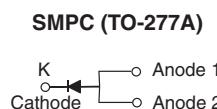


High Current Density Surface Mount Glass Passivated Rectifiers



DESIGN SUPPORT TOOLS


[click logo to get started](#)

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



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

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 μ A
V_F at $I_F = 4$ A	0.860 V
T_J max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 2.0 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.897	-	V	
	$I_F = 4.0 \text{ A}$			0.958	1.10		
	$I_F = 2.0 \text{ A}$	$T_A = 125^\circ\text{C}$		0.783	-		
	$I_F = 4.0 \text{ A}$			0.860	0.95		
Reverse current	Rated V_R	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	-	10	μA	
		$T_A = 125^\circ\text{C}$		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	-	μs	
Typical junction capacitance	4.0 V, 1 MHz		C_J	30	-	pF	

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

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

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ 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						

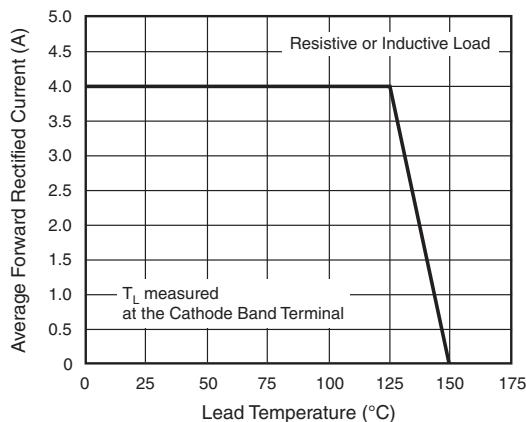
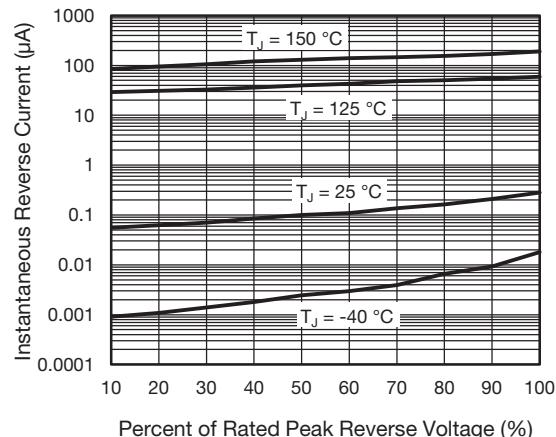
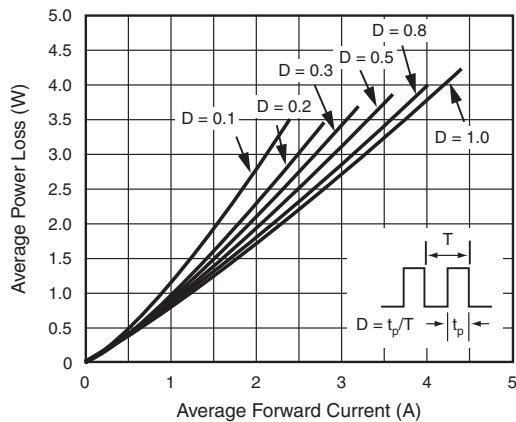
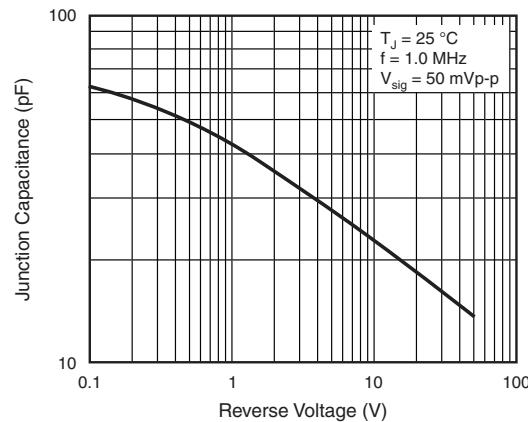
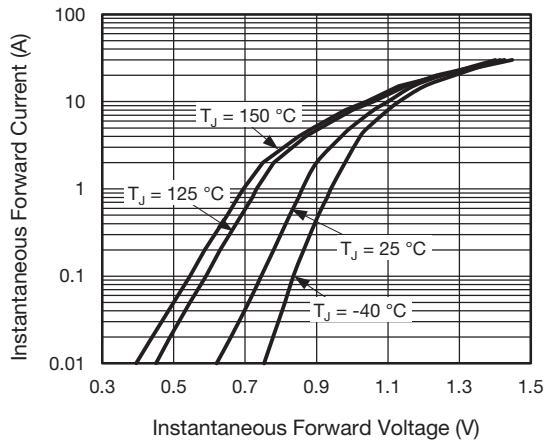
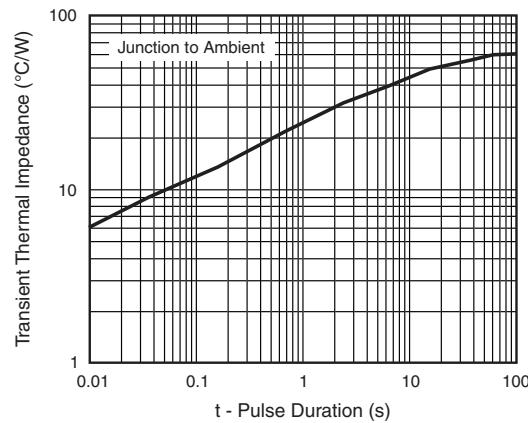
Note

