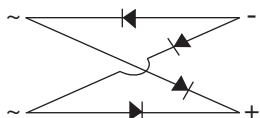




## Low Profile Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifiers



Case Style Low Profile DFS

### FEATURES

- Low profile: typical height of 2.5 mm
- 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:** Low profile 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                | Low profile DFS                                 |
| $I_{F(AV)}$            | 1.5 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 $I_F = 1.5$ A | 1.1 V                                           |
| $T_J$ max.             | 150 °C                                          |
| Diode variations       | Quad                                            |

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

| PARAMETER                                                                   | SYMBOL            | DFL 15005S    | DFL 1501S | DFL 1502S | DFL 1504S | DFL 1506S | DFL 1508S | DFL 1510S | UNIT             |
|-----------------------------------------------------------------------------|-------------------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|------------------|
| 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           | $I_{F(AV)}^{(1)}$ | 1.5           |           |           |           |           |           |           | 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 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                        | DFL 15005S | DFL 1501S | DFL 1502S | DFL 1504S | DFL 1506S | DFL 1508S | DFL 1510S | UNIT |
|-------------------------------------------------------------------|-------------------------|-------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| Max. instantaneous forward voltage drop per diode                 | 1.5 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                            |                         | C <sub>J</sub> <sup>(1)</sup> | 16         |           |           |           |           |           |           | pF   |

**Note**

(1) 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                          | DFL 15005S | DFL 1501S | DFL 1502S | DFL 1504S | DFL 1506S | DFL 1508S | DFL 1510S | UNIT |
|----------------------------|---------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| Typical thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | 40         |           |           |           |           |           |           | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 15         |           |           |           |           |           |           |      |

**Note**

(1) 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                    |
|----------------|-----------------|------------------------|---------------|----------------------------------|
| DFL1506S-E3/45 | 0.341           | 45                     | 50            | Tube                             |
| DFL1506S-E3/77 | 0.341           | 77                     | 1500          | 13" diameter paper tape and reel |

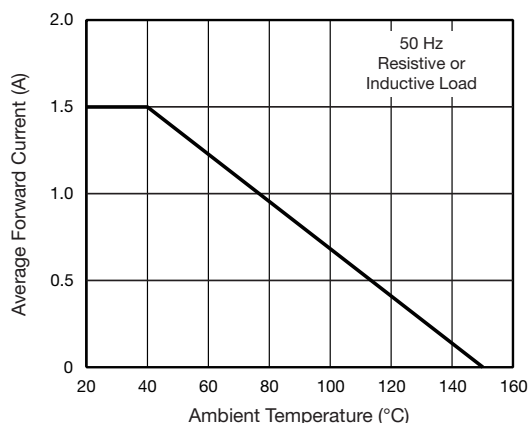
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve Per Diode

