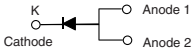
High Current Density Surface Mount Schottky Barrier Rectifiers

eSMP™ Series

TO-277A (SMPC)



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

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters and polarity protection application.

FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- 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
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- **Halogen-free**

Pb e3 RoHS COMPLIANT HALOGEN FREE

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94V-0 flammability rating.

Base P/N-E3 - RoHS compliant, commercial grade

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

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 and M3 suffix meets JESD 201 class 1A 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 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 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage (1)	I_F = 2.5 A I_F = 5.0 A	T_A = 25 °C	V_F	0.708 0.832	- 0.88	V
	I_F = 2.5 A I_F = 5.0 A	T_A = 125 °C		0.571 0.649	- 0.68	
Reverse current (2)	rated V_R	T_A = 25 °C T_A = 125 °C	I_R	4.5 2.7	15 5	µA 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 ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SS5P9**	**SS5P10**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1) $R_{\theta JL}$	65 3		°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**
SS5P10-E3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS5P10-E3/87A	0.10	87A	6500	13" diameter plastic tape and reel
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

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

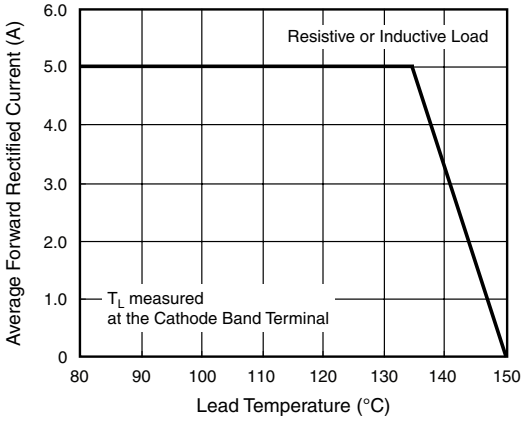


Figure 1. Maximum Forward Current Derating Curve

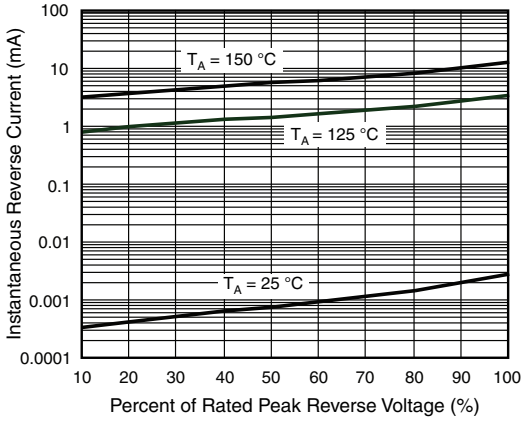


Figure 4. Typical Reverse Characteristics

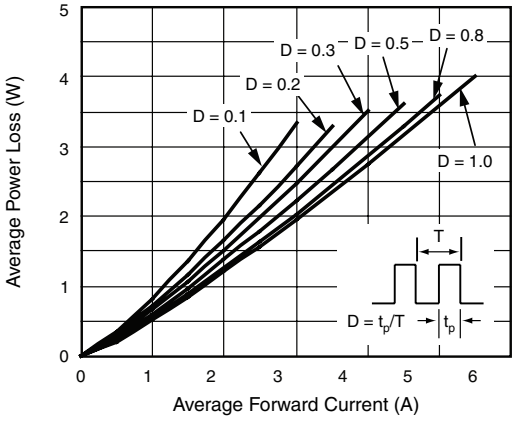


Figure 2. Forward Power Loss Characteristics

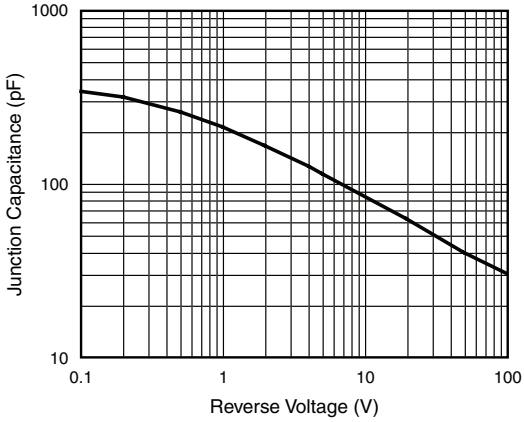


Figure 5. Typical Junction Capacitance

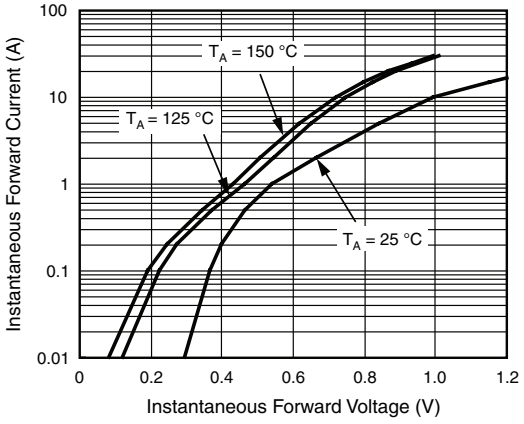


Figure 3. Typical Instantaneous Forward Characteristics

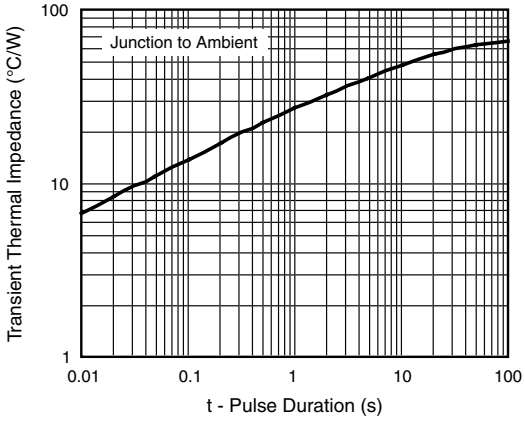
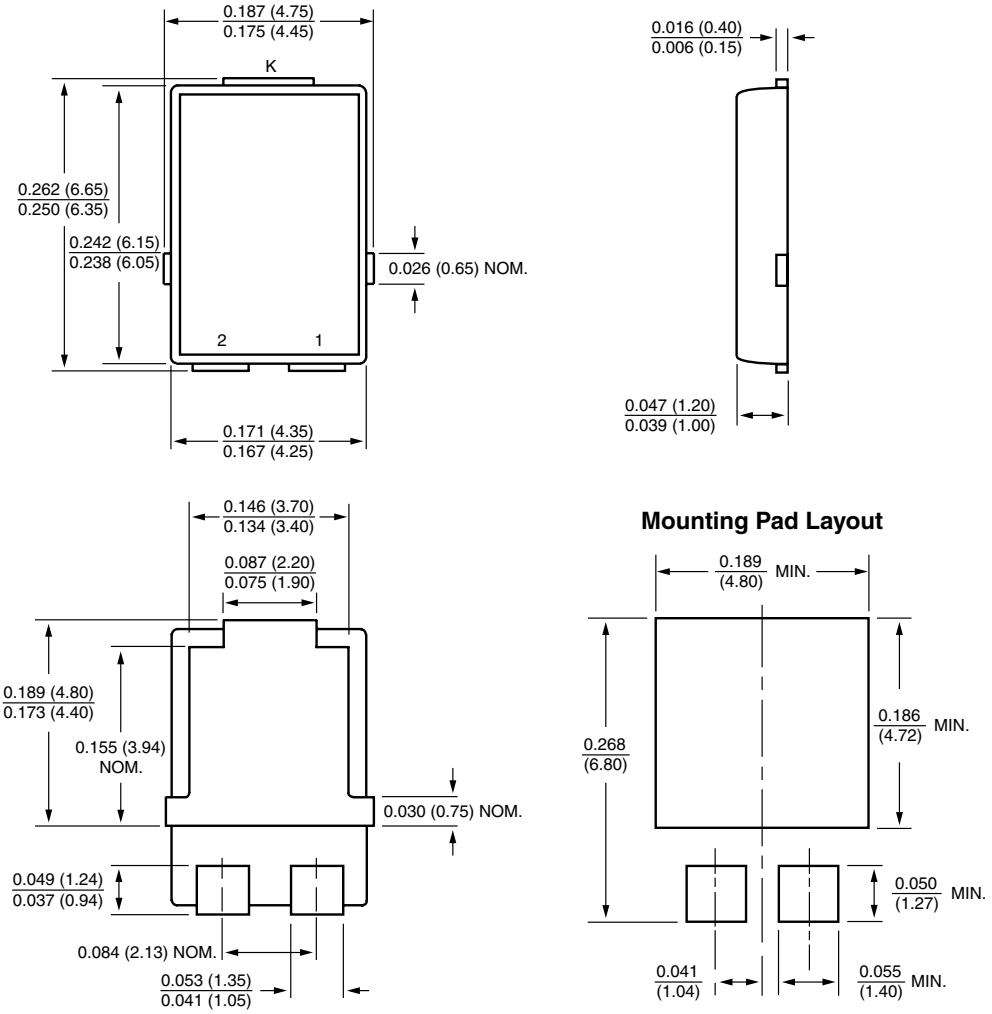


Figure 6. Typical Transient Thermal Impedance

For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-277A (SMPC)



Conform to JEDEC TO-277A

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