AUTOMOTIVE GRADE

Available

COMPLIANT

HALOGEN FREE



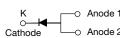
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Vishay General Semiconductor

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

Ultra Low $V_F = 0.60 \text{ V}$ at $I_F = 5 \text{ A}$





ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	10 A			
V _{RRM}	150 V			
I _{FSM}	180 A			
V _F at I _F = 10 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 <u>www.vishay.com/doc?99912</u>

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	V10P15	UNIT	
Device marking code		V1015		
Maximum repetitive peak reverse voltage	V _{RRM}	150	V	
Maximum DC forward current	I _{F(AV)} (1)	10	А	
	I _{F(AV)} (2)	3		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	180	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 = 5 A	- T _A = 25 °C	- V _F ⁽¹⁾	0.75	-	V
	I _F = 10 A			1.00	1.08	
	I _F = 5 A	T _A = 125 °C		0.60	-	
	I _F = 10 A		1A = 125 C		0.66	0.72
Reverse current	V _R = 100 V	T _A = 25 °C		0.01	-	
		T _A = 125 °C	I _R ⁽²⁾	2.0	-	mA
	V _R = 150 V	T _A = 25 °C		-	0.20	IIIA
	v _R = 130 v	T _A = 125 °C		4	14	

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 V10P15			
Typical thermal registance	R ₀ JA (1)	75	°C/W	
Typical thermal resistance	R _{0JM} (2)	4		

Notes

 $^{(1)}\,$ Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

 $^{(2)}$ 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	
V10P15-M3/H	0.10	Н	1500	7" diameter plastic tape and reel	
V10P15-M3/I	0.10	I	6500	13" diameter plastic tape and reel	
V10P15HM3/H (1)	0.10	Н	1500	7" diameter plastic tape and reel	
V10P15HM3/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)

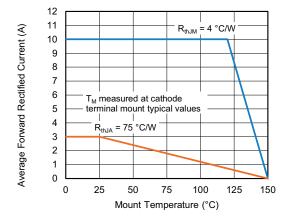


Fig. 1 - Maximum Forward Current Derating Curve

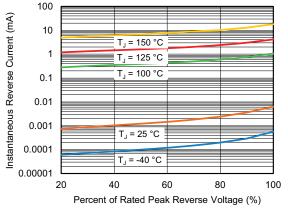


Fig. 4 - Typical Reverse Characteristics

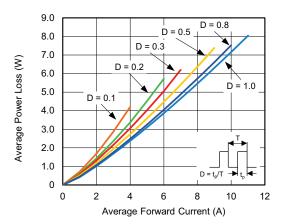


Fig. 2 - Forward Power Loss Characteristics

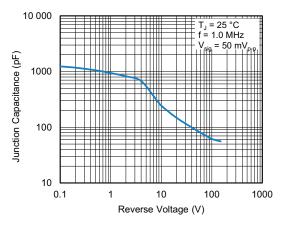


Fig. 5 - Typical Junction Capacitance

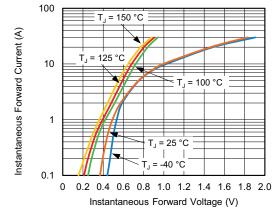


Fig. 3 - Typical Instantaneous Forward Characteristics

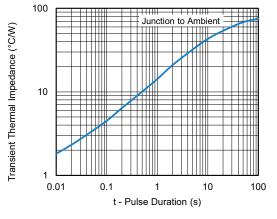
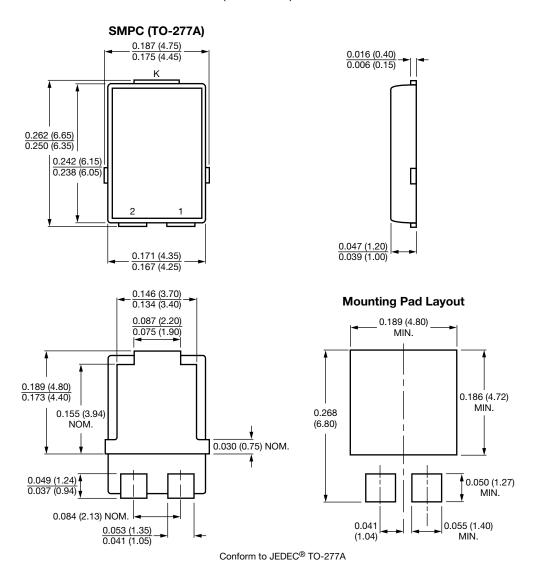


Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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