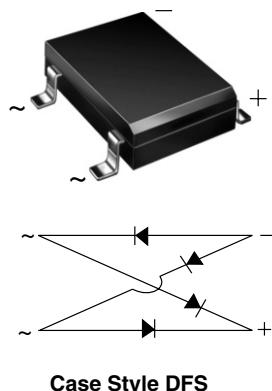


## Miniature Glass Passivated Ultrafast Surface Mount Bridge Rectifiers



### FEATURES

- UL recognition, file number E54214
- Ideal for automated placement
- Ultrafast reverse recovery time for high frequency
- 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.

### 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

| PRIMARY CHARACTERISTICS |               |
|-------------------------|---------------|
| $I_{F(AV)}$             | 1 A           |
| $V_{RRM}$               | 50 V to 200 V |
| $I_{FSM}$               | 50 A          |
| $I_R$                   | 5 $\mu$ A     |
| $V_F$                   | 1.05 V        |
| $t_{rr}$                | 50 ns         |
| $T_J$ max.              | 150 °C        |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                          |                |               |        |        |        |                  |
|----------------------------------------------------------------------------------|----------------|---------------|--------|--------|--------|------------------|
| PARAMETER                                                                        | SYMBOL         | EDF1AS        | EDF1BS | EDF1CS | EDF1DS | UNIT             |
| Maximum repetitive peak reverse voltage                                          | $V_{RRM}$      | 50            | 100    | 150    | 200    | V                |
| Maximum RMS voltage                                                              | $V_{RMS}$      | 35            | 70     | 106    | 140    | V                |
| Maximum DC blocking voltage                                                      | $V_{DC}$       | 50            | 100    | 150    | 200    | 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) Pulse test: 300 ms pulse width, 1 % duty cycle

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

| PARAMETER                                                         | TEST CONDITIONS                                                           | SYMBOL   | EDF1AS     | EDF1BS | EDF1CS | EDF1DS | UNIT                |
|-------------------------------------------------------------------|---------------------------------------------------------------------------|----------|------------|--------|--------|--------|---------------------|
| Maximum instantaneous forward voltage drop per diode              | 1.0 A <sup>(1)</sup>                                                      | $V_F$    | 1.05       |        |        |        | 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>1.0 |        |        |        | $\mu\text{A}$<br>mA |
| Maximum reverse recovery time per diode                           | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ ,<br>$I_{rr} = 0.25\text{ A}$ | $t_{rr}$ | 50         |        |        |        | ns                  |

**Note:**

(1) Pulse test: 300 ms pulse width, 1 % duty cycle

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

| PARAMETER                                 | SYMBOL                             | EDF1AS   | EDF1BS | EDF1CS | EDF1DS | UNIT                 |
|-------------------------------------------|------------------------------------|----------|--------|--------|--------|----------------------|
| Typical thermal resistance <sup>(1)</sup> | $R_{\theta JA}$<br>$R_{\theta JL}$ | 38<br>12 |        |        |        | $^{\circ}\text{C/W}$ |

**Note:**

(1) P.C.B. mounted with 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| EDF1DS-E3/45  | 0.406           | 45                     | 50            | Tube                             |
| EDF1DS-E3/77  | 0.406           | 77                     | 1500          | 13" diameter paper tape and reel |

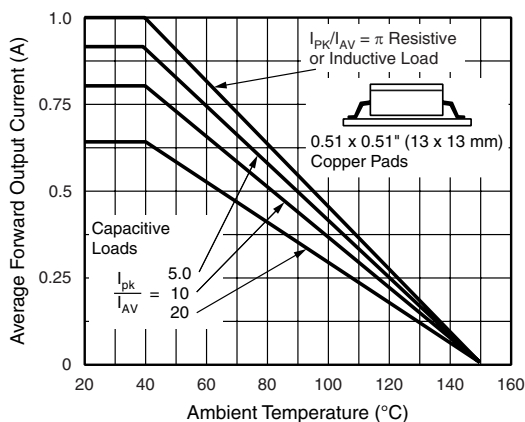
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Derating Curves Output Rectified Current

