AUTOMOTIVE GRADE

COMPLIANT

HALOGEN FREE



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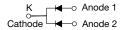
## Vishay General Semiconductor

## High Current Density Surface-Mount Dual Common Cathode Schottky Rectifier

# eSMP® Series



#### **SMPC (TO-277A)**



#### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 4.0 A				
$V_{RRM}$	50 V, 60 V				
I <sub>FSM</sub>	120 A				
E <sub>AS</sub>	20 mJ				
V <sub>F</sub> at I <sub>F</sub> = 4 A	0.56 V				
T <sub>J</sub> max.	150 °C				
Package	SMPC (TO-277A)				
Circuit configuration	Common cathode				

#### **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, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, and polarity protection application.

#### **MECHANICAL DATA**

Case: SMPC (TO-277A)

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

Base P/NHM3\_X - halogen-free, RoHS-compliant and AEC-Q101 qualified

("\_X" denotes revision code e.g. A, B,....)

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

J-51D-002 and JE5D 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	SS8P5C	SS8P6C	UNIT	
Device marking code		S85C	S86C			
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	60	V		
Maximum average forward rectified current (fig. 1)	total device	1	8.0 4.0		Α	
	per diode	I <sub>F(AV)</sub>				
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	120		А	
Non-repetitive avalanche energy at 25 °C, I <sub>AS</sub> = 2 A per diode		E <sub>AS</sub>	20		mJ	
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150		°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (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>	0.55	-	V
	I <sub>F</sub> = 4.0 A			0.65	0.70	
	I <sub>F</sub> = 2.0 A	T <sub>A</sub> = 125 °C		0.48	-	
	I <sub>F</sub> = 4.0 A			0.56	0.60	
Reverse current per diode	Rated V <sub>R</sub>	$T_A = 25  ^{\circ}\text{C}$	I <sub>R</sub> <sup>(2)</sup>	2.5	50	μA
	nated v <sub>R</sub>	T <sub>A</sub> = 125 °C		1.6	10	mA
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	160	-	pF

#### Notes

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	MBOL SS8P5C SS8P6C				
Typical thermal resistance per diode	R <sub>θJA</sub> (1)	60		°C/W		
Typical trieffial resistance per diode	$R_{ heta JL}$	3				

#### Note

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

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS8P6C-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel		
SS8P6C-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel		
SS8P6CHM3_A/H (1)	0.10	Н	1500	7" diameter plastic tape and reel		
SS8P6CHM3_A/I (1)	0.10	I	6500	13" diameter plastic tape and reel		

#### Note

(1) AEC-Q101 qualified



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### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

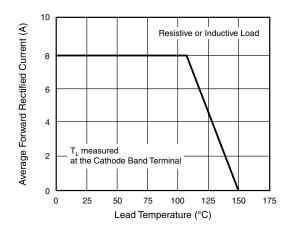


Fig. 1 - Maximum Forward Current Derating Curve

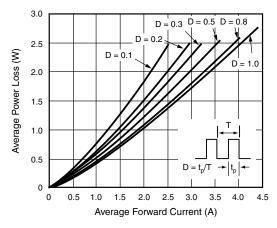


Fig. 2 - Forward Power Loss Characteristics Per Diode

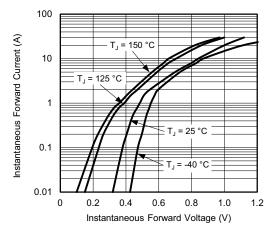


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

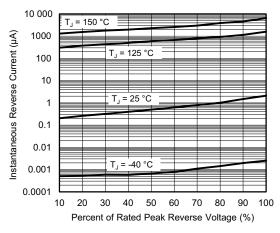


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

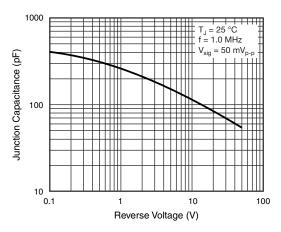


Fig. 5 - Typical Junction Capacitance Per Diode

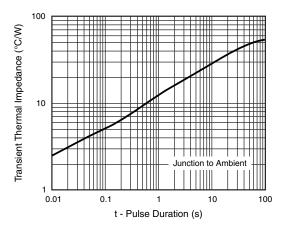
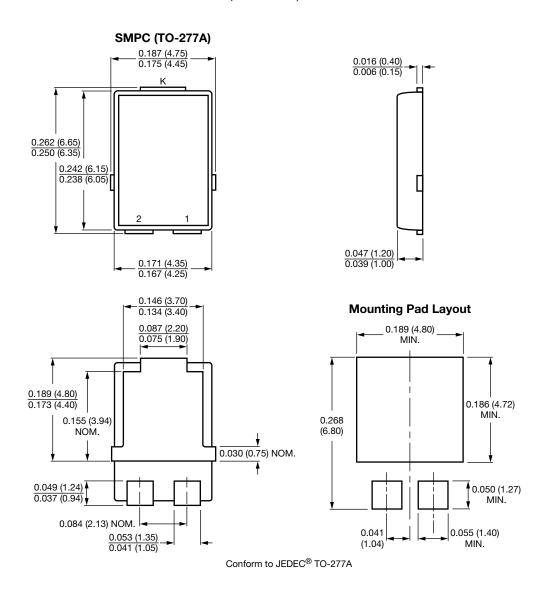


Fig. 6 - Typical Transient Thermal Impedance Per Diode



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





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