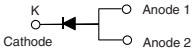
High Current Density Surface Mount Glass Passivated Rectifiers

eSMP™ Series

TO-277A (SMPC)



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	4.0 A
V_{RRM}	100 V to 1000 V
I_{FSM}	100 A
I_R	10 µA
V_F at I_F = 4 A	0.860 V
T_J max.	150 °C

TYPICAL APPLICATIONS

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

FEATURES

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Glass passivated chip junction
- Low forward voltage drop
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- 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**

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

Base P/NHM3 - halogen-free and RoHS compliant, automotive grade

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	
Maximum 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

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage (1)	I_F = 2.0 A I_F = 4.0 A	T_A = 25 °C	V_F	0.897 0.958	- 1.10	V
	I_F = 2.0 A I_F = 4.0 A	T_A = 125 °C		0.783 0.860	- 0.95	
Reverse current (2)	Rated V_R	T_A = 25 °C T_A = 125 °C	I_R	- 55	10 100	µA
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 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 ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	**SYMBOL**	**S4PB**	**S4PD**	**S4PG**	**S4PJ**	**S4PK**	**S4PM**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1) $R_{\theta JL}$	60 4						°C/W

Note

(1) Units mounted on recommended P.C.B. 1 oz. pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED 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
S4PJHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel
S4PJHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel

