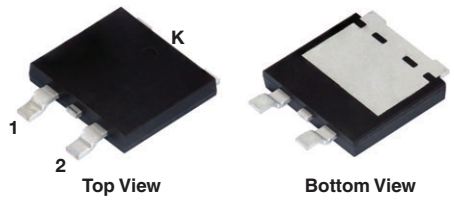
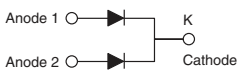
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Dual Low-Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low V_F = 0.39 V at I_F = 5.0 A

eSMP® Series
SMPD (TO-263AC)





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

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

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

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	A
	per diode		15	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	200	A
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_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
		T_J = 125 °C		2.2	6.5	
Typical junction capacitance per diode	4.0 V, 1 MHz		C_J	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	SYMBOL	V30DM60CL	UNIT
Typical thermal resistance per device	$R_{\theta JC}$ (1)	1.6	°C/W
	$R_{\theta JA}$ (2)(3)	50	

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)

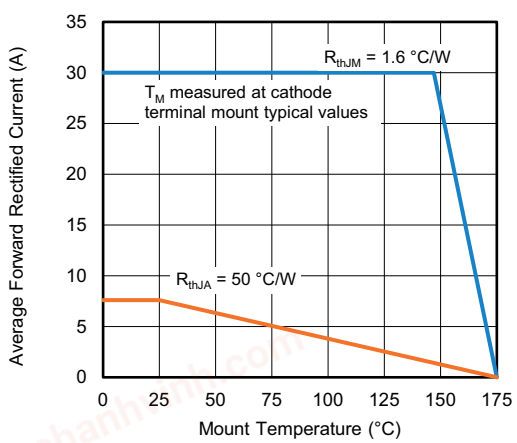


Fig. 1 - Maximum Forward Current Derating Curve

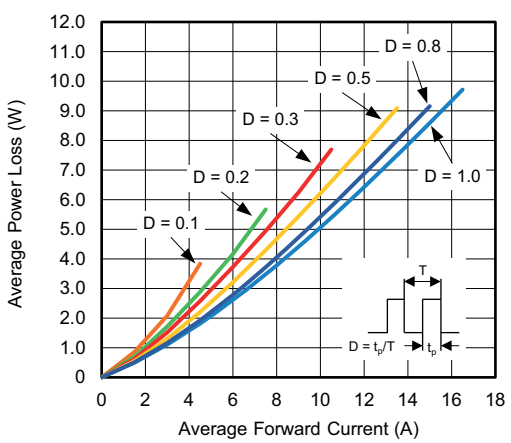


Fig. 2 - Average Power Loss Characteristics Per Diode

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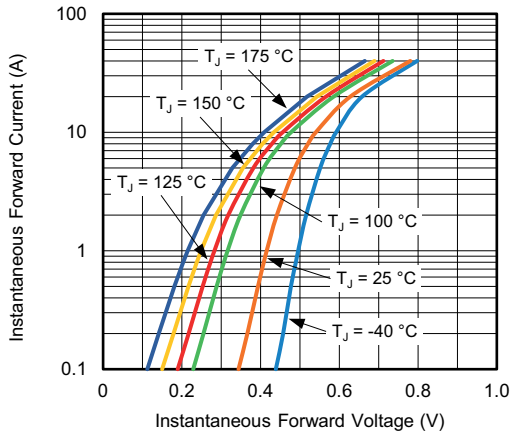


