

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 μ 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 °C unless otherwise noted) | | | | | | | | | | | |
|--|--|-------------------------|-----------------|------|------|------|------|------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | GF1A | GF1B | GF1D | GF1G | GF1J | GF1K | GF1M | UNIT |
| Maximum instantaneous forward voltage | 1.0 A | | V _F | 1.1 | | | | | 1.2 | | V |
| Maximum DC reverse current at rated DC blocking voltage | | T _A = 25 °C | I _R | 5.0 | | | | | | | μA |
| | | T _A = 125 °C | | 50 | | | | | | | |
| Typical reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | | t _{rr} | 2.0 | | | | | | | μs |
| Typical junction capacitance | 4.0 V, 1 MHz | | C _J | 15 | | | | | | | pF |

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | |
|---|------------------|------|------|------|------|------|------|------|------|
| PARAMETER | SYMBOL | GF1A | GF1B | GF1D | GF1G | GF1J | GF1K | GF1M | UNIT |
| Typical thermal resistance ⁽¹⁾ | R _{θJA} | 80 | | | | | | | °C/W |
| | R _{θJL} | 26 | | | | | | | |

Note

⁽¹⁾ 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 ⁽¹⁾ | 0.104 | 67A | 1500 | 7" diameter plastic tape and reel |
| GF1JHE3/5CA ⁽¹⁾ | 0.104 | 5CA | 6500 | 13" diameter plastic tape and reel |

Note

⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

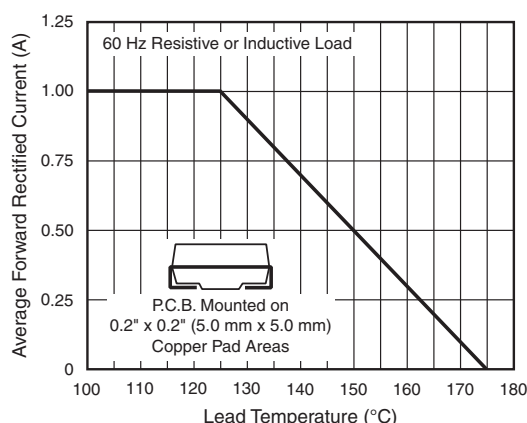


Fig. 1 - Forward Current Derating Curve

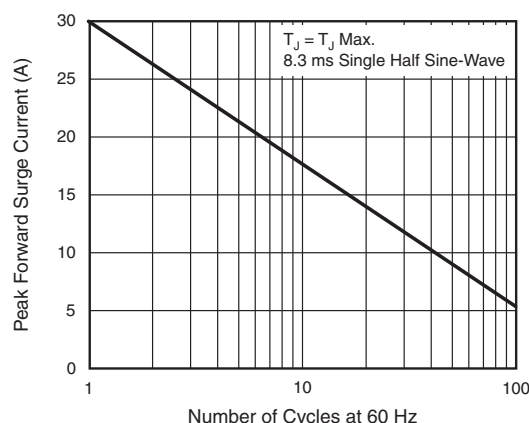


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

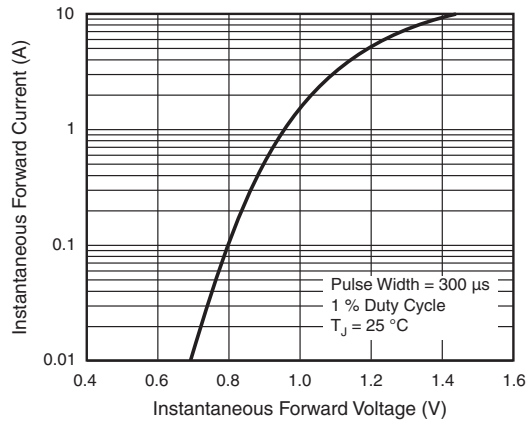


Fig. 3 - Typical Instantaneous Forward Characteristics

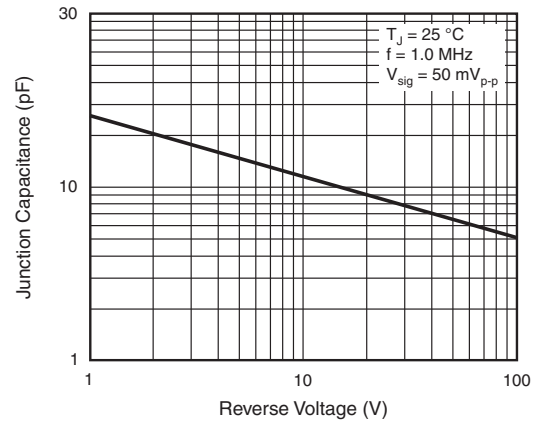


Fig. 5 - Typical Junction Capacitance

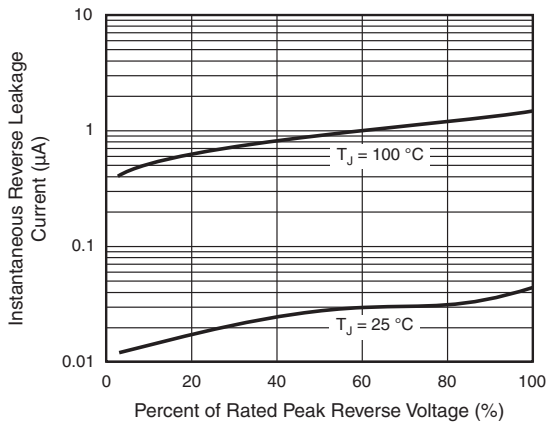


Fig. 4 - Typical Reverse Characteristics

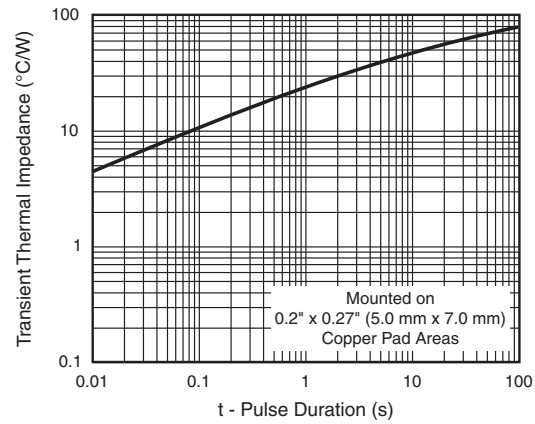
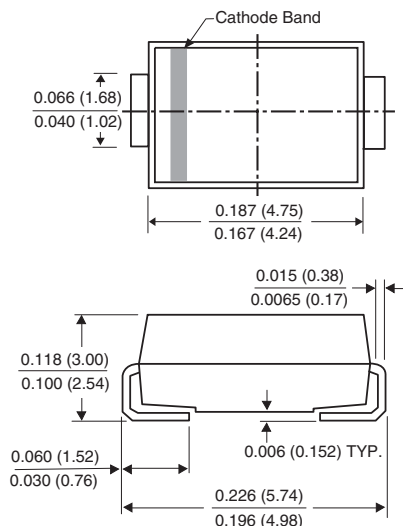


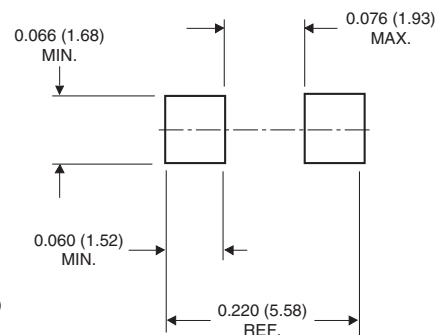
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214BA (GF1)



Mounting Pad Layout





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