

Surface Mount Glass Passivated Ultrafast Rectifier

Major Ratings and Characteristics

| | |
|--------------------|--------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 1300 V |
| I_{FSM} | 20 A |
| t_{rr} | 75 ns |
| E_{AS} | 15 mJ |
| $T_j \text{ max.}$ | 150 °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

- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- Avalanche surge energy 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 plastic 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: Color band denotes cathode end

Typical Applications

For use in high voltage rectification of photoflash application

Maximum Ratings

$T_A = 25\text{ °C}$ unless otherwise specified

| Parameter | Symbol | EGF1T | Unit |
|--|----------------|---------------|------|
| Device Marking Code | | ET | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 1300 | V |
| Maximum RMS voltage | V_{RMS} | 910 | V |
| Maximum DC blocking | V_{DC} | 1300 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 1.0 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 20 | A |
| Non-repetitive avalanche energy at $T_A = 25\text{ °C}$, $I_{AS} = 1\text{ A}$, $L = 30\text{ mH}$ | E_{AS} | 15 | mJ |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | °C |

Electrical Characteristics

$T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

| Parameter | Test condition | Symbol | EGF1T | Unit |
|-------------------------------|---|----------|-----------|---------------|
| Maximum instantaneous | at 1.0 A, $T_j = 25\text{ }^{\circ}\text{C}$ | V_F | 3.0 | V |
| Maximum DC reverse current | at $V_{RM}^{(1)}$ $T_j = 25\text{ }^{\circ}\text{C}$ $T_j = 125\text{ }^{\circ}\text{C}$ | I_R | 5.0 50 | μA |
| Typical reverse recovery time | at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | 75 | ns |
| Typical junction capacitance | at 4.0 V, 1 MHz | C_J | 8.0 | pF |

Notes:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

Thermal Characteristics

$T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

| Parameter | Symbol | EGF1T | Unit |
|---|------------------------------------|----------|----------------------|
| Typical thermal resistance ⁽¹⁾ | $R_{\theta JA}$ $R_{\theta JL}$ | 50 20 | $^{\circ}\text{C/W}$ |

Notes:

(1) Thermal resistance from junction to ambient and from junction to lead, P.C.B. mounted on 0.95 x 0.95" (24 x 24 mm) copper pad areas

