

# S4PBHM3\_A/I Datasheet

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DiGi Electronics Part Number	S4PBHM3_A/I-DG
Manufacturer	<a href="#">Vishay General Semiconductor - Diodes Division</a>
Manufacturer Product Number	S4PBHM3_A/I
Description	DIODE GEN PURP 100V 4A TO277A
Detailed Description	Diode 100 V 4A Surface Mount TO-277A (SMPC)

This model S4PBHM3\_A/I is available at DiGi Electronics.

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## Purchase and inquiry

Manufacturer Product Number:

S4PBHM3\_A/I

Series:

eSMP®

Technology:

Standard

Current - Average Rectified (Io):

4A

Speed:

Standard Recovery >500ns, > 200mA (Io)

Current - Reverse Leakage @ Vr:

10 µA @ 100 V

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

TO-277A (SMPC)

Base Product Number:

S4P

Manufacturer:

Vishay General Semiconductor - Diodes Division

Product Status:

Obsolete

Voltage - DC Reverse (Vr) (Max):

100 V

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

1.1 V @ 4 A

Reverse Recovery Time (trr):

2.5 µs

Capacitance @ Vr, F:

30pF @ 4V, 1MHz

Qualification:

AEC-Q101

Package / Case:

TO-277, 3-PowerDFN

Operating Temperature - Junction:

-55°C ~ 150°C

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0080

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99


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# S4PB, S4PD, S4PG, S4PJ, S4PK, S4PM

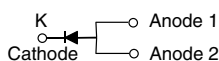
Vishay General Semiconductor

## High Current Density Surface-Mount Glass Passivated Rectifiers

### eSMP® Series



### SMPC (TO-277A)



### DESIGN SUPPORT TOOLS AVAILABLE



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	4.0 A
$V_{RRM}$	100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	100 A
$I_R$	10 $\mu$ A
$V_F$ at $I_F = 4$ A	0.860 V
$T_J$ max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

### FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Glass passivated pellet chip junction
- Low forward voltage drop
- High surge capability
- 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](http://www.vishay.com/doc?99912)

 AUTOMOTIVE  
GRADE  
Available

 RoHS  
COMPLIANT  
HALOGEN  
FREE

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive, and telecommunication.

### 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 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)								
PARAMETER	SYMBOL	S4PB	S4PD	S4PG	S4PJ	S4PK	S4PM	UNIT
Device marking code		S4PB	S4PD	S4PG	S4PJ	S4PK	S4PM	
Max. repetitive peak reverse voltage	$V_{RRM}$	100	200	400	600	800	1000	V
Average forward current	$I_{F(AV)}$	4.0						A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100						A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150						°C


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# S4PB, S4PD, S4PG, S4PJ, S4PK, S4PM

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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 2.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.897	-	V
	$I_F = 4.0\text{ A}$			0.958	1.10	
	$I_F = 2.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.783	-	
	$I_F = 4.0\text{ A}$			0.860	0.95	
Reverse current	Rated $V_R$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	10	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		55	100	
Max. reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$		$t_{rr}$	2.5	-	$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	30	-	pF

**Notes**

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)								
PARAMETER	SYMBOL	S4PB	S4PD	S4PG	S4PJ	S4PK	S4PM	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	60						$^\circ\text{C/W}$
	$R_{\theta JL}$	4						

**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
S4PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
S4PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
S4PJHM3_B/H <sup>(1)</sup>	0.10	H	1500	7" diameter plastic tape and reel
S4PJHM3_B/I <sup>(1)</sup>	0.10	I	6500	13" diameter plastic tape and reel

