\text{Vdc}$, $C_C = 0.2\mu\text{F}$)	V_O	6.0	16	-	Volts
Pulse voltage rise time ($V_B = 20\text{Vdc}$, $C_C = 0.2\mu\text{F}$)	t_r	-	40	80	ns

MECHANICAL CHARACTERISTICS

Case	TO-18
Marking	Body painted, alpha-numeric
Pin out	See below



Dim	TO-18			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	0.178	0.195	4.520	4.950
CH	0.140	0.210	3.556	5.330
HD	0.209	0.230	5.310	5.840
LC	0.100 TP		2.540 TP	
LD	0.016	0.021	0.410	0.530
LL	0.500	0.750	12.700	19.050
LU	0.016	0.019	0.410	0.480
L1	-	0.050	-	1.270
L2	0.250	-	6.350	-
P	0.100	-	2.540	-
Q	-	0.040	-	1.020
TL	0.028	0.048	0.710	1.220
TW	0.036	0.046	0.910	1.170
α	45°TP		45°TP	

FIGURE 1 – ELECTRICAL CHARACTERIZATION

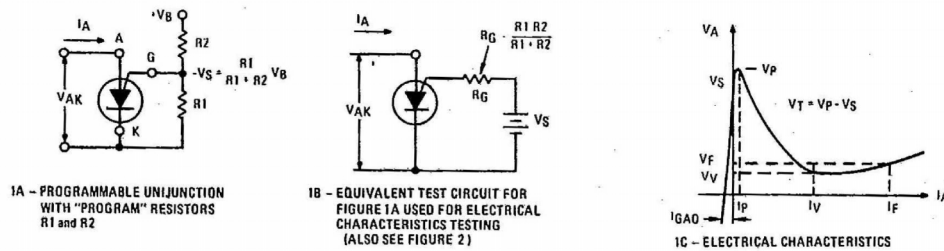


