



High Current Density Surface Mount Schottky Barrier Rectifier

eSMP™ Series



DO-220AA (SMP)

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.0 A
V_{RRM}	50 V, 60 V
I_{FSM}	50 A
E_{AS}	11.25 mJ
V_F at $I_F = 1.0$ A	0.43 V
T_J max.	150 °C

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters and polarity protection applications.

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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**
- Find out more about Vishay's Automotive Grade Product requirements at: www.vishay.com/applications



MECHANICAL DATA

Case: DO-220AA (SMP)

Molding compound meets UL 94 V-0 flammability rating.

Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

Base P/NHM3 - halogen-free and RoHS compliant, automotive grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A 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	SS1P5L	SS1P6L	UNIT
Device marking code		15L	16L	
Maximum repetitive peak reverse voltage	V_{RRM}	50	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	1.0		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	50		A
Non-repetitive avalanche energy at $I_{AS} = 1.5$ A, $T_A = 25$ °C	E_{AS}	11.25		mJ
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150		°C

SS1P5L & SS1P6L

Vishay General Semiconductor

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

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage ⁽¹⁾	$I_F = 1.0\text{ A}$ $I_F = 1.0\text{ A}$	$T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	V_F	0.52 0.43	0.59 0.52	V
Reverse current ⁽²⁾	rated V_R	$T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	I_R	- 1.6	100 10	μA mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	80	-	pF

Notes:⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle⁽²⁾ Pulse test: Pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	SS1P5L	SS1P6L	UNIT
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$ $R_{\theta JL}$	125 25		$^{\circ}\text{C/W}$

Note:⁽¹⁾ Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 5.0 mm x 5.0 mm copper pad areas. $R_{\theta JL}$ is measured at the terminal of cathode band.**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS1P6L-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SS1P6L-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel
SS1P6LHM3/84A ⁽¹⁾	0.024	84A	3000	7" diameter plastic tape and reel
SS1P6LHM3/85A ⁽¹⁾	0.024	85A	10 000	13" diameter plastic tape and reel

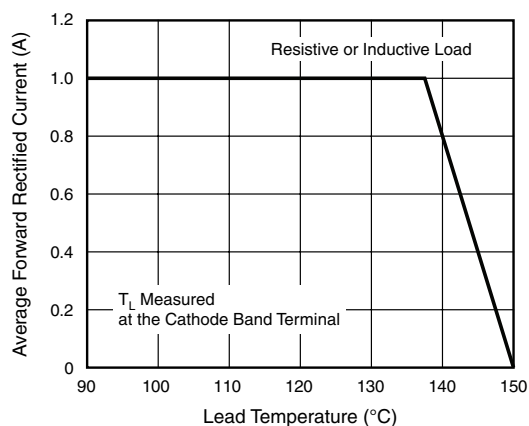
Note:⁽¹⁾ Automotive grade**RATINGS AND CHARACTERISTICS CURVES** $(T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

