



**THE DATASHEET OF**  
**2N6028**



2N6027  
2N6028

**SILICON  
PROGRAMMABLE  
UNI-JUNCTION TRANSISTORS**



**TO-92 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N6027 and 2N6028 devices are silicon programmable unijunction transistors, manufactured in an epoxy molded package, designed for adjustable (programmable) characteristics such as Valley Current ( $I_V$ ), Peak Current ( $I_P$ ), and Intrinsic Standoff Ratio ( $\eta$ ).

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

|   |  |
|---|--|
| Gate-Cathode Forward Voltage                                      |  |
| Gate-Cathode Reverse Voltage                                      |  |
| Gate-Anode Reverse Voltage  |  |
| Anode-Cathode Voltage   |  |
| Peak Non-Repetitive Forward Current ( $t=10\mu\text{s}$ )         |  |
| Peak Repetitive Forward Current ( $t=20\mu\text{s}$ , D.C.=1.0%)  |  |
| Peak Repetitive Forward Current ( $t=100\mu\text{s}$ , D.C.=1.0%) |  |
| DC Forward Anode Current  |  |
| DC Gate Current   |  |
| Power Dissipation   |  |
| Operating Junction Temperature                                    |  |
| Storage Temperature   |  |

| SYMBOL    |             | UNITS            |
|-----------|-------------|------------------|
| $V_{GKF}$ | 40          | V                |
| $V_{GKR}$ | 5.0         | V                |
| $V_{GAR}$ | 40          | V                |
| $V_{AK}$  | 40          | V                |
| $I_{TSM}$ | 5.0         | A                |
| $I_{TRM}$ | 2.0         | A                |
| $I_{TRM}$ | 1.0         | A                |
| $I_T$     | 150         | mA               |
| $I_G$     | 50          | mA               |
| $P_D$     | 300         | mW               |
| $T_J$     | -50 to +100 | $^\circ\text{C}$ |
| $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

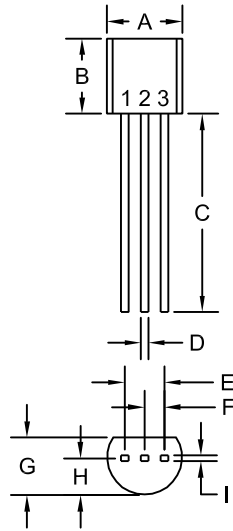
**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL    | TEST CONDITIONS                            | 2N6027 |     | 2N6028 |      | UNITS         |
|-----------|--|--------|-----|--------|------|---------------|
|           |  | MIN    | MAX | MIN    | MAX  |               |
| $I_{GAO}$ | $V_S=40\text{V}$                           | -      | 10  | -      | 10   | nA            |
| $I_{GKS}$ | $V_S=40\text{V}$                           | -      | 50  | -      | 50   | nA            |
| $I_P$     | $V_S=10\text{V}$ , $R_G=1.0\text{M}\Omega$ | -      | 2.0 | -      | 0.15 | $\mu\text{A}$ |
| $I_P$     | $V_S=10\text{V}$ , $R_G=10\text{k}\Omega$  | -      | 5.0 | -      | 1.0  | $\mu\text{A}$ |
| $I_V$     | $V_S=10\text{V}$ , $R_G=1.0\text{M}\Omega$ | -      | 50  | -      | 25   | $\mu\text{A}$ |
| $I_V$     | $V_S=10\text{V}$ , $R_G=10\text{k}\Omega$  | 70     | -   | 25     | -    | $\mu\text{A}$ |
| $I_V$     | $V_S=10\text{V}$ , $R_G=200\Omega$         | 1.5    | -   | 1.0    | -    | mA            |
| $V_T$     | $V_S=10\text{V}$ , $R_G=1.0\text{M}\Omega$ | 0.2    | 1.6 | 0.2    | 0.6  | V             |
| $V_T$     | $V_S=10\text{V}$ , $R_G=10\text{k}\Omega$  | 0.2    | 0.6 | 0.2    | 0.6  | V             |
| $V_F$     | $I_F=50\text{mA}$                          | -      | 1.5 | -      | 1.5  | V             |
| $V_O$     | $V_B=20\text{V}$ , $C_C=0.2\mu\text{F}$    | 6.0    | -   | 6.0    | -    | V             |
| $t_r$     | $V_B=20\text{V}$ , $C_C=0.2\mu\text{F}$    | -      | 80  | -      | 80   | ns            |

