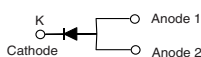


High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series



TO-277A (SMPC)



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
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-277A (SMPC)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for commercial grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

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

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

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	$I_F = 6\text{ A}$	$T_A = 25\text{ }^{\circ}\text{C}$	V_F	0.41	-	V
	$I_F = 12\text{ A}$			0.48	0.56	
	$I_F = 6\text{ A}$	$T_A = 125\text{ }^{\circ}\text{C}$		0.30	-	
	$I_F = 12\text{ A}$			0.38	0.46	
Maximum reverse current ⁽¹⁾	$V_R = 30\text{ V}$	$T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	I_R	150 59	1000 120	μA mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	930	-	pF

Note:(1) Pulse test: 300 μs pulse width, 1 % duty cycle**THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	SS12P2L	SS12P3L	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	60		$^{\circ}\text{C/W}$
	$R_{\theta JL}$	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-E3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS12P3L-E3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS12P3LHE3/86A ⁽¹⁾	0.10	86A	1500	7" diameter plastic tape and reel
SS12P3LHE3/87A ⁽¹⁾	0.10	87A	6500	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

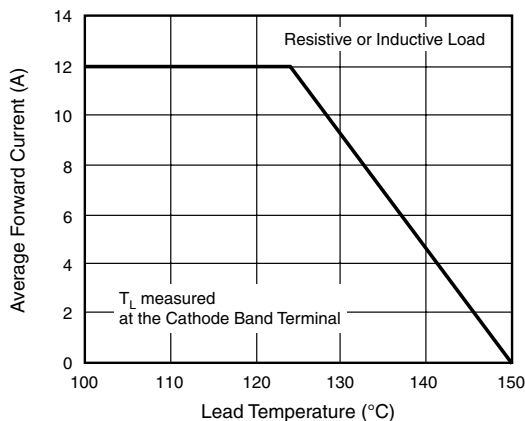
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

