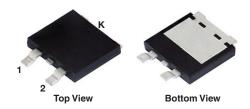


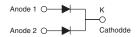
Vishay General Semiconductor

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

eSMP® Series



SMPD (TO-263AC)



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 15.0 A			
V _{RRM} 170 V				
I _{FSM}	260 A			
V_F at $I_F = 5.0$ A $(T_A = 125 ^{\circ}C)$	0.66 V			
T _J max.	175 °C			
Package	SMPD (TO-263AC)			
Circuit configurations	Common cathode			

FEATURES



High efficiency operation

 Meets MSL level 1, J-STD-020, LF maximum peak of 260 °C

· Low forward voltage drop, low power losses

HALOGEN FREE

AEC-Q101 qualified available

· 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.

MECHANICAL DATA

Case: SMPD (TO-263AC)

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

Polarity: As marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V30D170C	UNIT	
Device marking code			V30D170C		
Maximum repetitive peak reverse voltage		V_{RRM}	170	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	30	А	
	per diode		15		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	260	А	
Operating junction temperature range		T _J ⁽¹⁾	-40 to +175	°C	
Storage temperature range		T _{STG}	-55 to +175	°C	

Note

⁽¹⁾ The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_{cl} < 1/R_{b,lA}$



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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 = 10 A			0.78	-	
	I _F = 15 A			0.8	0.88	
	I _F = 5 A	T _A = 125 °C		0.56	-	
	I _F = 10 A			0.64	-	
	I _F = 15 A			0.66	0.73	
Reverse current at rated V _R per diode	V _R = 140 V	T _A = 25 °C	I _R ⁽²⁾	0.01	-	mA
		T _A = 125 °C		1.5	-	mA
	V _R = 170 V	T _A = 25 °C		-	0.2	mA
	v _R = 170 v	T _A = 125 °C		3	10	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	1200	-	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 noted)				
PARAMETER	SYMBOL	V30D170C	UNIT	
Typical thermal resistance per device	R ₀ JC (1)	1.1	°C/W	
Typical thermal resistance per device	R _{0JA} (2)(3)	50	C/VV	

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_{θJA} junction-to-mount
- (3) Free air, without heatsink

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
V30D170C-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel	
V30D170CHM3/I (1)	0.55	I	2000/reel	13" diameter plastic tape and reel	

Note

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

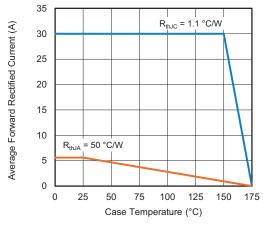


Fig. 1 - Forward Current Derating Curve

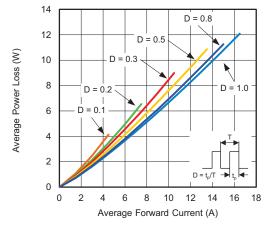


Fig. 2 - Forward Power Loss Characteristics

⁽¹⁾ AEC-Q101 qualified



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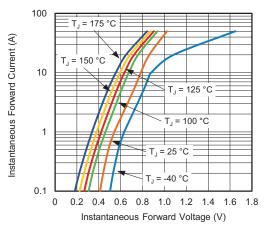


Fig. 3 - Typical Instantaneous Forward Characteristics

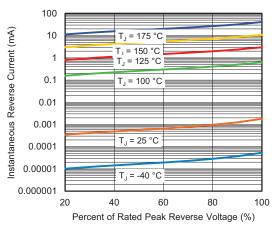


Fig. 4 - Typical Reverse Characteristics

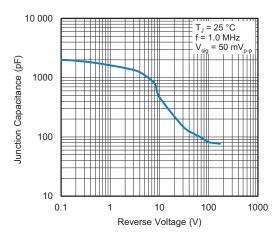


Fig. 5 - Typical Junction Capacitance

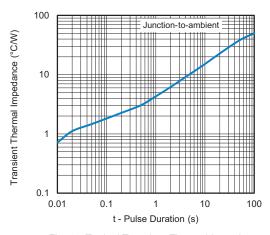


Fig. 6 - Typical Transient Thermal Impedance

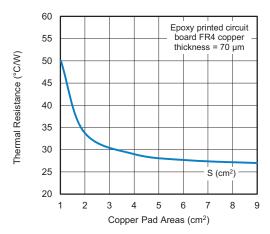
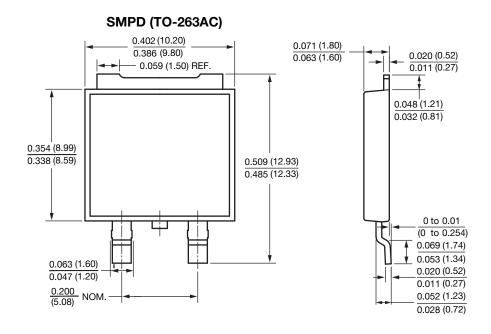


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

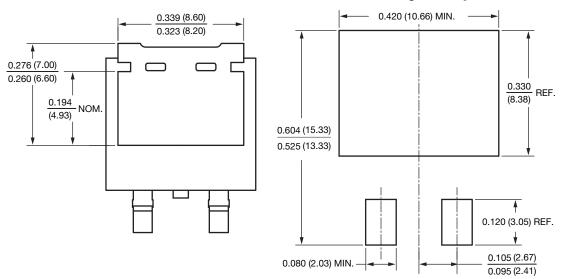


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Mounting Pad Layout





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