

AUTOMOTIVE

Available

RoHS COMPLIANT

HALOGEN



### Vishay General Semiconductor

### **High Current Density Surface Mount Schottky Barrier Rectifiers**



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

PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 5.0 A				
V <sub>RRM</sub>	30 V, 40 V				
I <sub>FSM</sub>	200 A				
E <sub>AS</sub>	20 mJ				
V <sub>F</sub> at I <sub>F</sub> = 5 A	0.37 V				
T <sub>J</sub> max.	150 °C				

#### **TYPICAL APPLICATIONS**

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

#### **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



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

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 <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	SS10P3C	SS10P4C	UNIT	
Device marking code			S103C	S104C		
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	30	40	V	
Maximum average forward rectified current (fig. 1)	total device		1	0	А	
	per diode	I <sub>F(AV)</sub>	5.0			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	200		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	

## SS10P3C, SS10P4C

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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> = 2.5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.40	-	V	
	I <sub>F</sub> = 5.0 A			0.45	0.53		
	I <sub>F</sub> = 2.5 A	T <sub>A</sub> = 125 °C		0.29	-		
	I <sub>F</sub> = 5.0 A			0.37	0.44		
Reverse current per diode	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	56	550	μΑ	
		T <sub>A</sub> = 125 °C		28	45	mA	
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	430	-	pF	

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

(2) Pulse test: Pulse width  $\leq$  40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	SS10P3C	SS10P4C	UNIT		
Typical thermal resistance per diode	R <sub>0</sub> JA <sup>(1)</sup>	60		°C/W		
	$R_{ heta JL}$	3				

#### Note

<sup>(1)</sup> Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SS10P4C-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel		
SS10P4C-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel		
SS10P4CHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel		
SS10P4CHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel		

#### Note

(1) Automotive grade



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### **RATINGS AND CHARACTERISTICS CURVES**

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

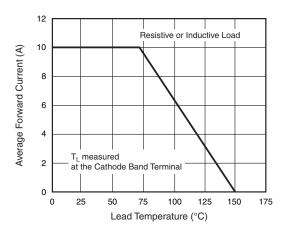


Fig. 1 - Maximum Forward Current Derating Curve

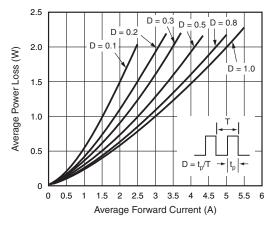


Fig. 2 - Forward Power Loss Characteristics Per Diode

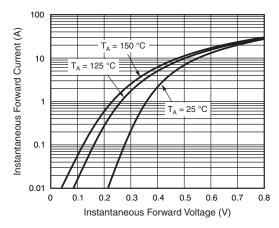


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

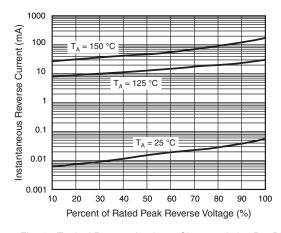


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

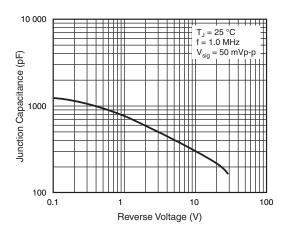


Fig. 5 - Typical Junction Capacitance Per Diode

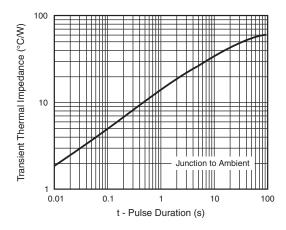


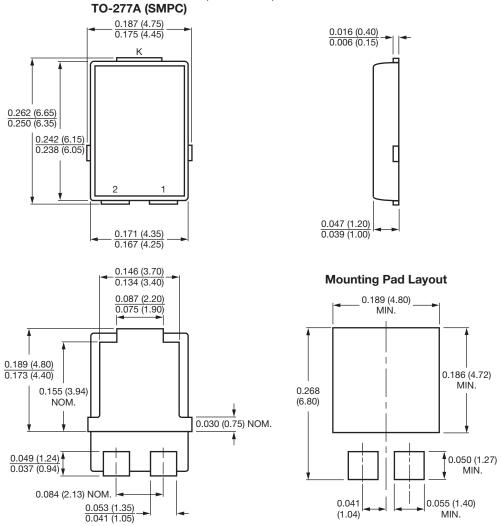
Fig. 6 - Typical Transient Thermal Impedance Per Diode

### SS10P3C, SS10P4C

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





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