



## High Current Density Surface Mount Schottky Barrier Rectifiers

### eSMP® Series



DO-220AA (SMP)

#### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V to 60 V
$I_R$	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/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

AUTOMOTIVE  
GRADE  
Available



RoHS  
COMPLIANT  
HALOGEN  
FREE

#### MECHANICAL DATA

**Case:** DO-220AA (SMP)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

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

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

PARAMETER	SYMBOL	SS1P5L	SS1P6L	UNIT
Device marking code		15L	15L	
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
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C

# SS1P5L thru SS1P6L

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage	I <sub>F</sub> = 1.0 A	V <sub>F</sub> <sup>(1)</sup>	T <sub>A</sub> = 25 °C	0.52	0.59	V
			T <sub>A</sub> = 125 °C	0.43	0.52	
Maximum reverse current	Rated V <sub>R</sub>	I <sub>R</sub> <sup>(2)</sup>	T <sub>A</sub> = 25 °C	-	100	μA
			T <sub>A</sub> = 125 °C	1.6	10	
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	80	-	pF	

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SE1P5B	SE1P6D	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	125		°C/W
	R <sub>θJL</sub> <sup>(1)</sup>	25		

**Note**

- (1) Thermal resistance from junction to ambient and junction to lead mounted on PCB with 5.0 mm x 5.0 mm copper pad areas. R<sub>θJL</sub> - 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 <sup>(1)</sup>	0.024	84A	3000	7" diameter plastic tape and reel
SS1P6LHM3/85A <sup>(1)</sup>	0.024	85A	10 000	13" diameter plastic tape and reel

