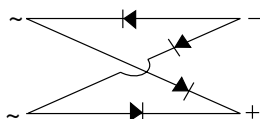


## Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifiers



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 250 °C
- 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:** DFS

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         | 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:

(1) Units mounted on P.C.B. with 0.51 x 0.51" (13 x 13 mm) copper pads

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ 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                                                                     | $V_F$  | 1.1        |       |       |       |       |       |       | V             |
| Maximum DC 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 <sup>(1)</sup>                                          |                                                                           | $C_J$  | 25         |       |       |       |       |       |       | pF            |

**Note:**

(1) 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:**

(1) Units mounted on P.C.B. with 0.51 x 0.51" (13 x 13 mm) copper pads

| <b>ORDERING INFORMATION</b> (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 |

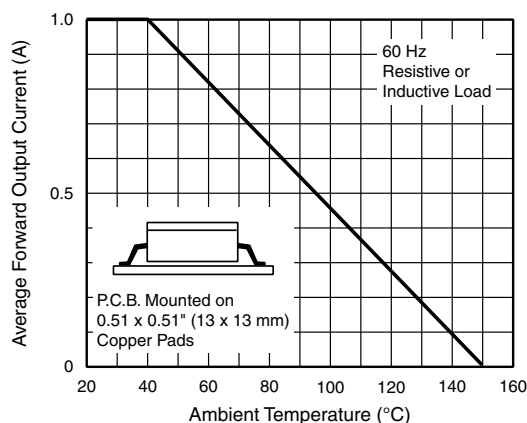
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Derating Curve Output Rectified Current

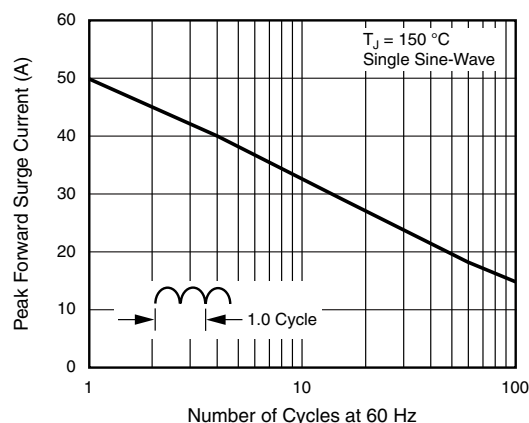


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

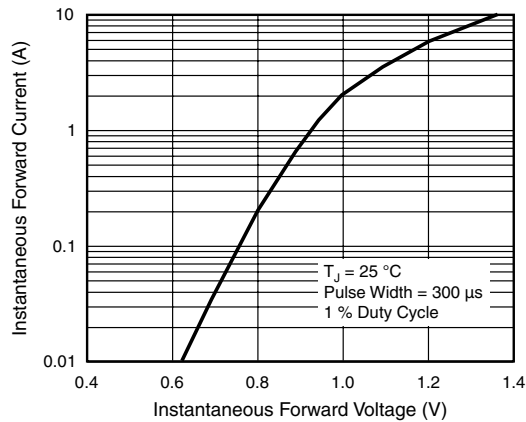


Figure 3. Typical Forward Characteristics Per Diode

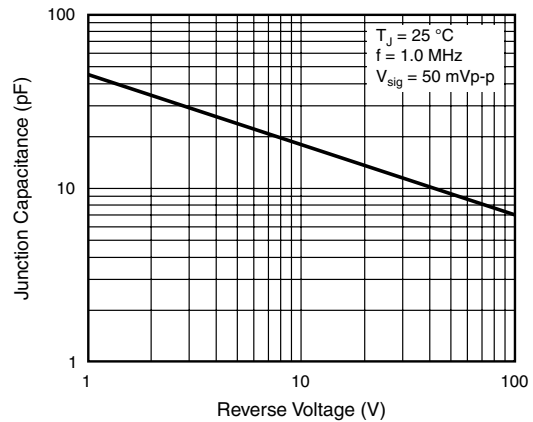


Figure 5. Typical Junction Capacitance Per Diode

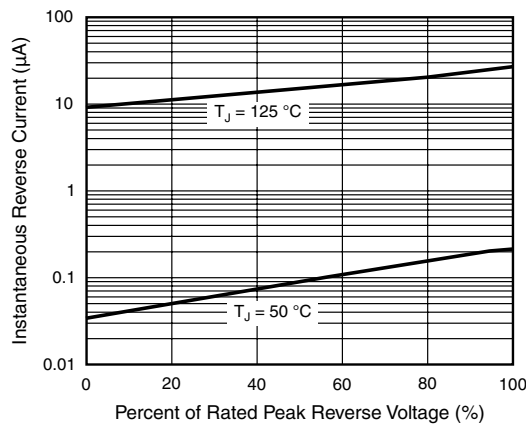


Figure 4. Typical Reverse Leakage Characteristics Per Diode

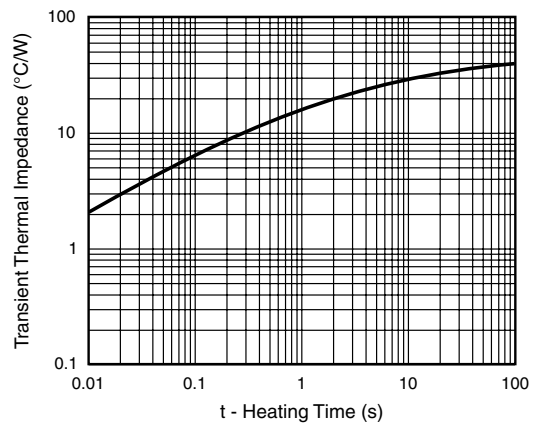
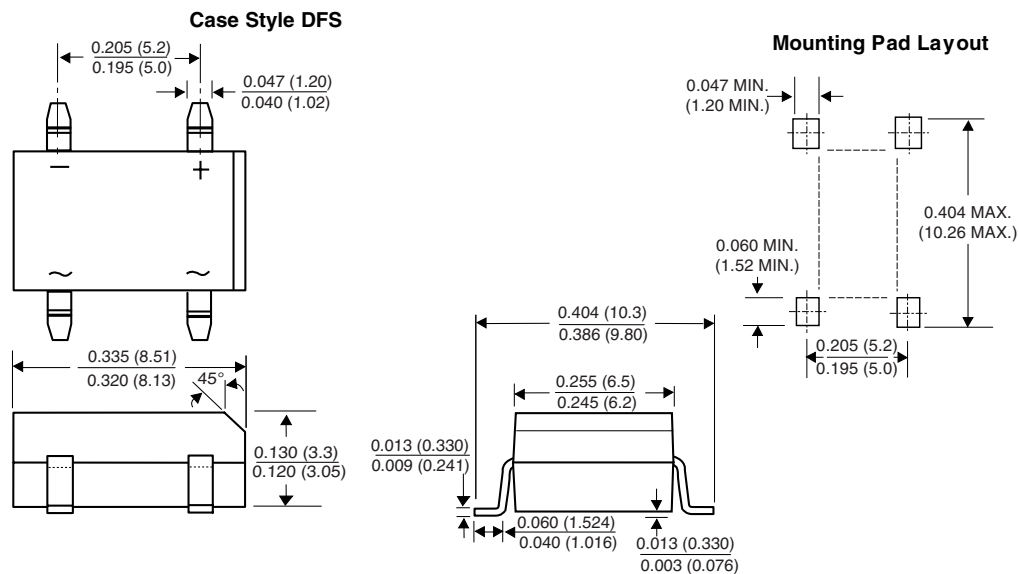


Figure 6. Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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