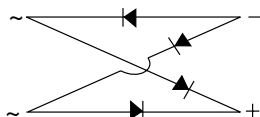


# Miniature Glass Passivated Single-Phase Bridge Rectifiers



Case Style DFM

## FEATURES

- UL recognition, file number E54214
- Ideal for printed circuit boards
- Applicable for automotive insertion
- High surge current capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

## TYPICAL APPLICATIONS

General purpose use in ac-to-dc bridge full wave rectification for SMPS, lighting ballaster, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

## PRIMARY CHARACTERISTICS

|             |                |
|-------------|----------------|
| $I_{F(AV)}$ | 1 A            |
| $V_{RRM}$   | 50 V to 1000 V |
| $I_{FSM}$   | 50 A           |
| $I_R$       | 5 $\mu$ A      |
| $V_F$       | 1.1 V          |
| $T_J$ max.  | 150 °C         |

## MECHANICAL DATA

**Case:** DFM

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked on body

## MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                              | SYMBOL         | DF005M        | DF01M | DF02M | DF04M | DF06M | DF08M | DF10M | UNIT             |
|------------------------------------------------------------------------|----------------|---------------|-------|-------|-------|-------|-------|-------|------------------|
| Device marking code                                                    |                | DF005         | DF01  | DF02  | DF04  | DF06  | DF08  | DF10  |                  |
| 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 output rectified current at $T_A = 40$ °C      | $I_{F(AV)}$    | 1.0           |       |       |       |       |       |       | A                |
| Peak forward surge current single sine-wave superimposed on rated load | $I_{FSM}$      | 50            |       |       |       |       |       |       | A                |
| Rating for fusing ( $t < 8.3$ ms)                                      | $I^2t$         | 10            |       |       |       |       |       |       | A <sup>2</sup> s |
| Operating junction and storage temperature range                       | $T_J, T_{STG}$ | - 55 to + 150 |       |       |       |       |       |       | °C               |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                                                                           |        |            |       |       |       |       |       |       |               |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------|------------|-------|-------|-------|-------|-------|-------|---------------|
| PARAMETER                                                                                      | TEST CONDITIONS                                                           | SYMBOL | DF005M     | DF01M | DF02M | DF04M | DF06M | DF08M | DF10M | UNIT          |
| Maximum instantaneous forward voltage drop per diode                                           | 1.0 A                                                                     | $V_F$  | 1.1        |       |       |       |       |       |       | V             |
| Maximum reverse current at rated DC blocking voltage per diode                                 | $T_A = 25\text{ }^{\circ}\text{C}$<br>$T_A = 125\text{ }^{\circ}\text{C}$ | $I_R$  | 5.0<br>500 |       |       |       |       |       |       | $\mu\text{A}$ |
| Typical junction capacitance per diode                                                         | 4.0 V, 1 MHz                                                              | $C_J$  | 25         |       |       |       |       |       |       | pF            |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |        |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------|------------------|--------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                               | SYMBOL           | DF005M | DF01M | DF02M | DF04M | DF06M | DF08M | DF10M | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 40     |       |       |       |       |       |       | °C/W |
|                                                                         | R <sub>θJL</sub> | 15     |       |       |       |       |       |       |      |

**Note:**

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.5 x 0.5" (13 x 13 mm) copper pads

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |               |
|---------------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| DF06M-E3/45                           | 0.416           | 45                     | 50            | Tube          |