FIGURE 2 – PEAK CURRENT (I_p) TEST CIRCUIT

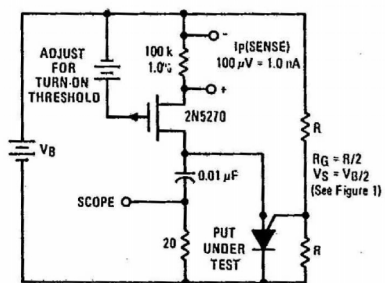


FIGURE 3 – V_o AND t_r TEST CIRCUIT

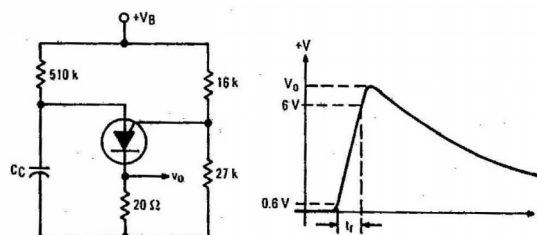


FIGURE 4 – EFFECT OF SUPPLY VOLTAGE

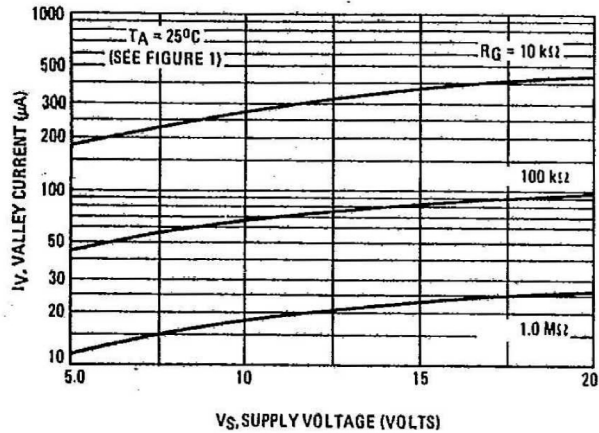


FIGURE 5 – EFFECT OF TEMPERATURE

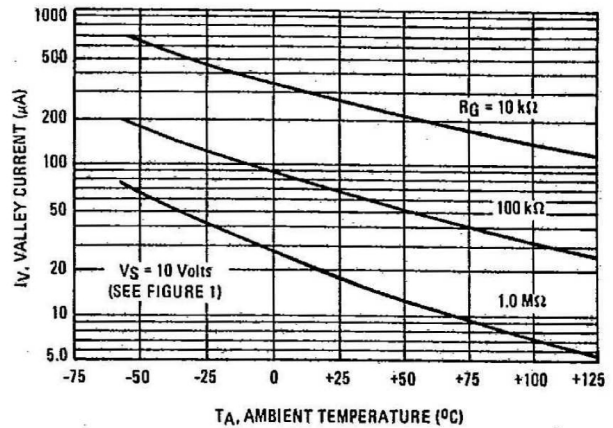


FIGURE 6 – FORWARD VOLTAGE

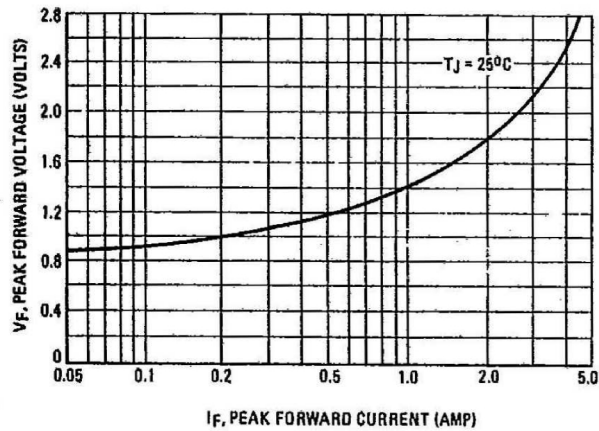


FIGURE 7 – PEAK OUTPUT VOLTAGE

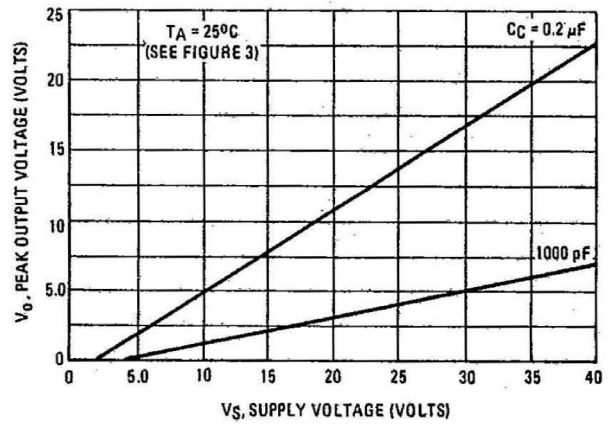
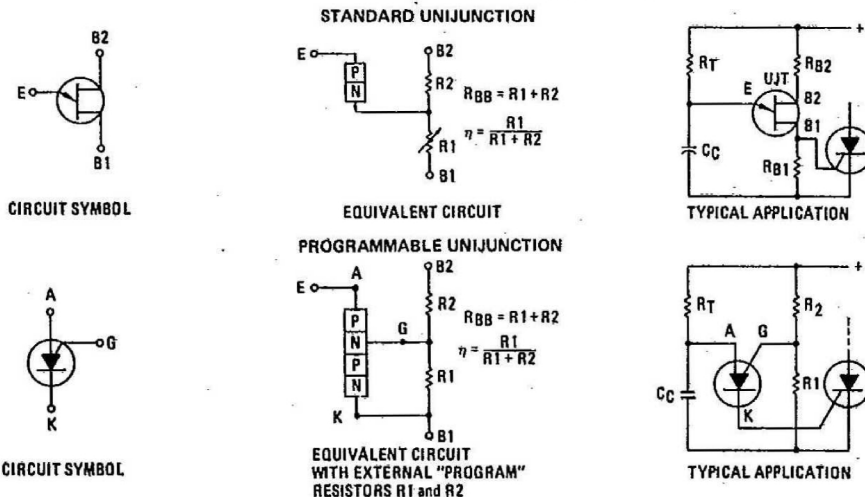


FIGURE 8 – STANDARD UNIJUNCTION
COMPARED TO PROGRAMMABLE UNIJUNCTION



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FIGURE 9 – EFFECT OF SUPPLY VOLTAGE AND R_G

