

DESIGN SUPPORT TOOLS

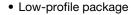
Vishay General Semiconductor

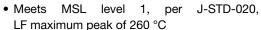
Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

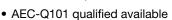
eSMP® Series Top View Bottom View SlimSMAW (DO-221AD) Cathode Anode

PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 A			
V_{RRM}	100 V			
I _{FSM}	50 A			
V _F at I _F = 2 A (T _A = 125 °C)	0.56 V			
T _J max.	175 °C			
Package	SlimSMAW (DO-221AD)			
Circuit configuration	Single			

FEATURES







- Automotive ordering code: base P/NHM3

• Compatible to SOD-128 package case outline

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT HALOGEN

FREE

TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, DC/DC converters, and polarity protection in commercial, industrial, and automotive applications.

MECHANICAL DATA

Case: SlimSMAW (DO-221AD)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant

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 meet JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	VSS8D2M10	UNIT		
Device marking code		2M10			
Maximum repetitive peak reverse voltage	V _{RRM}	100	V		
Maximum average forward rectified current (fig.1)	I _{F(AV)} (1)	2	А		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	50	А		
Operating junction temperature range	T _J ⁽²⁾	-40 to +175			
Storage temperature range	T _{STG}	-55 to +175	-55 to +175		

Notes

⁽¹⁾ Free air, mounted on recommended copper pad area

⁽²⁾ 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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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 1 A	- T _A = 25 °C	V _F (1)	0.56	-	V
	I _F = 2 A			0.66	0.74	
	I _F = 1 A	T _A = 125 °C		0.48	-	
	I _F = 2 A			0.56	0.64	
Reverse current	V _R = 70 V	T _A = 25 °C T _A = 125 °C	I _R ⁽²⁾	0.01	ı	mA
	V _R = 70 V	T _A = 125 °C		0.5	-	
	V _R = 100 V	T _A = 25 °C	I _R ⁽²⁾	-	0.15	mA
		T _A = 125 °C		1	3	
Typical junction capacitance	4.0 V, 1 MHz		CJ	250	-	pF

Notes

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

(2) Pulse test: pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)				
PARAMETER SYMBOL TYP. MAX. UNIT				
Typical thormal registance	$R_{\theta JA}^{(1)(2)}$	120	150	°C/W
Typical thermal resistance	R _{0JM} (3)	12	15	C/VV

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) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint

(3) Thermal resistance junction-to-mount to follow JEDEC 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
VSS8D2M10-M3/H	0.033	Н	3500	7" diameter plastic tape and reel		
VSS8D2M10-M3/I	0.033	I	14 000	13" diameter plastic tape and reel		
VSS8D2M10HM3/H (1)	0.033	Н	3500	7" diameter plastic tape and reel		
VSS8D2M10HM3/I (1)	0.033	I	14 000	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 noted)

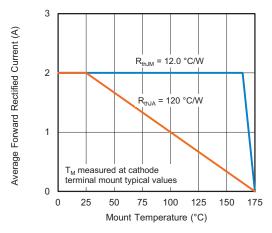


Fig. 1 - Maximum Forward Current Derating Curve

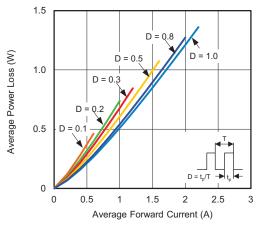


Fig. 2 - Forward Power Loss Characteristics

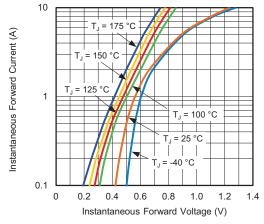


Fig. 3 - Typical Instantaneous Forward Characteristics

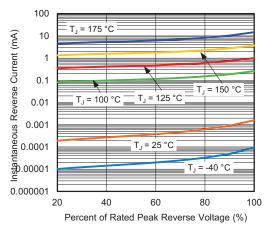


Fig. 4 - Typical Reverse Leakage Characteristics

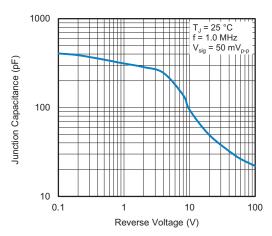


Fig. 5 - Typical Junction Capacitance

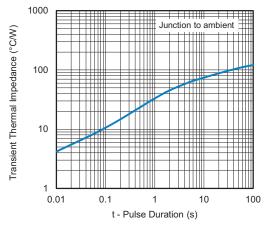


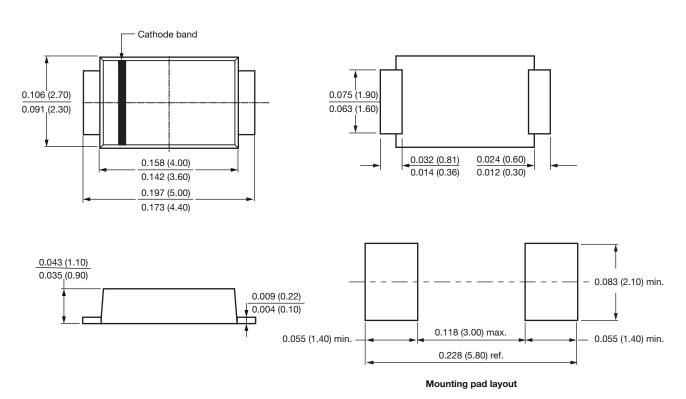
Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimSMAW (DO-221AD)





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