

Low V_F High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series



DO-220AA (SMP)

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2.0 A
V_{RRM}	20 V, 30 V
I_{FSM}	50 A
E_{AS}	11.25 mJ
V_F	0.45 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 ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	SS2P2L	SS2P3L	UNIT
Device marking code		22L	23L	
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	2.0		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	50		A
Non-repetitive avalanche energy at $I_{AS} = 1.5\text{ A}$, $L = 10\text{ mH}$, $T_J = 25\text{ °C}$	E_{AS}	11.25		mJ
Voltage rate of change (rated V_R)	dV/dt	10 000		V/us
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150		°C

SS2P2L & SS2P3L

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	I _F = 2 A I _F = 2 A	T _J = 25 °C T _J = 125 °C	V _F	0.45 0.38	0.50 0.45	V
Maximum reverse current at rated V _R ⁽²⁾		T _J = 25 °C T _J = 125 °C	I _R	- 9.0	200 20	μA mA
Typical junction capacitance	4.0 V, 1 MHz		C _J	130		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 noted)				
PARAMETER	SYMBOL	SS2P2L	SS2P3L	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	115		°C/W
	R _{θJL}	15		
	R _{θJC}	20		

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. R_{θJC} is measured at the top center of the body

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS2P3L-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel
SS2P3L-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel
SS2P3LHM3/84A ⁽¹⁾	0.024	84A	3000	7" diameter plastic tape and reel
SS2P3LHM3/85A ⁽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)

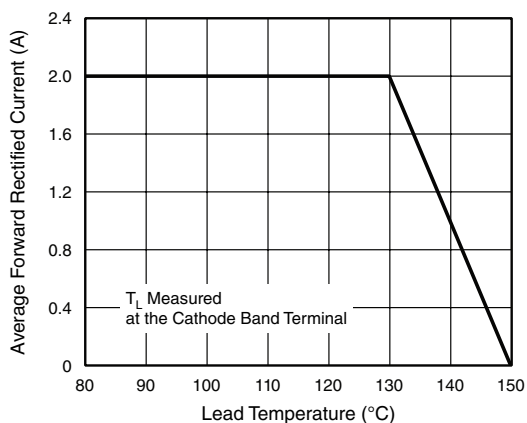


Figure 1. Forward Current Derating Curve

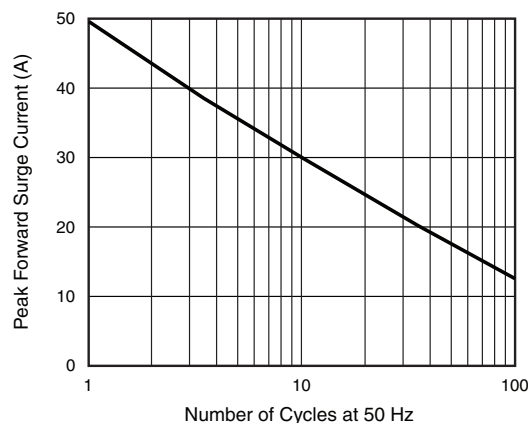


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

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