



Surface Mount Glass Passivated Junction Fast Switching Rectifier

Major Ratings and Characteristics

| | |
|-------------|------------------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 50 V to 1000 V |
| I_{FSM} | 30 A |
| V_F | 1.3 V |
| t_{rr} | 150 ns, 250 ns, 500 ns |
| T_j max. | 175 °C |



Patented*

* Glass-plastic encapsulation technique is covered by patent No. 3,996,602, brazed-lead assembly by Patent No. 3,930,306 and lead forming by Patent No. 5,151,846

DO-214BA (GF1)

Features

- Superrectifier structure for high reliability condition
- Patented glass-plastic encapsulation technique
- Ideal for automated placement
- Fast switching for high efficiency
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020C
- Solder Dip 260 °C, 40 seconds



Mechanical Data

Case: DO-214BA, molded epoxy over glass body
Epoxy meets UL-94V-0 Flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Two bands indicate cathode end - 1st band denotes device type and 2nd band denotes repetitive peak reverse voltage rating

Typical Applications

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

Maximum Ratings

($T_A = 25$ °C unless otherwise noted)

| Parameter | Symbol | RGF1A | RGF1B | RGF1D | RGF1G | RGF1J | RGF1K | RGF1M | Unit |
|--|----------------|---------------|-------|-------|-------|-------|-------|-------|---------|
| Device marking code | | RA | RB | RD | RG | RJ | RK | RM | |
| 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 at $T_L = 120$ °C | $I_{F(AV)}$ | 1.0 | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 30 | | | | | | | A |
| Max. full load reverse current, full cycle average $T_A = 55$ °C | $I_{R(AV)}$ | 50 | | | | | | | μ A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 175 | | | | | | | °C |

Electrical Characteristics

(T_A = 25 °C unless otherwise noted)

| Parameter | Test condition | Symbol | RGF1A | RGF1B | RGF1D | RGF1G | RGF1J | RGF1K | RGF1M | Unit | |
|---|--|-----------------|------------|-------|-------|-------|-------|-------|-------|------|----|
| Maximum instantaneous forward voltage | at 1.0 A | V _F | 1.3 | | | | | | | V | |
| Maximum DC reverse current at rated DC blocking voltage | T _A = 25 °C T _A = 125 °C | I _R | 5.0 100 | | | | | | | μA | |
| Typical reverse recovery time | at I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | t _{rr} | 150 | | | | 250 | | 500 | | ns |
| Typical junction capacitance | at 4.0 V, 1 MHz | C _J | 8.5 | | | | | | | pF | |

Thermal Characteristics

(T_A = 25 °C unless otherwise noted)

| Parameter | Symbol | RGF1A | RGF1B | RGF1D | RGF1G | RGF1J | RGF1K | RGF1M | Unit |
|---|--------------------------------------|----------|-------|-------|-------|-------|-------|-------|------|
| Typical thermal resistance ⁽¹⁾ | R _{θJA} R _{θJL} | 80 28 | | | | | | | °C/W |

Note:

(1) Thermal resistance from junction to ambient and from junction to lead, P.C.B. mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise specified)

