

DIGITRON SEMICONDUCTORS

MPU6027-MPU6028

PROGRAMMABLE UNIJUNCTION TRANSISTORS

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).

Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power dissipation Derate above 25°C	P_F $1/\theta_{JA}$	375 5.0	mW mW/°C
DC forward anode current Derate above 25°C	I_T	200 2.67	mA mA/°C
DC gate current	I_G	±50	mA
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
Gate to cathode forward voltage	V_{GKF}	40	Volts
Gate to cathode reverse voltage	V_{GKR}	-5.0	Volts
Gate to anode reverse voltage	V_{GAR}	40	Volts
Anode to cathode voltage	V_{AK}	±40	Volts
Operating junction temperature range	T_J	-50 to 100	°C
Storage temperature range	T_{stg}	-55 to 150	°C

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

Characteristic		Symbol	Min	Typ	Max	Unit
Peak current ($V_S = 10\text{Vdc}$, $R_G = 1.0\text{M}\Omega$) ($V_S = 10\text{Vdc}$, $R_G = 10\text{k}\Omega$)	MPU6027 MPU6028 MPU6027 MPU6028	I_P	- - - -	1.25 0.08 4.0 0.70	2.0 0.15 5.0 1.0	µA
Off set voltage ($V_S = 10\text{Vdc}$, $R_G = 1.0\text{M}\Omega$) ($V_S = 10\text{Vdc}$, $R_G = 10\text{k}\Omega$)	MPU6027 MPU6028 (all types)	V_T	0.2 0.2 0.2	0.70 0.50 0.35	1.6 0.6 0.6	Volts
Valley current ($V_S = 10\text{Vdc}$, $R_G = 1.0\text{M}\Omega$) ($V_S = 10\text{Vdc}$, $R_G = 10\text{k}\Omega$)	MPU6027 MPU6028 MPU6027 MPU6028	I_V	- - 70 25	18 18 270 270	50 25 - -	µA
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 3.	10 -	nAdc
Gate to cathode leakage current ($V_S = 40\text{Vdc}$, anode to cathode shorted)		I_{GKS}	-	5.0	50	nAdc
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	11	-	Volts
Pulse voltage rise time ($V_B = 20\text{Vdc}$, $C_C = 0.2\mu\text{F}$)		t_r	-	40	80	ns

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TYPICAL VALLEY CURRENT BEHAVIOR

