SS5P9, SS5P10

Vishay General Semiconductor

High Current Density Surface Mount Schottky Barrier Rectifiers



к 0- 🗲 Cathode

-O Anode 1

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PRIMARY CHARACTERISTICS						
I _{F(AV)}	5.0 A					
V _{RRM}	90 V, 100 V					
I _{FSM}	150 A					
V_F at I_F = 5.0 A	0.649 V					
I _R	4.5 µA					
T _J max.	150 °C					
Package	TO-277A (SMPC)					
Diode variations	Single					

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 gualified available Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

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: 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 AEC-Q101 qualified

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

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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	SS5P9	SS5P10	UNIT		
Device marking code		S59	S510			
Maximum repetitive peak reverse voltage	V _{RRM}	90	100	V		
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	5.0		A		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	150		A		
Non-repetitive avalanche energy at I_{AS} = 2.0 A, T_{J} = 25 $^{\circ}\mathrm{C}$	E _{AS}	20		mJ		
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150		°C		

Available



COMPLIANT HALOGEN FREE



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ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)							
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT	
Instantaneous forward voltage	I _F = 2.5 A	– T _A = 25 °C	V _F ⁽¹⁾	0.708	-	v	
	I _F = 5.0 A			0.832	0.88		
	I _F = 2.5 A	T _A = 125 °C		0.571	-		
	I _F = 5.0 A			0.649	0.68		
Reverse current	Potod V	T _A = 25 °C	I _R ⁽²⁾	4.5	15	μA	
	Raled V _R	Rated V_R $T_A = 125 °C$		2.7	5	mA	
Typical junction capacitance	4.0 V, 1 MHz	4.0 V, 1 MHz		130	-	pF	

Notes

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

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

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise specified)						
PARAMETER	SYMBOL	SS5P9 SS5P10		UNIT		
Typical thermal resistance	R _{0JA} ⁽¹⁾	65		°C/W		
Typical memaresistance	$R_{ extsf{ heta}JL}$	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			
SS5P10-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel			
SS5P10-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel			
SS5P10HM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel			
SS5P10HM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel			
SS5P10HM3_A/H (1)	0.10	н	1500	7" diameter plastic tape and reel			
SS5P10HM3_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_A = 25 °C unless otherwise noted)

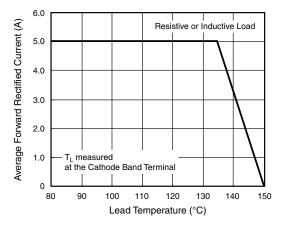


Fig. 1 - Maximum Forward Current Derating Curve

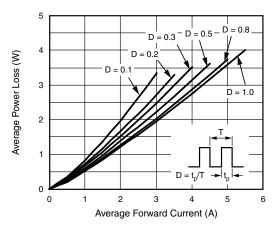


Fig. 2 - Forward Power Loss Characteristics

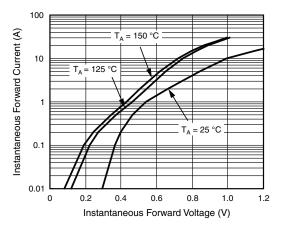


Fig. 3 - Typical Instantaneous Forward Characteristics

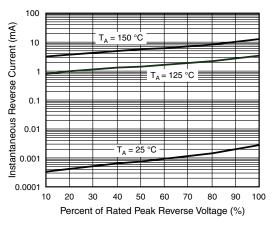


Fig. 4 - Typical Reverse Characteristics

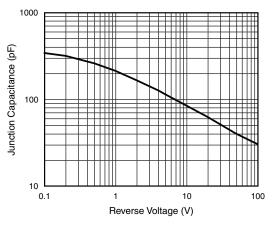


Fig. 5 - Typical Junction Capacitance

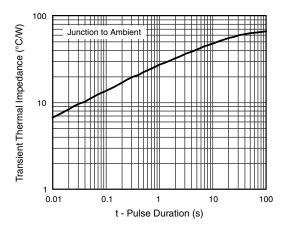


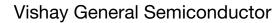
Fig. 6 - Typical Transient Thermal Impedance

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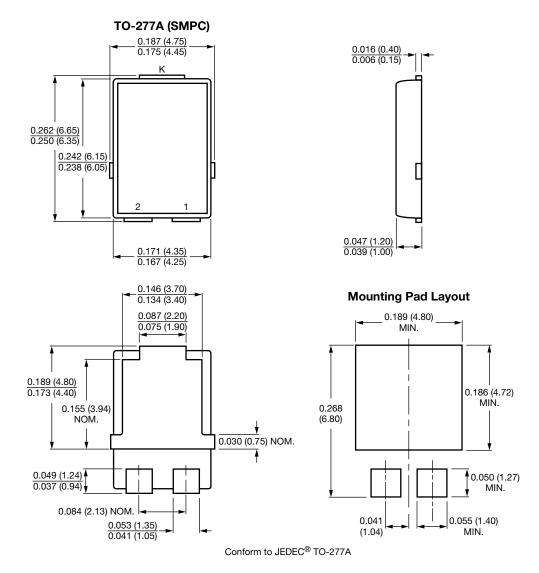
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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