

## 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	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	$I_R$				5.0	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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	DF005S	DF01S	DF02S	DF04S	DF06S	DF08S	DF10S	UNIT	
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$				40	15			$^\circ\text{C/W}$	

**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

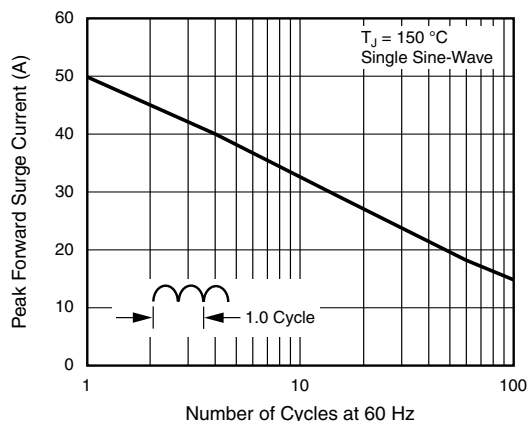


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode



Figure 3. Typical Forward Characteristics Per Diode

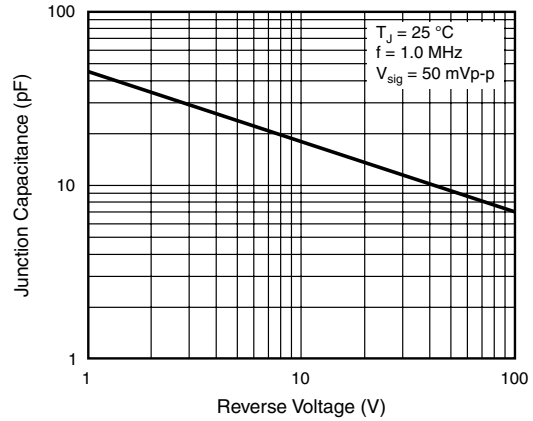


Figure 5. Typical Junction Capacitance Per Diode



Figure 4. Typical Reverse Leakage Characteristics Per Diode

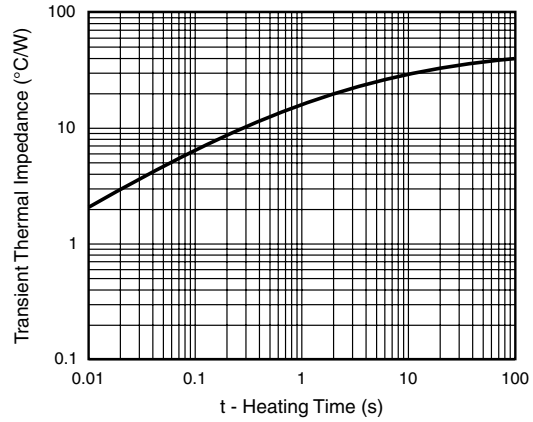


Figure 6. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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