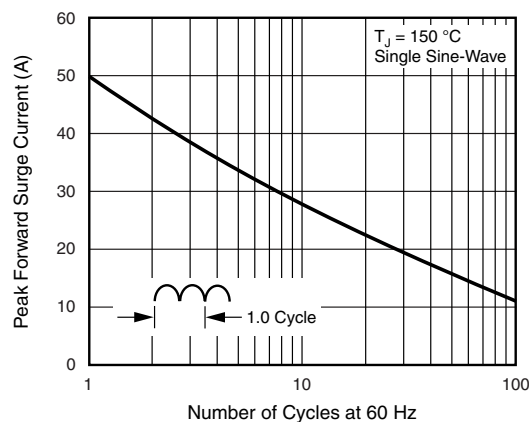


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

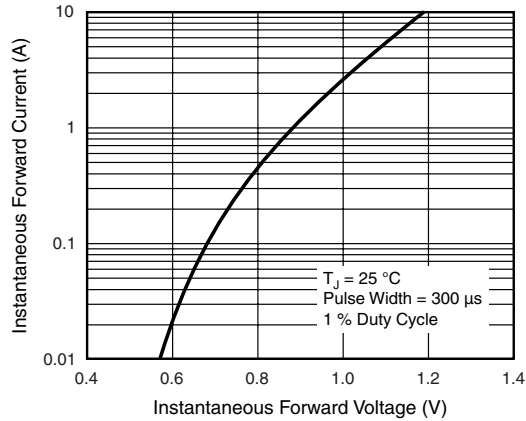


Figure 3. Typical Forward Characteristics Per Diode

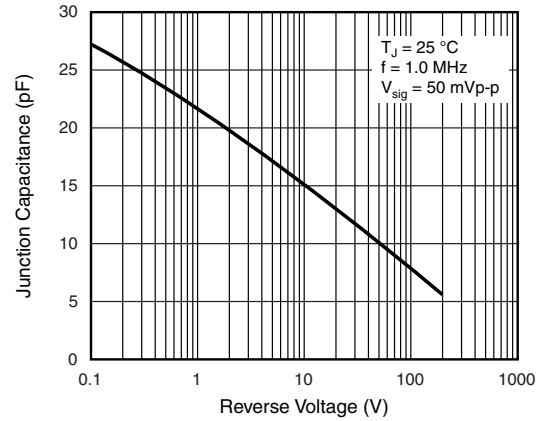


Figure 5. Typical Junction Capacitance Per Diode

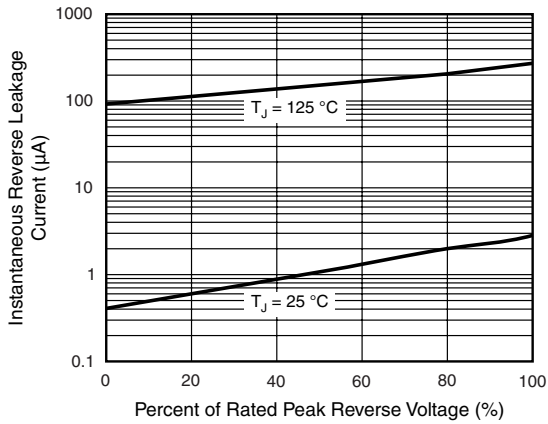
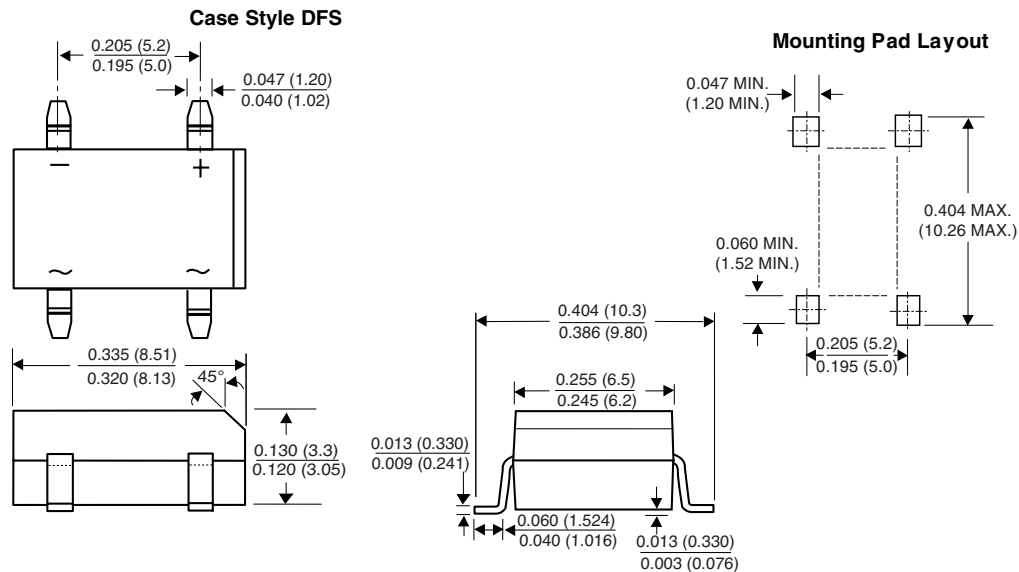


Figure 4. Typical Reverse Leakage Characteristics Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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