

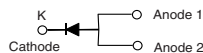


High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series



TO-277A (SMPC)



PRIMARY CHARACTERISTICS

$I_{F(AV)}$	12 A
V_{RRM}	20 V, 30 V
I_{FSM}	280 A
E_{AS}	20 mJ
V_F at $I_F = 12$ A	0.38 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 1.1 mm
- Ideal for automated placement
- Guardring for overvoltage protection
- 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: TO-277A (SMPC)

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

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

PARAMETER	SYMBOL	SS12P2L	SS12P3L	UNIT
Device marking code		S122	S123	
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	12		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	280		A
Non-repetitive avalanche energy at $I_{AS} = 2$ A, $T_J = 25$ °C	E_{AS}	20		mJ
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150		°C

SS12P2L, SS12P3L

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 = 6 A I _F = 12 A	T _A = 25 °C	V _F	0.41 0.48	- 0.56	V
	I _F = 6 A I _F = 12 A	T _A = 125 °C		0.30 0.38	- 0.46	
Maximum reverse current ⁽²⁾	V _R = 30 V	T _A = 25 °C T _A = 125 °C	I _R	150 59	1000 120	μA mA
Typical junction capacitance	4.0 V, 1 MHz		C _J	930	-	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	SS12P2L	SS12P3L	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	60		°C/W
	R _{θJL}	3		

Note⁽¹⁾ Units mounted on recommended P.C.B. 1 oz. pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS12P3L-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS12P3L-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS12P3LHM3/86A ⁽¹⁾	0.10	86A	1500	7" diameter plastic tape and reel
SS12P3LHM3/87A ⁽¹⁾	0.10	87A	6500	13" diameter plastic tape and reel

