

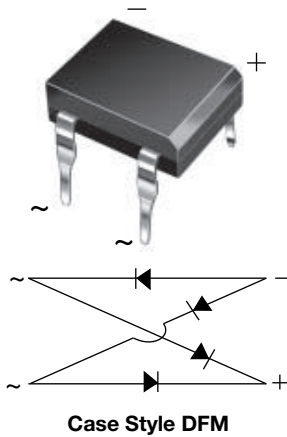


**THE DATASHEET OF  
DF10M-E3/45**





## Miniature Glass Passivated Single-Phase Bridge Rectifiers



### FEATURES

- UL recognition, file number E54214
- Ideal for printed circuit boards
- Applicable for automated insertion
- High surge current capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for SMPS, lighting ballaster, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

### LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS |   |
|-------------------------|---|
| $I_{F(AV)}$             | 1 A   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 50 A  |
| $I_R$                   | 5 $\mu$ A                                       |
| $V_F$ at $I_F = 1.0$ A  | 1.1 V   |
| $T_J$ max.              | 150 °C  |
| Package                 | DFM   |
| Circuit configuration   | Quad  |

### MECHANICAL DATA

**Case:** DFM

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix 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                               | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$  |        |       |       | 5.0   |       |       |       | $\mu\text{A}$ |
|  | $T_A = 125\text{ }^\circ\text{C}$ |        |        |       |       | 500   |       |       |       |               |
| Typical junction capacitance per diode   | 4.0 V, 1 MHz                      | $C_J$  |        |       |       | 25    |       |       |       | pF            |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |        |       |       |       |       |       |       |                    |
|---|-----------------|--------|-------|-------|-------|-------|-------|-------|--------------------|
| PARAMETER   | SYMBOL          | DF005M | DF01M | DF02M | DF04M | DF06M | DF08M | DF10M | UNIT               |
| Typical thermal resistance <sup>(1)</sup>   | $R_{\theta JA}$ |        |       |       | 40    |       |       |       | $^\circ\text{C/W}$ |
|   | $R_{\theta JL}$ |        |       |       | 15    |       |       |       |                    |

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.5" x 0.5" (13 mm 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)