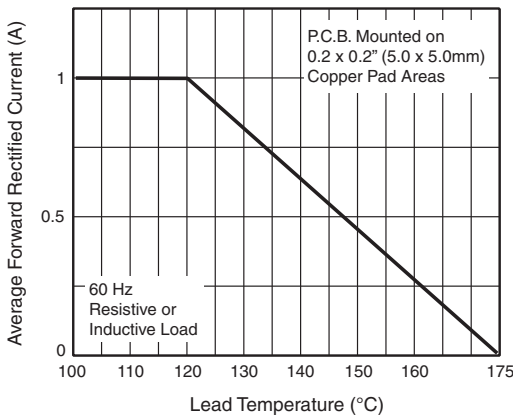


Figure 1. Forward Current Derating Curve

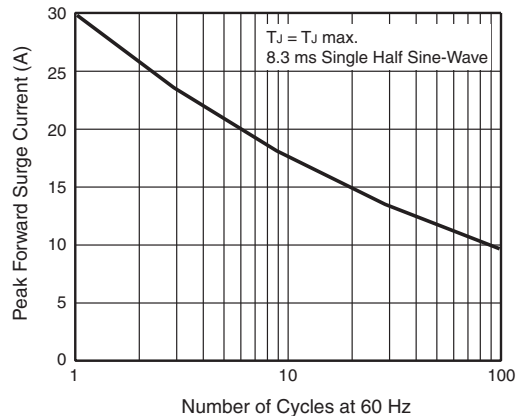


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

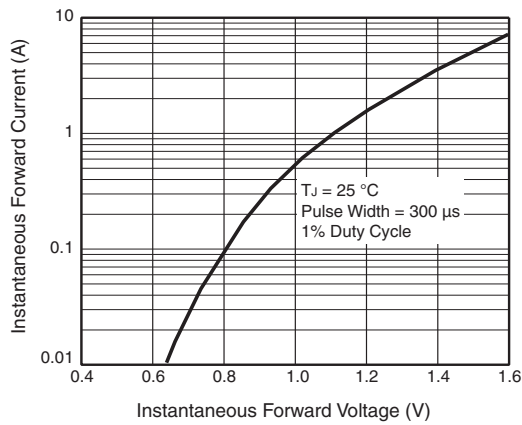


Figure 3. Typical Instantaneous Forward Characteristics

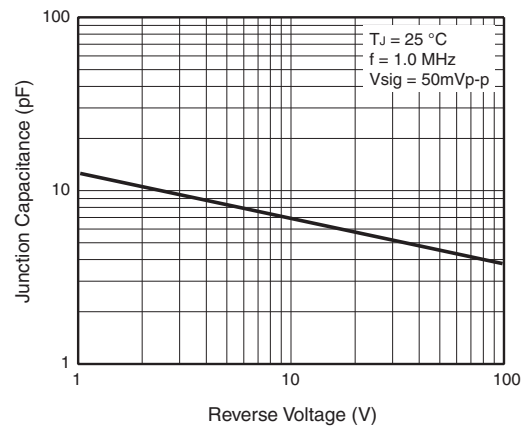


Figure 5. Typical Junction Capacitance

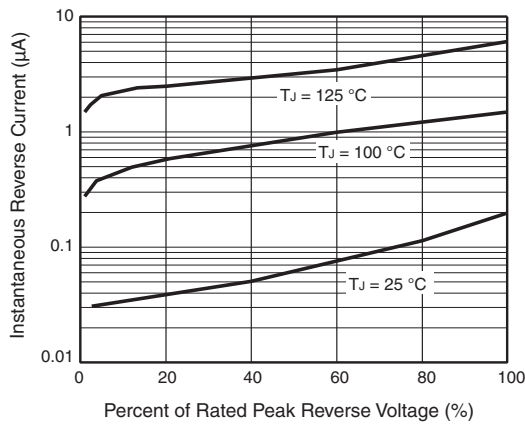


Figure 4. Typical Reverse Characteristics

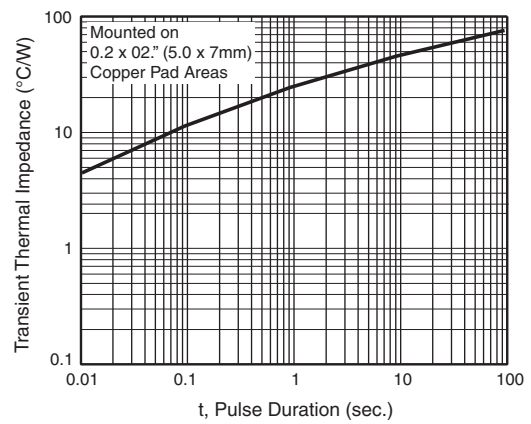
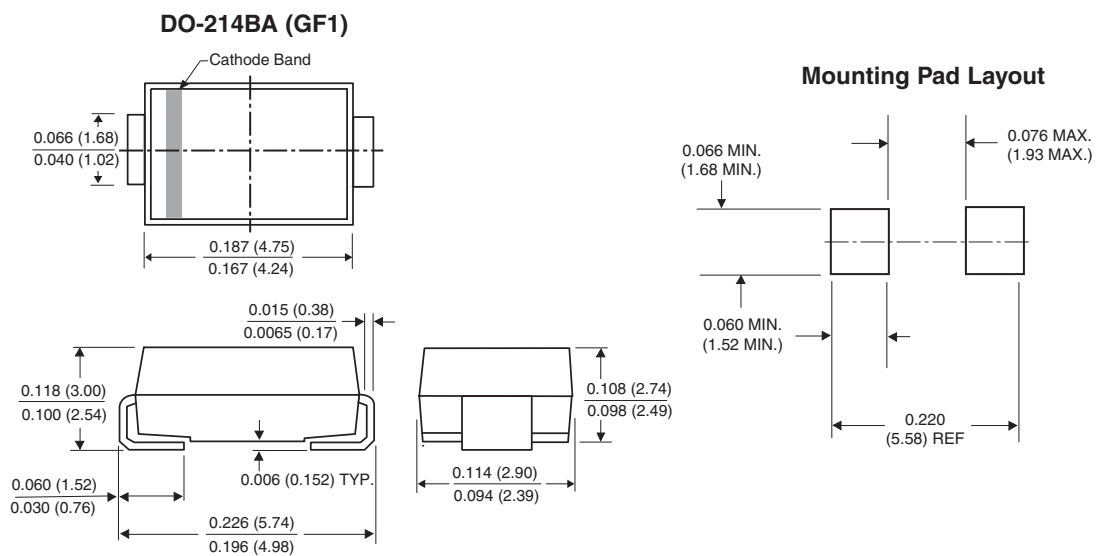


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.