

## Surface Mount Glass Passivated Rectifier

### SUPERECTIFIER®



DO-214BA (GF1)

### FEATURES

- Superectifier structure for high reliability condition
- Ideal for automated placement
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

### MECHANICAL DATA

**Case:** DO-214BA, 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                                           |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 30 A                                            |
| $V_F$                   | 1.1 V, 1.2 V                                    |
| $I_R$                   | 5.0 $\mu$ A                                     |
| $T_J$ max.              | 175 °C                                          |
| Package                 | DO-214BA (GF1)                                  |
| Diode variations        | Single die                                      |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                            |                |               |      |      |      |      |      |      |      |
|------------------------------------------------------------------------------------|----------------|---------------|------|------|------|------|------|------|------|
| PARAMETER                                                                          | SYMBOL         | GF1A          | GF1B | GF1D | GF1G | GF1J | GF1K | GF1M | UNIT |
| Device marking code                                                                |                | GA            | GB   | GD   | GG   | GJ   | GK   | GM   |      |
| Max. repetitive peak reverse voltage                                               | $V_{RRM}$      | 50            | 100  | 200  | 400  | 600  | 800  | 1000 | V    |
| Max. RMS voltage                                                                   | $V_{RMS}$      | 35            | 70   | 140  | 280  | 420  | 560  | 700  | V    |
| Max. DC blocking voltage                                                           | $V_{DC}$       | 50            | 100  | 200  | 400  | 600  | 800  | 1000 | V    |
| Max. average forward rectified current at $T_L = 125$ °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    |
| 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   | GF1A | GF1B | GF1D | GF1G | GF1J | GF1K | GF1M | UNIT |
| Max. instantaneous forward voltage                                                             | 1.0 A                                                                     | $V_F$    | 1.1  |      |      |      | 1.2  |      |      |      |
| Max. DC reverse current at rated DC blocking voltage                                           | $T_A = 25\text{ }^{\circ}\text{C}$                                        | $I_R$    | 5.0  |      |      |      |      |      |      |      |
|                                                                                                | $T_A = 125\text{ }^{\circ}\text{C}$                                       |          | 50   |      |      |      |      |      |      |      |
| 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  |      |      |      |      |      |      |      |
| Typical junction capacitance                                                                   | 4.0 V, 1 MHz                                                              | $C_J$    | 15   |      |      |      |      |      |      |      |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |      |      |      |      |      |      |      |      |
|-------------------------------------------------------------------------|------------------|------|------|------|------|------|------|------|------|
| PARAMETER                                                               | SYMBOL           | GF1A | GF1B | GF1D | GF1G | GF1J | GF1K | GF1M | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 80   |      |      |      |      |      |      | °C/W |
|                                                                         | R <sub>θJL</sub> | 26   |      |      |      |      |      |      |      |

**Note**
<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead, PCB mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| GF1J-E3/67A                           | 0.104           | 67A                    | 1500          | 7" diameter plastic tape and reel  |
| GF1J-E3/5CA                           | 0.104           | 5CA                    | 6500          | 13" diameter plastic tape and reel |
| GF1JHE3/67A <sup>(1)</sup>            | 0.104           | 67A                    | 1500          | 7" diameter plastic tape and reel  |
| GF1JHE3/5CA <sup>(1)</sup>            | 0.104           | 5CA                    | 6500          | 13" diameter plastic tape and reel |

**Note**
<sup>(1)</sup> AEC-Q101 qualified

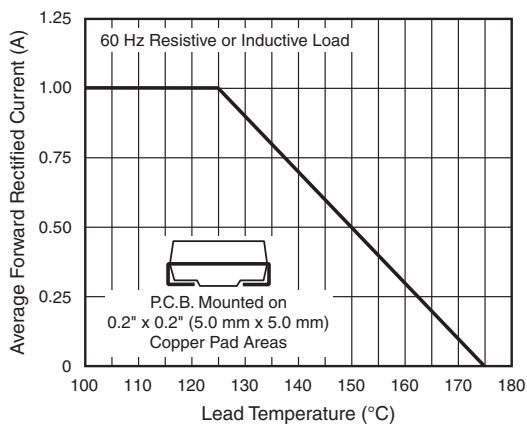
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

