High Current Density Surface-Mount Schottky Barrier Rectifier

High Barrier Technology for Improved High Temperature Performance

eSMP® Series

SMP (DO-220AA)

Cathode ○—|◀—○ Anode

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	50 V, 60 V
I_{FSM}	50 A
V_F at I_F = 2.0 A (T_A = 125 °C)	0.59 V
T_J max.	175 °C
Package	SMP (DO-220AA)
Circuit configuration	Single

FEATURES

- Very low profile - typical height of 1.0 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters and polarity protection in commercial, industrial, and automotive applications

MECHANICAL DATA

Case: SMP (DO-220AA)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant
Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

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

PARAMETER	SYMBOL	SS2PH5	SS2PH6	UNIT
Device marking code		2H5	2H6	
Maximum repetitive peak reverse voltage	V_{RRM}	50	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$ (1)	2.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50		A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175		°C

Note

(1) Free air, mounted on recommended copper pad area

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 1.0 A	T_A = 25 °C	V_F (1)	0.63	-	V
	I_F = 2.0 A			0.72	0.80	
	I_F = 1.0 A	T_A = 125 °C		0.52	-	
	I_F = 2.0 A			0.59	0.70	
Reverse current at rated V_R		T_A = 25 °C	I_R (2)	0.2	2.0	µA
		T_A = 125 °C		0.13	1.0	mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	93	-	pF

Notes

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

(2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SS2PH5**	**SS2PH6**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	130		°C/W
	$R_{\theta JM}$ (1)	20		

Note

(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient, $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SS2PH6-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SS2PH6-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel
SS2PH6HM3/84A (1)	0.024	84A	3000	7" diameter plastic tape and reel
SS2PH6HM3/85A (1)	0.024	85A	10 000	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

