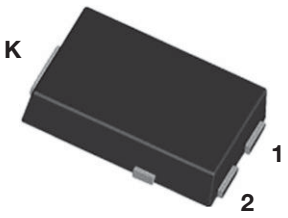
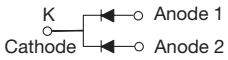
High Current Density Surface Mount Dual Common Cathode Schottky Rectifier

eSMP® Series



SMPC (TO-277A)



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
- 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

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 4.0 A
V_{RRM}	50 V, 60 V
I_{FSM}	120 A
E_{AS}	20 mJ
V_F at I_F = 4 A	0.56 V
T_J max.	150 °C
Package	SMPC (TO-277A)
Circuit configuration	Common cathode

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	SS8P5C	SS8P6C	UNIT
Device marking code			S85C	S86C	
Maximum repetitive peak reverse voltage		V_{RRM}	50	60	V
Maximum average forward rectified current (fig. 1)	total device	$I_{F(AV)}$	8.0		A
	per diode		4.0		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I_{FSM}	120		A
Non-repetitive avalanche energy at 25 °C, I_{AS} = 2 A per diode		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 per diode	I_F = 2.0 A	T_A = 25 °C	V_F (1)	0.55	-	V
	I_F = 4.0 A			0.65	0.70	
	I_F = 2.0 A	T_A = 125 °C		0.48	-	
	I_F = 4.0 A			0.56	0.60	
Reverse current per diode	Rated V_R	T_A = 25 °C	I_R (2)	2.5	50	µA
		T_A = 125 °C		1.6	10	mA
Typical junction capacitance per diode	4.0 V, 1 MHz		C_J	160	-	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 specified)				
PARAMETER	**SYMBOL**	**SS8P5C**	**SS8P6C**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JA}$ (1)	60		°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**
SS8P6C-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS8P6C-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS8P6CHM3_A/H (1)	0.10	H	1500	7" diameter plastic tape and reel
SS8P6CHM3_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 °C unless otherwise noted)

