RoHS

COMPLIANT

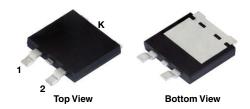
HALOGEN FREE



Vishay General Semiconductor

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

eSMP® Series SMPD (TO-263AC)



V10D202C Anode 1 O Cathode

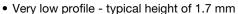
ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 5.0 A			
V _{RRM}	200 V			
I _{FSM}	100 A			
V_F at $I_F = 5.0$ A $(T_A = 125 ^{\circ}C)$	0.67 V			
T _J max.	175 °C			
Package	SMPD (TO-263AC)			
Circuit configuration	Common cathode			

FEATURES





• Ideal for automated placement

· Low forward voltage drop, low power losses

High efficiency operation

Meets MSL level 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.vishav.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.

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_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 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V10D202C	UNIT	
Maximum repetitive peak reverse voltage		V_{RRM}	200	V	
Maximum average forward rectified current (fig. 1)	per device	- I _{F(AV)}	10	^	
	per diode		5	_ A	
Maximum DC reverse voltage		V_{DC}	160	V	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	100	А	
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs	
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +175	°C	



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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 = 2.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.75	-	V		
	I _F = 5 A			0.82	0.9			
	I _F = 2.5 A	T _A = 125 °C		0.6	-			
	I _F = 5 A			0.67	0.74			
Reverse current at rated V _R per diode	V _R = 160 V	T _A = 25 °C	- I _R ⁽²⁾	0.4	-	μΑ		
		T _A = 125 °C		0.5	-	mA		
	V _R = 200 V	T _A = 25 °C		-	50	μΑ		
	v _R = 200 v	T _A = 125 °C		1.3	5	mA		

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	V10D202C	UNIT	
	per diode	$R_{ heta JC}$	3.5		
Typical thermal resistance	per device		2.5	°C/W	
	per device	R ₀ JA (1)(2)	58		

Notes

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

(2) Free air, without heatsink

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SMPD (TO-263AC)	V10D202C-M3/I	0.55	1	2000/reel	13" diameter plastic tape and reel	
SMPD (TO-263AC)	V10D202CHM3_A/I (1)	0.55	I	2000/reel	13" diameter plastic tape and reel	

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

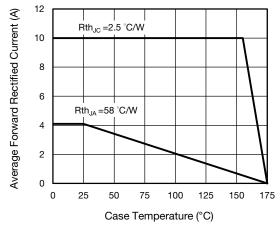


Fig. 1 - Forward Current Derating Curve

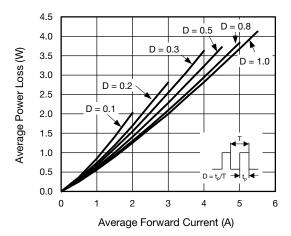


Fig. 2 - Forward Power Loss Characteristics



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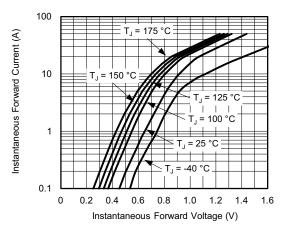


Fig. 3 - Typical Instantaneous Forward Characteristics

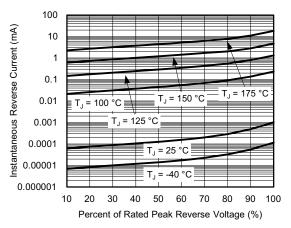


Fig. 4 - Typical Reverse Characteristics

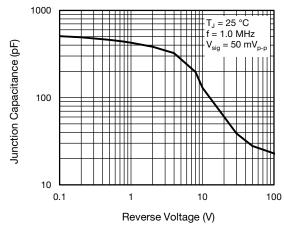


Fig. 5 - Typical Junction Capacitance

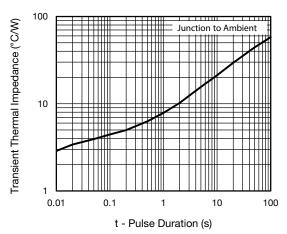


Fig. 6 - Typical Transient Thermal Impedance

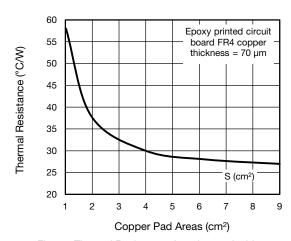
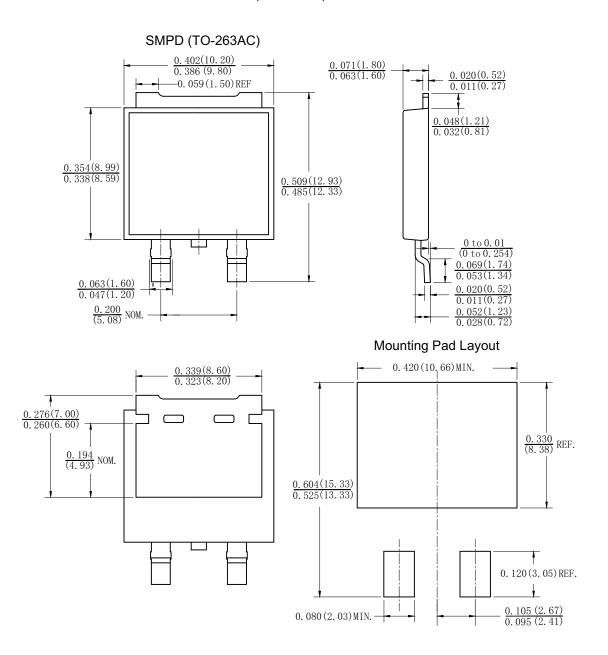


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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