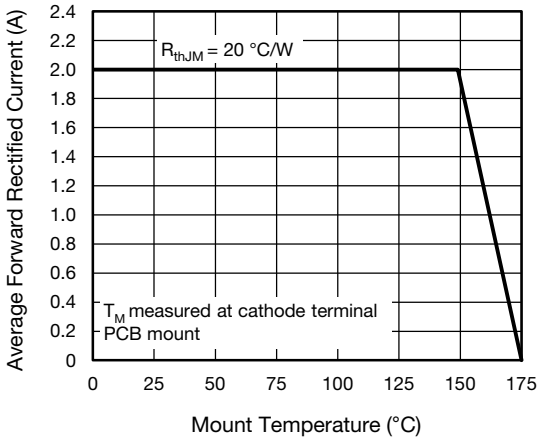

Fig. 1 - Typical Forward Current Derating Curve

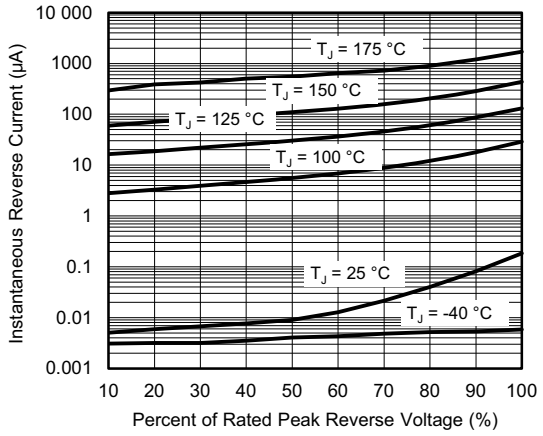

Fig. 4 - Typical Reverse Leakage Characteristics

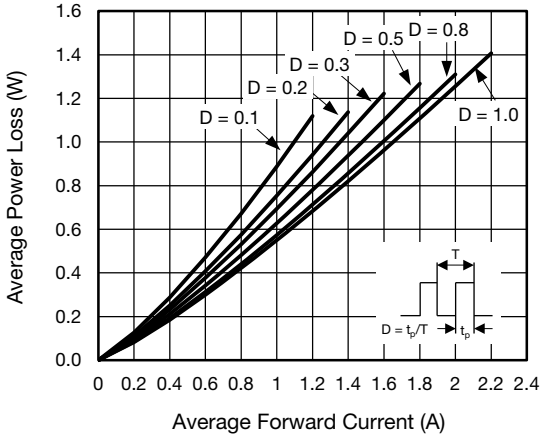

Fig. 2 - Forward Power Loss Characteristics

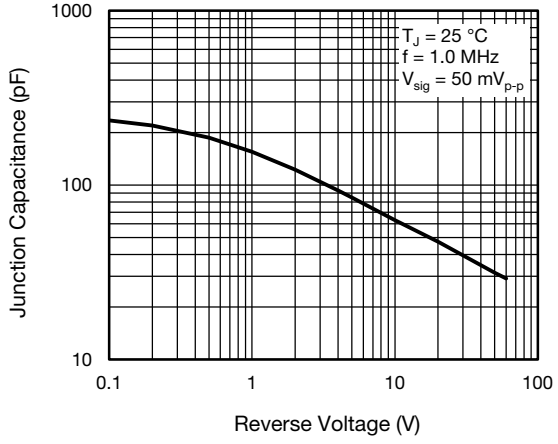

Fig. 5 - Typical Junction Capacitance

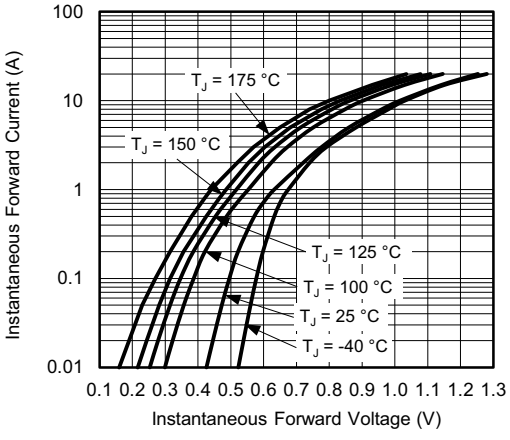

Fig. 3 - Typical Instantaneous Forward Characteristics

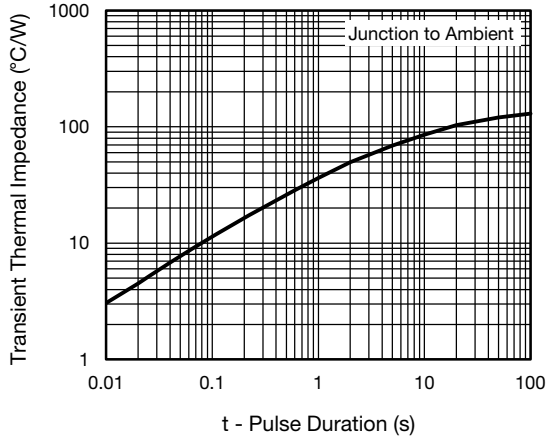

Fig. 6 - Typical Transient Thermal Impedance

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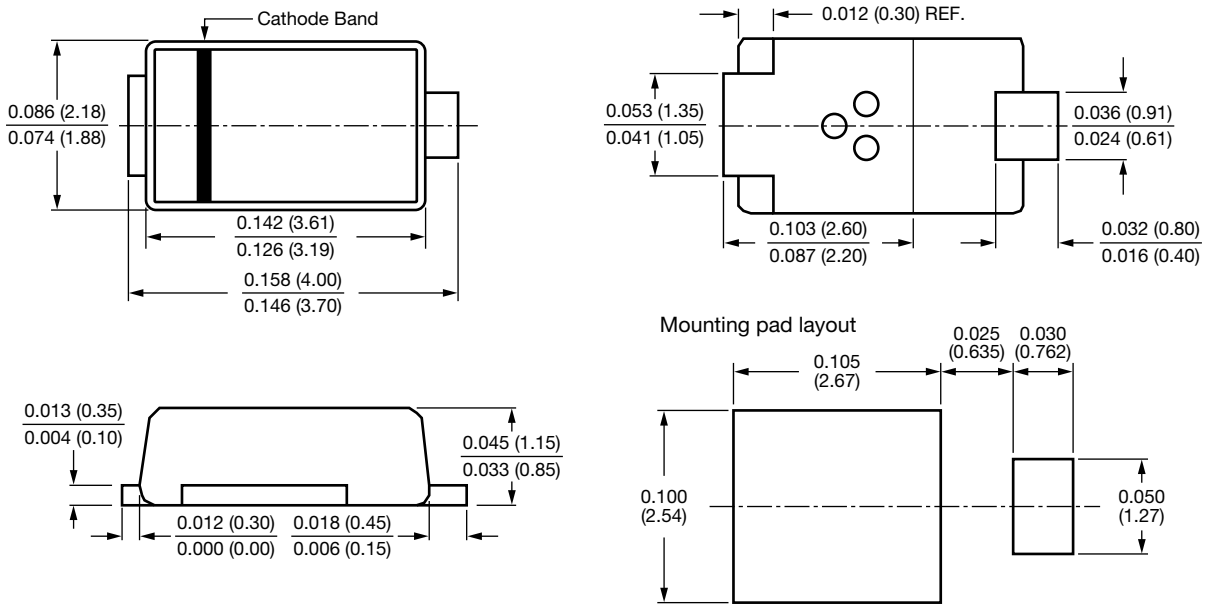
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)



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