**Note**

- (1) Automotive grade

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

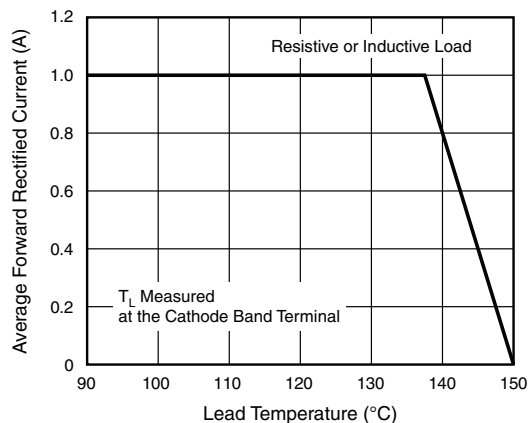


Fig. 1 - Maximum Forward Current Derating Curve

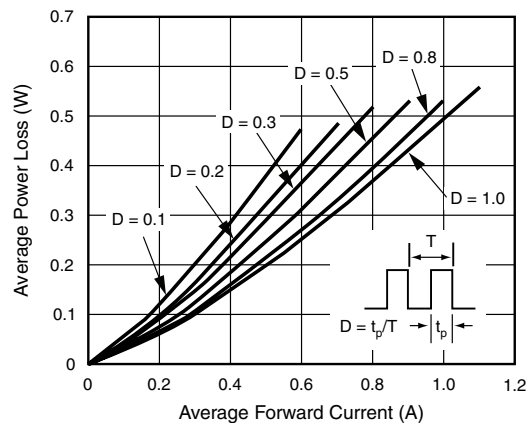


Fig. 2 - Forward Power Loss Characteristics

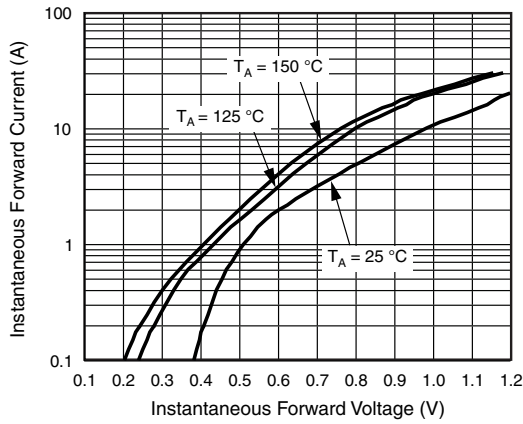


Fig. 3 - Typical Instantaneous Forward Characteristics

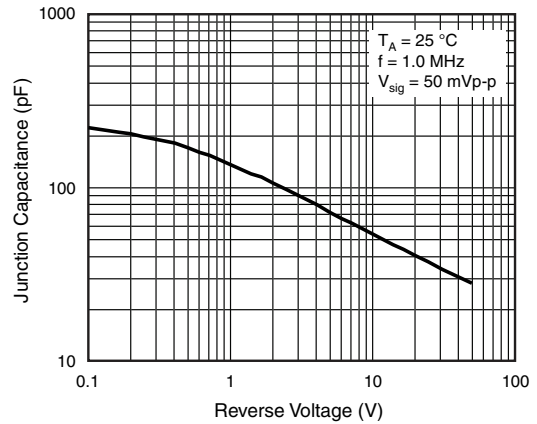


Fig. 5 - Typical Junction to Capacitance

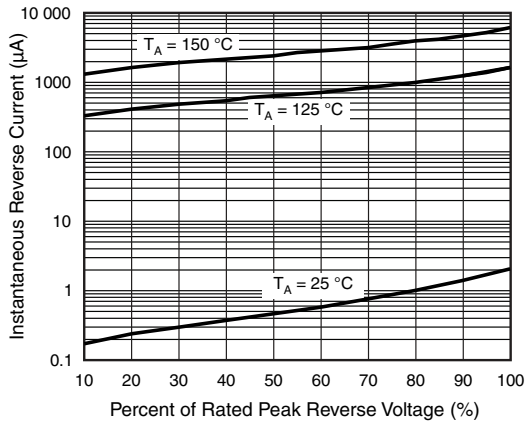


Fig. 4 - Typical Reverse Leakage Characteristics

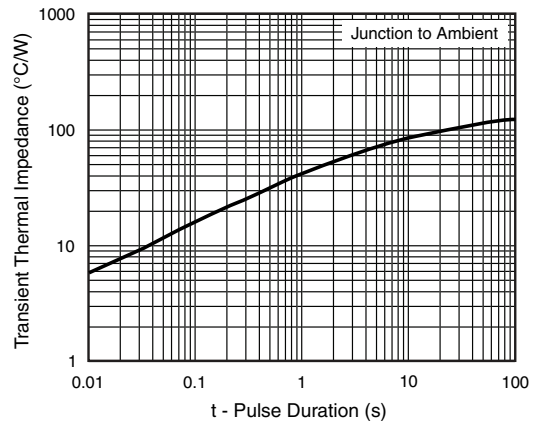
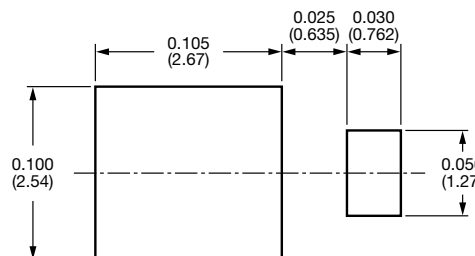
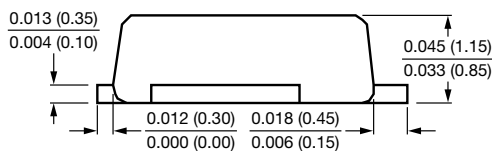
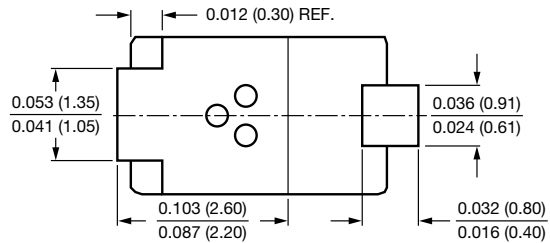
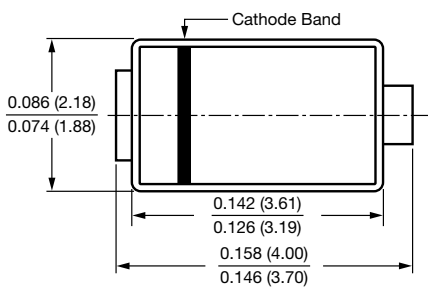


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-220AA (SMP)**





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