



## Glass Passivated Junction Fast Switching Plastic 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 0.1  $\mu A$
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

| PRIMARY CHARACTERISTICS |   |
|-------------------------|---|
| $I_{F(AV)}$             | 1.5 A   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 50 A  |
| $t_{rr}$                | 150 ns, 250 ns, 500 ns                          |
| $I_R$                   | 5.0 $\mu A$                                     |
| $V_F$                   | 1.3 V   |
| $T_J$ max.              | 175 °C  |
| Package                 | DO-204AC (DO-15)                                |
| Diode variation         | Single die                                      |

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer and telecommunication.

### 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

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)  |                |             |        |        |        |        |        |        |         |
|---|----------------|-------------|--------|--------|--------|--------|--------|--------|---------|
| PARAMETER   | SYMBOL         | RGP15A      | RGP15B | RGP15D | RGP15G | RGP15J | RGP15K | RGP15M | 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 $T_A = 55\text{ °C}$             | $I_{F(AV)}$    | 1.5         |        |        |        |        |        |        | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load                        | $I_{FSM}$      | 50          |        |        |        |        |        |        | A       |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 55\text{ °C}$ | $I_{R(AV)}$    | 100         |        |        |        |        |        |        | $\mu A$ |
| Operating junction and storage temperature range  | $T_J, T_{STG}$ | -65 to +175 |        |        |        |        |        |        | °C      |



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |  |          |        |        |        |        |        |        |        |      |               |
|--|--|----------|--------|--------|--------|--------|--------|--------|--------|------|---------------|
| PARAMETER  | TEST CONDITIONS  | SYMBOL   | RGP15A | RGP15B | RGP15D | RGP15G | RGP15J | RGP15K | RGP15M | UNIT |               |
| Maximum instantaneous forward voltage  | 1.5 A  | $V_F$    | 1.3    |        |        |        |        |        |        |      | V             |
| Maximum DC reverse current at rated DC blocking voltage                                      | $T_A = 25\text{ }^\circ\text{C}$                                       | $I_R$    | 5.0    |        |        |        |        |        |        |      | $\mu\text{A}$ |
|  | $T_A = 150\text{ }^\circ\text{C}$                                      | $I_R$    | 200    |        |        |        |        |        |        |      |               |
| Maximum reverse recovery time  | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $t_{rr} = 0.25\text{ A}$ | $t_{rr}$ | 150    |        |        |        |        | 250    | 500    |      | ns            |
| Typical junction capacitance   | 4.0 V, 1 MHz   | $C_J$    | 25     |        |        |        |        |        |        |      | pF            |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |        |        |        |        |        |        |        |      |                    |
|---|-----------------------|--------|--------|--------|--------|--------|--------|--------|------|--------------------|
| PARAMETER   | SYMBOL                | RGP15A | RGP15B | RGP15D | RGP15G | RGP15J | RGP15K | RGP15M | UNIT |                    |
| Typical thermal resistance  | $R_{\theta JA}^{(1)}$ |        |        |        |        | 45     |        |        |      | $^\circ\text{C/W}$ |

**Note**

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

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                  |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| RGP15J-E3/54                          | 0.425           | 54                     | 4000          | 13" diameter paper tape and reel |
| RGP15J-E3/73                          | 0.425           | 73                     | 2000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

