COMPLIANT

HALOGEN FREE

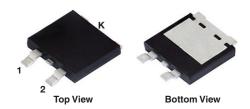


Vishay General Semiconductor

Dual High-Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.57 \text{ V}$ at $I_F = 5.0 \text{ A}$

eSMP[®] Series SMPD (TO-263AC)





DESIGN SUPPORT TOOLS AVAILABLE



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 15 A			
V_{RRM}	150 V			
I _{FSM}	140 A			
V _F at I _F = 15 A (T _A = 125 °C)	0.73 V			
T _J max.	175 °C			
Package	SMPD (TO-263AC)			
Circuit configuration	Common cathode			

FEATURES

- Trench MOS Schottky technology
- Very low profile typical height of 1.7 mm
- · Ideal for automated placement
- · 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 high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection in commercial, industrial, and automotive application.

MECHANICAL DATA

Case: SMPD (TO-263AC)

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: as marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V30DM150C	UNIT	
Device marking code			V30DM150C		
Maximum repetitive peak reverse voltage		V _{RRM} 150		V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)} (1)	30	Α	
	per diode		15	A I	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	140	А	
Operating junction temperature range		T _J ⁽²⁾	-40 to +175	°C	
Storage temperature range		T _{STG}	-55 to +175		

Notes

⁽¹⁾ Mounted on infinite heatsink

 $^{^{(2)}}$ 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 per diode	I _F = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.72	-	V
	I _F = 7.5 A			0.84	-	
	I _F = 15 A			1.15	1.30	
	I _F = 5 A	T _A = 125 °C	VF ('')	0.57	-	
	I _F = 7.5 A			0.62	-	
	I _F = 15 A			0.73	0.8	
Reverse current at rated V _R per diode	V _B = 100 V	, T _A = 25 °C	I _R ⁽²⁾	0.01	-	- mA
	v _R = 100 v	T _A = 125 °C		2	-	
	V 450.V	T _A = 25 °C		-	0.2	
	V _R = 150 V	T _A = 125 °C		4	14	
Typical junction capacitance	4.0 V, 1 MHz		CJ	820	-	pF

Notes

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

(2) Pulse test: Pulse width $\leq 5 \text{ ms}$

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V30DM150C	UNIT	
Typical thermal resistance per device	$R_{\theta JC}^{(1)}$	1.8	°C/W	
	R _{0JA} (1)(3)	58		

Notes

- (1) Mounted on infinite heatsink
- (2) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$ junction-to-ambient
- (3) Free air, without heatsink

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V30DM150C-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel		
V30DM150CHM3/I (1)	0.55	I	2000/reel	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)

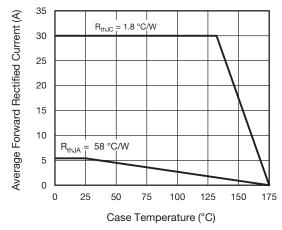


Fig. 1 - Maximum Forward Current Derating Curve

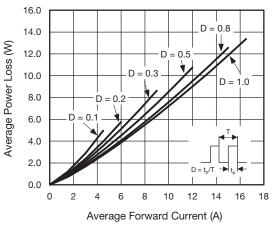


Fig. 2 - Average Power Loss Characteristics

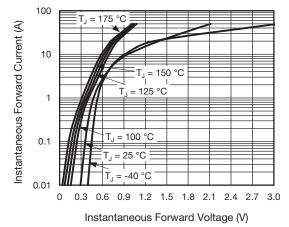


Fig. 3 - Typical Instantaneous Forward Characteristics

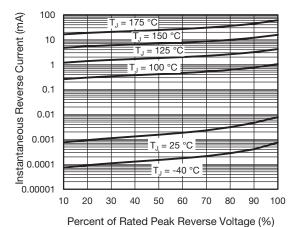


Fig. 4 - Typical Reverse Leakage Characteristics

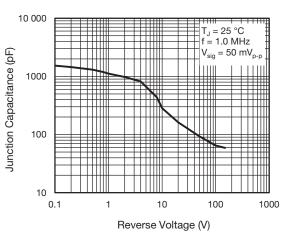


Fig. 5 - Typical Junction Capacitance

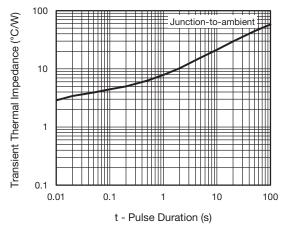


Fig. 6 - Typical Transient Thermal Impedance



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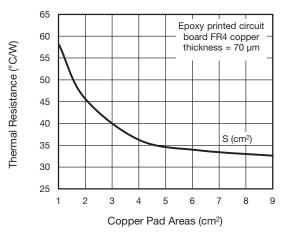
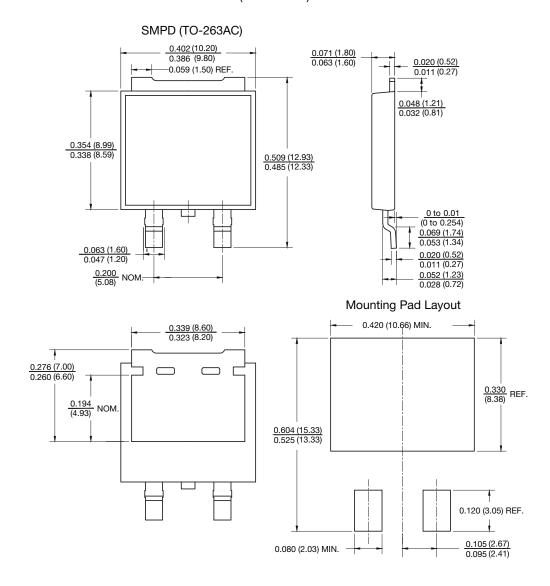


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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