

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



RoHS
COMPLIANT
HALOGEN
FREE

AUTOMOTIVE
GRADE
Available

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 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage ⁽¹⁾	I _F = 1.0 A	T _A = 25 °C	V _F	0.52	0.59	V
	I _F = 1.0 A	T _A = 125 °C		0.43	0.52	
Reverse current ⁽²⁾	rated V _R	T _A = 25 °C	I _R	-	100	μA
		T _A = 125 °C		1.6	10	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 ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)				
PARAMETER	SYMBOL	SS1P5L	SS1P6L	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	125		°C/W
	R _{θJL}	25		

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_{θJL} 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 °C unless otherwise noted)

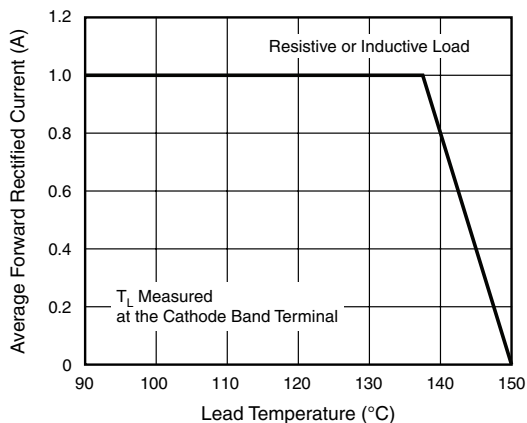


Figure 1. Maximum Forward Current Derating Curve

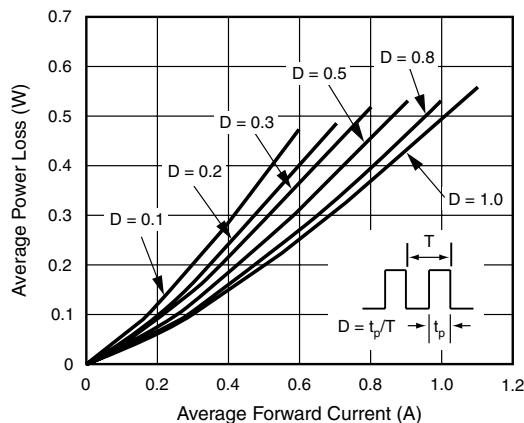


Figure 2. Forward Power Loss Characteristics

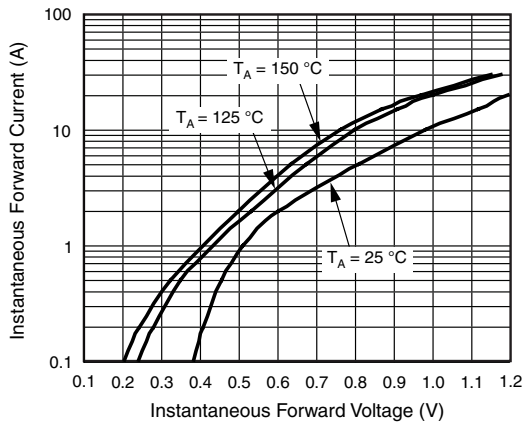


Figure 3. Typical Instantaneous Forward Characteristics

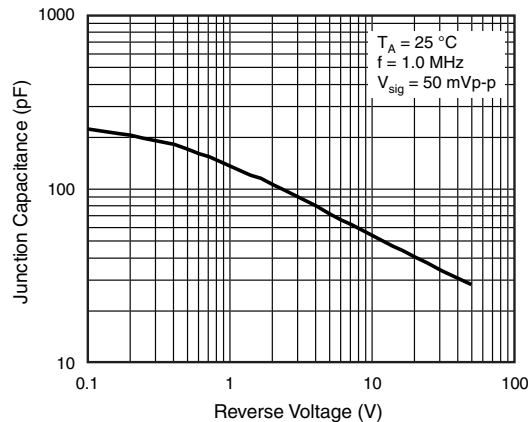


Figure 5. Typical Junction Capacitance

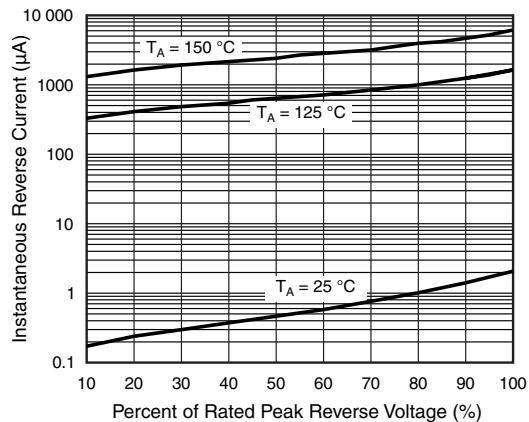


Figure 4. Typical Reverse Leakage Characteristics

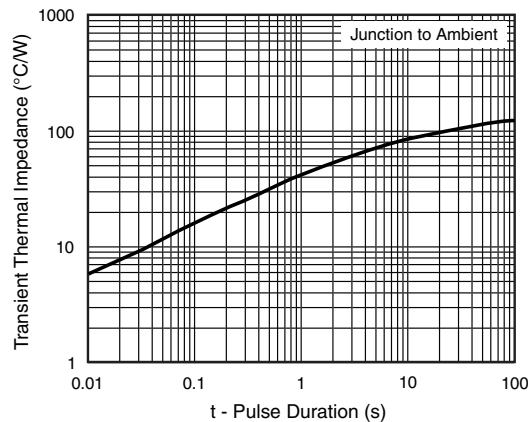
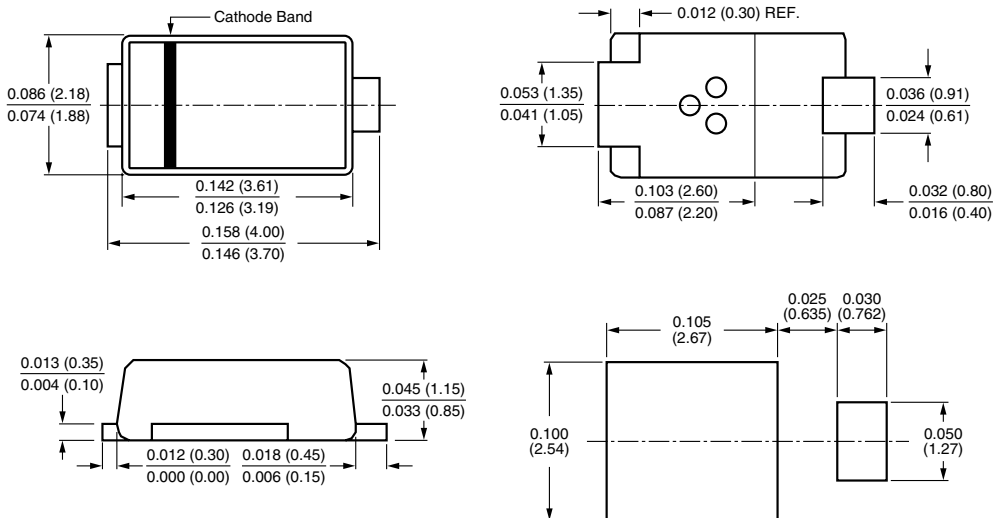


Figure 6. Typical Transient Thermal Impedance

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



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