V10P8

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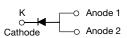
High Current Density Surface Mount TMBS[®] (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.44$ V at $I_F = 5$ A

eSMP[®] Series



SMPC (TO-277A)



ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	10 A			
V _{RRM}	80 V			
I _{FSM}	180 A			
V_F at I_F = 10 A (T_A = 125 °C)	0.56 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_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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	V10P8	UNIT	
Device marking code		V108		
Maximum repetitive peak reverse voltage	V _{RRM}	80	V	
Maximum average forward rectified current (fig. 1)	I _F ⁽¹⁾	10	A	
maximum average forward rectilied current (lig. 1)	I _F ⁽²⁾	3.9		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	180	А	
Voltage rate of change (rated V_R)	dV/dt	10 000	V/µs	
Operating junction and storage temperature range	T _J , T _{STG}	, T _{STG} -40 to +150		

Notes

⁽¹⁾ Mounted on 30 mm x 30 mm pad areas aluminum PCB

⁽²⁾ Free air, mounted on recommended copper pad area

Revision: 18-Dec-2019

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Document Number: 87712

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COMPLIANT

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 5.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.50	-	V
	I _F = 10 A			0.60	0.68	
	I _F = 5.0 A	- T _A = 125 °C		0.44	-	
	I _F = 10 A			0.56	0.64	
Reverse current	V 90 V	T _A = 25 °C T _A = 125 °C	I _R ⁽²⁾	-	0.8	mA
	V _R = 80 V			9.0	22	

Notes

⁽¹⁾ Pulse test: 300 µs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: pulse width \leq 5 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	V10P8	UNIT	
Typical thermal registerion	R _{0JA} ⁽¹⁾⁽²⁾	75	°C/W	
Typical thermal resistance	R _{θJM} ⁽³⁾	4		

Notes

⁽¹⁾ The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D/dT_J < 1/R_{0JA}$

 $^{(2)}$ Free air mounted on recommended copper pad area; thermal resistance R_{0JA} - junction-to-ambient

 $^{(3)}$ Mounted on 30 mm x 30 mm aluminum PCB; thermal resistance $R_{ ext{ hetaJM}}$ - junction-to-mount

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V10P8-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel	
V10P8-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel	
V10P8HM3_A/H ⁽¹⁾	0.10	н	1500	7" diameter plastic tape and reel	
V10P8HM3_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 °C unless otherwise noted)

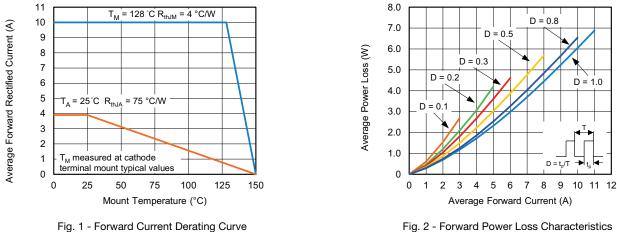
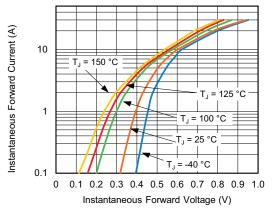


Fig. 2 - Forward Power Loss Characteristics

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Fig. 3 - Typical Instantaneous Forward Characteristics

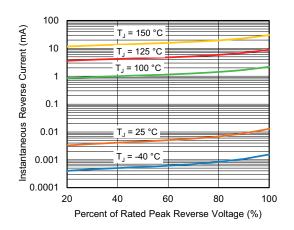


Fig. 4 - Typical Reverse Leakage Characteristics

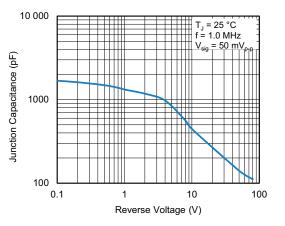


Fig. 5 - Typical Junction Capacitance

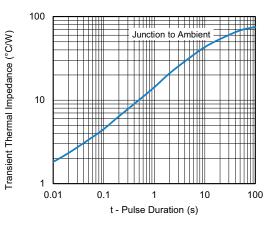
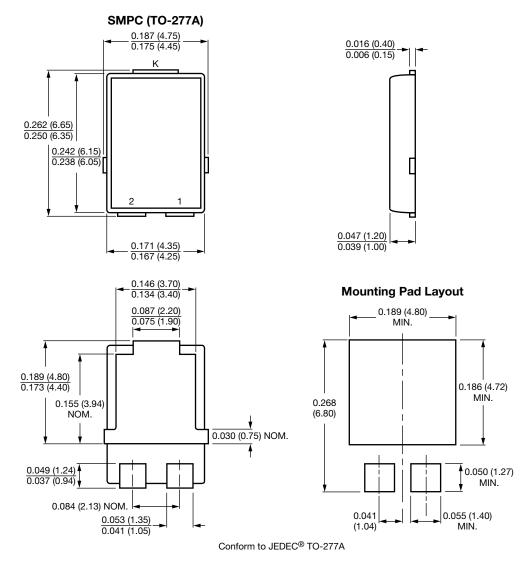


Fig. 6 - Typical Transient Thermal Impedance

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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