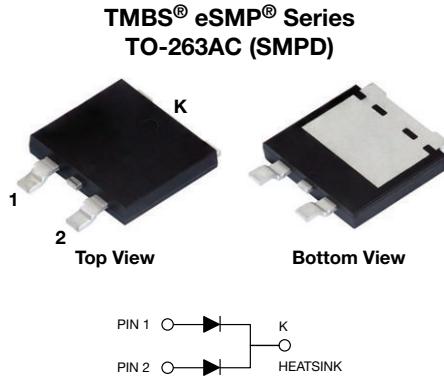


## Dual Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.34$  V at  $I_F = 5$  A



### 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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
FREE

### TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	60 V
$I_{FSM}$	200 A
$V_F$ at $I_F = 15$ A	0.49 V
$T_J$ max.	150 °C
Package	TO-263AC (SMPD)
Diode variations	Dual common cathode

### MECHANICAL DATA

#### Case: TO-263AC (SMPD)

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  
 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	V30D60CL	
Maximum repetitive peak reverse voltage	$V_{RRM}$	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	30	A
per device		15	
per diode			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	200	A
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 +150	°C

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F$ <sup>(1)</sup>	0.44	-	V	
	$I_F = 7.5 \text{ A}$			0.47	-		
	$I_F = 15 \text{ A}$			0.55	0.61		
	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.34	-		
	$I_F = 7.5 \text{ A}$			0.37	-		
	$I_F = 15 \text{ A}$			0.49	0.57		
Reverse current per diode	$V_R = 60 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R$ <sup>(2)</sup>	-	4000	$\mu\text{A}$	
		$T_A = 125^\circ\text{C}$		35	110	mA	

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: pulse width  $\leq 5 \text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V30D60CL			UNIT
Typical thermal resistance	per diode	$R_{\theta\text{JC}}$	1.8	45	$^\circ\text{C/W}$
	per device		0.9		
	per device		$R_{\theta\text{JA}}^{(1)(2)}$		

**Notes**

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

(2) Free air, without heatsink

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V30D60CL-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel
V30D60CLHM3/I <sup>(1)</sup>	0.55	I	2000/reel	13" diameter plastic tape and reel
V30D60CLHM3_A/I <sup>(1)</sup>	0.55	I	2000/reel	13" diameter plastic tape and reel

**Note**

(1) AEC-Q101 qualified

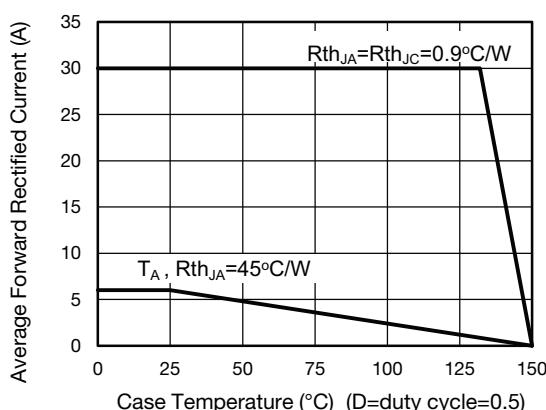
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

