

Glass Passivated Junction Fast Switching Rectifier



FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current, typical I_R less than $0.2 \mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip $275^\circ C$ max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For general purpose of medium frequency rectification.

PRIMARY CHARACTERISTICS

| | |
|-------------|------------------------|
| $I_{F(AV)}$ | 2.5 A |
| V_{RRM} | 50 V to 1000 V |
| I_{FSM} | 100 A |
| t_{rr} | 150 ns, 250 ns, 500 ns |
| I_R | $5.0 \mu A$ |
| V_F | 1.3 V |
| T_J max. | $175^\circ C$ |

MECHANICAL DATA

Case: DO-201AD, 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 ($T_A = 25^\circ C$ unless otherwise noted)

| PARAMETER | SYMBOL | RGP25A | RGP25B | RGP25D | RGP25G | RGP25J | RGP25K | RGP25M | UNIT |
|---|----------------|---------------|--------|--------|--------|--------|--------|--------|------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55^\circ C$ | $I_{F(AV)}$ | 2.5 | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 100 | | | | | | | A |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 55^\circ C$ | $I_{R(AV)}$ | 100 | | | | | | | μA |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 175 | | | | | | | $^\circ C$ |

RGP25A thru RGP25M

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | | |
|--|--|-------------------------|-----------------|--------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | RGP25A | RGP25B | RGP25D | RGP25G | RGP25J | RGP25K | RGP25M | UNIT |
| Maximum instantaneous forward voltage | 2.5 A | | V _F | 1.3 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | | T _A = 25 °C | I _R | 5.0 | | | | | | | μA |
| | | T _A = 125 °C | | 200 | | | | | | | |
| Maximum reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | | t _{rr} | 150 | | | | 250 | 500 | | ns |
| Typical junction capacitance | 4.0 V, 1 MHz | | C _J | 60 | | | | | | | pF |

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) | | | | | | | | | | |
|--|--------------------------------|--|--------|--------|--------|--------|--------|--------|--------|----------------------|
| PARAMETER | SYMBOL | | RGP25A | RGP25B | RGP25D | RGP25G | RGP25J | RGP25K | RGP25M | UNIT |
| Typical thermal resistance | $R_{\theta JA}$ ⁽¹⁾ | | 20 | | | | | | | $^{\circ}\text{C/W}$ |

Note

⁽¹⁾ Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| RGP25J-E3/54 | 1.28 | 54 | 1400 | 13" diameter paper tape and reel |
| RGP25J-E3/73 | 1.28 | 73 | 1000 | Ammo pack packaging |
| RGP25JHE3/54 ⁽¹⁾ | 1.28 | 54 | 1400 | 13" diameter paper tape and reel |
| RGP25JHE3/73 ⁽¹⁾ | 1.28 | 73 | 1000 | Ammo pack packaging |

Note

⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

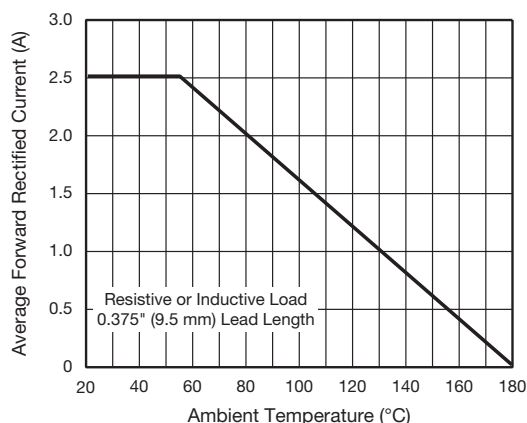


Fig. 1 - Forward Current Derating Curve

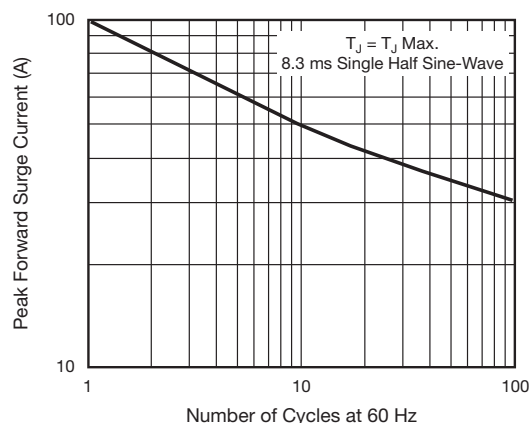


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

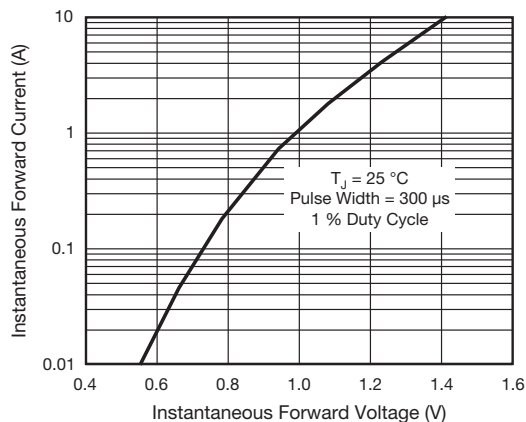


Fig. 3 - Typical Instantaneous Forward Characteristics

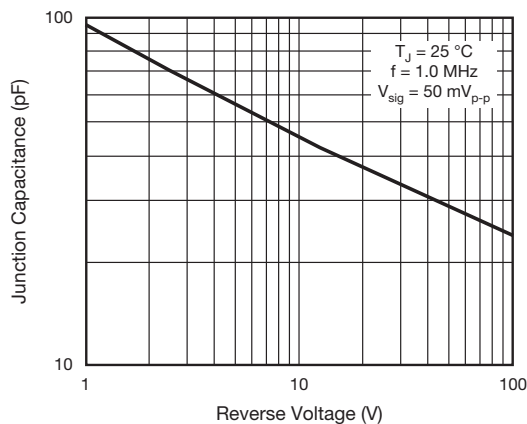


Fig. 5 - Typical Junction Capacitance

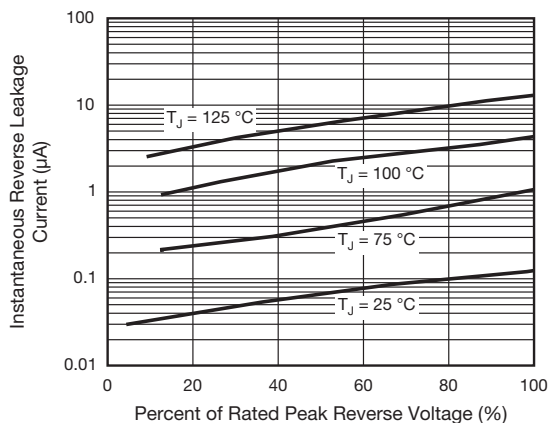
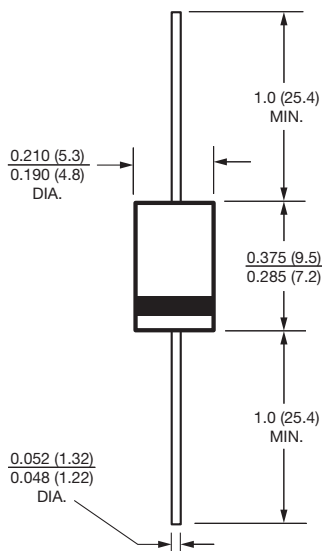


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-201AD





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