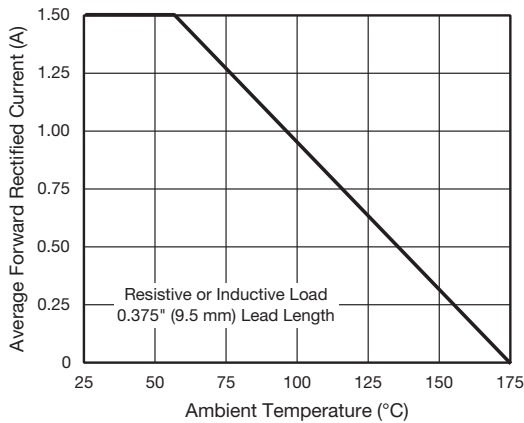


Fig. 1 - Forward Current Derating Curve

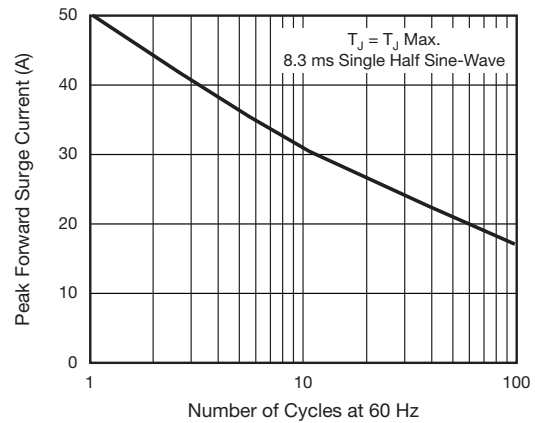


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

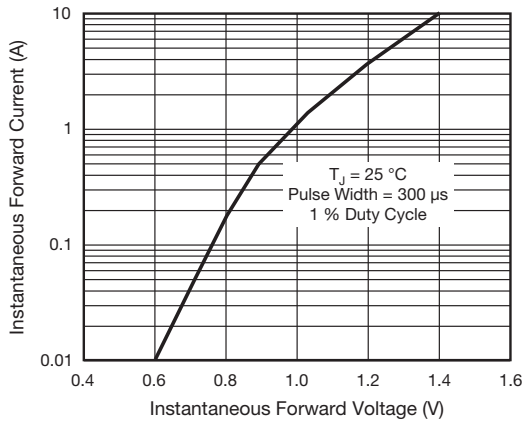


Fig. 3 - Typical Instantaneous Forward Characteristics

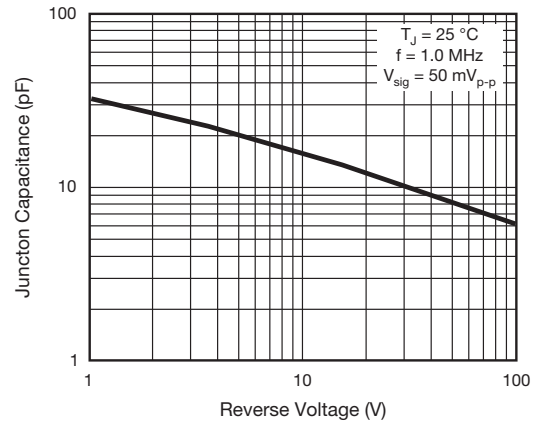


Fig. 5 - Typical Junction Capacitance

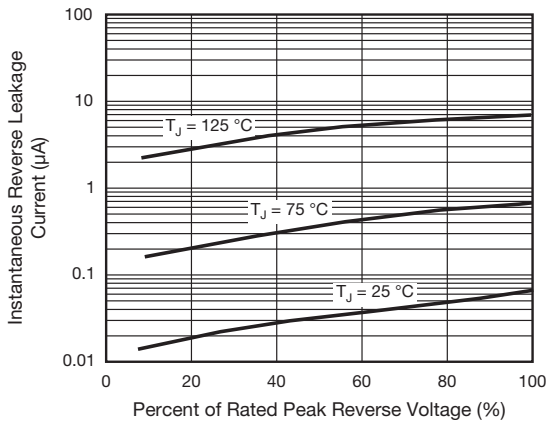


Fig. 4 - Typical Reverse Characteristics

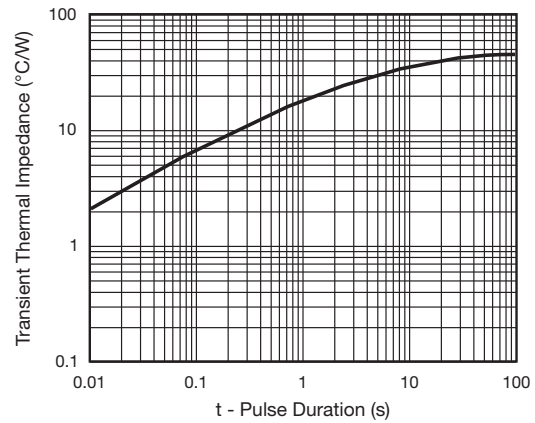
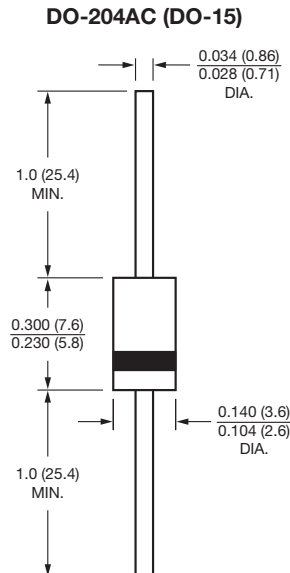


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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