FIGURE 4 – EFFECT OF SUPPLY VOLTAGE

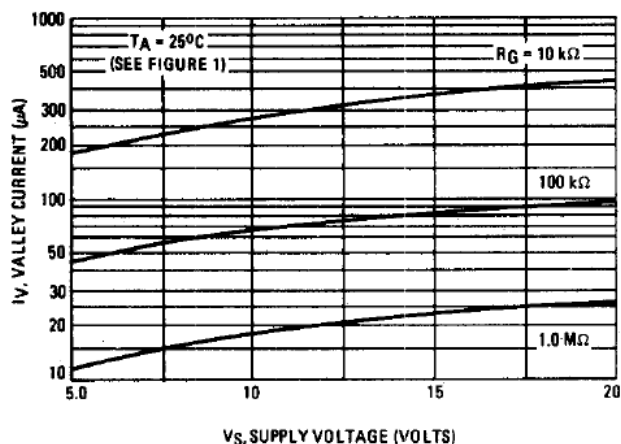


FIGURE 5 – EFFECT OF TEMPERATURE

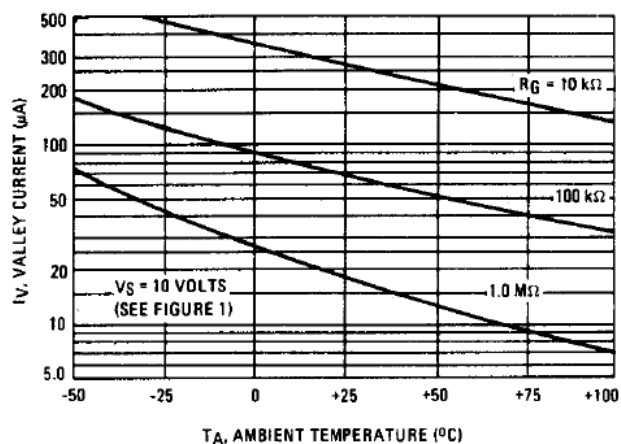


FIGURE 6 – FORWARD VOLTAGE

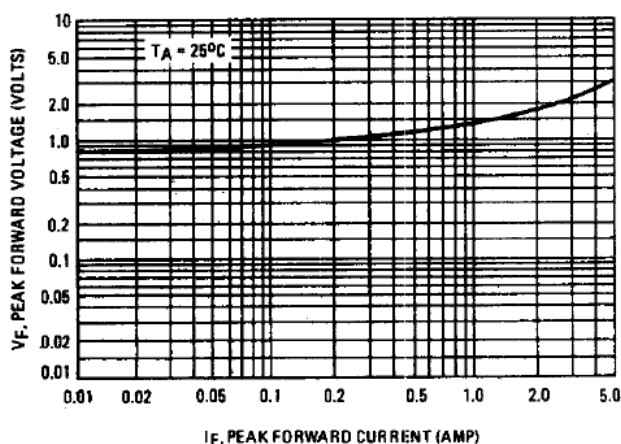


FIGURE 7 – PEAK OUTPUT VOLTAGE

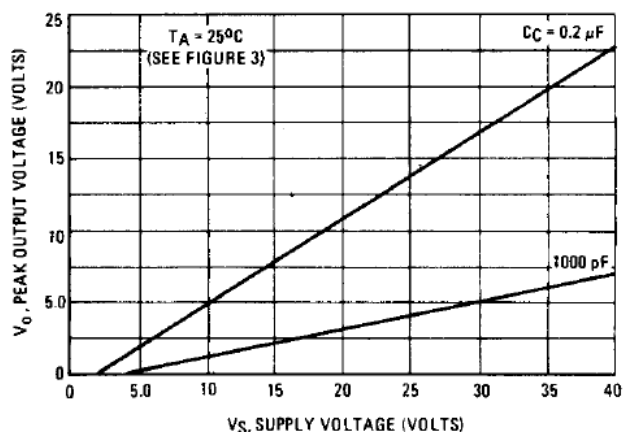
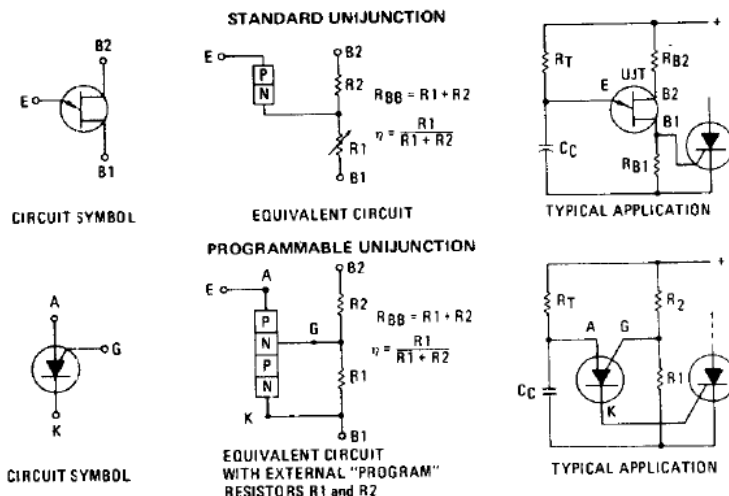


FIGURE 8 – STANDARD UNIJUNCTION COMPARED TO PROGRAMMABLE UNIJUNCTION



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TYPICAL PEAK CURRENT BEHAVIOR

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FIGURE 9 – EFFECT OF SUPPLY VOLTAGE AND R_G

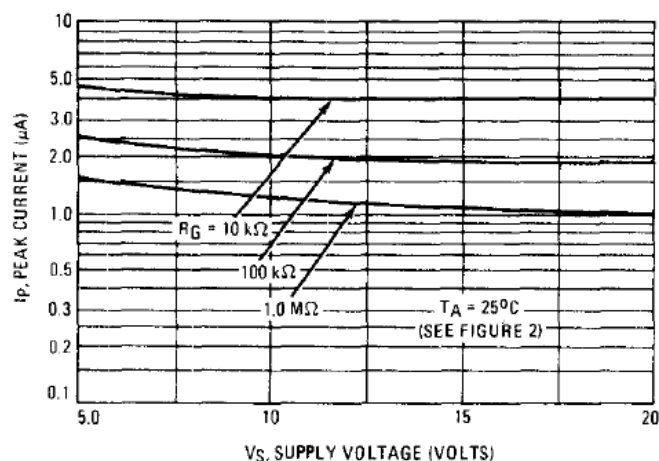
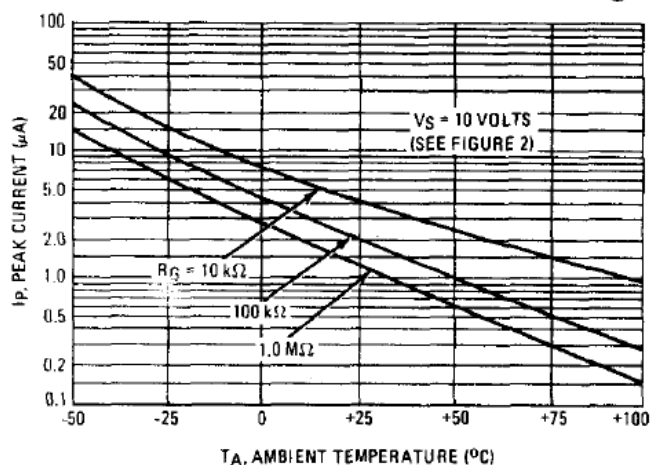


FIGURE 10 – EFFECT OF TEMPERATURE AND R_G



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FIGURE 11 – EFFECT OF SUPPLY VOLTAGE AND R_G

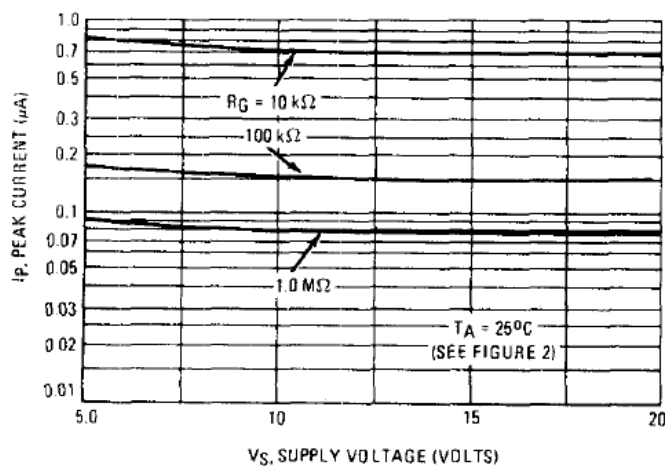


FIGURE 12 – EFFECT OF TEMPERATURE AND R_G