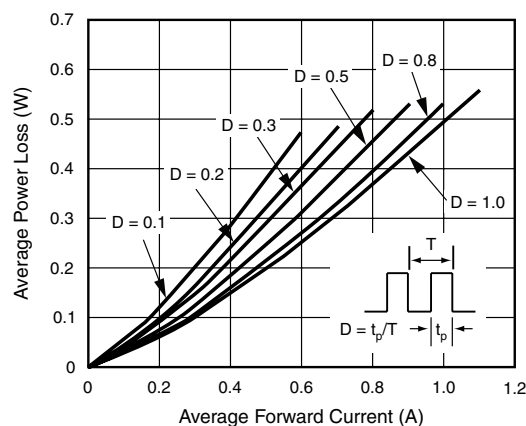


Figure 2. Forward Power Loss Characteristics

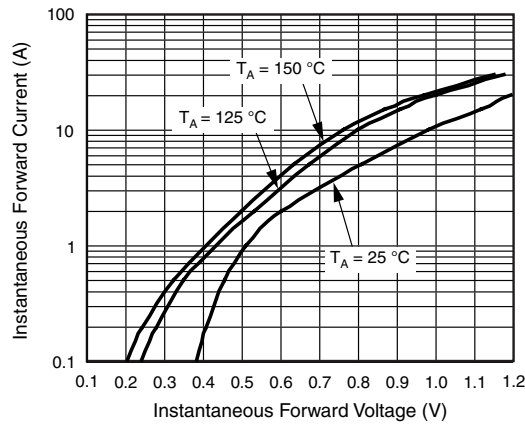


Figure 3. Typical Instantaneous Forward Characteristics

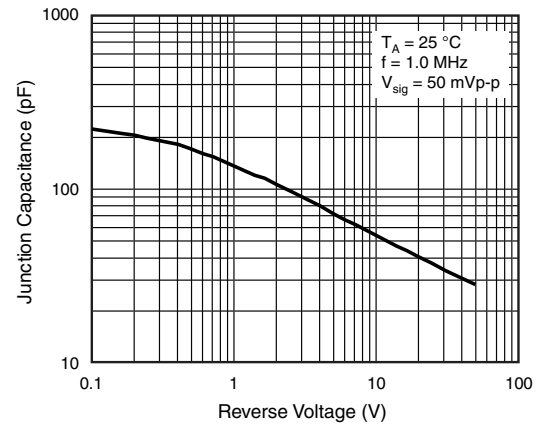


Figure 5. Typical Junction Capacitance

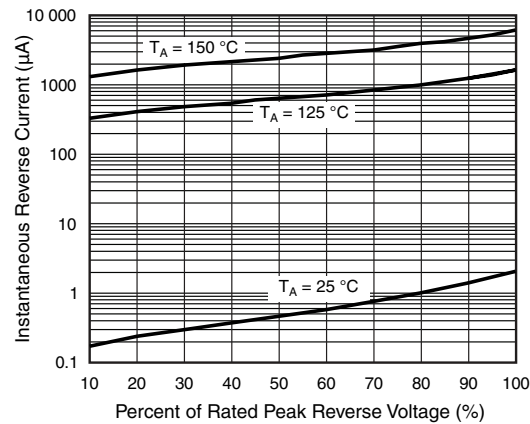


Figure 4. Typical Reverse Leakage Characteristics

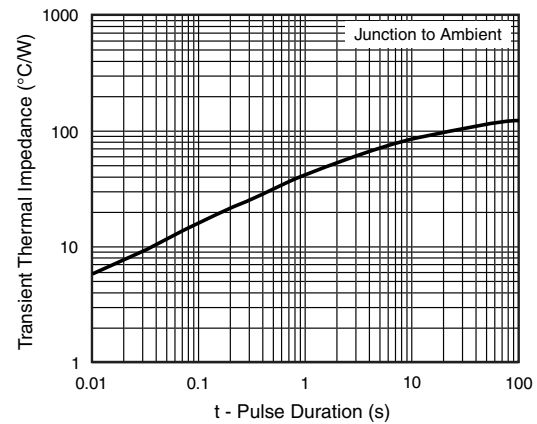
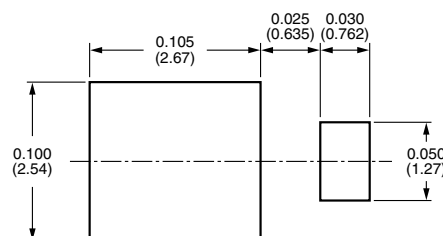
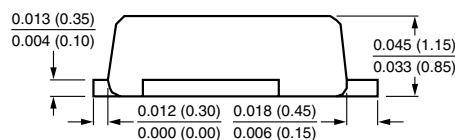
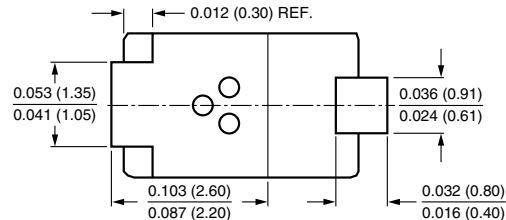
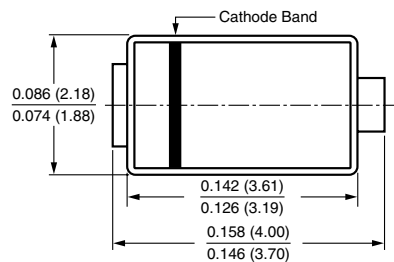


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-220AA (SMP)





Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.