Note

(1) Automotive grade

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

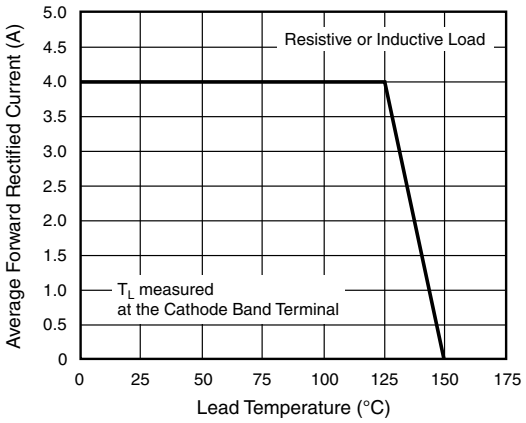


Figure 1. Maximum Forward Current Derating Curve

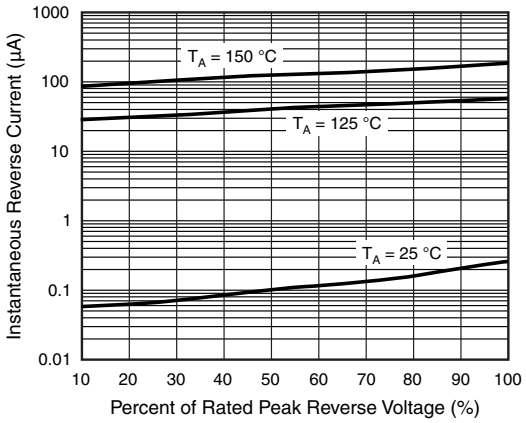


Figure 4. Typical Reverse Leakage Characteristics

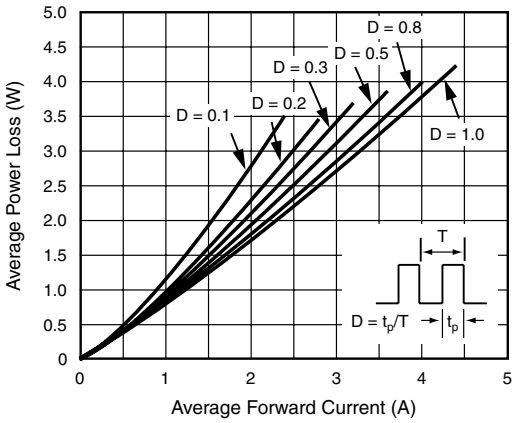


Figure 2. Forward Power Loss Characteristics

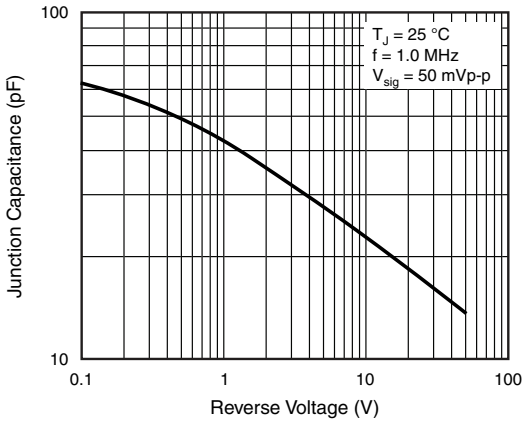


Figure 5. Typical Junction Capacitance

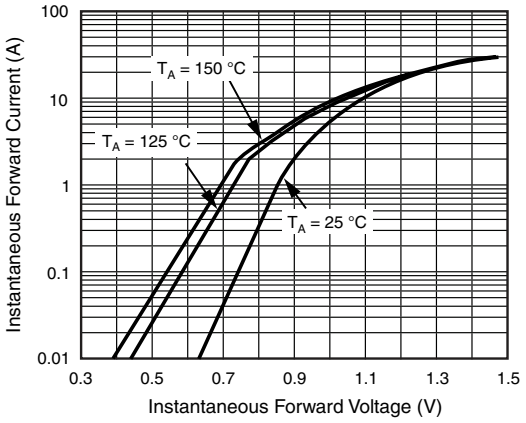


Figure 3. Typical Instantaneous Forward Characteristics

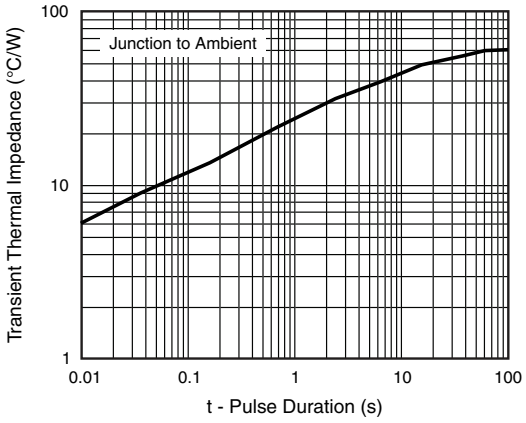
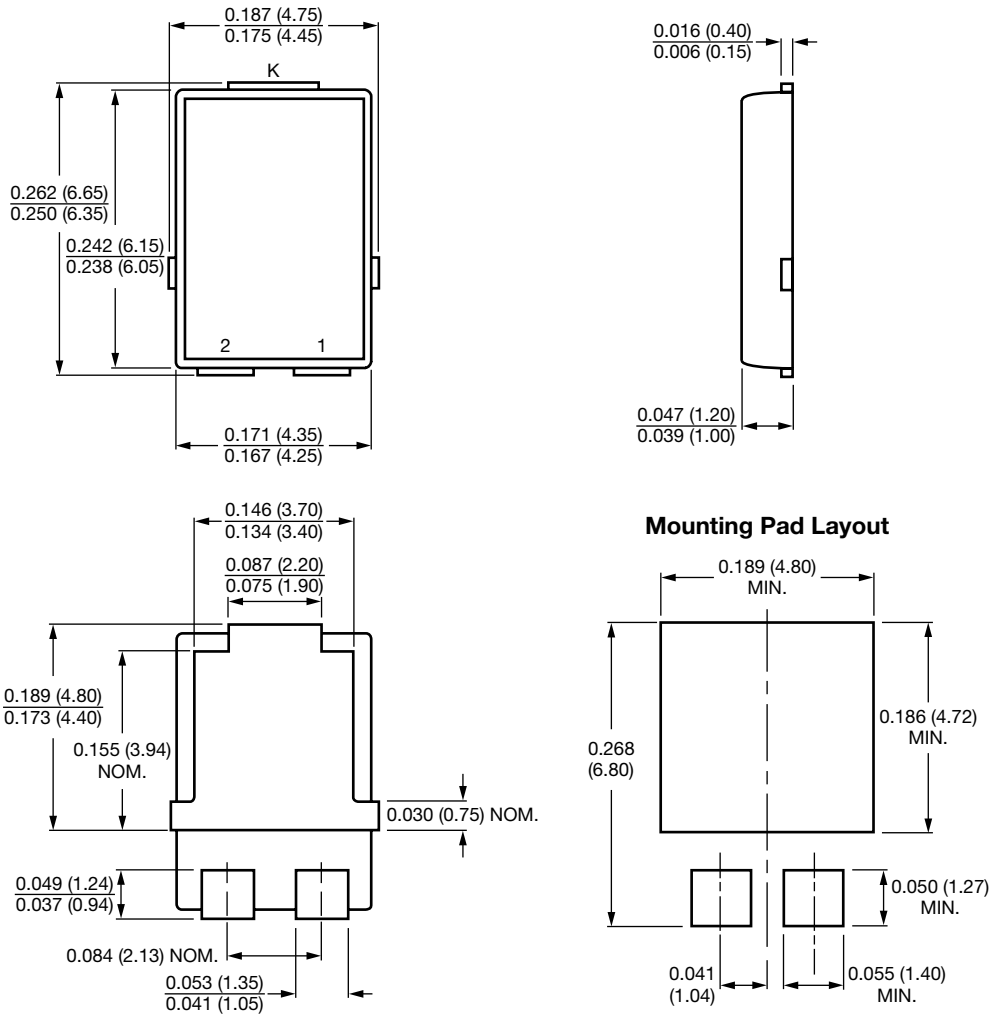


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-277A (SMPC)



Conform to JEDEC TO-277A

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