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**TO-92 CASE - MECHANICAL OUTLINE**



R1

| SYMBOL  | INCHES |       | MILLIMETERS |      |
|---------|--------|-------|-------------|------|
|         | MIN    | MAX   | MIN         | MAX  |
| A (DIA) | 0.175  | 0.205 | 4.45        | 5.21 |
| B       | 0.170  | 0.210 | 4.32        | 5.33 |
| C       | 0.500  | -     | 12.70       | -    |
| D       | 0.016  | 0.022 | 0.41        | 0.56 |
| E       | 0.100  |       | 2.54        |      |
| F       | 0.050  |       | 1.27        |      |
| G       | 0.125  | 0.165 | 3.18        | 4.19 |
| H       | 0.080  | 0.105 | 2.03        | 2.67 |
| I       | 0.015  |       | 0.38        |      |

TO-92 (REV: R1)

**LEAD CODE:**

- 1) Anode
- 2) Gate
- 3) Cathode

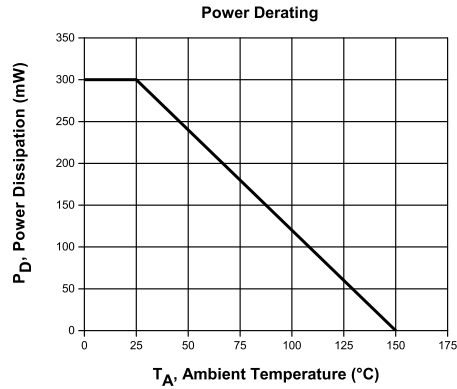
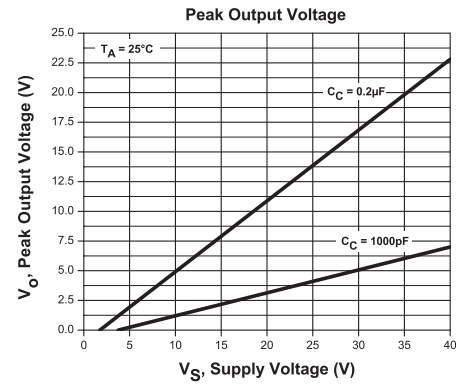
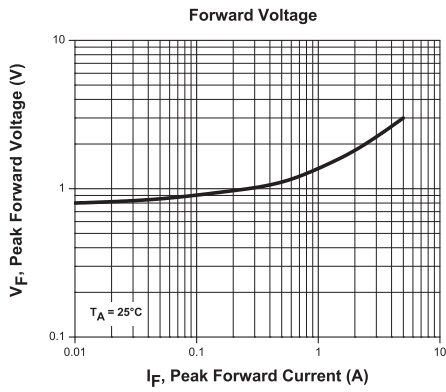
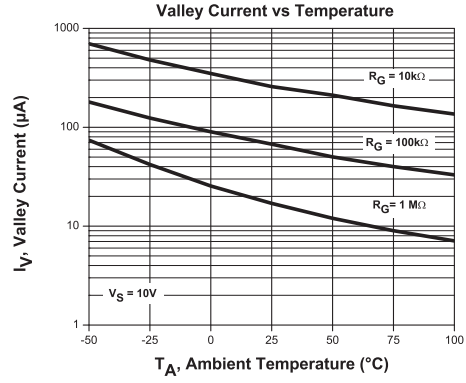
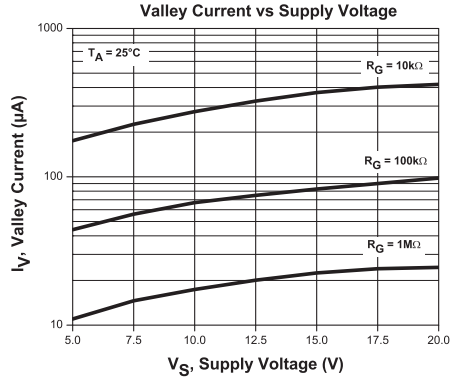
**MARKING:**  
**FULL PART NUMBER**

R2 (4-February 2014)

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**TYPICAL ELECTRICAL CHARACTERISTICS**



R2 (4-February 2014)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
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- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

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