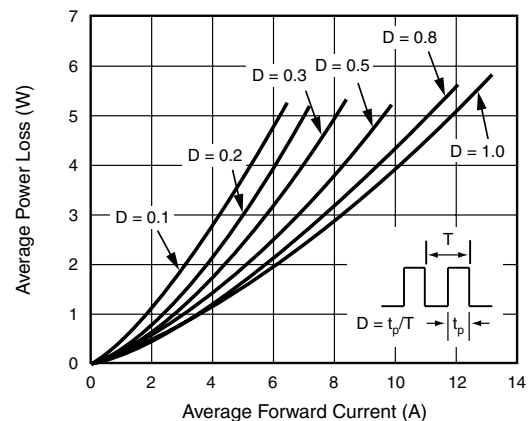


Figure 2. Forward Power Loss Characteristics

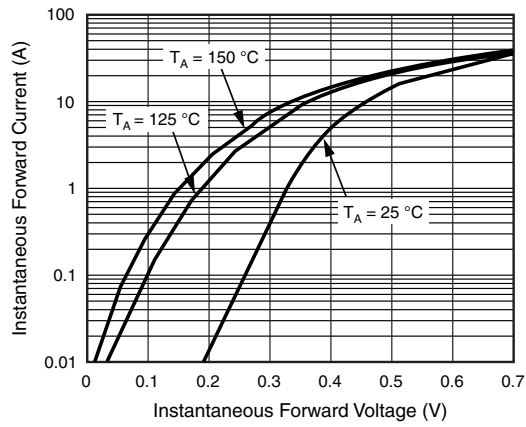


Figure 3. Typical Instantaneous Forward Characteristics

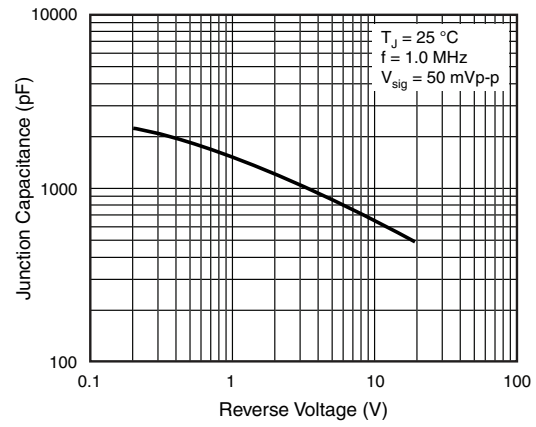


Figure 5. Typical Junction Capacitance

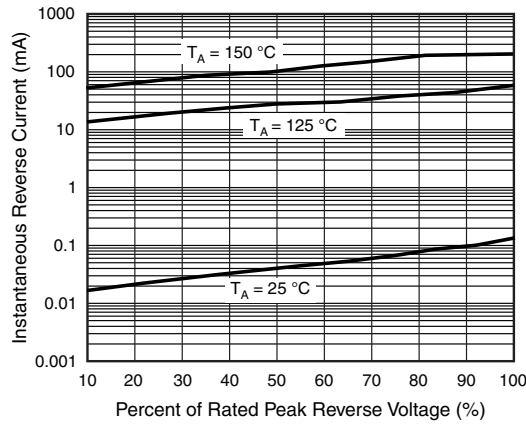


Figure 4. Typical Reverse Leakage Characteristics

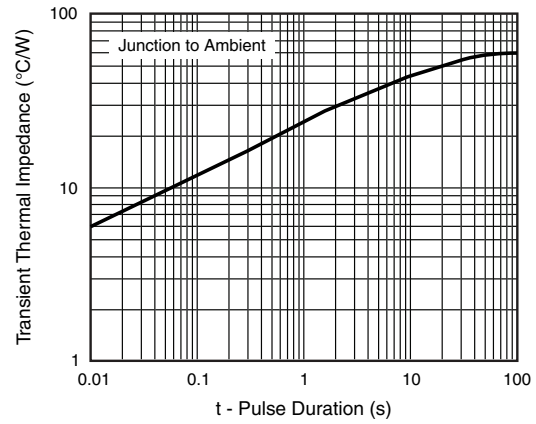
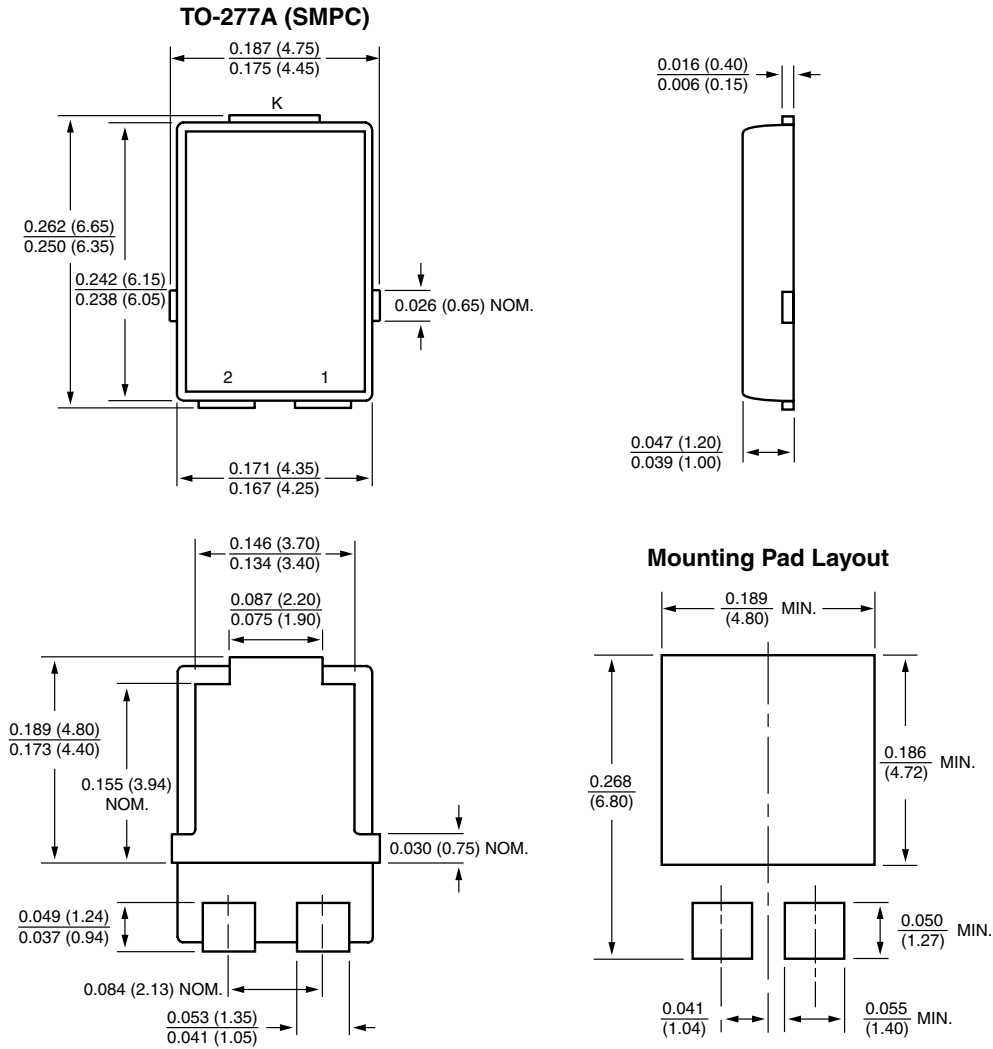


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC TO-277A



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