AUTOMOTIVE GRADE

COMPLIANT

HALOGEN FREE

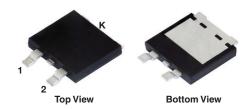


Vishay General Semiconductor

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

Ultra Low $V_F = 0.30 \text{ V}$ at $I_F = 5.0 \text{ A}$

eSMP® Series SMPD (TO-263AC)





ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
2 x 15 A				
45 V				
200 A				
0.40 V				
150 °C				
SMPD (TO-263AC)				
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.

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_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 suffix meets JESD 201 class 2 whisker test, HM3 suffix

meets JESD 201 class 2 whisker test

Polarity: as marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL V30D45C		UNIT	
Maximum repetitive peak reverse voltage		V _{RRM}	45	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	30	А	
	per diode		15		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I _{FSM}	200	А	
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +150	°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CO	NDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I _F = 5.0 A	T _A = 25 °C	I _F = 5.0 A		0.42	-	
	$I_F = 7.5 \text{ A}$ $T_A = 25 ^{\circ}\text{C}$			0.44	-		
	I _F = 15 A		I _F = 15 A	V _E ⁽¹⁾	0.49	0.57	V
	I _F = 5.0 A I _F = 7.5 A I _F = 15 A	T _A = 125 °C	V _F ('')	0.30	-	V	
			;	0.33	-		
				0.40	0.48		
Reverse current per diode	V _R = 45 V	T _A = 25 °C	I _R ⁽²⁾	-	1500	μA	
	v _R = 45 v	T _A = 125 °C	'R (=)	12	50	mA	

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	V30D45C	UNIT	
Typical thermal resistance	per diode	Б	1.6		
	per device	$R_{ heta JC}$	0.9	°C/W	
	per device	R ₀ JA (1)(2)	45]	

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) Free air, without heatsink

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V30D45C-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel		
V30D45CHM3_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)

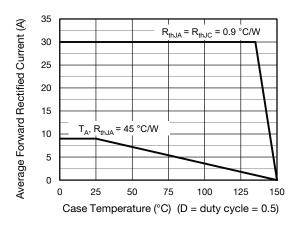


Fig. 1 - Forward Current Derating Curve

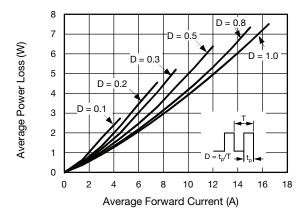


Fig. 2 - Forward Power Loss Characteristics Per Diode



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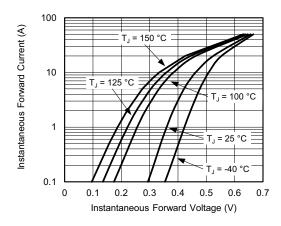


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

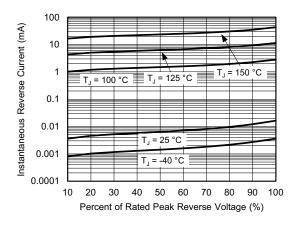


Fig. 4 - Typical Reverse Characteristics Per Diode

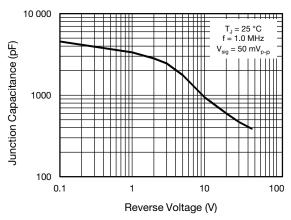


Fig. 5 - Typical Junction Capacitance Per Diode

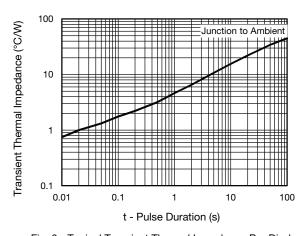


Fig. 6 - Typical Transient Thermal Impedance Per Diode

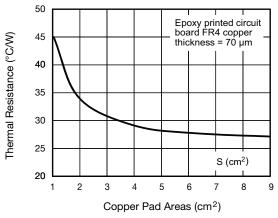


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

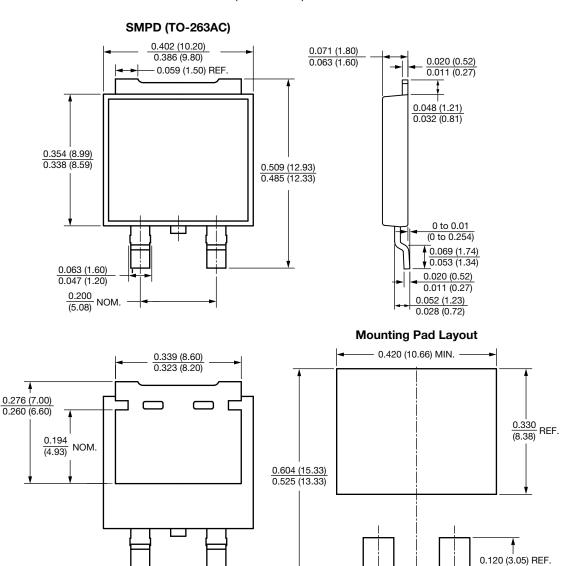


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0.105 (2.67)

0.095 (2.41)

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



0.080 (2.03) MIN.



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