**Note**

- (1) AEC-Q101 qualified



# S4PB, S4PD, S4PG, S4PJ, S4PK, S4PM

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

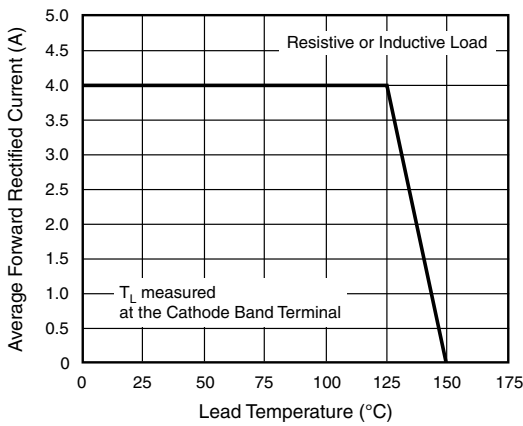


Fig. 1 - Maximum Forward Current Derating Curve

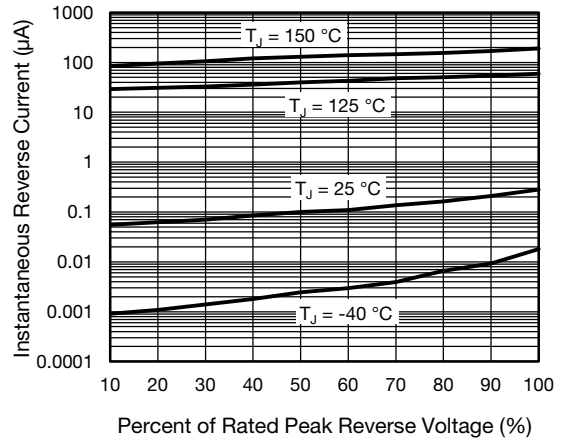


Fig. 4 - Typical Reverse Leakage Characteristics

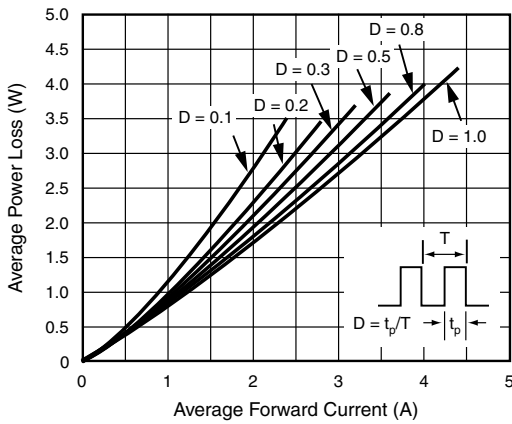


Fig. 2 - Forward Power Loss Characteristics

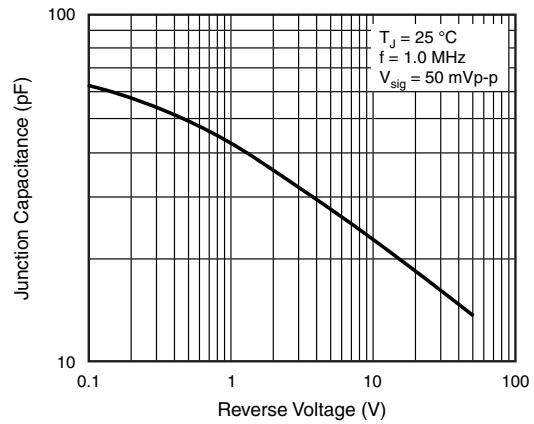