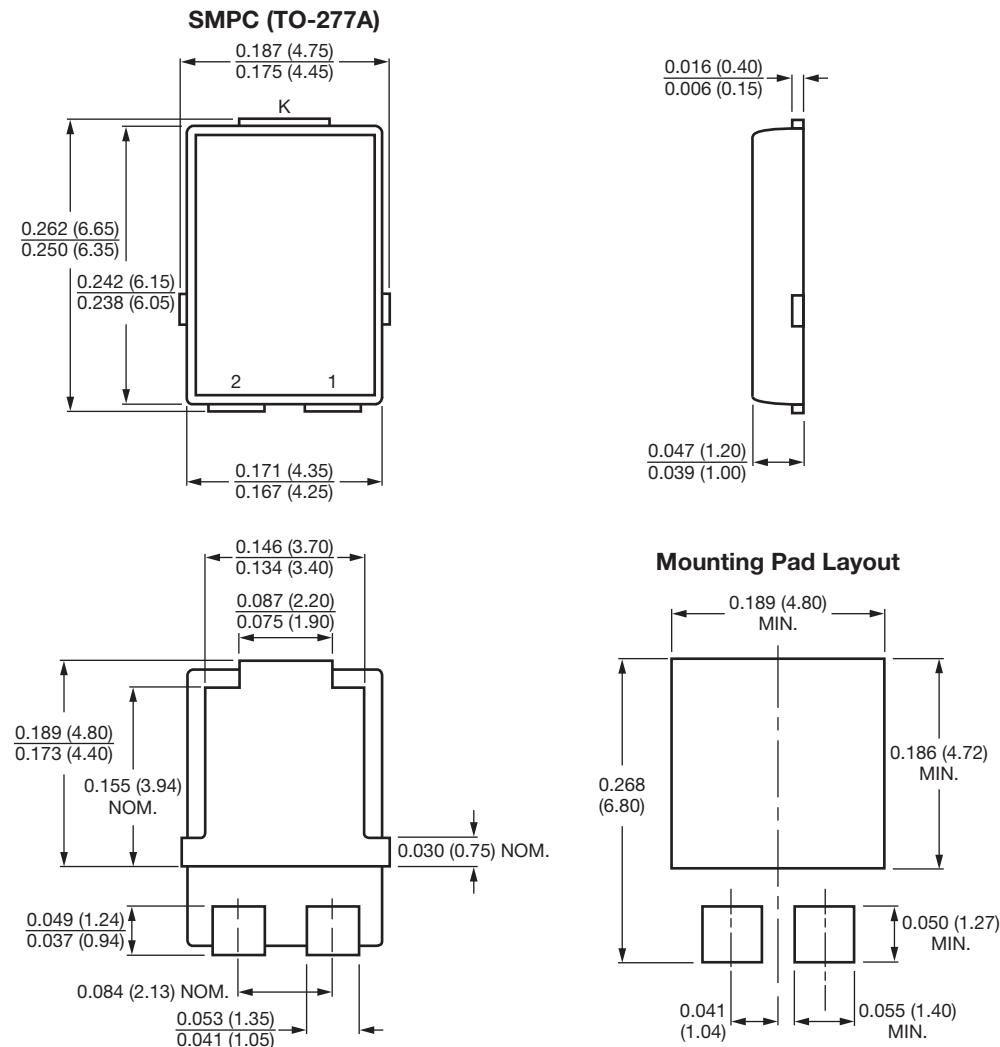
(1) Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (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_A/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel	
S4PJHM3_A/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel	

Note

(1) AEC-Q101 qualified

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

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)


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