

## Glass Passivated Junction Rectifier



### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B102
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 1.0 A          |
| $V_{RRM}$               | 200 V to 800 V |
| $I_{FSM}$               | 50 A           |
| $I_R$                   | 5.0 $\mu$ A    |
| $V_F$                   | 1.2 V          |
| $T_J$ max.              | 175 °C         |

### MECHANICAL DATA

**Case:** DO-204AC, molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS compliant, commercial grade  
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102  
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                                   |                      |               |          |          |          |         |
|--|----------------------|---------------|----------|----------|----------|---------|
| PARAMETER  | SYMBOL               | 1N5059GP      | 1N5060GP | 1N5061GP | 1N5062GP | UNIT    |
| Maximum repetitive peak reverse voltage  | $V_{RRM}^{(1)}$      | 200           | 400      | 600      | 800      | V       |
| Maximum RMS voltage  | $V_{RMS}$            | 140           | 280      | 420      | 560      | V       |
| Maximum DC blocking voltage  | $V_{DC}^{(1)}$       | 200           | 400      | 600      | 800      | V       |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 75\text{ °C}$ | $I_{F(AV)}^{(1)}$    | 1.0           |          |          |          | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load               | $I_{FSM}^{(1)}$      | 50            |          |          |          | A       |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at             | $T_A = 25\text{ °C}$ | 5.0           |          |          |          | $\mu$ A |
|  | $T_A = 75\text{ °C}$ | 150           |          |          |          |         |
| Operating junction and storage temperature range   | $T_J, T_{STG}$       | - 65 to + 175 |          |          |          | °C      |

#### Note

<sup>(1)</sup> JEDEC registered values

# 1N5059GP thru 1N5062GP

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |   |                                  |             |          |          |          |          |               |
|---|---|----------------------------------|-------------|----------|----------|----------|----------|---------------|
| PARAMETER   | TEST CONDITIONS   |                                  | SYMBOL      | 1N5059GP | 1N5060GP | 1N5061GP | 1N5062GP | UNIT          |
| Max. instantaneous forward voltage  | 1.0 A   | $T_A = 75\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | 1.2      |          |          |          | V             |
| Maximum DC reverse current at rated DC blocking voltage                               | $T_A = 25\text{ }^\circ\text{C}$  |                                  | $I_R^{(1)}$ | 5.0      |          |          |          | $\mu\text{A}$ |
|   | $T_A = 175\text{ }^\circ\text{C}$   |                                  |             | 300      |          |          |          |               |
| Typical reverse recovery time   | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ ,<br>$t_{rr} = 0.25\text{ A}$ |                                  | $t_{rr}$    | 2.0      |          |          |          | $\mu\text{s}$ |
| Typical junction capacitance  | 4.0 V, 1 MHz  |                                  | $C_J$       | 15       |          |          |          | pF            |

**Note**

(1) JEDEC registered values

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |          |          |          |          |                    |
|--|-----------------------|----------|----------|----------|----------|--------------------|
| PARAMETER  | SYMBOL                | 1N5059GP | 1N5060GP | 1N5061GP | 1N5062GP | UNIT               |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ | 45       |          |          |          | $^\circ\text{C/W}$ |
|  | $R_{\theta JL}^{(1)}$ | 20       |          |          |          |                    |

**Note**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| 1N5061GP-E3/54                 | 0.425           | 54                     | 4000          | 13" diameter paper tape and reel |
| 1N5061GP-E3/73                 | 0.425           | 73                     | 2000          | Ammo pack packaging              |
| 1N5061GPHE3/54 (1)             | 0.425           | 54                     | 4000          | 13" diameter paper tape and reel |
| 1N5061GPHE3/73 (1)             | 0.425           | 73                     | 2000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

