

SS5P9HM3_A/I Datasheet

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DiGi Electronics Part Number	SS5P9HM3_A/I-DG
Manufacturer	Vishay General Semiconductor - Diodes Division
Manufacturer Product Number	SS5P9HM3_A/I
Description	DIODE SCHOTTKY 90V 5A TO277A
Detailed Description	Diode 90 V 5A Surface Mount TO-277A (SMPC)

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Purchase and inquiry

Manufacturer Product Number:

SS5P9HM3_A/I

Series:

eSMP®

Technology:

Schottky

Current - Average Rectified (Io):

5A

Speed:

Fast Recovery =< 500ns, > 200mA (Io)

Capacitance @ Vr, F:

130pF @ 4V, 1MHz

Qualification:

AEC-Q101

Package / Case:

TO-277, 3-PowerDFN

Operating Temperature - Junction:

-55°C ~ 150°C

Manufacturer:

Vishay General Semiconductor - Diodes Division

Product Status:

Active

Voltage - DC Reverse (Vr) (Max):

90 V

Voltage - Forward (Vf) (Max) @ If:

880 mV @ 5 A

Current - Reverse Leakage @ Vr:

15 µA @ 90 V

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

TO-277A (SMPC)

Base Product Number:

SS5P9

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0080

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

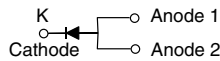
EAR99

High Current Density Surface-Mount Schottky Barrier Rectifiers

eSMP® Series



SMPC (TO-277A)



LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

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 μ A
T_J max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	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 qualified available
 - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

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

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

MAXIMUM RATINGS ($T_A = 25$ °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, $T_J = 25$ °C	E_{AS}	20		mJ
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150		°C

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

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 2.5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	0.708	-	V
	$I_F = 5.0\text{ A}$		0.832	0.88	
	$I_F = 2.5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$	0.571	-	
	$I_F = 5.0\text{ A}$		0.649	0.68	
Reverse current	Rated V_R	$T_A = 25\text{ }^\circ\text{C}$	4.5	15	μA
		$T_A = 125\text{ }^\circ\text{C}$	2.7	5	mA
Typical junction capacitance	4.0 V, 1 MHz	C_J	130	-	pF

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	SS5P9	SS5P10	UNIT
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾	65		$^\circ\text{C/W}$
	$R_{\theta JL}$	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_A/H ⁽¹⁾	0.10	H	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

