

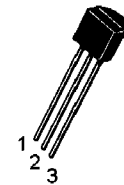
Programmable Unijunction Transistor

Programmable Unijunction Transistor Triggers

Designed to enable the engineer to "program" unijunction characteristics such as R_{BB} , η , I_V , and I_P by merely selecting two resistor values. Application includes thyristor-trigger, oscillator, pulse and timing circuits. These devices may also be used in special thyristor applications due to the availability of an anode gate. Supplied in an inexpensive TO-92 plastic package for high-volume requirements, this package is readily adaptable for use in automatic insertion equipment.

- Programmable — R_{BB} , η , I_V and I_P
- Low On-State Voltage — 1.5 Volts Maximum @ $I_F = 50$ mA
- Low Gate to Anode Leakage Current — 10 nA Maximum
- High Peak Output Voltage — 11 Volts Typical
- Low Offset Voltage — 0.35 Volt Typical ($R_G = 10$ k ohms)
- Device Marking: Logo, Device Type, e.g., 2N6027, Date Code

PUTs
40 VOLTS
300 mW



TO-92

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
*Power Dissipation Derate Above 25°C	P_F $1/\theta_{JA}$	300 4.0	mW mW/ $^\circ\text{C}$
*DC Forward Anode Current Derate Above 25°C	I_T	150 2.67	mA mA/ $^\circ\text{C}$
*DC Gate Current	I_G	± 50	mA
Repetitive Peak Forward Current 100 μs Pulse Width, 1% Duty Cycle *20 μs Pulse Width, 1% Duty Cycle	I_{TRM}	1.0 2.0	Amps
Non-Repetitive Peak Forward Current 10 μs Pulse Width	I_{TSM}	5.0	Amps
*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 ⁽¹⁾	V_{AK}	± 40	Volts
Operating Junction Temperature Range	T_J	-50 to +100	$^\circ\text{C}$
*Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

*Indicates JEDEC Registered Data

(1) Anode positive, $R_{GA} = 1000$ ohms
 Anode negative, $R_{GA} = \text{open}$

PIN ASSIGNMENT	
1	Anode
2	Gate
3	Cathode



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

2N6027, 2N6028

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	75	$^{\circ}C/W$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^{\circ}C/W$
Maximum Lead Temperature for Soldering Purposes ($< 1/16''$ from case, 10 secs max)	T_L	260	$^{\circ}C$

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

Characteristic	Fig. No.	Symbol	Min	Typ	Max	Unit
*Peak Current ($V_S = 10$ Vdc, $R_G = 1$ M Ω) 2N6027 2N6028 ($V_S = 10$ Vdc, $R_G = 10$ k ohms) 2N6027 2N6028	2,9,11	I_P	— — — —	1.25 0.08 4.0 0.70	2.0 0.15 5.0 1.0	μA
*Offset Voltage ($V_S = 10$ Vdc, $R_G = 1$ M Ω) 2N6027 2N6028 ($V_S = 10$ Vdc, $R_G = 10$ k ohms) (Both Types)	1	V_T	0.2 0.2 0.2	0.70 0.50 0.35	1.6 0.6 0.6	Volts
*Valley Current ($V_S = 10$ Vdc, $R_G = 1$ M Ω) 2N6027 2N6028 ($V_S = 10$ Vdc, $R_G = 10$ k ohms) 2N6027 2N6028 ($V_S = 10$ Vdc, $R_G = 200$ ohms) 2N6027 2N6028	1,4,5	I_V	— — 70 25 1.5 1.0	18 18 150 150 — —	50 25 — — — —	μA mA
*Gate to Anode Leakage Current ($V_S = 40$ Vdc, $T_A = 25^{\circ}C$, Cathode Open) ($V_S = 40$ Vdc, $T_A = 75^{\circ}C$, Cathode Open)	—	I_{GAO}	— —	1.0 3.0	10 —	nAdc
Gate to Cathode Leakage Current ($V_S = 40$ Vdc, Anode to Cathode Shorted)	—	I_{GKS}	—	5.0	50	nAdc
*Forward Voltage ($I_F = 50$ mA Peak) ⁽¹⁾	1,6	V_F	—	0.8	1.5	Volts
*Peak Output Voltage ($V_G = 20$ Vdc, $C_C = 0.2$ μF)	3,7	V_O	6.0	11	—	Volt
Pulse Voltage Rise Time ($V_B = 20$ Vdc, $C_C = 0.2$ μF)	3	t_r	—	40	80	ns

*Indicates JEDEC Registered Data

(1) Pulse Test: Pulse Width ≤ 300 μsec , Duty Cycle $\leq 2\%$.