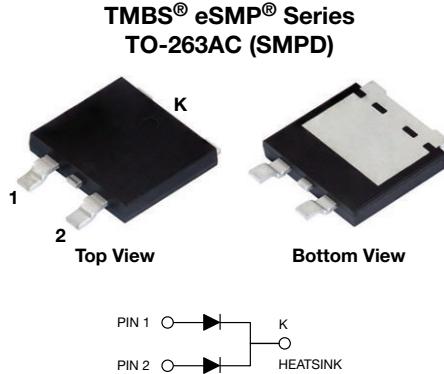


Dual Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.39$ V at $I_F = 2.5$ 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



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: 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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5.0 A
V_{RRM}	60 V
I_{FSM}	100 A
V_F at $I_F = 5.0$ A	0.50 V
T_J max.	150 °C
Package	TO-263AC (SMPD)
Diode variations	Dual common cathode

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	V10D60C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	10	A
per device		5	
per diode			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	100	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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 2.5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.49	-	V	
	$I_F = 5.0 \text{ A}$			0.55	0.70		
	$I_F = 2.5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.39	-		
	$I_F = 5.0 \text{ A}$			0.50	0.60		
Reverse current per diode	$V_R = 60 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	-	700	μA	
		$T_A = 125^\circ\text{C}$		7	30	mA	

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

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

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V10D60C			UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	3.5	48	$^\circ\text{C/W}$
	per device		2.5		
	per device		48		

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
V10D60C-M3/I	0.55	I	2000/reel	13" diameter plastic tape and reel
V10D60CHM3/I ⁽¹⁾	0.55	I	2000/reel	13" diameter plastic tape and reel
V10D60CHM3_A/I ⁽¹⁾	0.55	I	2000/reel	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

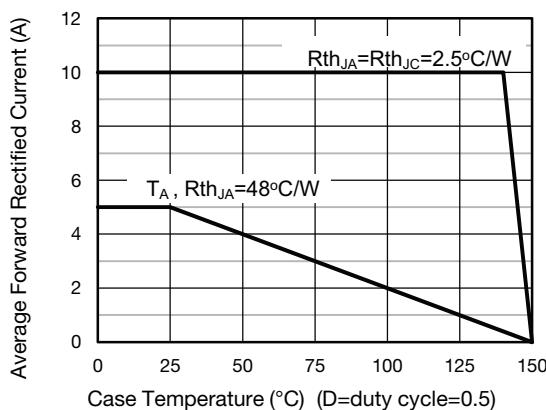
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

