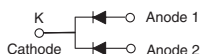


## High Current Density Surface Mount Schottky Barrier Rectifier

### eSMP™ Series



### TO-277A (SMPC)



### FEATURES

- Very low profile - typical height of 1.1 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
- 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, 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

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 4.0 A
$V_{RRM}$	20 V, 30 V
$I_{FSM}$	120 A
$E_{AS}$	20 mJ
$V_F$ at $I_F = 4$ A	0.41 V
$T_J$ max.	150 °C

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling diodes, DC/DC converters and polarity protection application.

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

PARAMETER	SYMBOL	SS8P2CL	SS8P3CL	UNIT
Device marking code		S82C	S83C	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	V
Maximum average forward rectified current (fig. 1)	total device	8.0		A
	per diode	4.0		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	120		A
Non-repetitive avalanche energy at 25 °C, $I_{AS} = 2$ A per diode	$E_{AS}$	20		mJ
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C

**SS8P2CL, SS8P3CL**

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I <sub>F</sub> = 2.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.42	-	V
	I <sub>F</sub> = 4.0 A			0.50	0.54	
	I <sub>F</sub> = 2.0 A	T <sub>A</sub> = 125 °C		0.32	-	
	I <sub>F</sub> = 4.0 A			0.41	0.45	
Reverse current per diode	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	48	300	μA
		T <sub>A</sub> = 125 °C		19	30	mA
Typical junction capacitance per diode	4.0 V, 1 MHz		C <sub>J</sub>	250	-	pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ 

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)				
PARAMETER	SYMBOL	SS8P2C	SS8P3C	UNIT
Typical thermal resistance per diode	R <sub>θJA</sub> <sup>(1)</sup>	60		°C/W
	R <sub>θJL</sub>	3		

**Note**

(1) Units mounted on recommended PCB 1 oz. pad layout

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS8P3CL-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS8P3CL-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS8P3CLHM3/86A <sup>(1)</sup>	0.10	86A	1500	7" diameter plastic tape and reel
SS8P3CLHM3/87A <sup>(1)</sup>	0.10	87A	6500	13" diameter plastic tape and reel