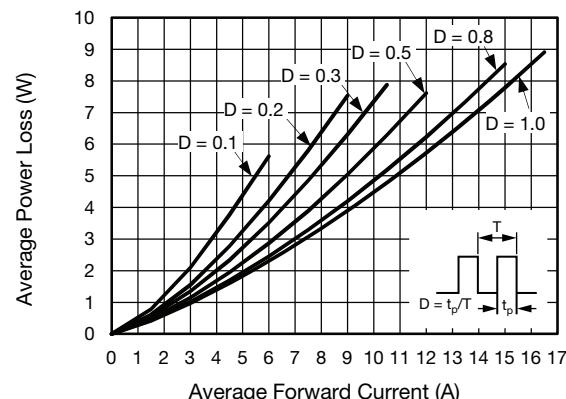


Fig. 2 - Forward Power Loss Characteristics Per Diode

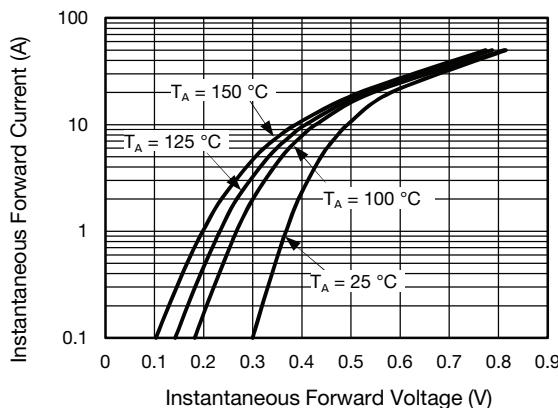


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

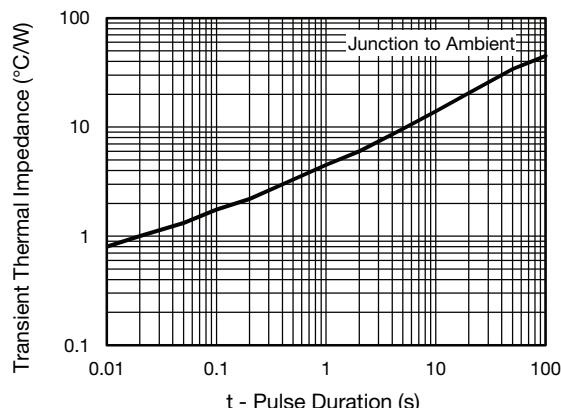


Fig. 6 - Typical Transient Thermal Impedance Per Diode

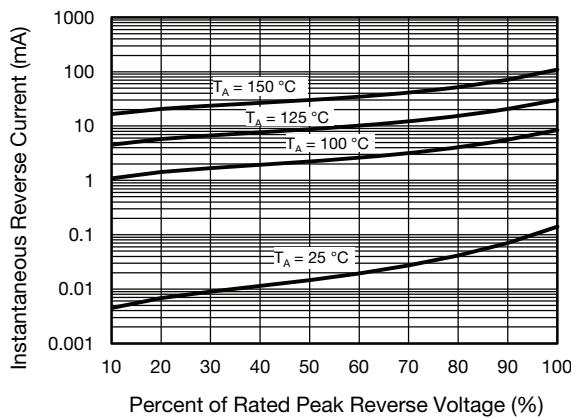


Fig. 4 - Typical Reverse Characteristics Per Diode