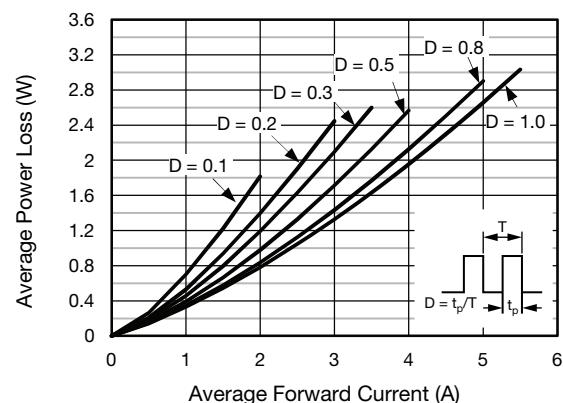


Fig. 2 - Forward Power Loss Characteristics Per Diode

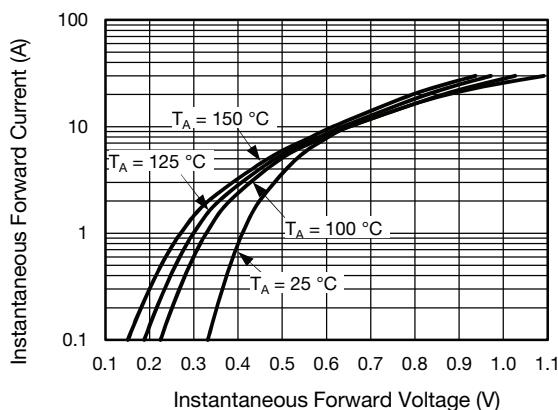


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

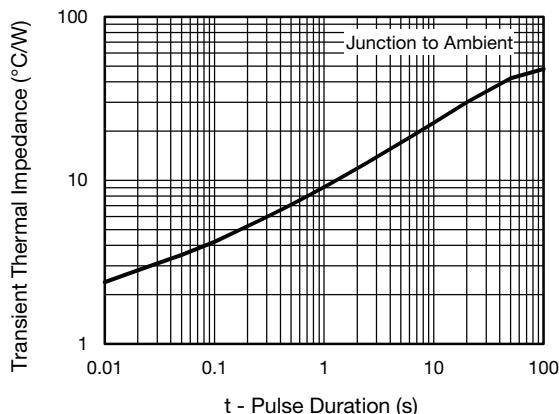


Fig. 6 - Typical Transient Thermal Impedance Per Diode

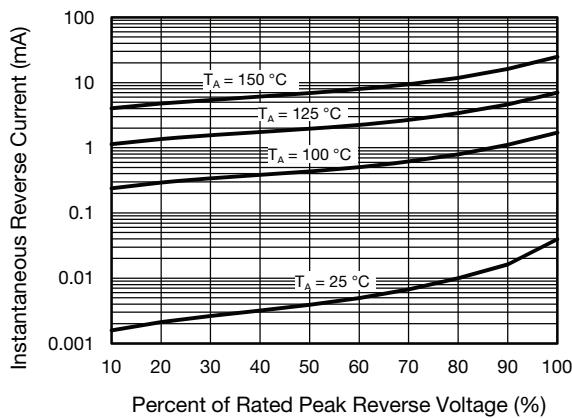


Fig. 4 - Typical Reverse Characteristics Per Diode

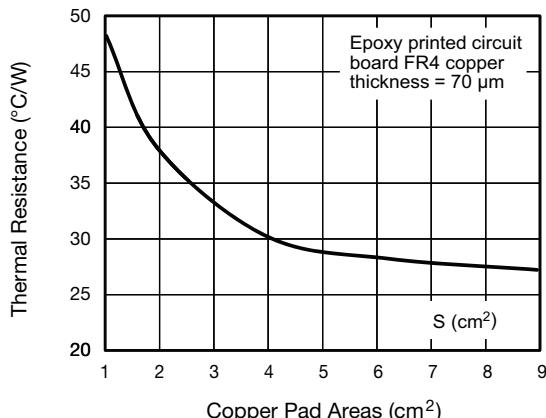


Fig. 7 - Thermal Resistance Junction-to-Ambient vs. Copper Pad Areas

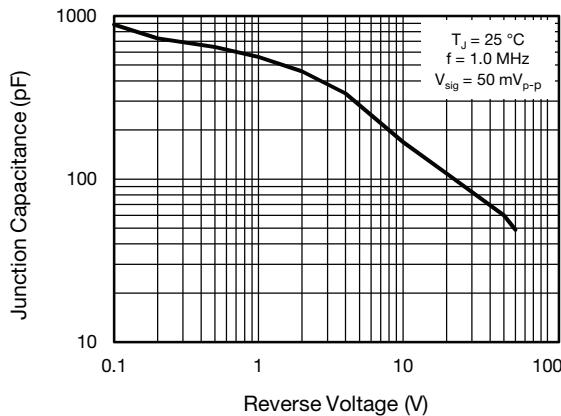
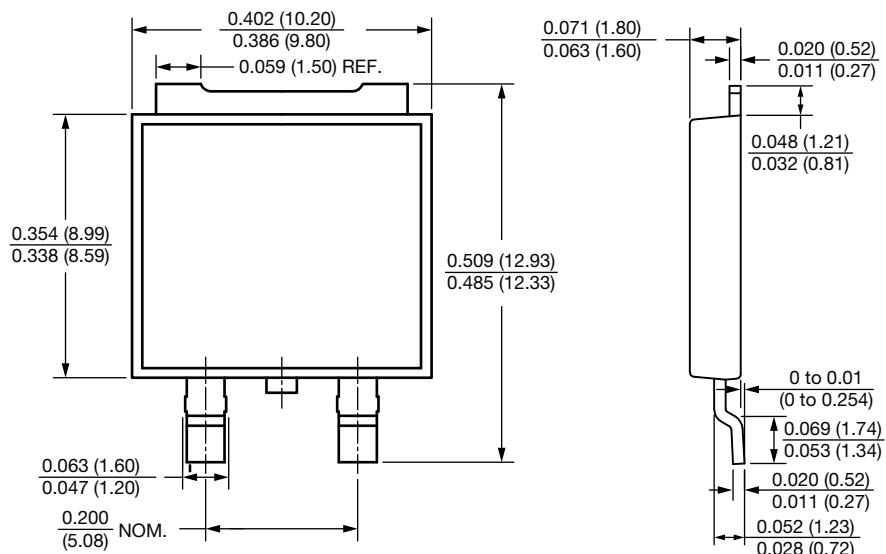
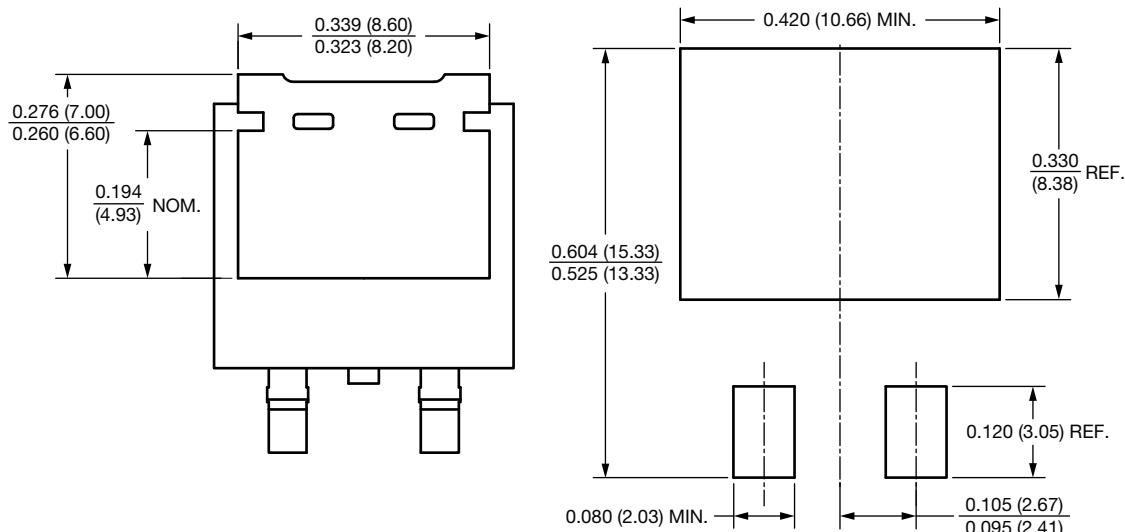


Fig. 5 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-263AC (SMPD)

Mounting Pad Layout


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