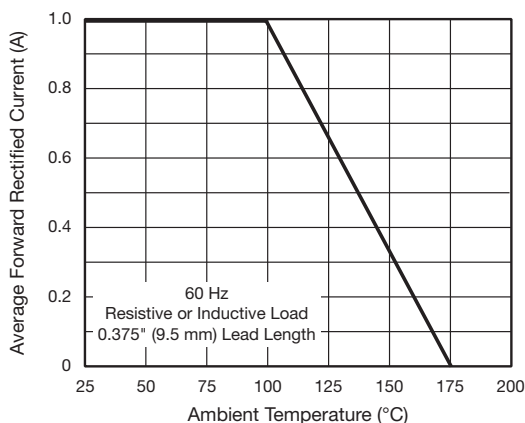


Fig. 1 - Forward Current Derating Curve

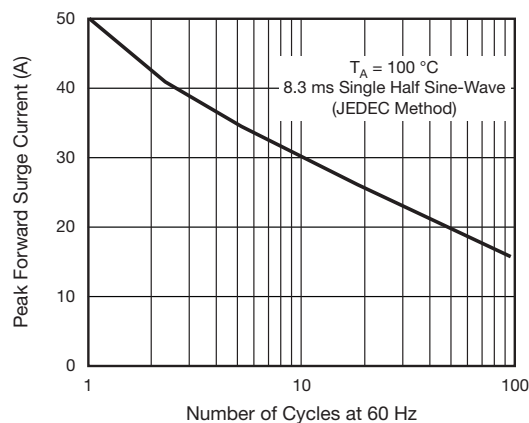


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

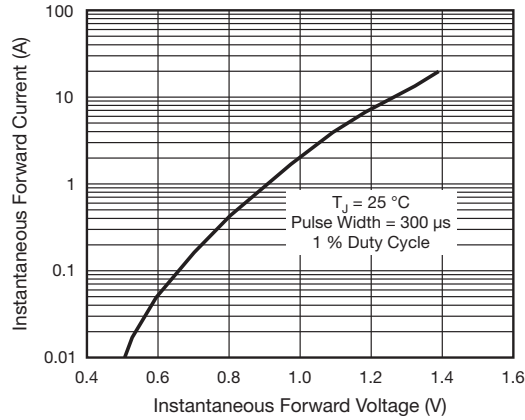


Fig. 3 - Typical Instantaneous Forward Characteristics

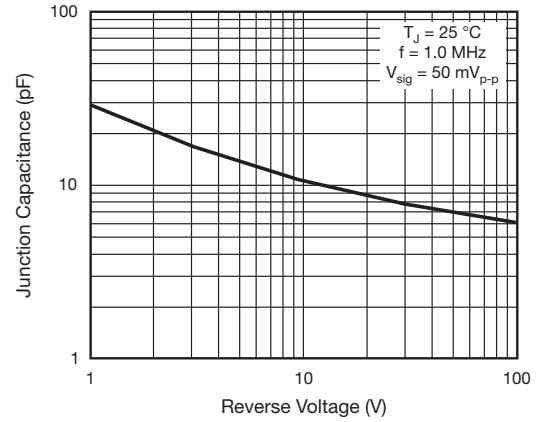


Fig. 5 - Typical Junction Capacitance

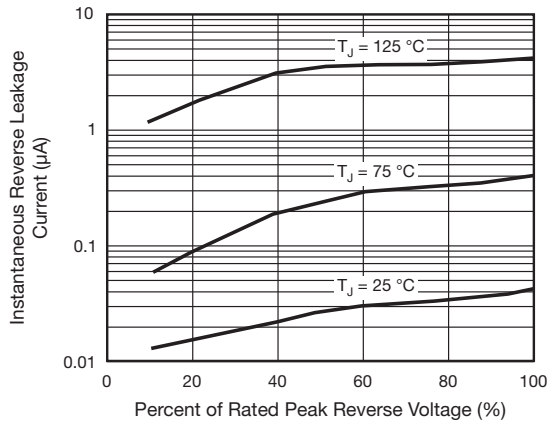


Fig. 4 - Typical Reverse Characteristics

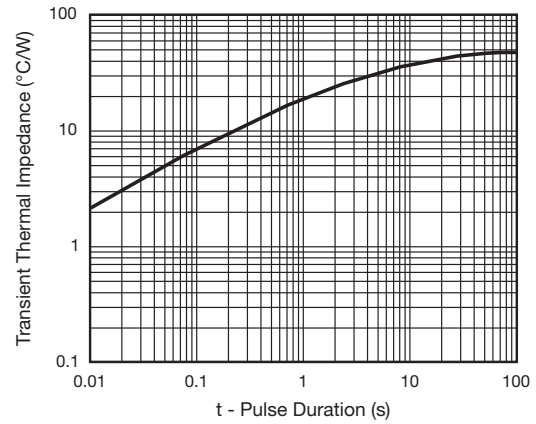
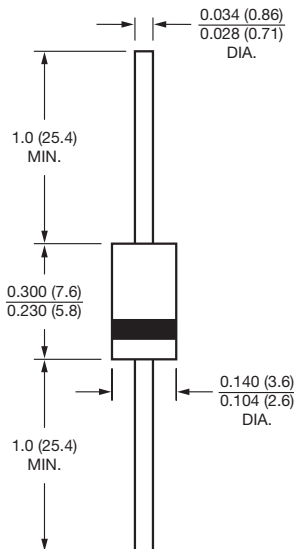


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AC (DO-15)





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