V8PM10S

Vishay General Semiconductor

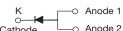
High Current Density Surface Mount TMBS[®] (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.50$ V at $I_F = 4$ A

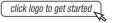


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SMPC (TO-277A)



DESIGN SUPPORT TOOLS





PRIMARY CHARACTERISTICS				
I _{F(AV)}	8 A			
V _{RRM}	100 V			
I _{FSM}	120 A			
V _F at I _F = 8 A (125 °C)	0.62 V			
T _J max.	175 °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 ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V8PM10S	UNIT		
Device marking code		8M10S			
Maximum repetitive peak reverse voltage	V _{RRM}	100	V		
Maximum DC forward current	I _{F(AV)} ⁽¹⁾	8	٨		
	I _{F(AV)} ⁽²⁾	3.5	A		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	120	А		
Operating junction and storage temperature range	T _J ⁽³⁾ , T _{STG}	-40 to +175	°C		

Notes

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

⁽²⁾ Free air, mounted on recommended pad area

 $^{(3)}$ The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D/dT_J < 1/R_{\theta JA}$

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1

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COMPLIANT

HALOGEN

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V8PM10S

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \degree C$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 4 A$	- T _A = 25 °C	V _F ⁽¹⁾	0.58	-	v	
	I _F = 8 A			0.70	0.78		
	$I_F = 4 A$	- T _A = 125 °C	T = 125 °C	VF	0.50	-	v
	I _F = 8 A			0.62	0.70		
Reverse current	V _R = 70 V	T _A = 25 °C	I _R ⁽²⁾	0.01	-	- mA	
	$v_{\rm R} = 70$ v	T _A = 125 °C		2	-		
	V _R = 100 V	T _A = 25 °C		-	0.2		
	$v_{\rm R} = 100 v$	T _A = 125 °C		4	10		
Typical junction capacitance	4.0 V, 1 MHz		CJ	860	-	pF	

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 5 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)				
PARAMETER	V8PM10S	UNIT		
Typical thermal resistance	R _{0JA} ⁽¹⁾⁽²⁾	80	°C/W	
	R _{0JM} ⁽³⁾	4	C/W	

Notes

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

⁽²⁾ Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance R_{0JA} - junction to ambient

 $^{(3)}$ Units mounted on 30 mm x 30 mm 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		
V8PM10S-M3/H	0.10	Н	1500	7" diameter plastic tape and reel		
V8PM10S-M3/I	0.10	I	6500	13" diameter plastic tape and reel		
V8PM10SHM3/H (1)	0.10	Н	1500	7" diameter plastic tape and reel		
V8PM10SHM3/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)

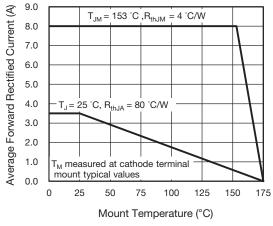


Fig. 1 - Maximum Forward Current Derating Curve

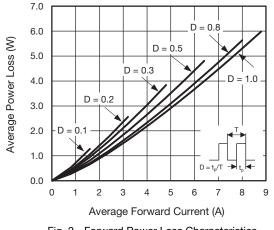
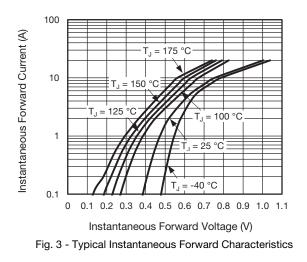
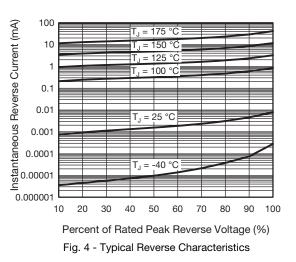
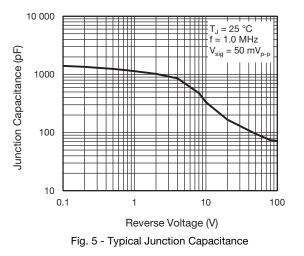
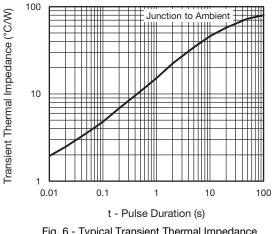


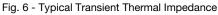
Fig. 2 - Forward Power Loss Characteristics











Revision: 30-Jan-2019

3

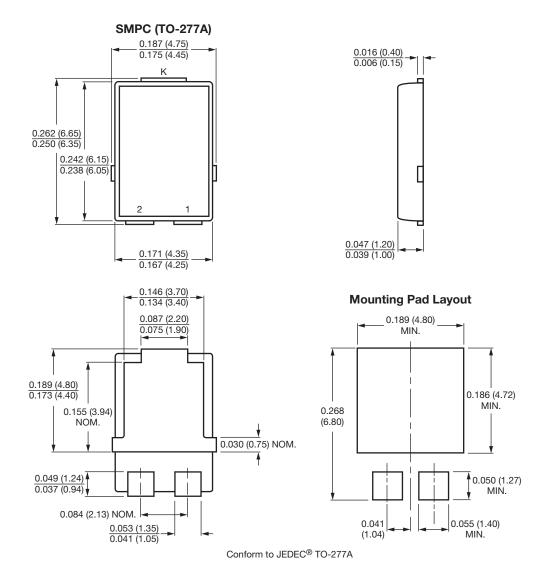
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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