Note⁽¹⁾ Automotive grade



RATINGS AND CHARACTERISTICS CURVES

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

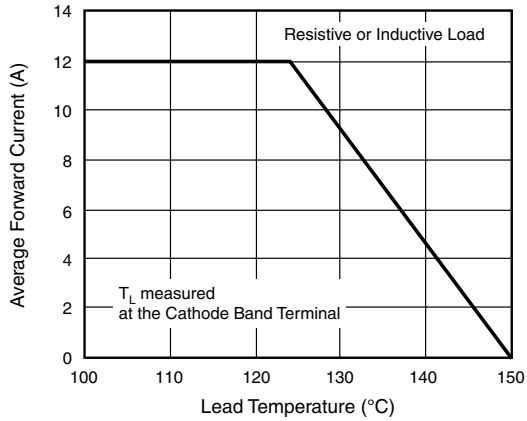


Figure 1. Maximum Forward Current Derating Curve

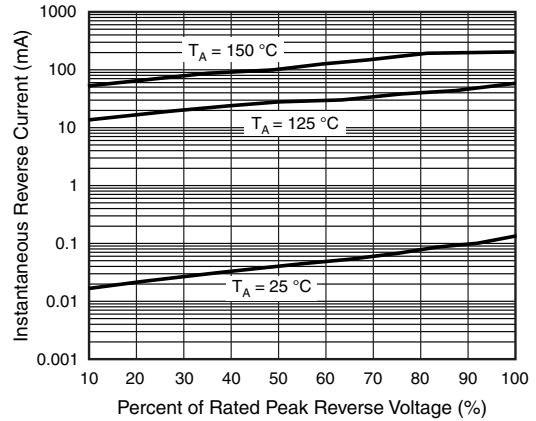


Figure 4. Typical Reverse Leakage Characteristics

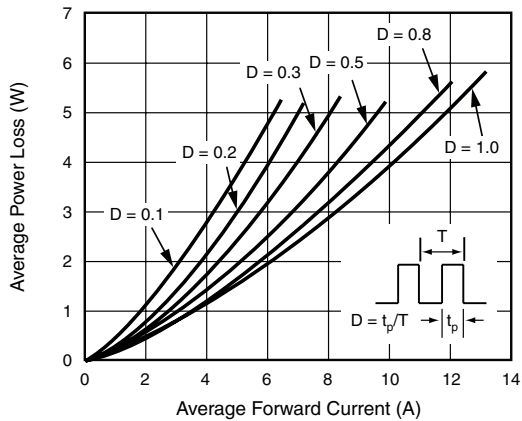


Figure 2. Forward Power Loss Characteristics

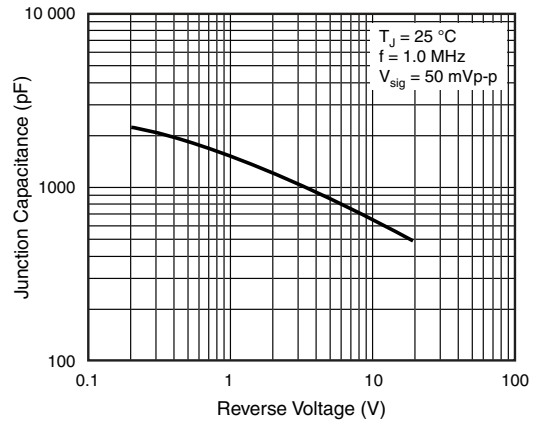


Figure 5. Typical Junction Capacitance

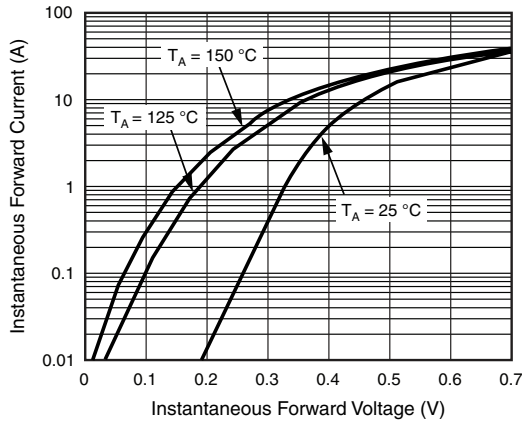


Figure 3. Typical Instantaneous Forward Characteristics

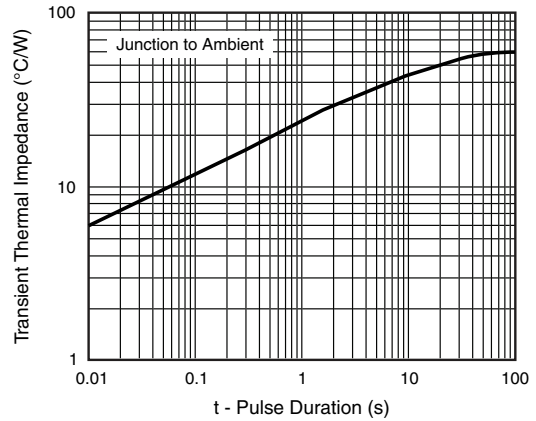


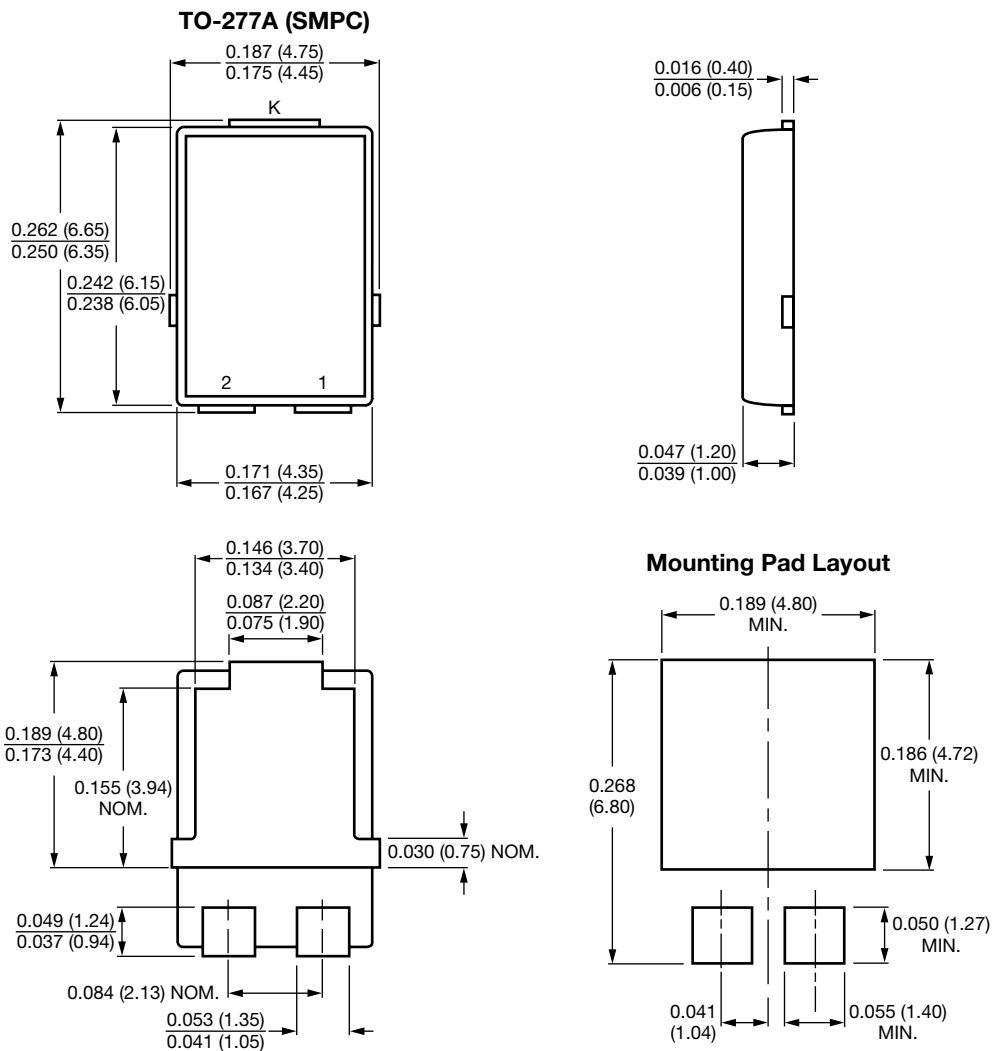
Figure 6. Typical Transient Thermal Impedance

SS12P2L, SS12P3L

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC TO-277A



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