COMPLIANT

HALOGEN FREE

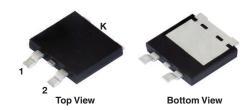


Vishay General Semiconductor

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

Ultra Low $V_F = 0.39 \text{ V}$ at $I_F = 5.0 \text{ A}$

eSMP® Series SMPD (TO-263AC)





LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 15 A			
V_{RRM}	60 V			
I _{FSM}	200 A			
V _F at I _F = 15 A (T _J = 125 °C)	0.55 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	V30DM63CL	UNIT	
Device marking code			V30DM63CL		
Maximum repetitive peak reverse voltage		V_{RRM}	60	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)} (1)	30		
	per diode		15	А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	200	А	
Operating junction temperature range		T _J ⁽²⁾	-40 to +175	°C	
Storage temperature range		T _{STG}	-55 to +175	1	

Notes

- (1) Mounted on infinite heatsink
- (2) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta,IA}$



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ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I _F = 5 A	T _J = 25 °C	V _F ⁽¹⁾	0.49	-	. V	
	I _F = 7.5 A			0.52	-		
	I _F = 15 A			0.60	0.66		
	I _F = 5 A	T _J = 125 °C		0.39	-		
	I _F = 7.5 A			0.43	-		
	I _F = 15 A			0.55	0.59		
Reverse current at rated V _R per diode	V _R = 60 V	T _J = 25 °C	I _R ⁽²⁾	-	0.035	- mA	
	v _R = 60 v	T _J = 125 °C		2.2	6.5		
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	3000	-	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	RAMETER SYMBOL V30DM60CL			
Typical thermal resistance per device	R _{θJC} ⁽¹⁾	1.6	°C/W	
	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: $dP_D/dT_J < 1/R_{\theta JA}$ junction-to-ambient
- (3) Free air, without heatsink

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V30DM63CL-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel		
V30DM63CLHM3/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)

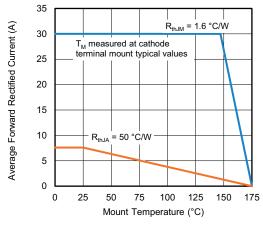


Fig. 1 - Maximum Forward Current Derating Curve

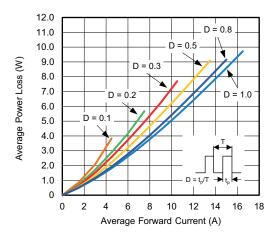


Fig. 2 - Average Power Loss Characteristics Per Diode



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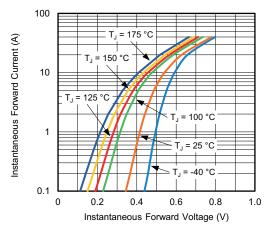


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

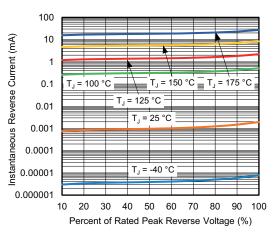


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

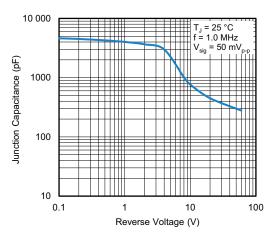


Fig. 5 - Typical Junction Capacitance Per Diode

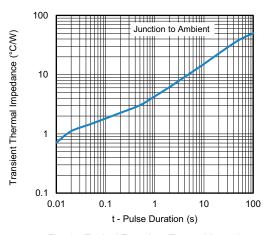


Fig. 6 - Typical Transient Thermal Impedance

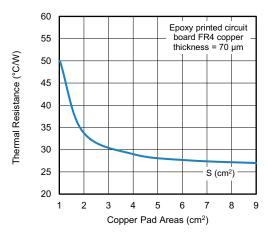


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

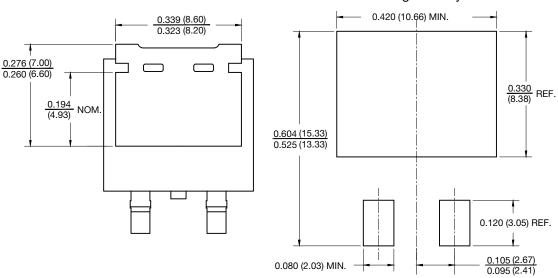


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPD (TO-263AC) 0.402 (10.20) 0.071 (1.80) 0.063 (1.60) 0.386 (9.80) 0.020 (0.52) -0.059 (1.50) REF. 0.011 (0.27) 0.048 (1.21) 0.032 (0.81) 0.354 (8.99) 0.338 (8.59) 0.509 (12.93) 0.485 (12.33) 0 to 0.01 (0 to 0.254) 0.069 (1.74) 0.053 (1.34) 0.063 (1.60) 0.047 (1.20) 0.020 (0.52) 0.011 (0.27) 0.200 (5.08) NOM-0.052 (1.23) 0.028 (0.72)

Mounting Pad Layout





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