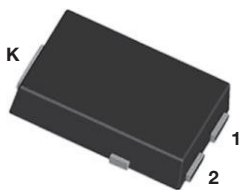
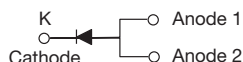


High Current Density Surface Mount Schottky Rectifier

eSMP® Series



SMPC (TO-277A)



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Guardring for overvoltage protection
- High barrier technology, $T_J = 175\text{ }^\circ\text{C}$ maximum
- Low leakage current
- Meets MSL level 1, per J-STD-020, LF maximum peak of $260\text{ }^\circ\text{C}$
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc299912

DESIGN SUPPORT TOOLS

[click logo to get started](#)



TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or 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	
$I_{F(AV)}$	10 A
V_{RRM}	45 V
I_{FSM}	200 A
E_{AS}	20 mJ
V_F at $I_F = 10\text{ A}$	0.56 V
I_R	5.5 μA
T_J max.	$175\text{ }^\circ\text{C}$
Package	SMPC (TO-277A)
Circuit configuration	Single

MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	SS10PH45	UNIT
Device marking code		10H45	
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	10	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	200	A
Non-repetitive avalanche energy at $I_{AS} = 2\text{ A}$, $T_J = 25\text{ }^\circ\text{C}$	E_{AS}	20	mJ
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.54	-	V
	I _F = 10 A			0.64	0.72	
	I _F = 5 A	T _A = 125 °C		0.45	-	
	I _F = 10 A			0.56	0.64	
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	5.5	80	μA
		T _A = 125 °C		3.9	10	mA
Typical junction capacitance	4.0 V, 1 MHz		C _J	400	-	pF

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)			
PARAMETER	SYMBOL	SS10PH45	UNIT
Typical thermal resistance per diode	$R_{\theta JA}^{(1)}$	60	$^{\circ}\text{C/W}$
	$R_{\theta JL}$	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
SS10PH45-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SS10PH45-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SS10PH45HM3_A/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel
SS10PH45HM3_A/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

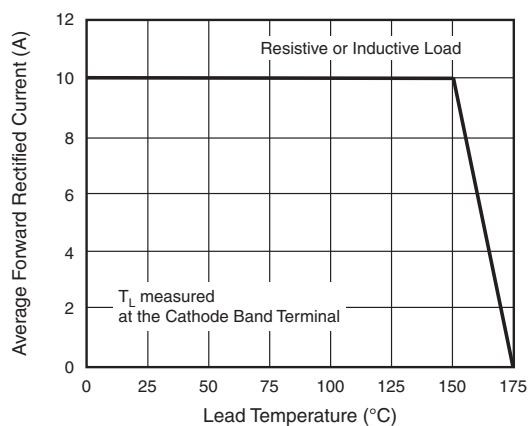
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)


