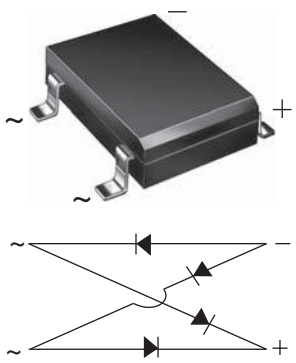
# Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifiers



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

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 |
| $I_{FSM}$ | 30 A |
| $I_R$ | 5 µA |
| $V_F$ 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 | 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 (1) | $I_{F(AV)}$ | 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 | | | | | | | $A^2s$ |
| 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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| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °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 | $V_F$ | 1.1 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage per diode | $T_A$ = 25 °C | $I_R$ | 5.0 | | | | | | | µA |
| | $T_A$ = 125 °C | | 500 | | | | | | | |
| Typical junction capacitance per diode (1) | | $C_J$ | 25 | | | | | | | pF |

**Note**

(1) Measured at 1.0 MHz and applied reverse voltage of 4.0 V

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PARAMETER | SYMBOL | DF005SA | DF01SA | DF02SA | DF04SA | DF06SA | DF08SA | DF10SA | UNIT |
| Typical thermal resistance (1) | $R_{\theta JA}$ | 40 | | | | | | | °C/W |
| | $R_{\theta JL}$ | 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 |
| 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 °C unless otherwise noted)

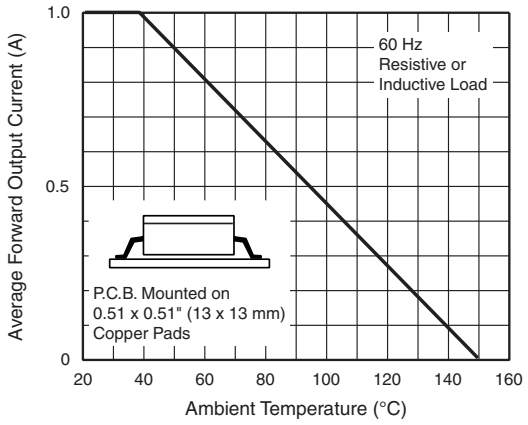


Fig. 1 - Derating Curve Output Rectified Current

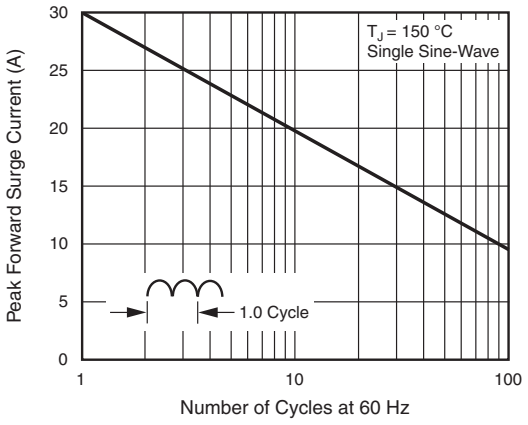


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode


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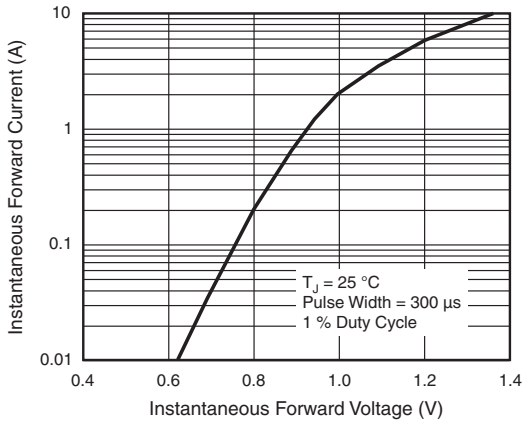