Ratings and Characteristics Curves

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

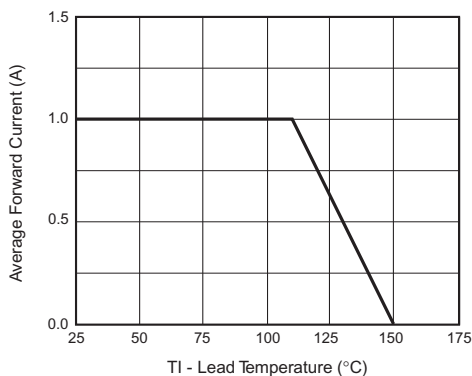


Figure 1. Maximum Forward Current Derating Curve

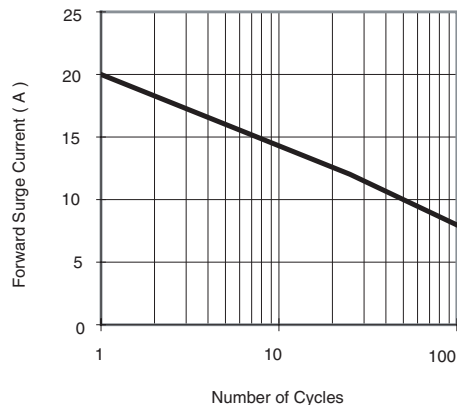


Figure 2. Maximum Non-Repetitive Forward Surge Current

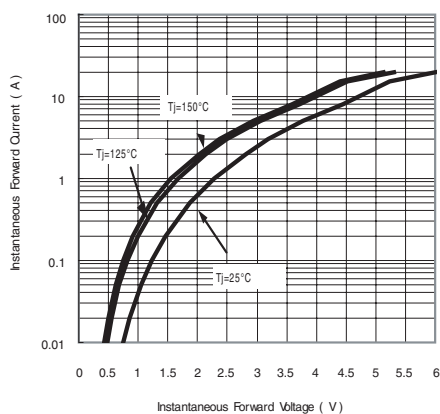


Figure 3. Typical Instantaneous Forward Characteristics

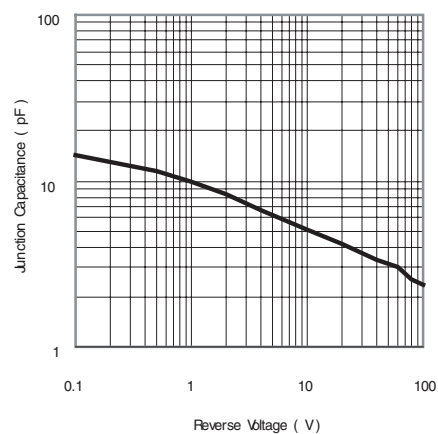


Figure 5. Typical Junction Capacitance Per Leg

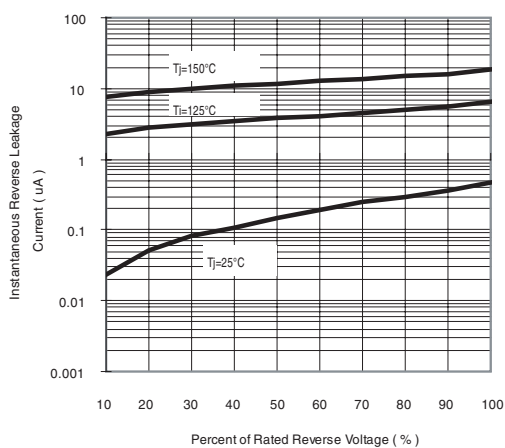


Figure 4. Typical Reverse Leakage Characteristics

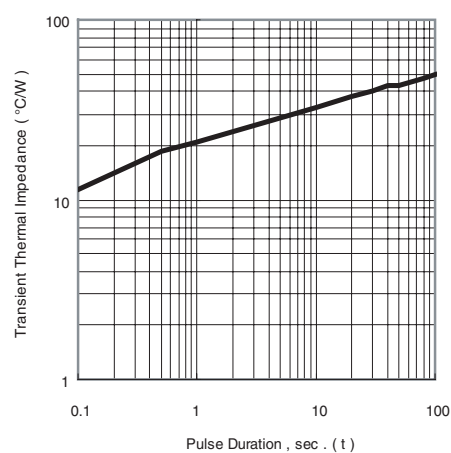
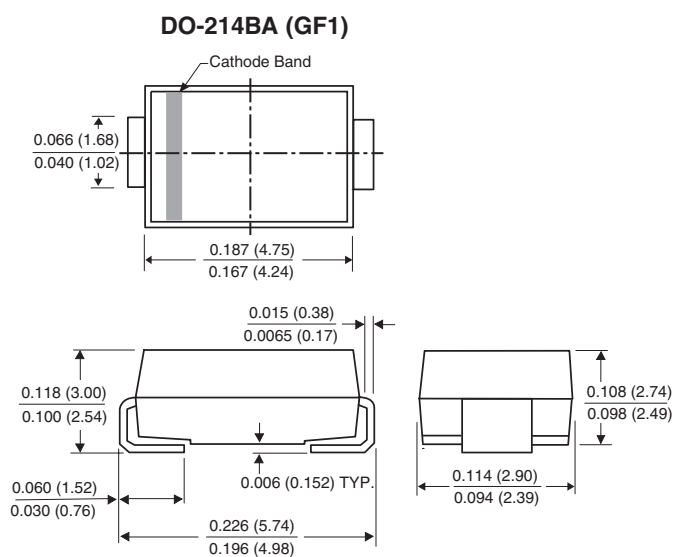
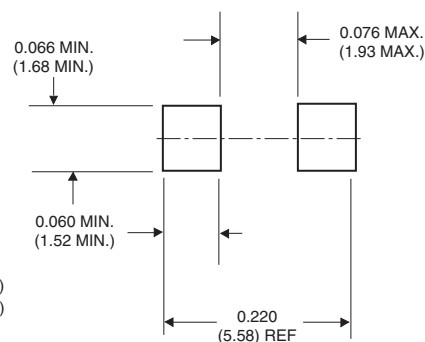


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)



Mounting Pad Layout





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