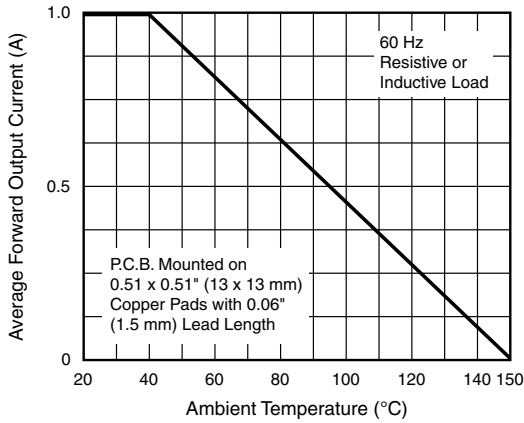


Fig. 1 - Derating Curve Output Rectified Current

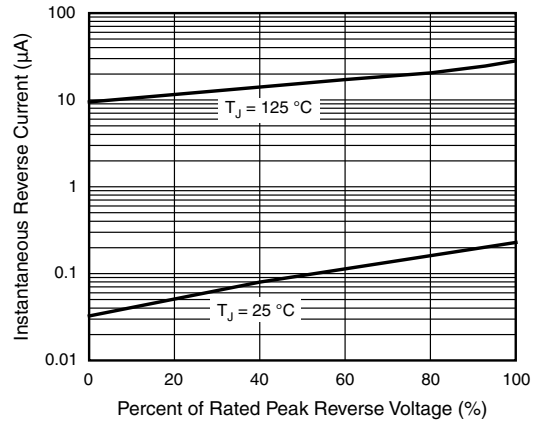


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

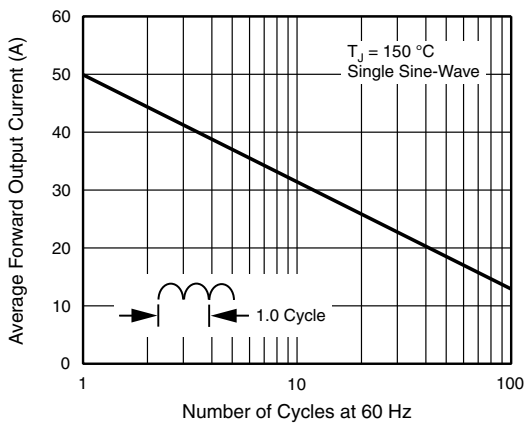


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

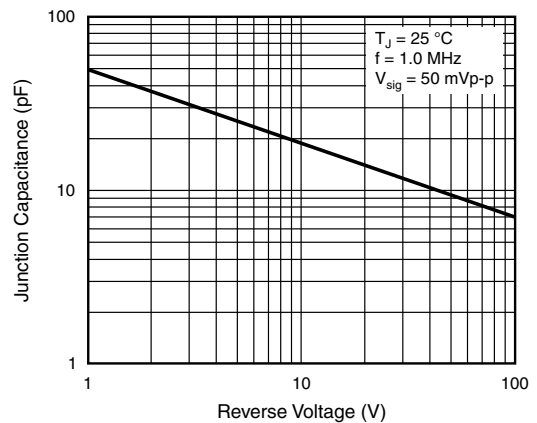


Fig. 5 - Typical Junction Capacitance Per Diode

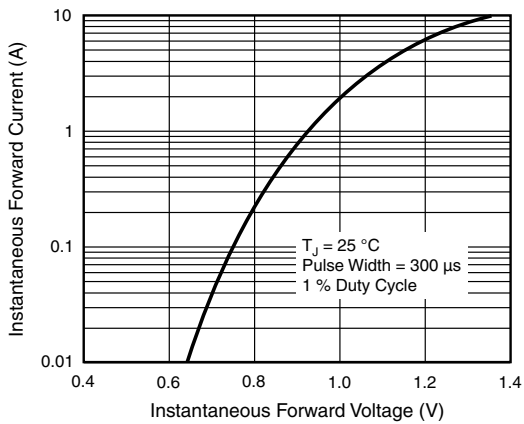


Fig. 3 - Typical Forward Characteristics Per Diode

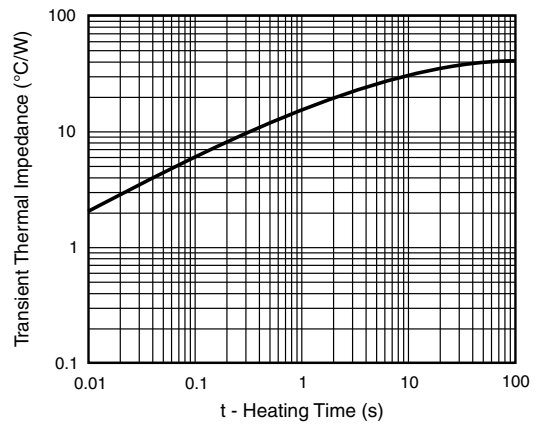
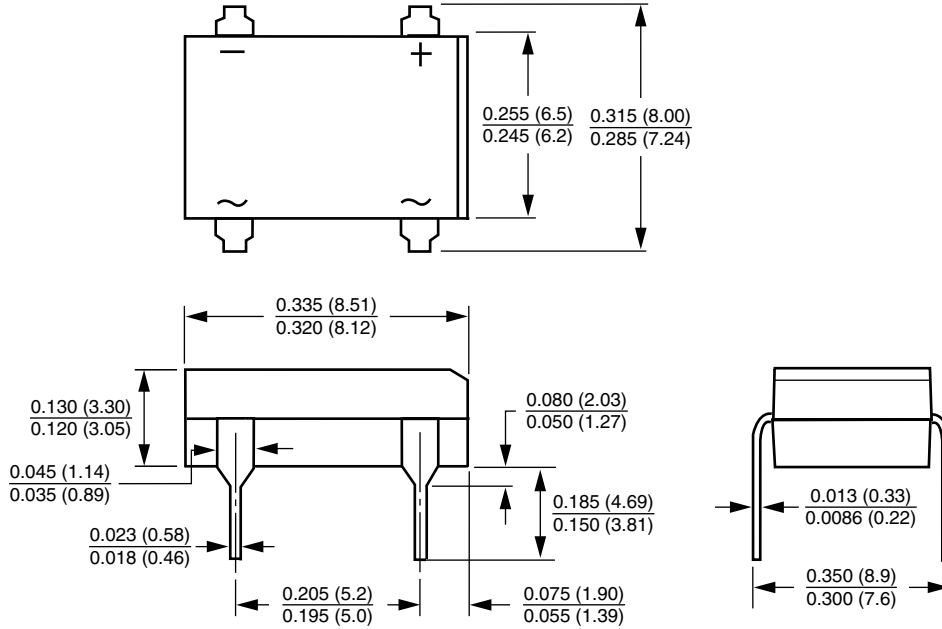


Fig. 6 - Typical Transient Thermal Impedance



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

**Case Style DFM**





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