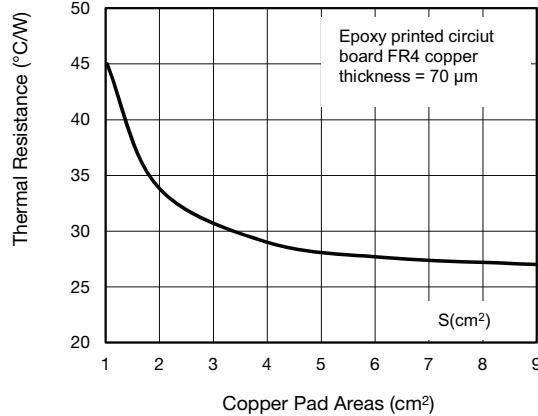


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

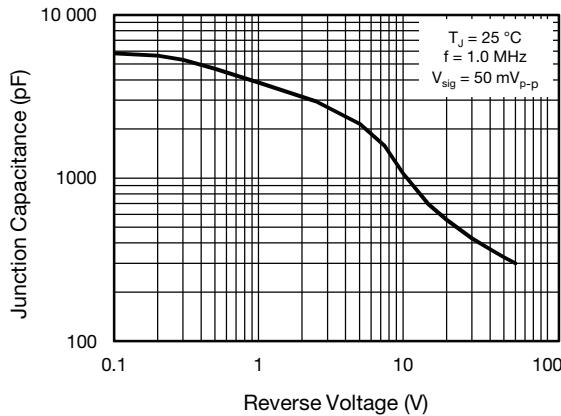
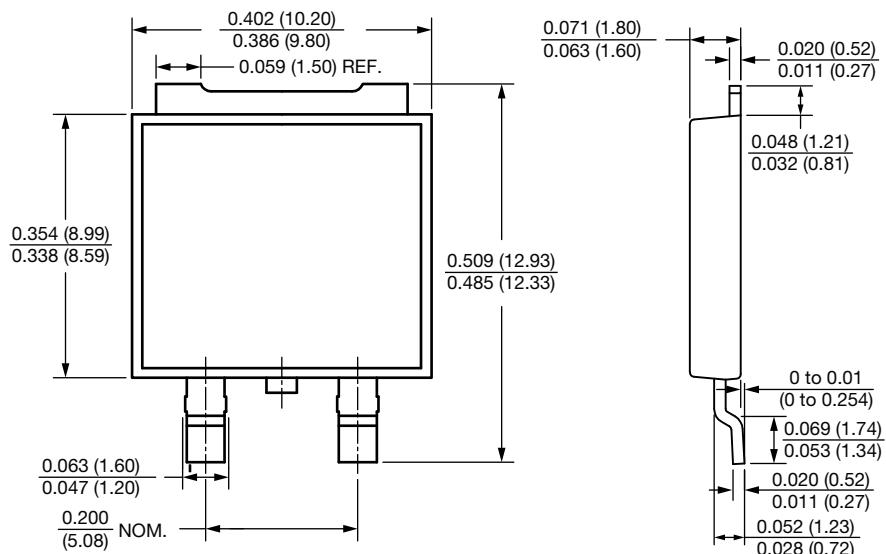
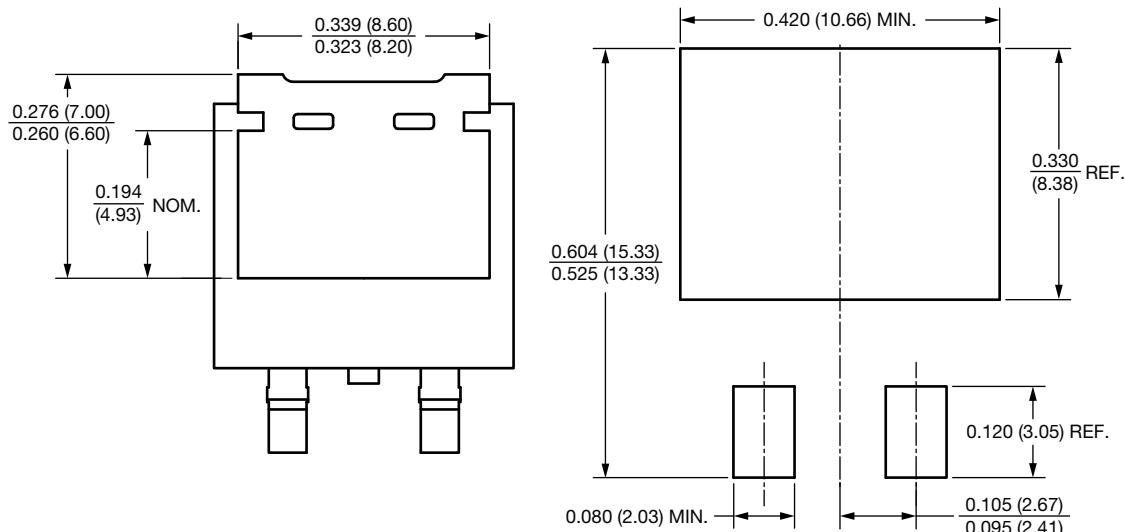


Fig. 5 - Typical Junction Capacitance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-263AC (SMPD)**

**Mounting Pad Layout**


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