AUTOMOTIVE GRADE

COMPLIANT

HALOGEN FREE



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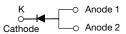
Vishay General Semiconductor

High Current Density Surface Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.60 \text{ V}$ at $I_F = 6 \text{ A}$



SMPC (TO-277A)



ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS			
I _{F(AV)}	12 A		
V_{RRM}	150 V		
I _{FSM}	200 A		
V _F at I _F = 12 A (125 °C)	0.66 V		
T _J max.	150 °C		
Package	SMPC (TO-277A)		
Circuit configuration	Single		

FEATURES

- Very low profile typical height of 1.1 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- 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

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

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 - halogen-free, RoHS-compliant and AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 and HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	V12P15	UNIT		
Device marking code		V1215			
Maximum repetitive peak reverse voltage	V_{RRM}	150	V		
Maximum DC forward current	I _{F(AV)} (1)	12	A		
	I _{F(AV)} (2)	3.1	A		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	200	А		
Operating junction and storage temperature range	T _J , T _{STG}	-40 to +150	°C		

Notes

- (1) Mounted on 30 mm x 30 mm pad areas aluminum PCB
- (2) Free air, mounted on recommended pad area



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 6 A	T _A = 25 °C		0.75	-	V
	I _F = 12 A		V _F ⁽¹⁾	1.00	1.08	
	I _F = 6 A	T _A = 125 °C		0.60	-	
	I _F = 12 A			0.66	0.72	
Reverse current	V _B = 100 V	T _A = 25 °C		0.02	-	
	v _R = 100 v	T _A = 125 °C	I _R ⁽²⁾	2.5	-	mA
	V _R = 150 V	T _A = 25 °C		-	0.25	IIIA
		T _A = 125 °C		5	16	

Notes

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

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)				
PARAMETER	SYMBOL V12P15		UNIT	
Typical thermal registance	R _{0JA} (1)	75	- °C/W	
Typical thermal resistance	R _{0JM} (2)	4		

Notes

 $^{(3)}$ Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction-to-ambient

 $^{(4)}$ Mounted on 30 mm x 30 mm pad areas aluminum PCB, thermal resistance $R_{\theta JM}$ - junction-to-mount

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V12P15-M3/H	0.10	Н	1500	7" diameter plastic tape and reel	
V12P15-M3/I	0.10	I	6500	13" diameter plastic tape and reel	
V12P15HM3/H (1)	0.10	Н	1500	7" diameter plastic tape and reel	
V12P15HM3/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)

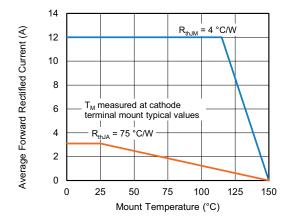


Fig. 1 - Maximum Forward Current Derating Curve

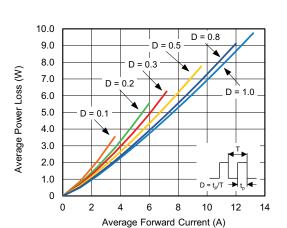


Fig. 2 - Forward Power Loss Characteristics

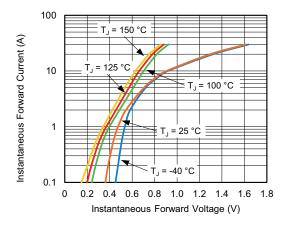


Fig. 3 - Typical Instantaneous Forward Characteristics

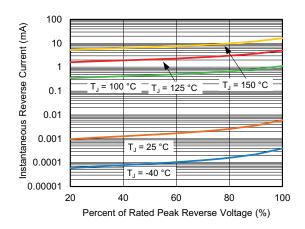


Fig. 4 - Typical Reverse Characteristics

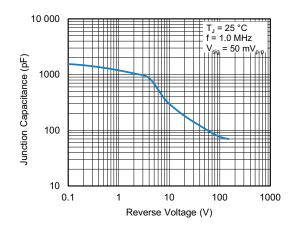


Fig. 5 - Typical Junction Capacitance

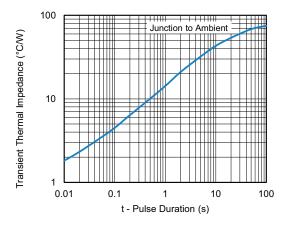
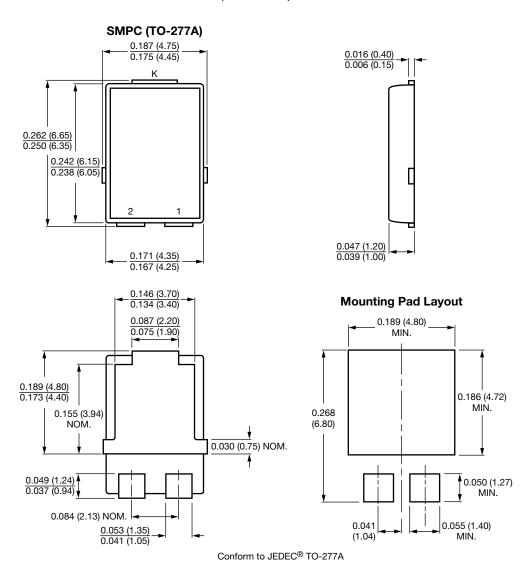


Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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