AUTOMOTIVE GRADE

Available

COMPLIANT

HALOGEN FREE



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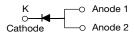
Vishay General Semiconductor

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

Ultra Low $V_F = 0.466 \text{ V}$ at $I_F = 4 \text{ A}$



SMPC (TO-277A)



ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS			
I _{F(AV)}	8.0 A		
V_{RRM}	100 V		
I _{FSM}	150 A		
E _{AS}	100 mJ		
V_F at $I_F = 8$ A	0.582 V		
T _J max.	150 °C		
Package	SMPC (TO-277A)		
Diode variations	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_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 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V8P10	UNIT	
Device marking code		V810		
Maximum repetitive peak reverse voltage	V_{RRM}	100	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	8.0	А	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	150	А	
Non-repetitive avalanche energy at I _{AS} = 2.0 A, T _J = 25 °C	E _{AS}	100	mJ	
Peak repetitive reverse current at t_p = 2 μ s, 1 kHz, T_J = 38 °C \pm 2 °C	I _{RRM}	1.0	А	
Operating junction and storage temperature range	T _J , T _{STG}	-40 to +150	°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	I _R = 1 mA	T _A = 25 °C	V_{BR}	100 (minimum)	-	V	
Instantaneous forward voltage	I _F = 4 A	T _A = 25 °C	V _F (1)	0.522	-	V	
	I _F = 8 A			0.643	0.68		
	I _F = 4 A	T _A = 125 °C	'	V _F (·)	0.466	-	V
	I _F = 8 A			0.582	0.62		
Reverse current	V _R = 70 V	T _A = 25 °C	I _R ⁽²⁾	4.7	-	μA	
		T _A = 125 °C		3.0	-	mA	
	V _R = 100 V	T _A = 25 °C		14.5	70	μA	
		T _A = 125 °C		7.0	15	mA	

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	V8P10	UNIT	
Tunical thermal registance	R ₀ JA ⁽¹⁾	60	°C/W	
Typical thermal resistance	$R_{ heta JL}$	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	
V8P10-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel	
V8P10-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel	
V8P10HM3_A/H (1)	0.10	Н	1500	7" diameter plastic tape and reel	
V8P10HM3_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)

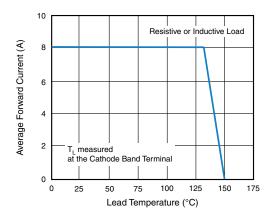


Fig. 1 - Maximum Forward Current Derating Curve

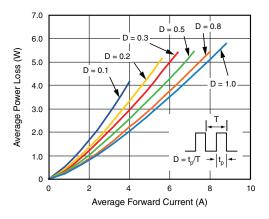


Fig. 2 - Forward Power Loss Characteristics

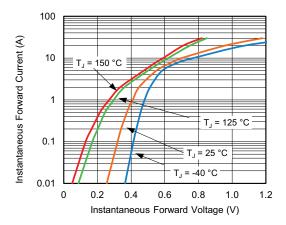


Fig. 3 - Typical Instantaneous Forward Characteristics

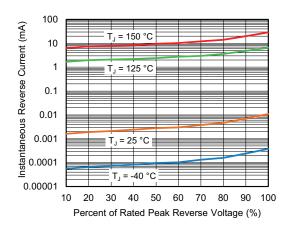


Fig. 4 - Typical Reverse Characteristics

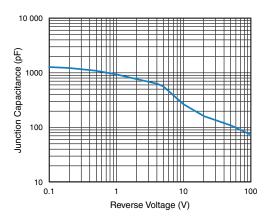


Fig. 5 - Typical Junction Capacitance

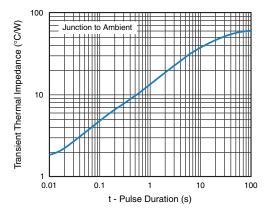
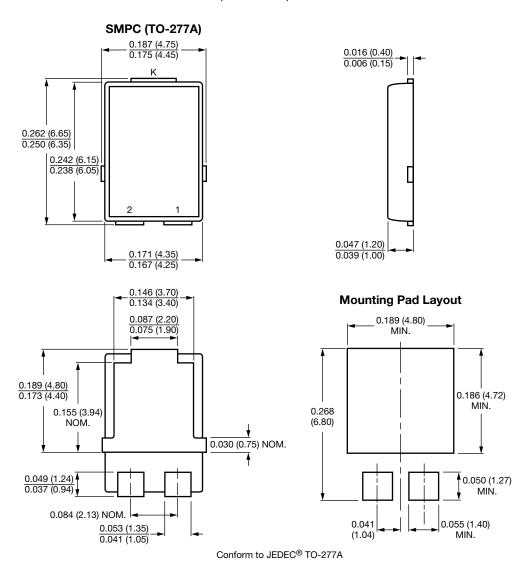


Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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