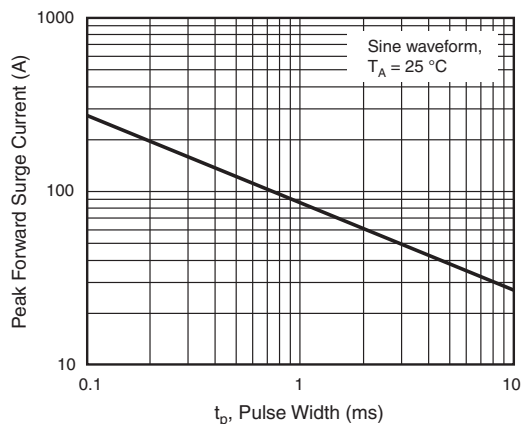


Fig. 2 - Non-Repetitive Peak Forward Surge Current

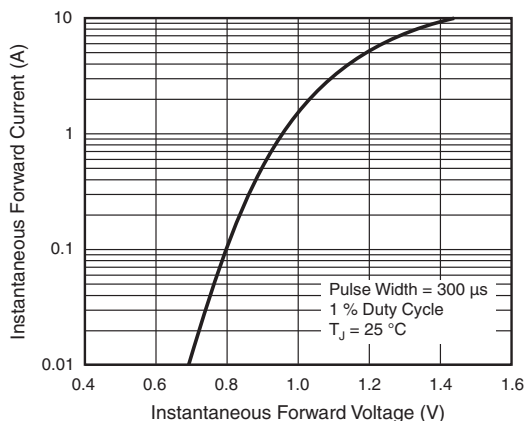


Fig. 3 - Typical Instantaneous Forward Characteristics

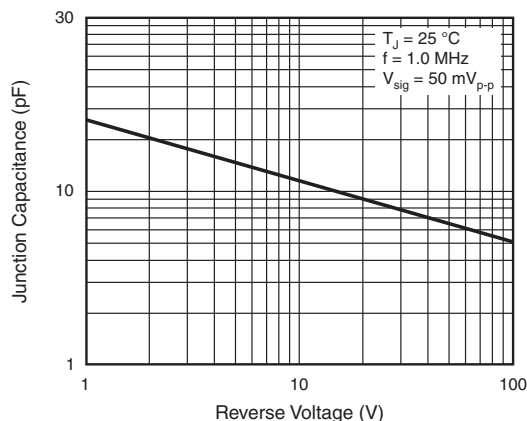


Fig. 5 - Typical Junction Capacitance

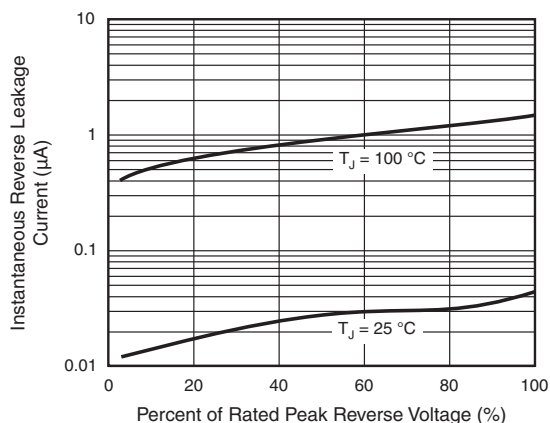


Fig. 4 - Typical Reverse Characteristics

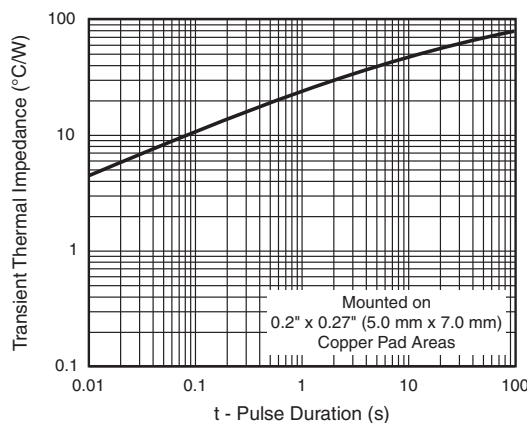
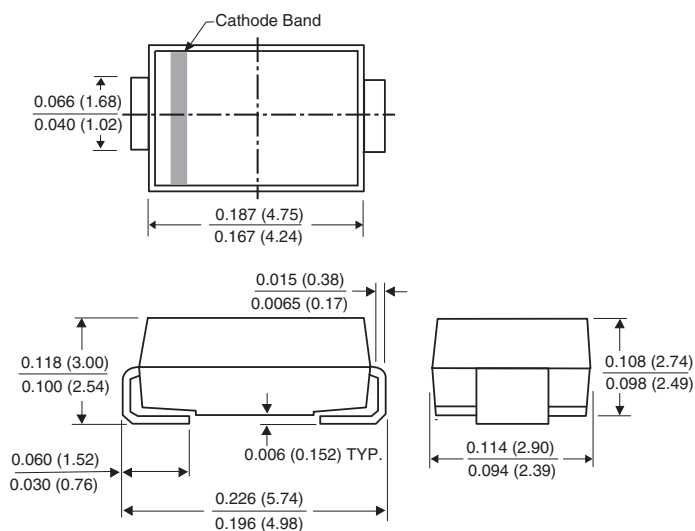
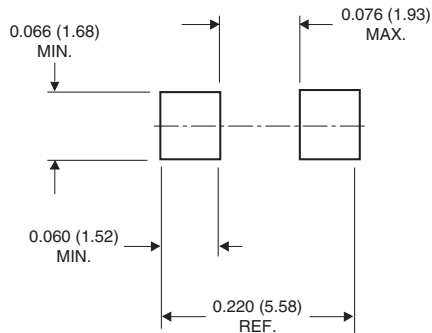


Fig. 6 - Typical Transient Thermal Impedance

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

**DO-214BA (GF1)**

**Mounting Pad Layout**




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