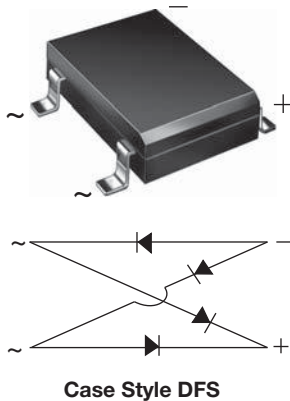


Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifiers



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 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} | 50 A |
| I_R | 5 μ A |
| 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 | 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 ⁽¹⁾ | $I_{F(AV)}$ | 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 ² 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 ($T_A = 25$ °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 | $T_A = 25$ °C | I_R | 5.0 | | | | | | | μ A |
| | $T_A = 125$ °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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | | | |
|--|-----------------|--------|-------|-------|-------|-------|-------|-------|------|--------------------|
| PARAMETER | SYMBOL | DF005S | DF01S | DF02S | DF04S | DF06S | DF08S | DF10S | UNIT | |
| Typical thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | | | | | 40 | | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}$ | | | | | 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 |
| DF06S-E3/45 | 0.399 | 45 | 50 | Tube |
| DF06S-E3/77 | 0.399 | 77 | 1500 | 13" diameter paper tape and reel |

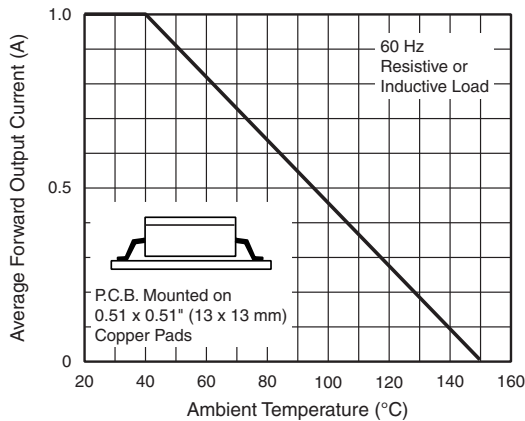
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Derating Curve Output Rectified Current