Fig. 5 - Typical Junction Capacitance

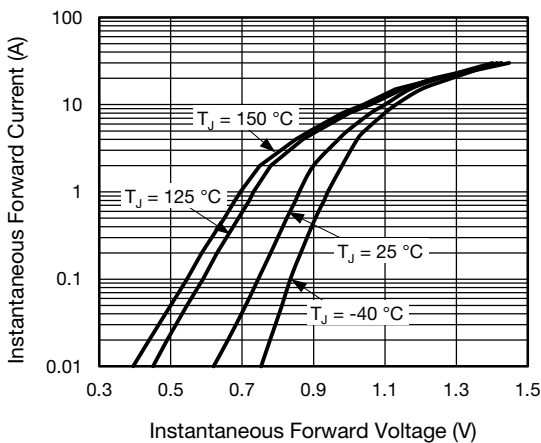


Fig. 3 - Typical Instantaneous Forward Characteristics

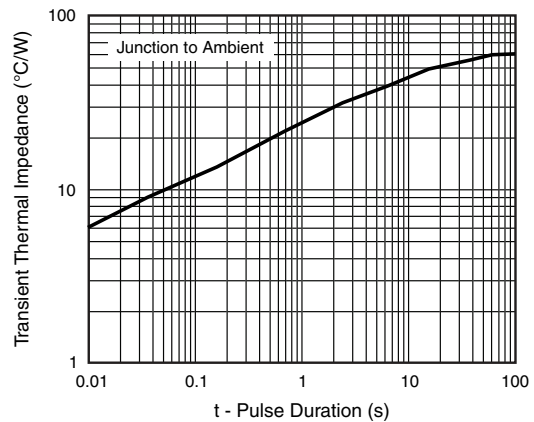


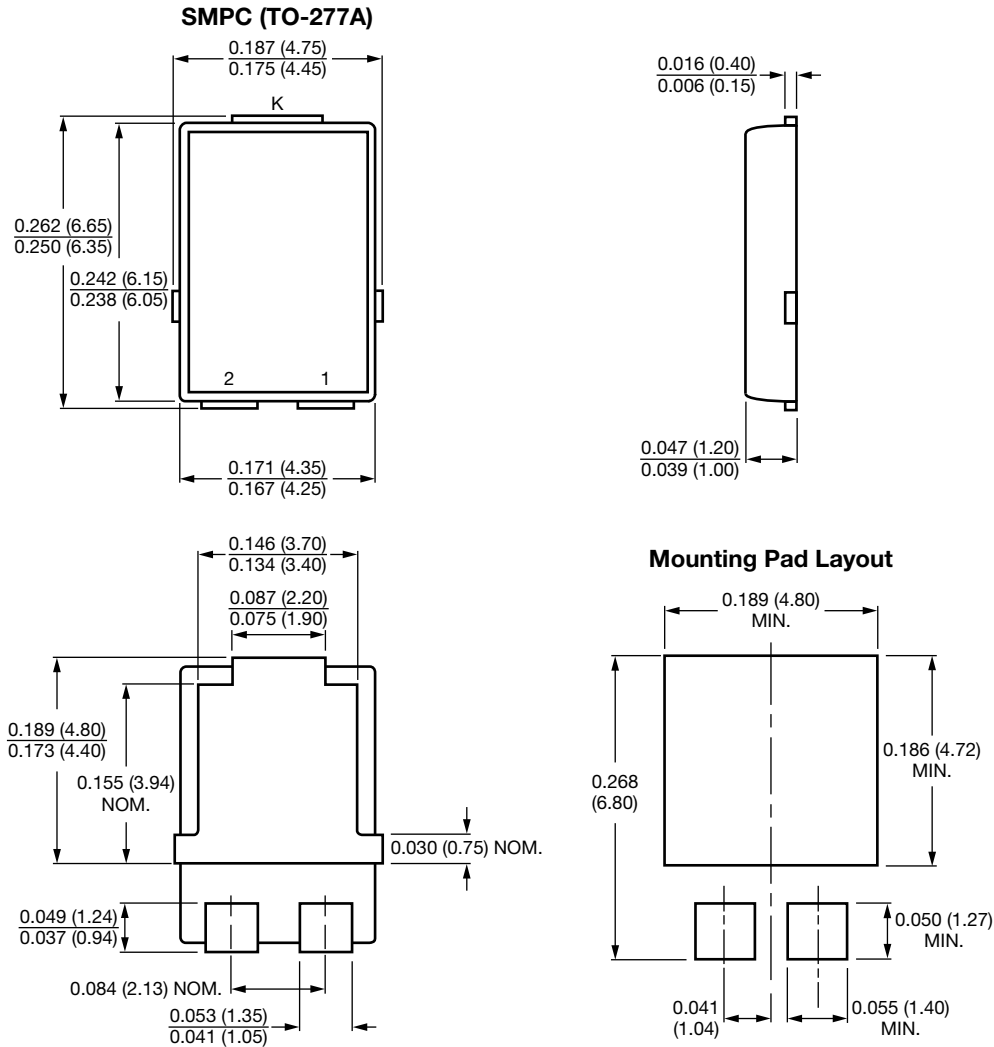
Fig. 6 - Typical Transient Thermal Impedance



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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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