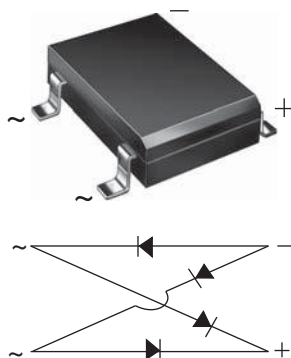


## Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifiers



Case Style DFS

### FEATURES

- UL recognition, file number E54214
- Ideal for automated placement
- High surge current capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


RoHS  
COMPLIANT

### 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.

### MECHANICAL DATA

**Case:** DFS

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 JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked on body

| PRIMARY CHARACTERISTICS |                                                 |
|-------------------------|-------------------------------------------------|
| Package                 | DFS                                             |
| $I_{F(AV)}$             | 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                                          |
| Diode variations        | Quad                                            |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                          |                |               |       |       |       |       |       |       |                  |
|----------------------------------------------------------------------------------|----------------|---------------|-------|-------|-------|-------|-------|-------|------------------|
| PARAMETER                                                                        | SYMBOL         | DF005S        | DF01S | DF02S | DF04S | DF06S | DF08S | DF10S | UNIT             |
| Device marking code                                                              |                | DF005S        | DF01S | DF02S | DF04S | DF06S | DF08S | DF10S |                  |
| 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 <sup>(1)</sup> | $I_{F(AV)}$    | 1.0           |       |       |       |       |       |       | A                |
| Peak forward surge current single half 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               |

#### Note

<sup>(1)</sup> Units mounted on PCB with 0.51" x 0.51" (13 mm x 13 mm) copper pads

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                         |                |        |       |       |       |       |       |       |      |
|----------------------------------------------------------------------------|-------------------------|----------------|--------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                                  | TEST CONDITIONS         | SYMBOL         | DF005S | DF01S | DF02S | DF04S | DF06S | DF08S | DF10S | UNIT |
| Maximum instantaneous forward voltage drop per diode                       | 1.0 A                   | V <sub>F</sub> | 1.1    |       |       |       |       |       |       | V    |
| Maximum DC reverse current at rated DC blocking voltage per diode          | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 5.0    |       |       |       |       |       |       | μA   |
|                                                                            | T <sub>A</sub> = 125 °C |                | 500    |       |       |       |       |       |       |      |
| Typical junction capacitance per diode <sup>(1)</sup>                      |                         | C <sub>J</sub> | 25     |       |       |       |       |       |       | pF   |

#### Note

<sup>(1)</sup> Measured at 1.0 MHz and applied reverse voltage of 4.0 V



| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |        |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------|------------------|--------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                               | SYMBOL           | DF005S | DF01S | DF02S | DF04S | DF06S | DF08S | DF10S | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 40     |       |       |       |       |       |       | °C/W |
|                                                                         | R <sub>θJL</sub> | 15     |       |       |       |       |       |       |      |

**Note**

<sup>(1)</sup> Units mounted on PCB with 0.51" x 0.51" (13 mm x 13 mm) copper pads

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| DF06S-E3/45                    | 0.399           | 45                     | 50            | Tube                             |
| DF06S-E3/77                    | 0.399           | 77                     | 1500          | 13" diameter paper tape and reel |

## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

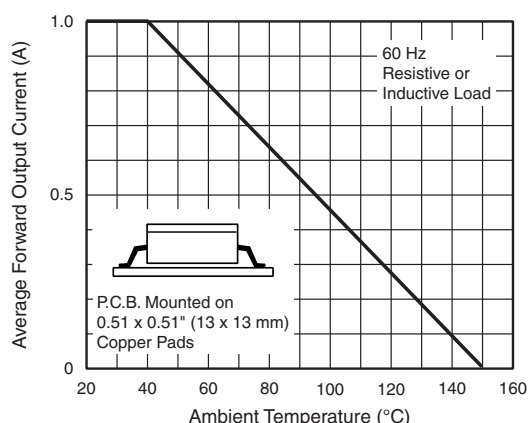


Fig. 1 - Derating Curve Output Rectified Current

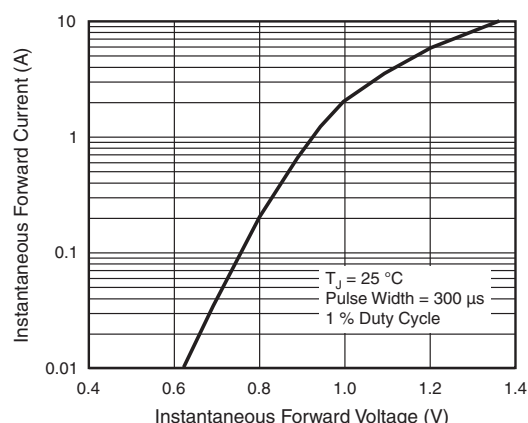


Fig. 3 - Typical Forward Characteristics Per Diode

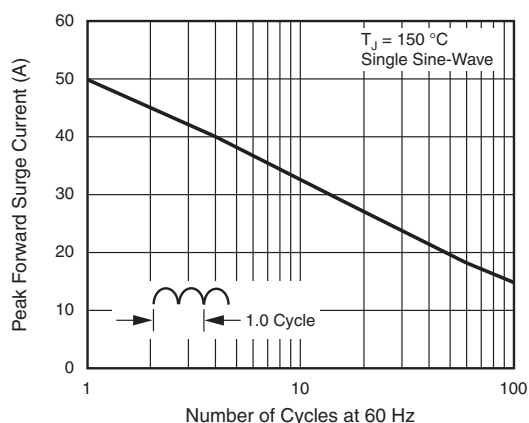


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

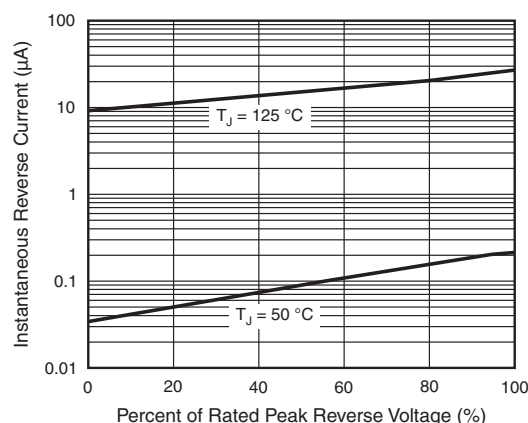


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

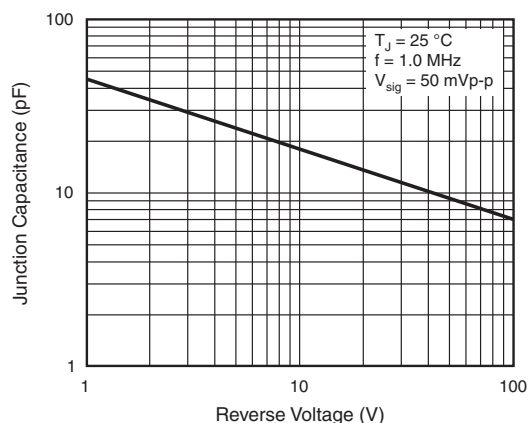


Fig. 5 - Typical Junction Capacitance Per Diode

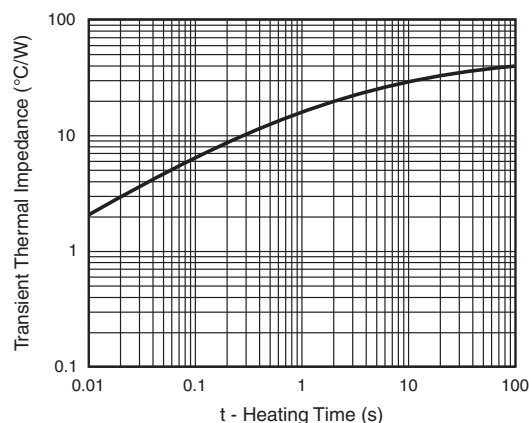
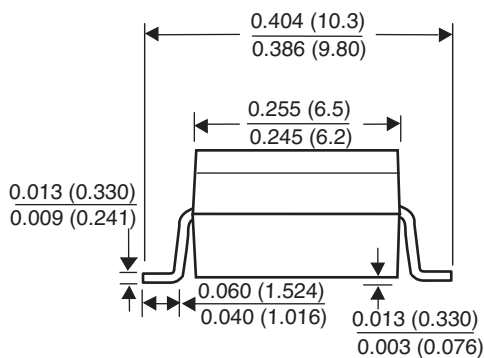
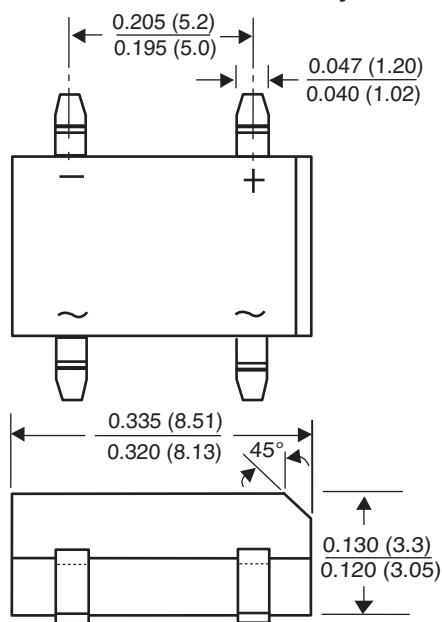


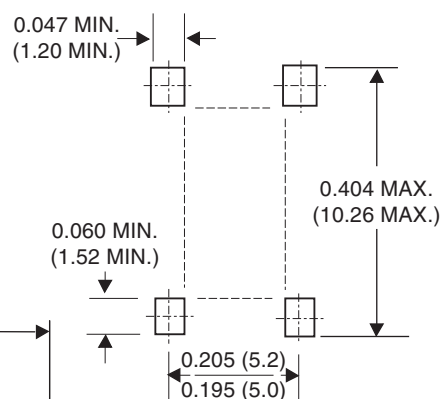
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Style DFS



### Mounting Pad Layout





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