AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN

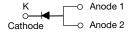


Vishay General Semiconductor

High Current Density Surface-Mount Schottky Rectifier







LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	10 A			
V_{RRM}	45 V			
I _{FSM}	200 A			
E _{AS}	20 mJ			
V_F at $I_F = 10 A$	0.56 V			
I _R	5.5 μA			
T _J max.	175 °C			
Package	SMPC (TO-277A)			
Circuit configuration	Single			

FEATURES





- Guardring for overvoltage protection
- High barrier technology, T_J = 175 °C maximum
- Low leakage current
- 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 <u>www.vishay.com/doc?99912</u>

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 gualified

("_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

MAXIMUM RATINGS (T _A = 25 °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	Α		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	200	А		
Non-repetitive avalanche energy at $I_{AS} = 2~\text{A}$, $T_J = 25~\text{°C}$	E _{AS}	20	mJ		
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175	°C		



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CO	TEST CONDITIONS		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	Date d V	T _A = 25 °C	I _R ⁽²⁾	5.5	80	μA
	Rated V _R	T _A = 125 °C		3.9	10	mA
Typical junction capacitance	4.0 V, 1 MHz	<u>.</u>	CJ	400	-	pF

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)					
PARAMETER	ARAMETER SYMBOL SS10PH45				
Typical thermal resistance per diode	R _{eJA} ⁽¹⁾	60	°C/W		
rypical thermal resistance per diode	$R_{ heta JL}$	3	G/ VV		

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	Н	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



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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise specified)

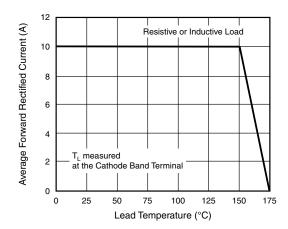


Fig. 1 - Maximum Forward Current Derating Curve

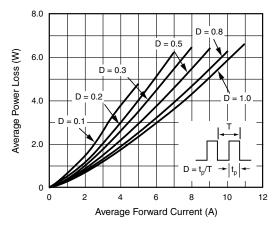


Fig. 2 - Forward Power Loss Characteristics

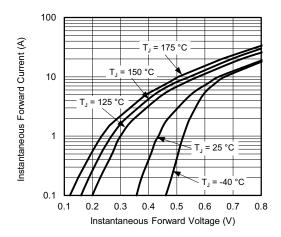


Fig. 3 - Typical Instantaneous Forward Characteristics

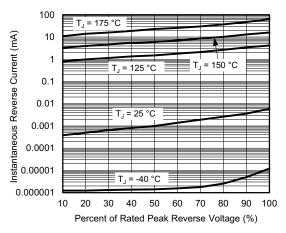


Fig. 4 - Typical Reverse Leakage Characteristics

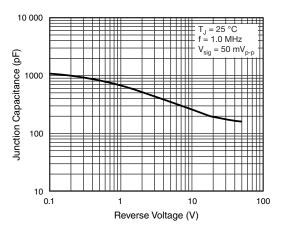


Fig. 5 - Typical Junction Capacitance

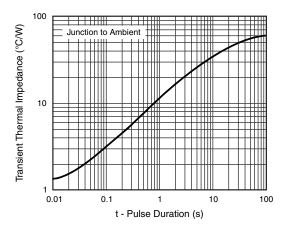
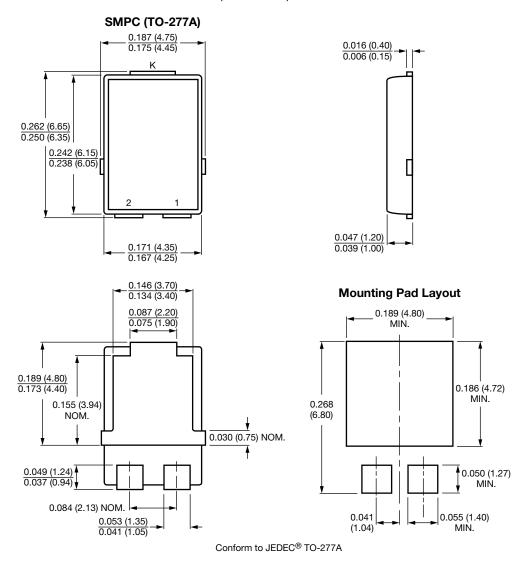


Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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