Fig. 1 - Maximum Forward Current Derating Curve

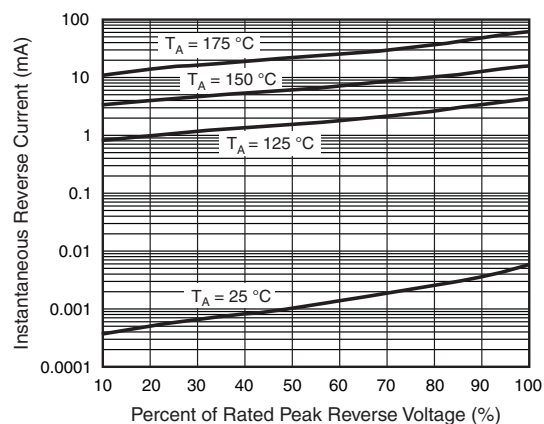


Fig. 4 - Typical Reverse Leakage Characteristics

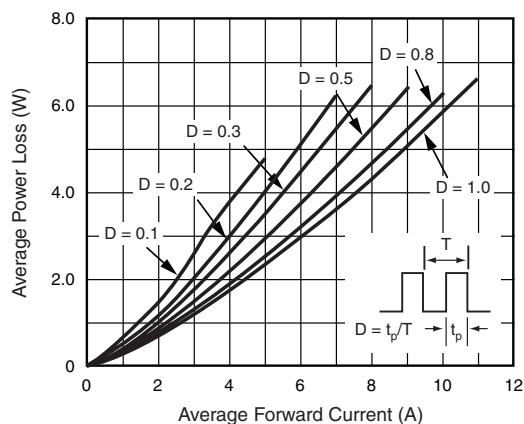


Fig. 2 - Forward Power Loss Characteristics

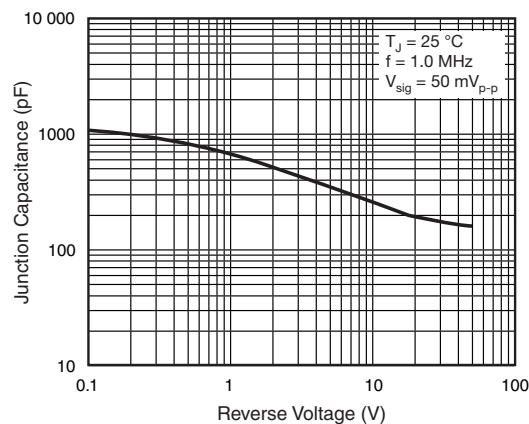


Fig. 5 - Typical Junction Capacitance

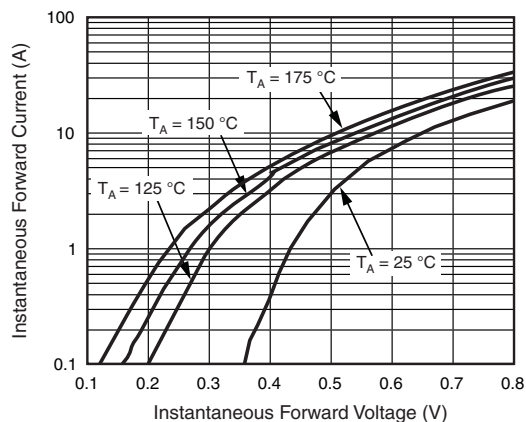


Fig. 3 - Typical Instantaneous Forward Characteristics

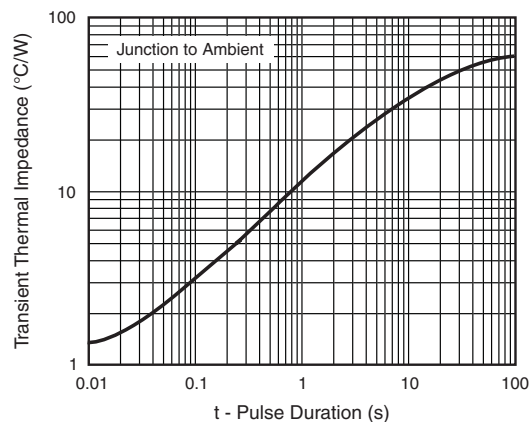
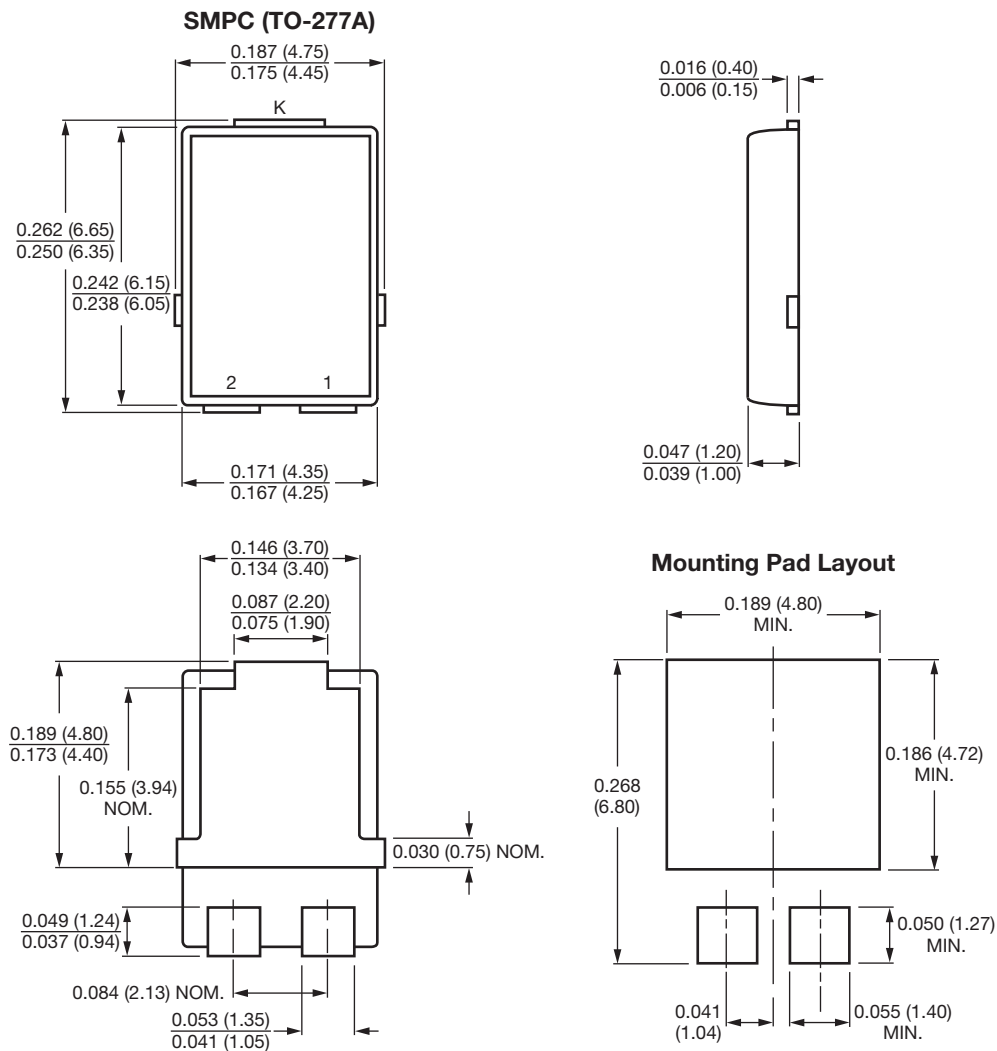


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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