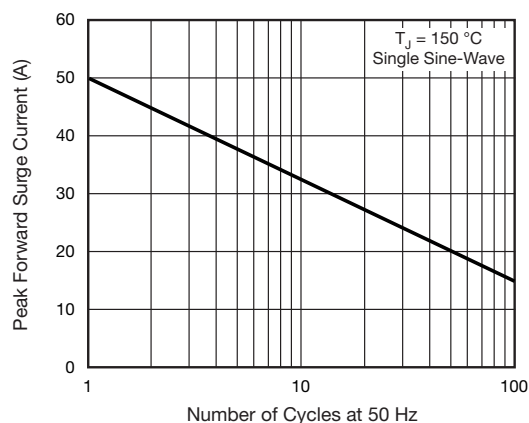


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

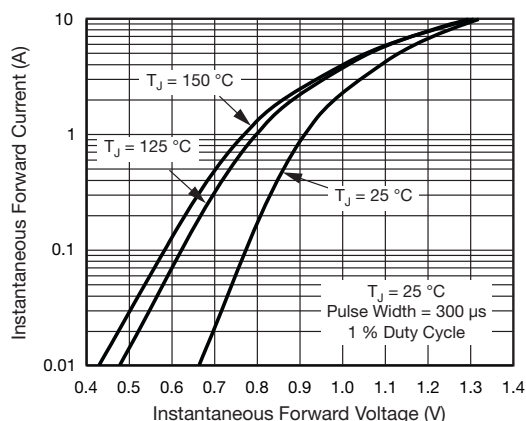


Fig. 3 - Typical Forward Voltage Characteristics Per Diode

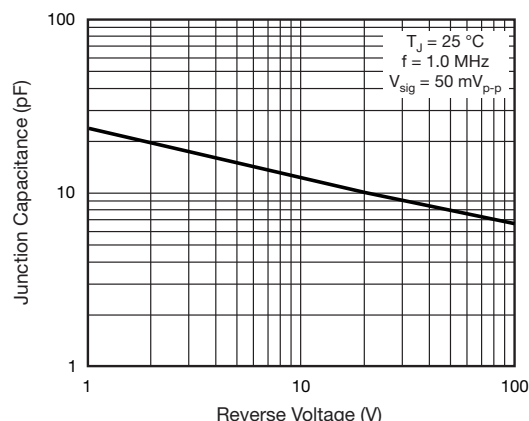


Fig. 5 - Typical Junction Capacitance Per Diode

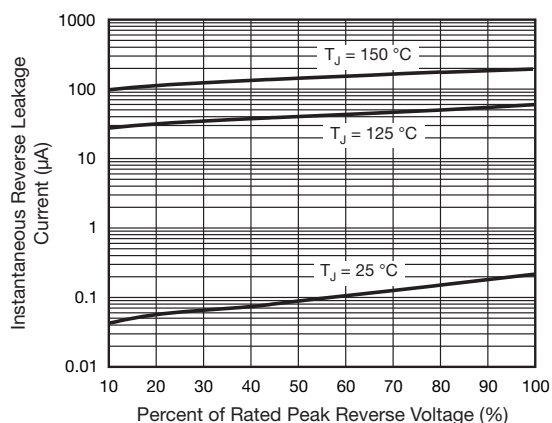
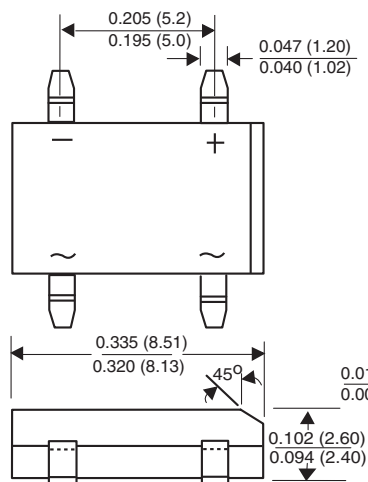


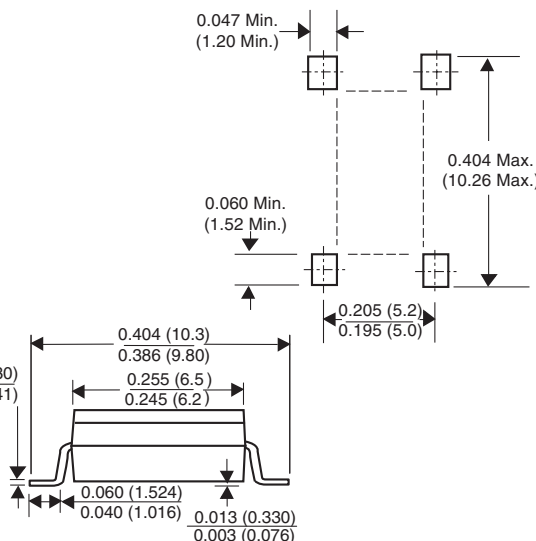
Fig. 4 - Typical Reverse Characteristics Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Style Low Profile DFS



### Mounting Pad Layout





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