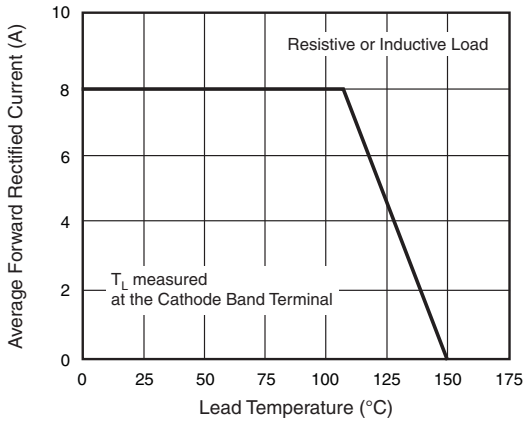


Fig. 1 - Maximum Forward Current Derating Curve

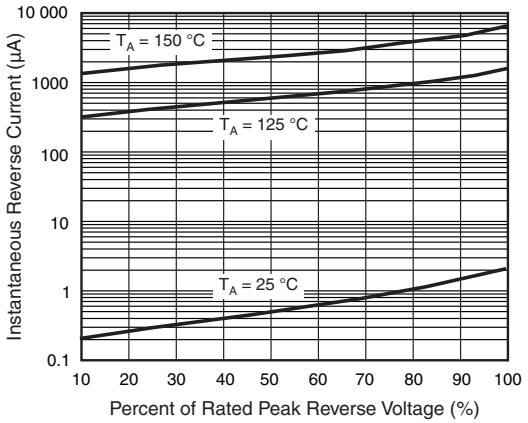


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

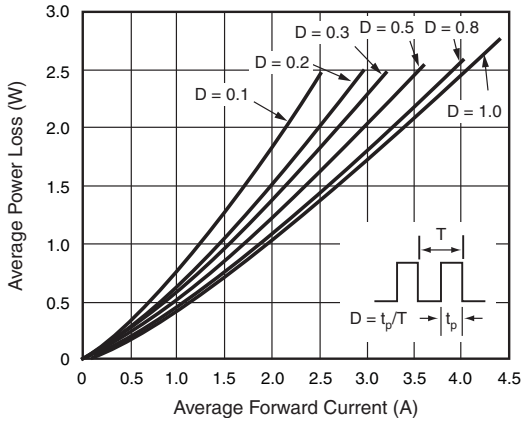


Fig. 2 - Forward Power Loss Characteristics Per Diode

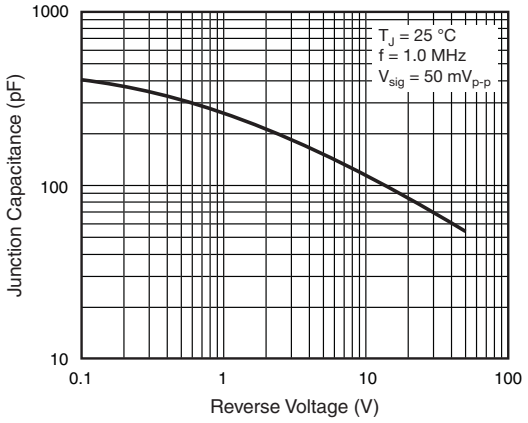


Fig. 5 - Typical Junction Capacitance Per Diode

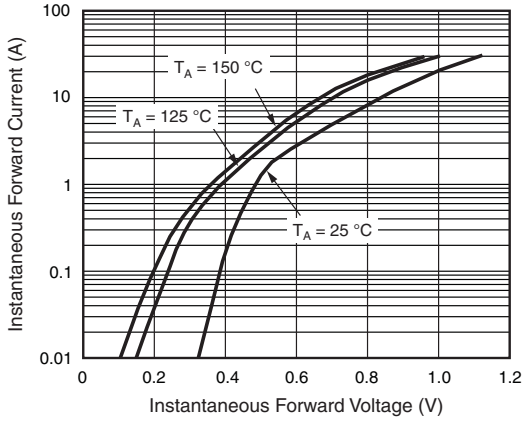


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

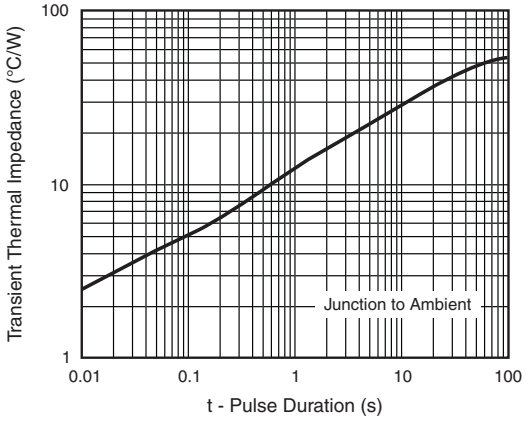
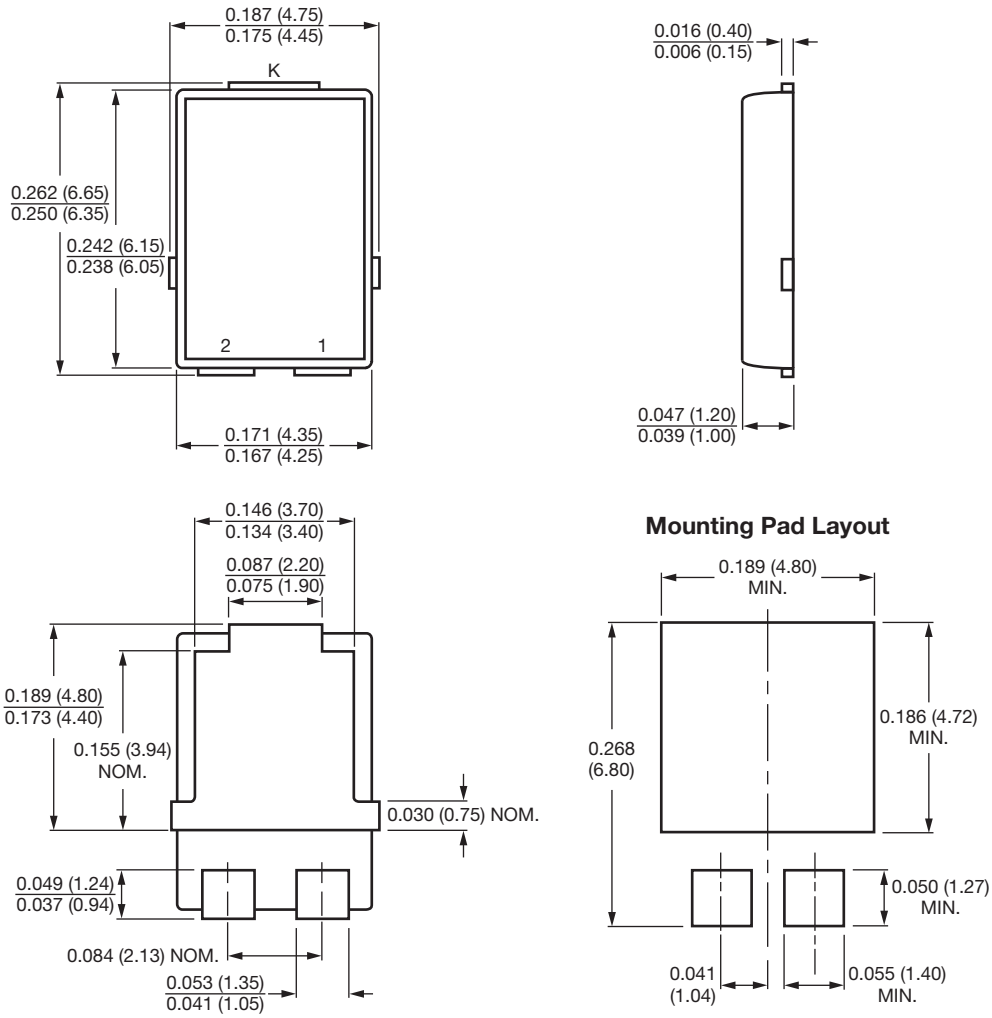


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPC (TO-277A)



Conform to JEDEC® TO-277A

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