Fig. 3 - Typical Forward Characteristics Per Diode

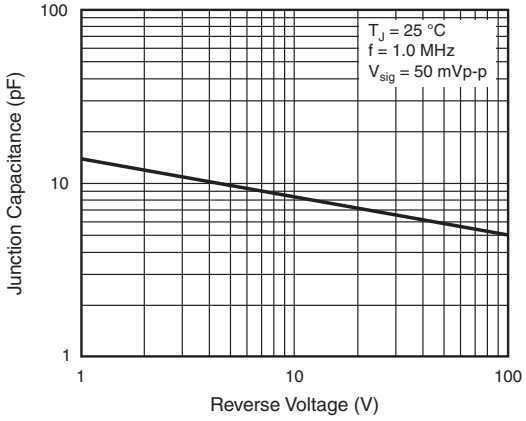



Fig. 5 - Typical Junction Capacitance Per Diode

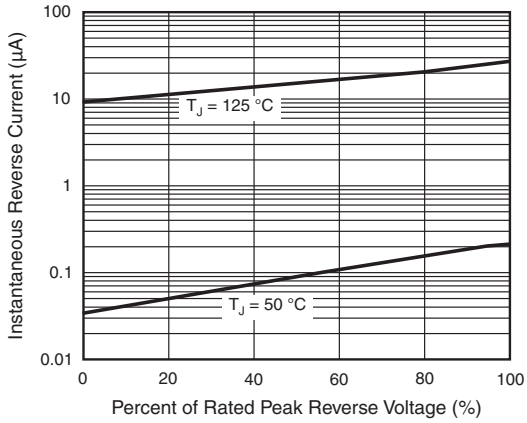



Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

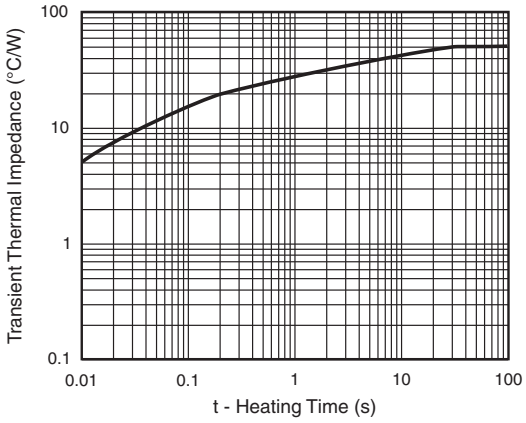
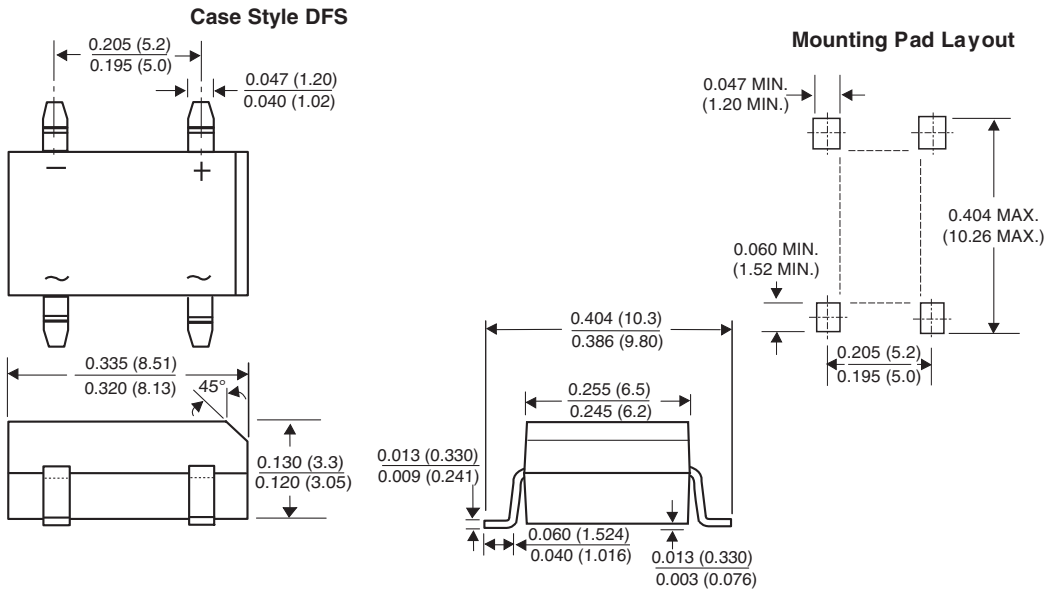



Fig. 6 - Typical Transient Thermal Impedance

## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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