**Note**

(1) Automotive grade

## RATINGS AND CHARACTERISTICS CURVES

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

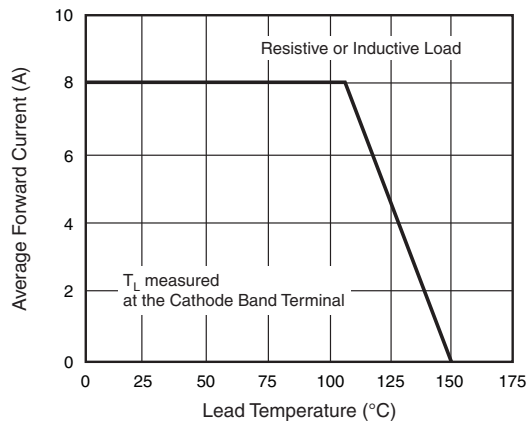


Fig. 1 - Maximum Forward Current Derating Curve

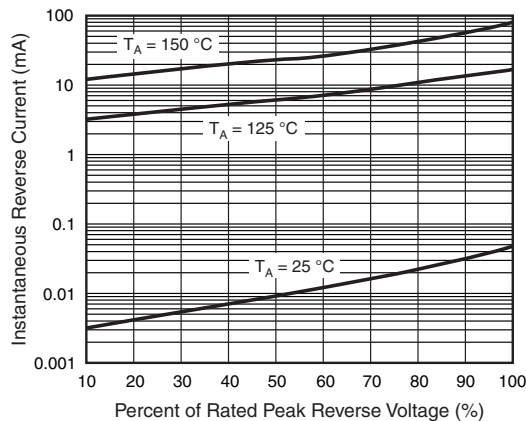


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

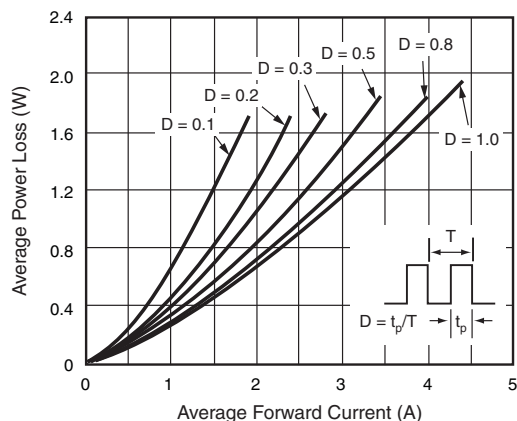


Fig. 2 - Forward Power Loss Characteristics Per Diode

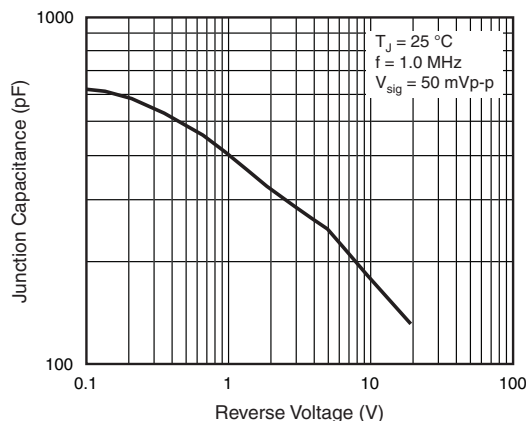


Fig. 5 - Typical Junction Capacitance Per Diode

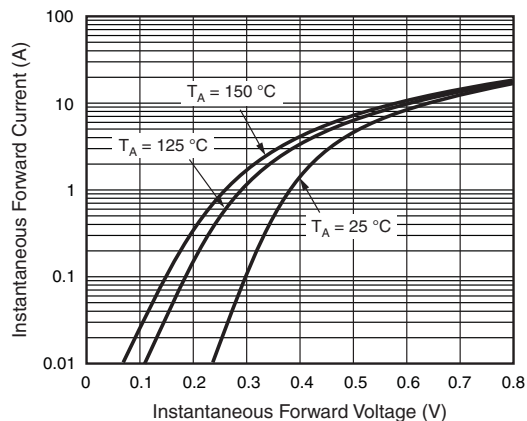


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

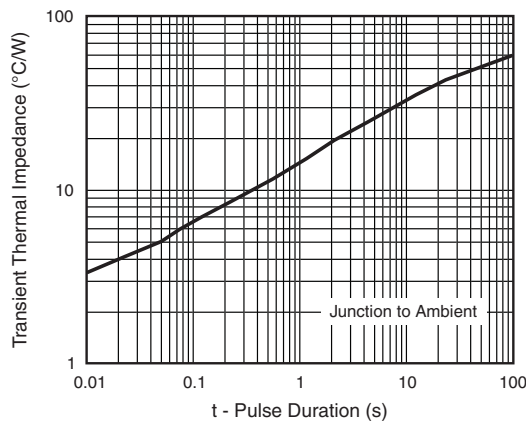
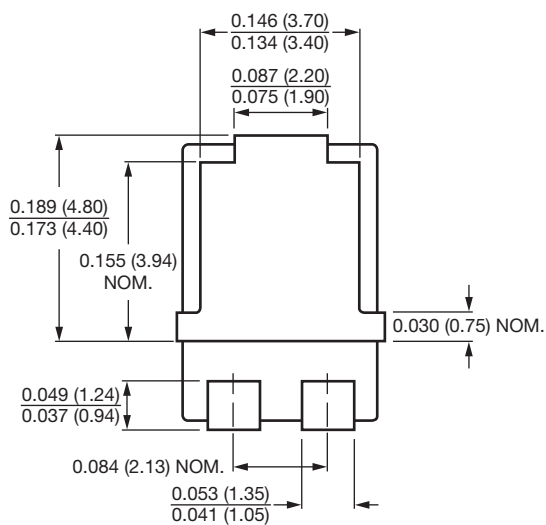
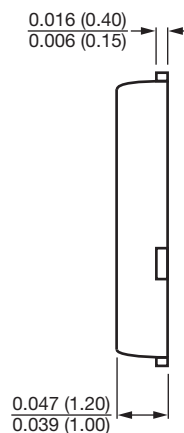
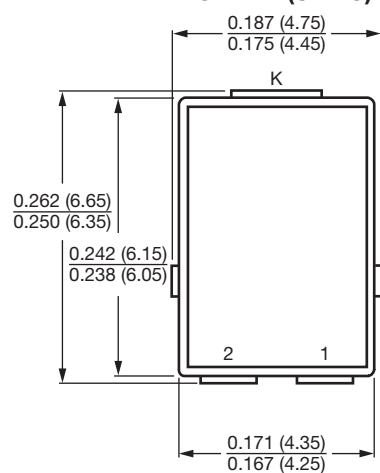
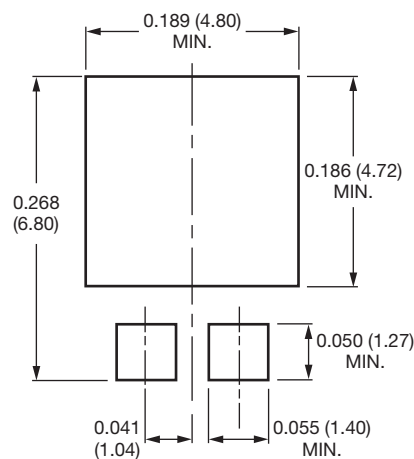


Fig. 6 - Typical Transient Thermal Impedance Per Diode

**SS8P2CL, SS8P3CL**

Vishay General Semiconductor

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**TO-277A (SMPC)****Mounting Pad Layout**

Conform to JEDEC TO-277A



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