

## 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 environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- 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 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 to 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         |

**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   |      |
| 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 $T_L = 125$ °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   |

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

| PARAMETER                                               | TEST CONDITIONS                                                          |                         | SYMBOL          | GF1A | GF1B | GF1D | GF1G | GF1J | GF1K | GF1M | UNIT |
|---------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-----------------|------|------|------|------|------|------|------|------|
| Maximum instantaneous forward voltage                   | 1.0 A                                                                    |                         | V <sub>F</sub>  | 1.1  |      |      |      |      | 1.2  |      | V    |
| Maximum DC reverse current at rated DC blocking voltage |                                                                          | T <sub>A</sub> = 25 °C  | I <sub>R</sub>  | 5.0  |      |      |      |      |      |      | μA   |
|                                                         |                                                                          | T <sub>A</sub> = 125 °C |                 | 50   |      |      |      |      |      |      |      |
| Typical reverse recovery time                           | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub> | 2.0  |      |      |      |      |      |      | μs   |
| Typical junction capacitance                            | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>  | 15   |      |      |      |      |      |      | pF   |

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  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

**ORDERING INFORMATION** (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)

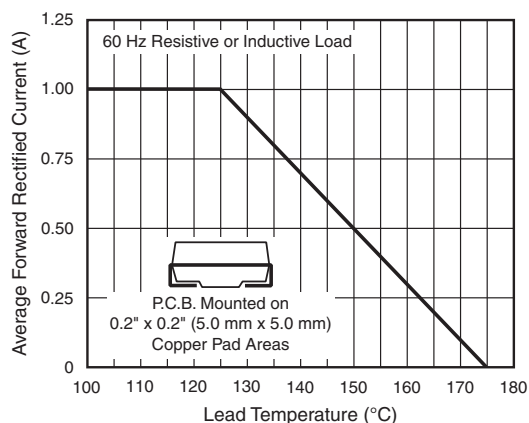


Fig. 1 - Forward Current Derating Curve

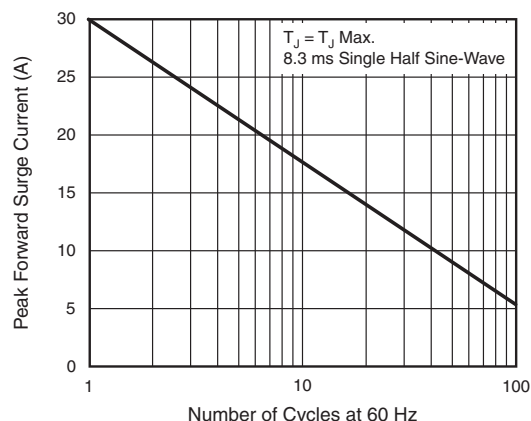


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

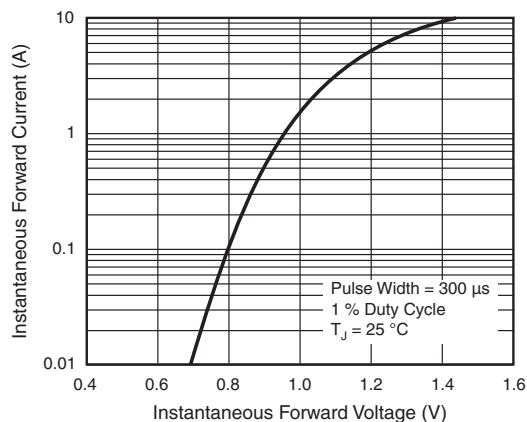


Fig. 3 - Typical Instantaneous Forward Characteristics

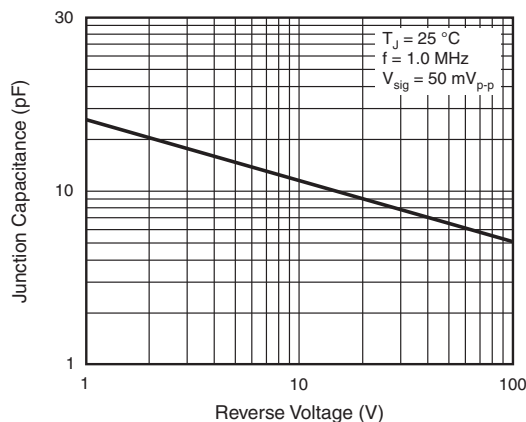


Fig. 5 - Typical Junction Capacitance

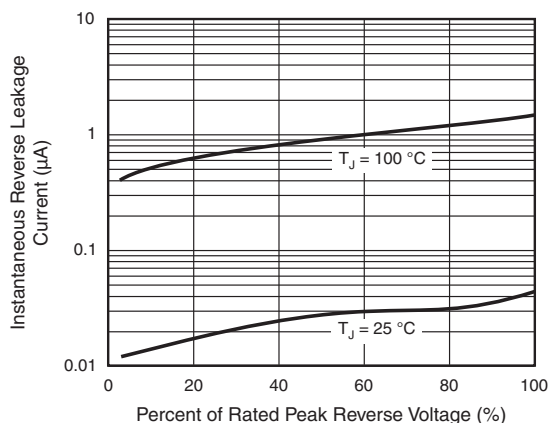


Fig. 4 - Typical Reverse Characteristics

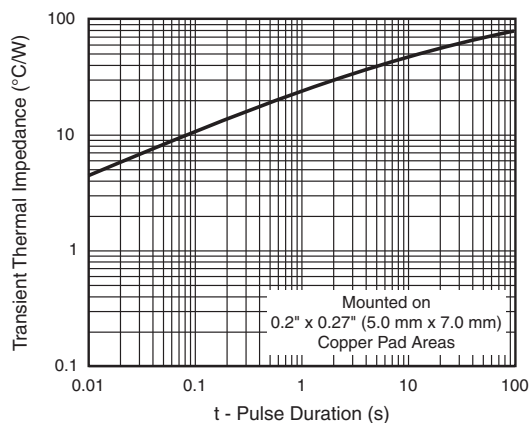
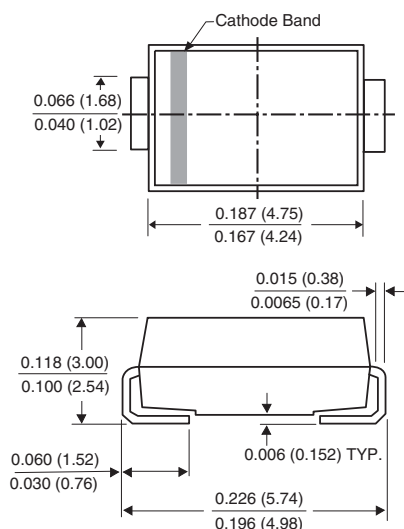


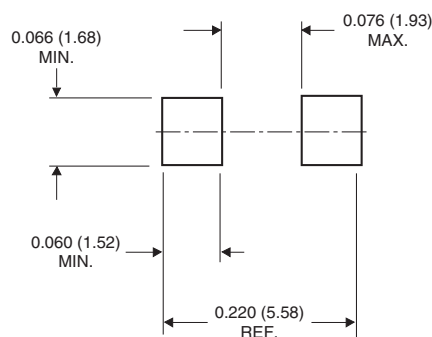
Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-214BA (GF1)



#### Mounting Pad Layout





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