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

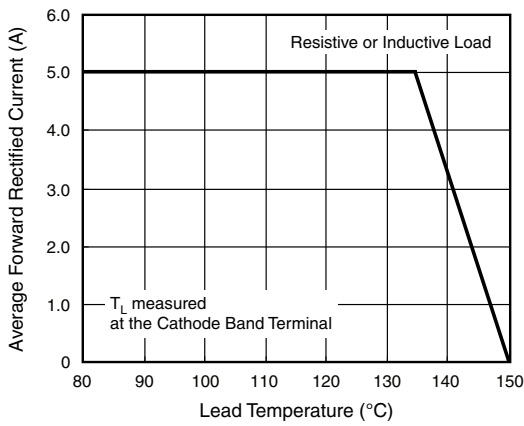


Fig. 1 - Maximum Forward Current Derating Curve

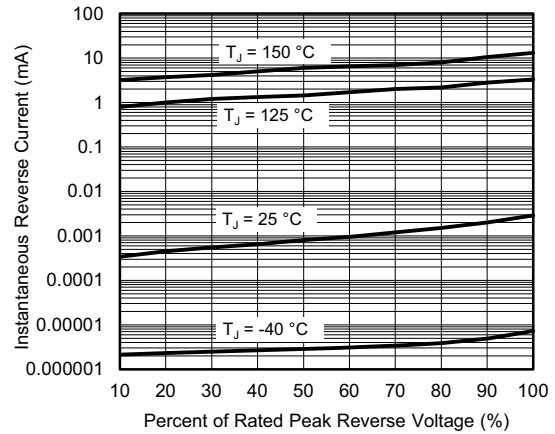


Fig. 4 - Typical Reverse Characteristics

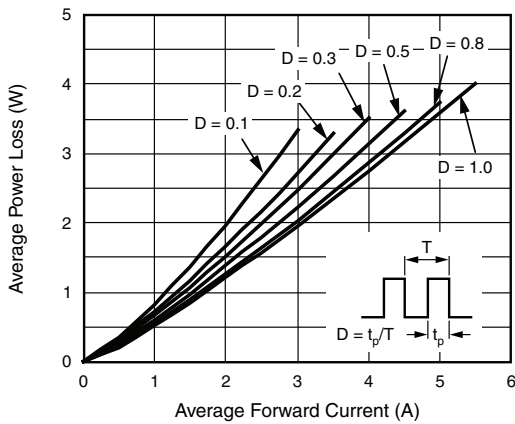


Fig. 2 - Forward Power Loss Characteristics

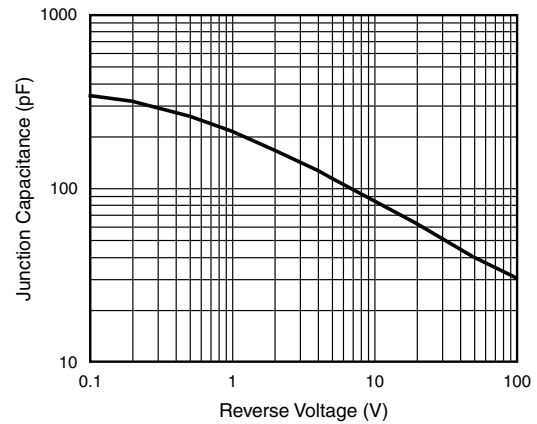


Fig. 5 - Typical Junction Capacitance

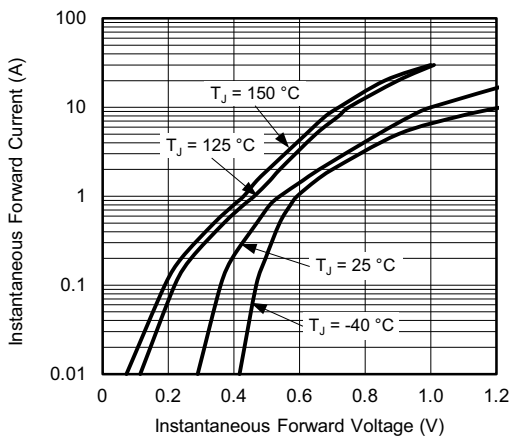


Fig. 3 - Typical Instantaneous Forward Characteristics

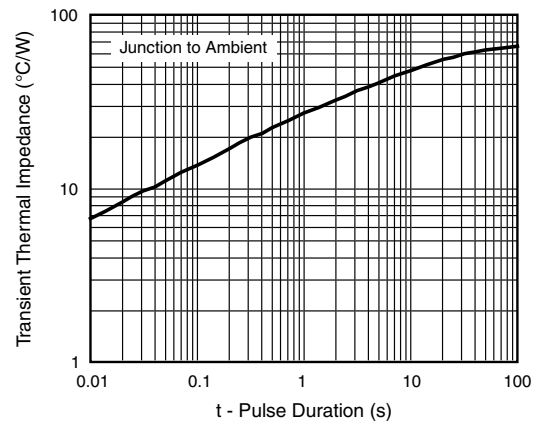
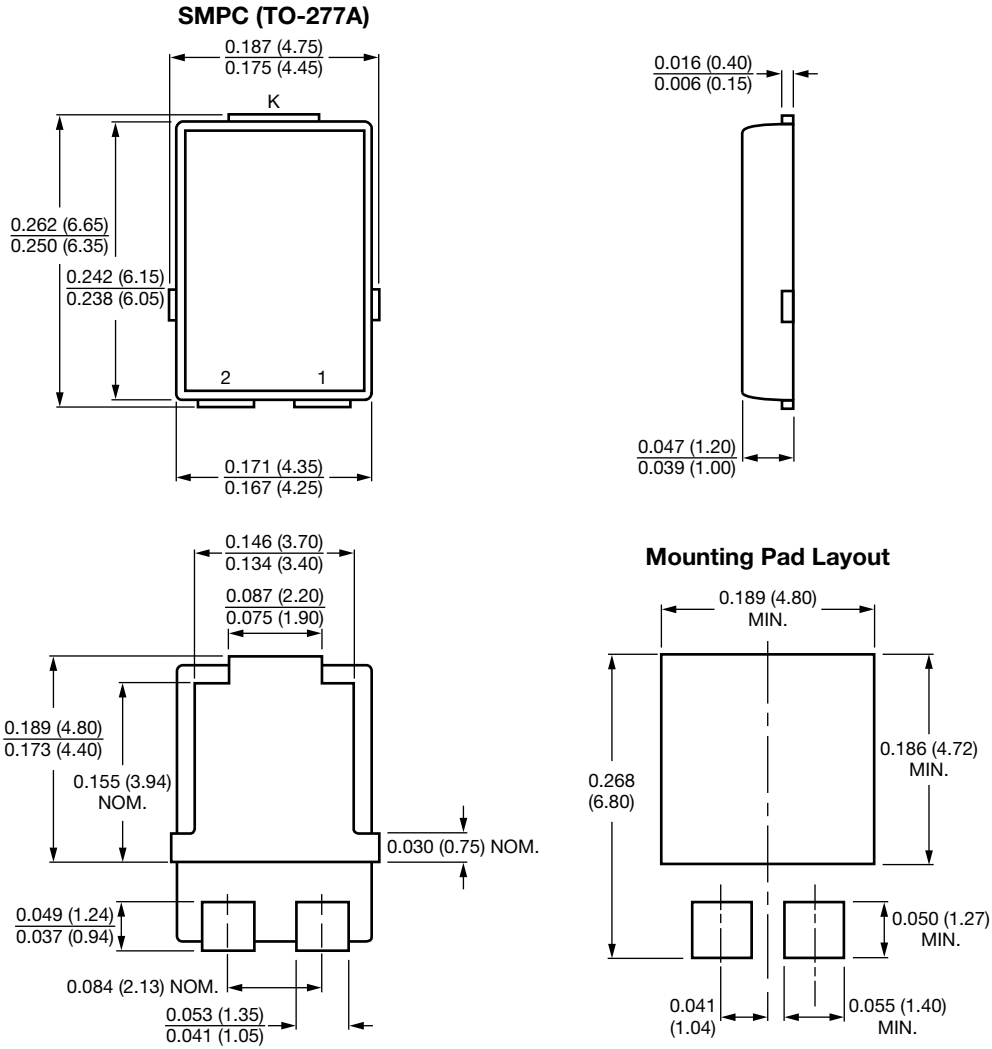


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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