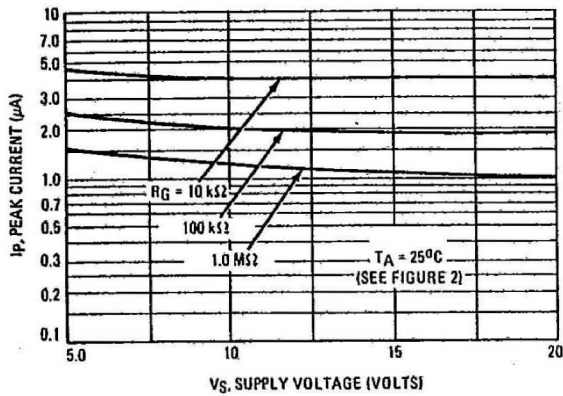
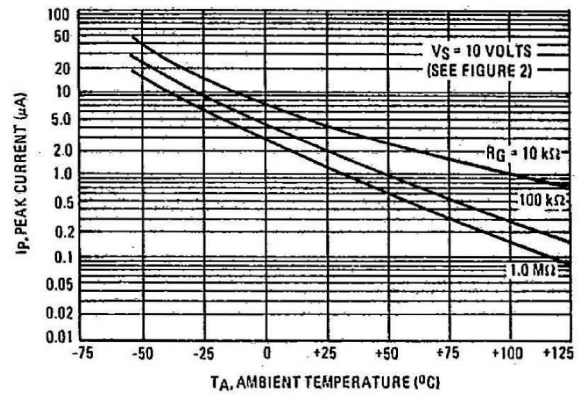


FIGURE 10 – EFFECT OF TEMPERATURE AND R_G



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FIGURE 11 – EFFECT OF SUPPLY VOLTAGE AND R_G

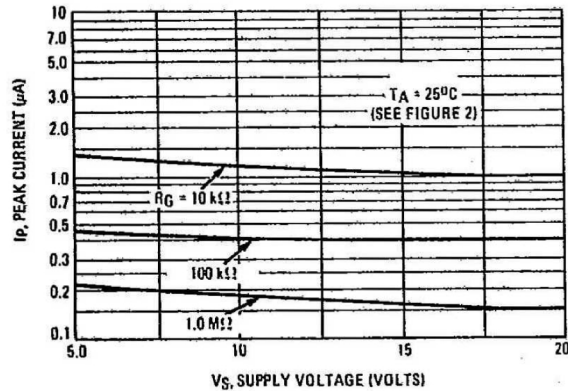
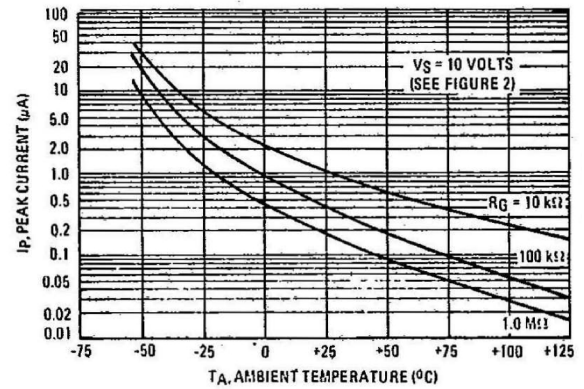


FIGURE 12 – EFFECT OF TEMPERATURE AND R_G



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FIGURE 13 – EFFECT OF SUPPLY VOLTAGE AND R_G

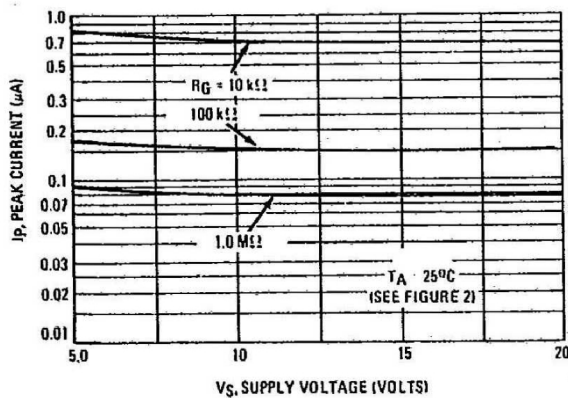


FIGURE 14 – EFFECT OF TEMPERATURE AND R_G

