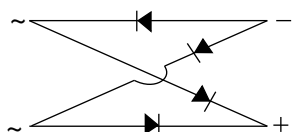




## Miniature Glass Passivated Single-Phase Surface-Mount Bridge Rectifiers



Case Style DFS

### FEATURES

- UL recognition, file number E54214
- Ideal for automated placement
- Middle 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

### LINKS TO ADDITIONAL RESOURCES



3D Models

### PRIMARY CHARACTERISTICS

|                        |                                                 |
|------------------------|-------------------------------------------------|
| $I_{F(AV)}$            | 1 A                                             |
| $V_{RRM}$              | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$              | 30 A                                            |
| $I_R$                  | 5 $\mu$ A                                       |
| $V_F$ at $I_F = 1.0$ A | 1.1 V                                           |
| $T_J$ max.             | 150 °C                                          |
| Package                | DFS                                             |
| Circuit configuration  | Quad                                            |

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

| PARAMETER                                                                        | SYMBOL         | DF005SA     | DF01SA | DF02SA | DF04SA | DF06SA | DF08SA | DF10SA | UNIT             |
|----------------------------------------------------------------------------------|----------------|-------------|--------|--------|--------|--------|--------|--------|------------------|
| Device marking code                                                              |                | DFA005S     | DFA01S | DFA02S | DFA04S | DFA06S | DFA08S | DFA10S |                  |
| 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      | $I_{FSM}$      | 30          |        |        |        |        |        |        | A                |
| Rating for fusing ( $t < 8.3$ ms)                                                | $I^2t$         | 4.5         |        |        |        |        |        |        | 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                         | TEST CONDITIONS         | SYMBOL         | DF005SA | DF01SA | DF02SA | DF04SA | DF06SA | DF08SA | DF10SA | 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                 | SYMBOL           | DF005SA | DF01SA | DF02SA | DF04SA | DF06SA | DF08SA | DF10SA | 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                    |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| DF06SA-E3/45  | 0.386           | 45                     | 50            | Tube                             |
| DF06SA-E3/77  | 0.386           | 77                     | 1500          | 13" diameter paper tape and reel |

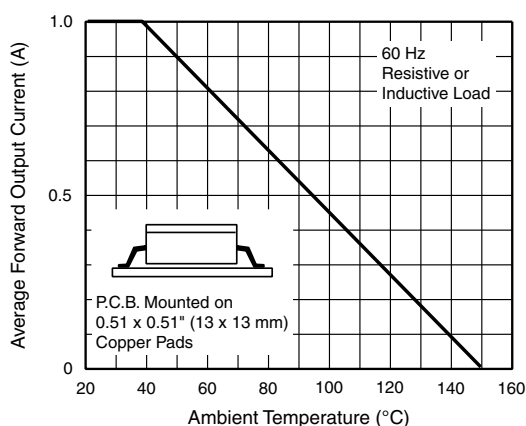
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Derating Curve Output Rectified Current