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

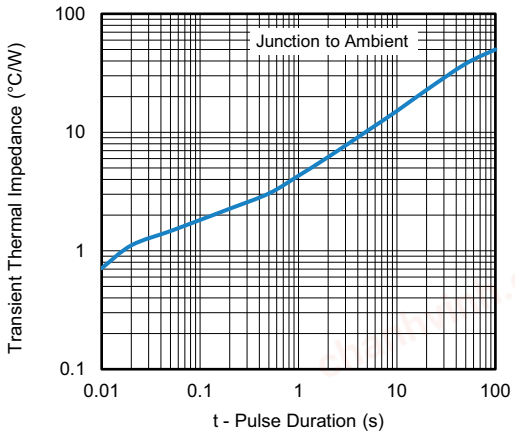


Fig. 6 - Typical Transient Thermal Impedance

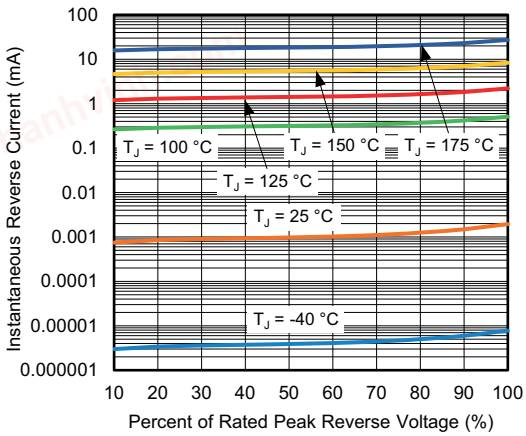


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

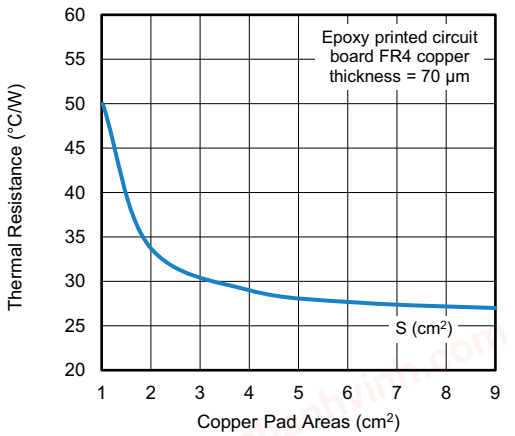


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

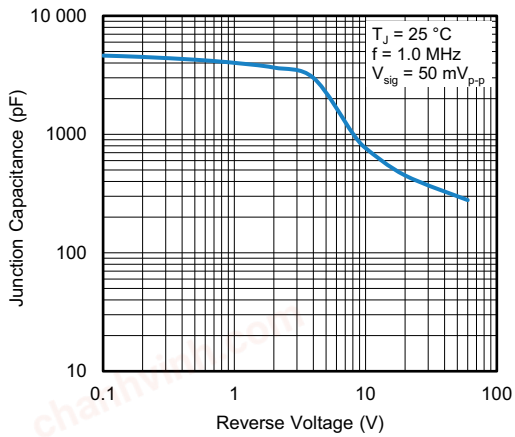


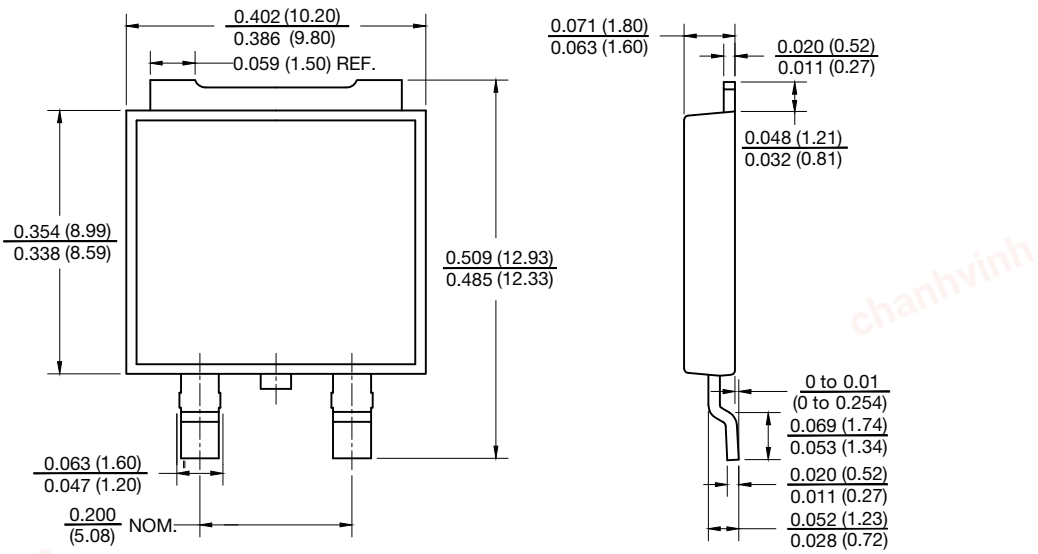
Fig. 5 - Typical Junction Capacitance Per Diode

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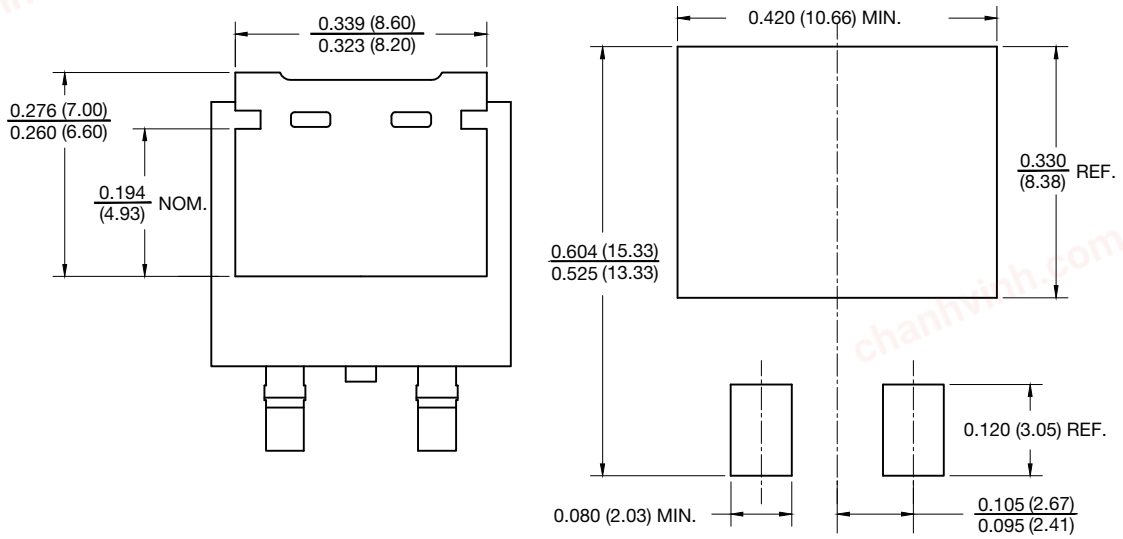
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPD (TO-263AC)



Mounting Pad Layout



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