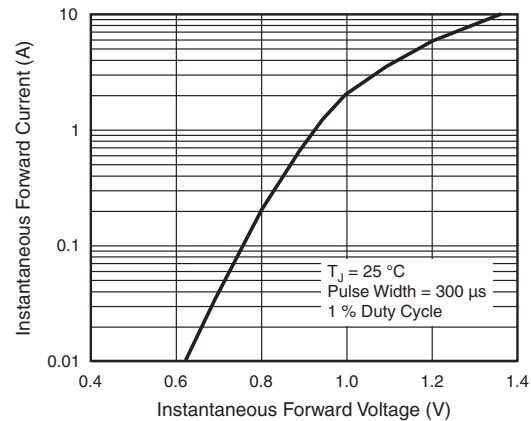


Fig. 3 - Typical Forward Characteristics Per Diode

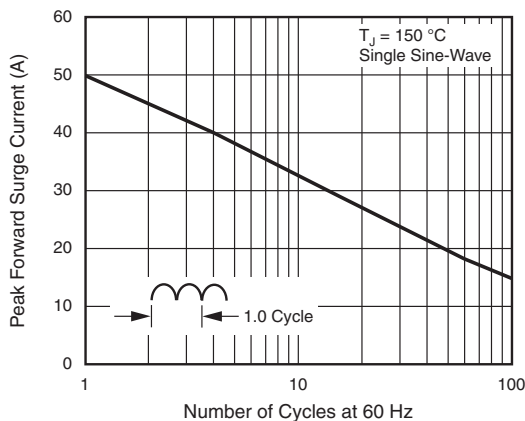


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

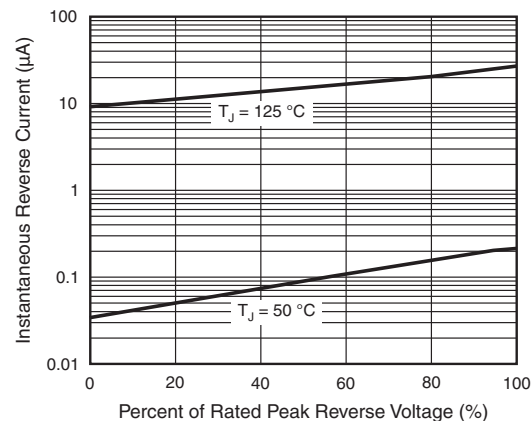


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

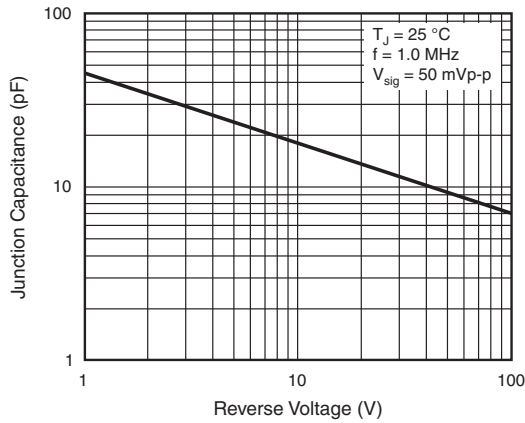


Fig. 5 - Typical Junction Capacitance Per Diode

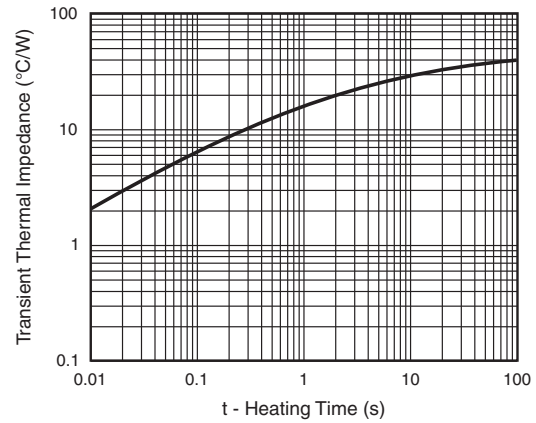


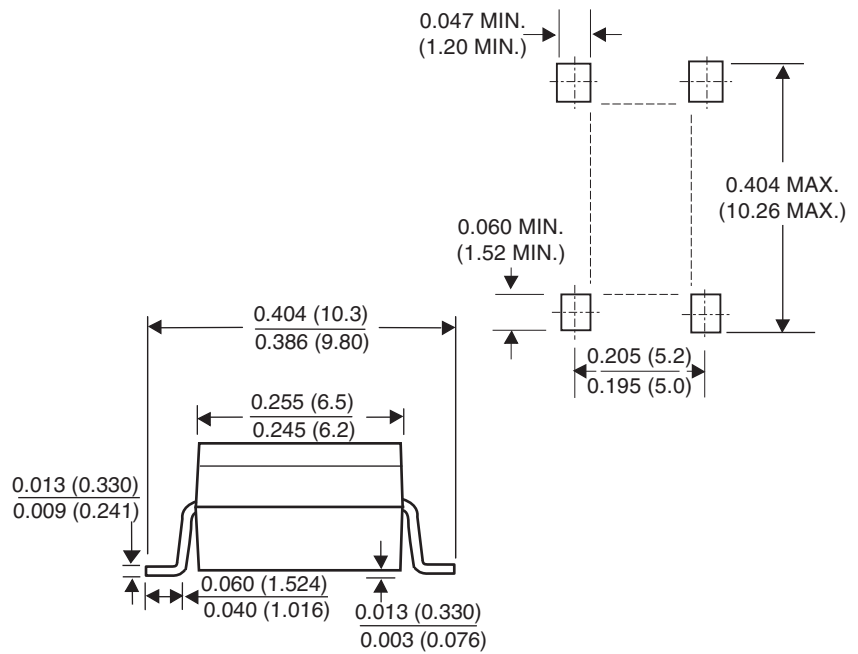
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Style DFS



Mounting Pad Layout





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