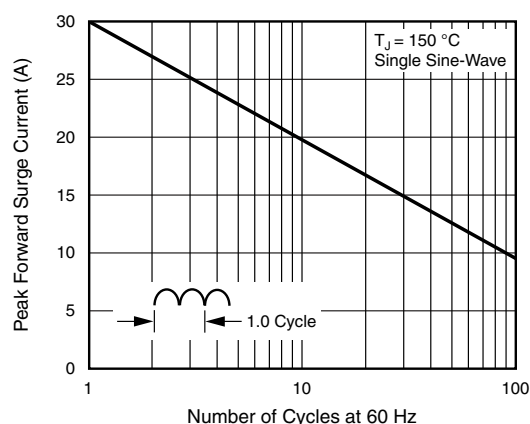


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

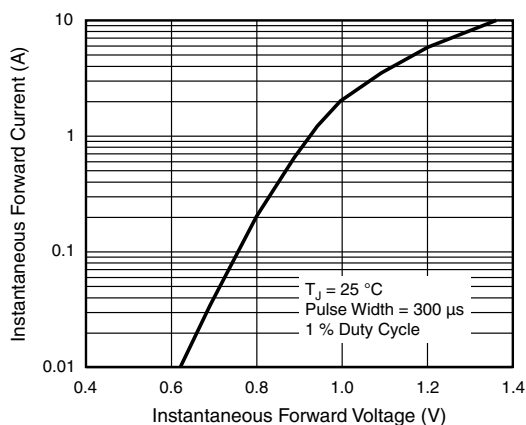


Fig. 3 - Typical Forward Characteristics Per Diode

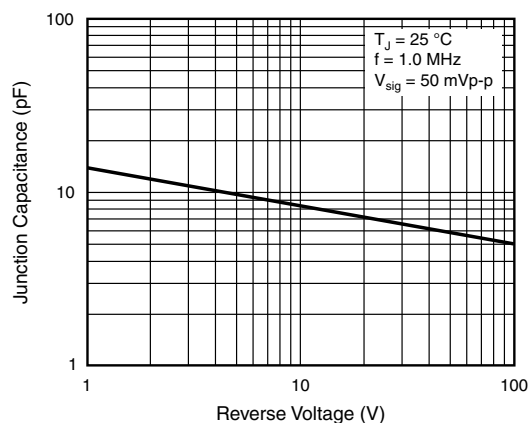


Fig. 5 - Typical Junction Capacitance Per Diode

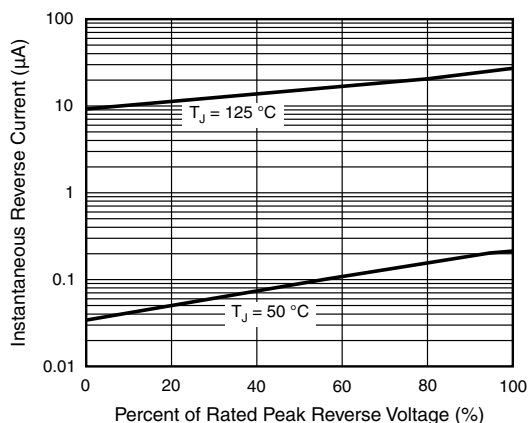


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

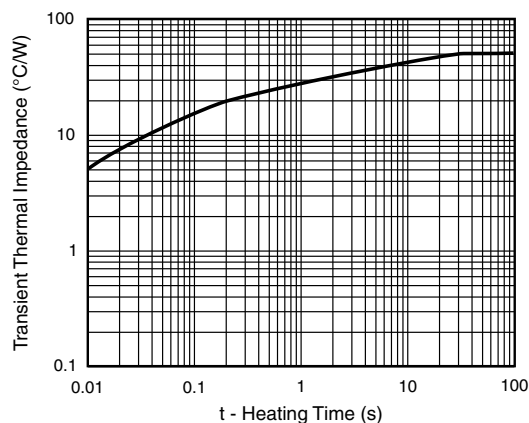
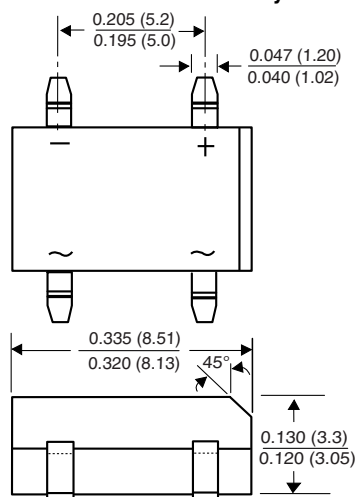


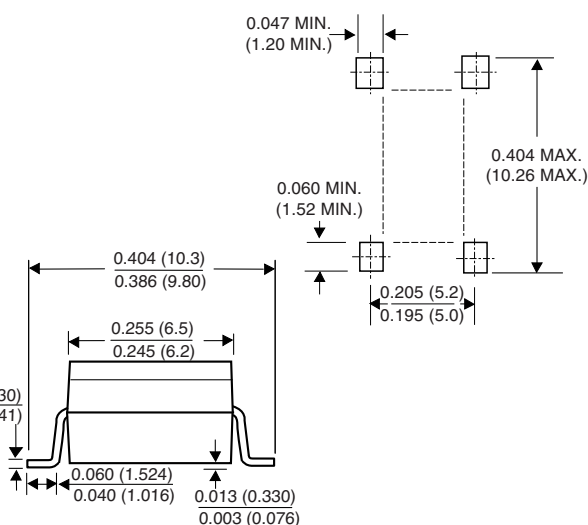
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Style DFS



### Mounting Pad Layout





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