**RATINGS AND CHARACTERISTICS CURVES**

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

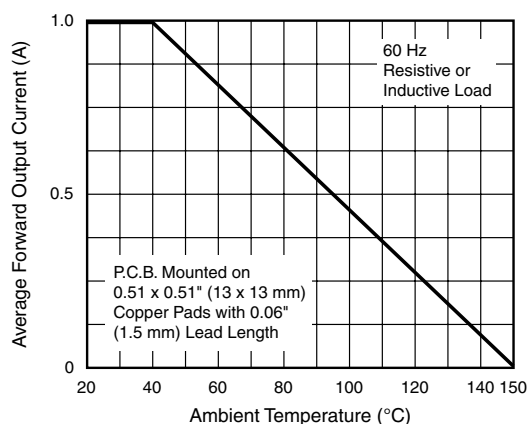


Figure 1. Derating Curve Output Rectified Current

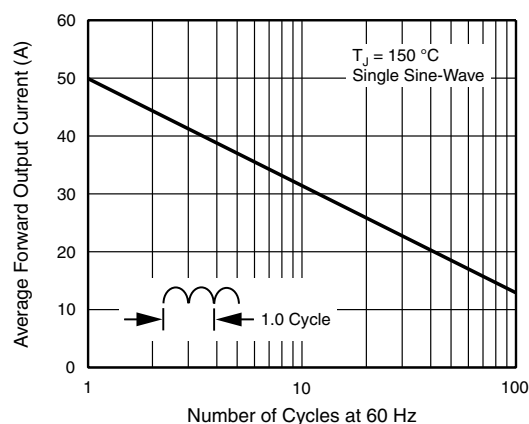


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

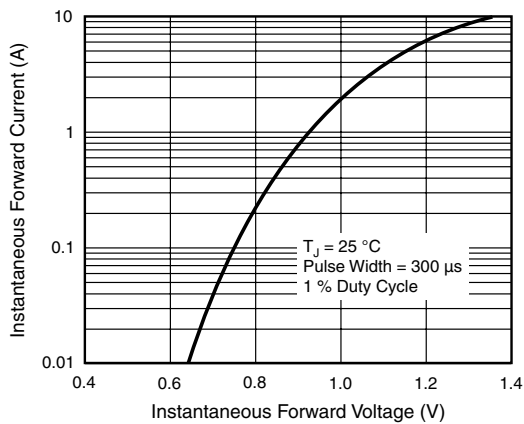


Figure 3. Typical Forward Characteristics Per Diode

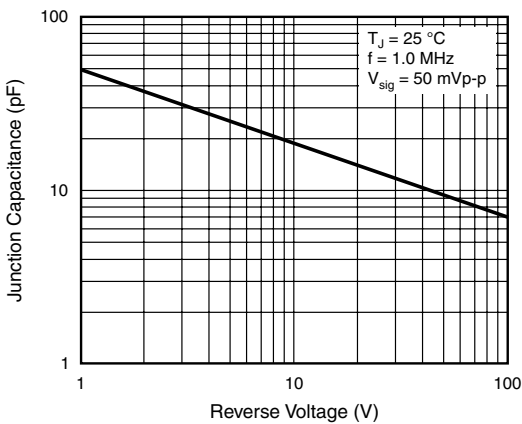


Figure 5. Typical Junction Capacitance Per Diode

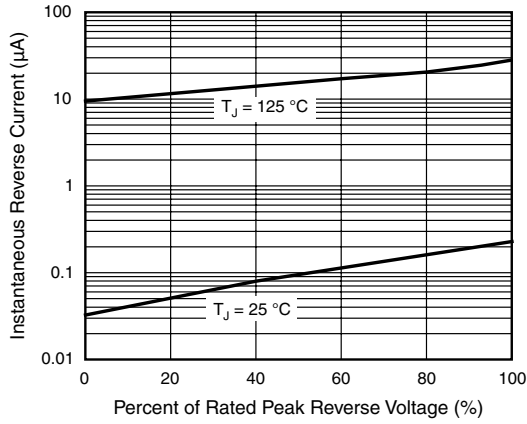


Figure 4. Typical Reverse Leakage Characteristics Per Diode

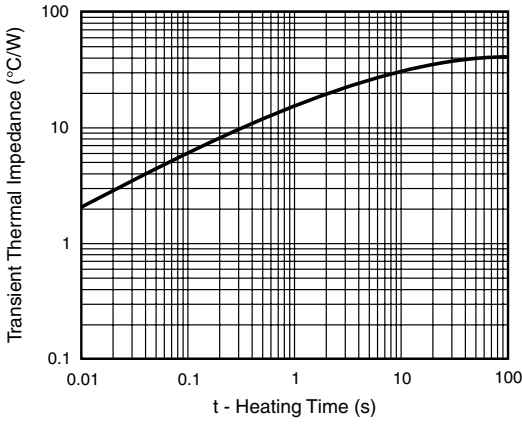
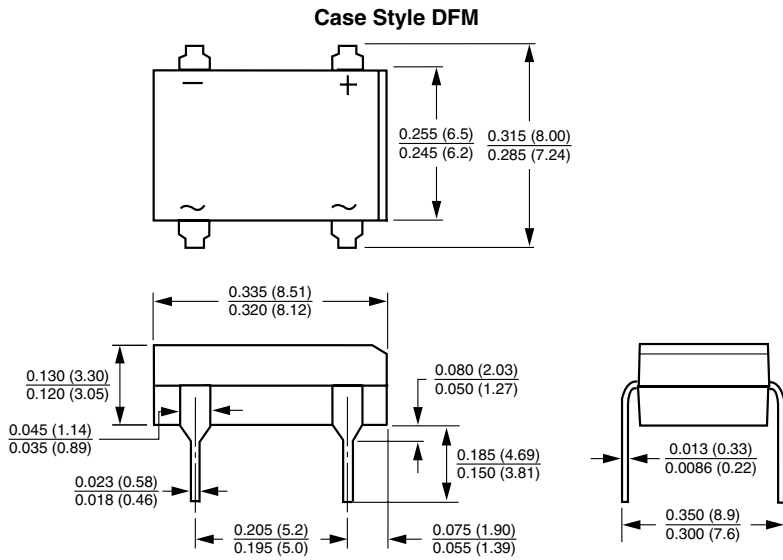


Figure 6. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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