

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.

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

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

| 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 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 | | | | μ A |
| | $T_A = 75\text{ °C}$ | 150 | | | | |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 175 | | | | °C |

Note

⁽¹⁾ 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 | | | | μA |
| | $T_A = 175\text{ }^\circ\text{C}$ | | | 300 | | | | |
| Typical reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$ | | t_{rr} | 2.0 | | | | μs |
| 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)

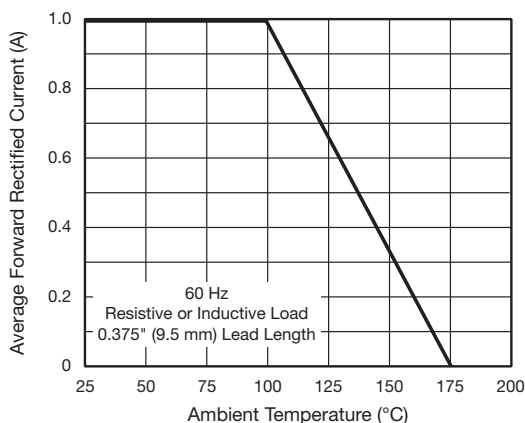


Fig. 1 - Forward Current Derating Curve

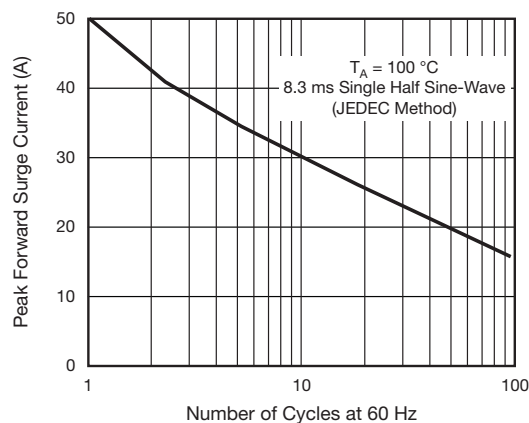


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

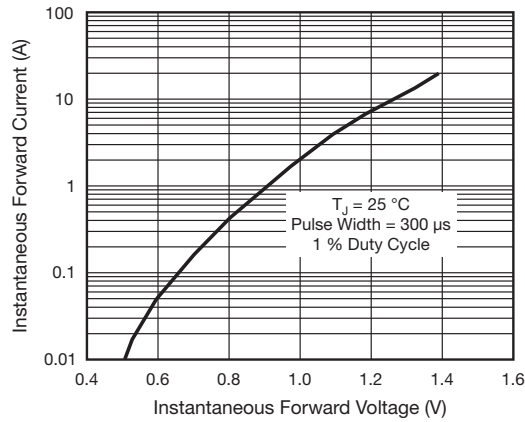


Fig. 3 - Typical Instantaneous Forward Characteristics

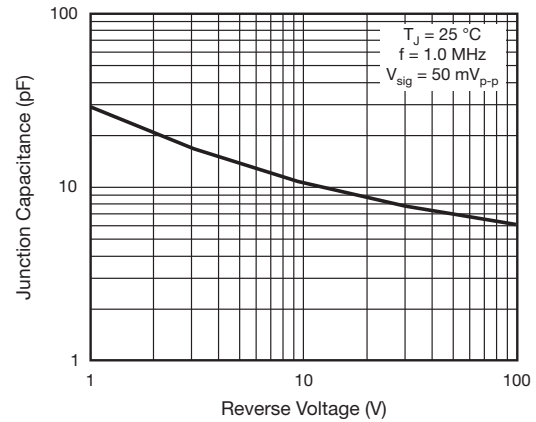


Fig. 5 - Typical Junction Capacitance

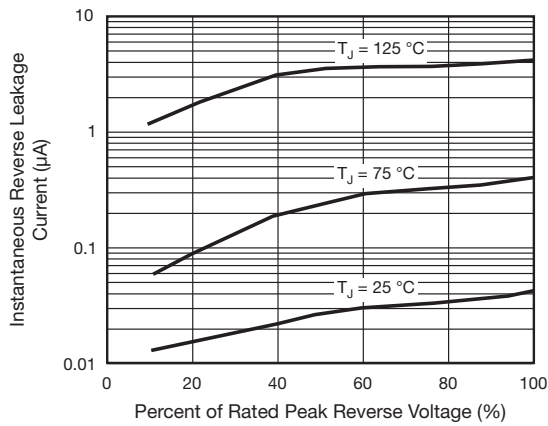


Fig. 4 - Typical Reverse Characteristics

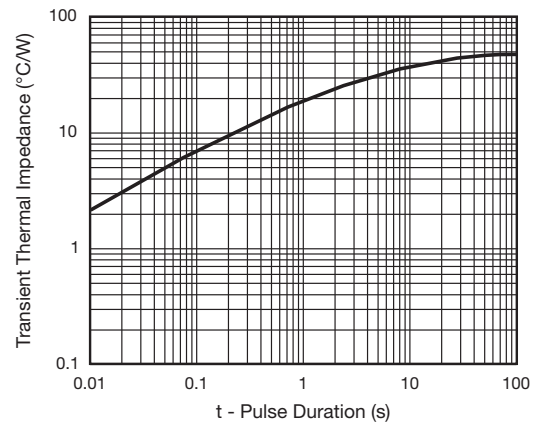
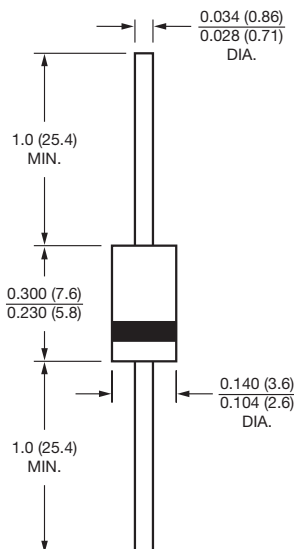


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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