HALOGEN FREE



Vishay General Semiconductor

Dual Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.38 \text{ V}$ at $I_F = 3 \text{ A}$

TMBS[®] TO-252 (D-PAK)



A O-	— к
/()	IX.
	\vdash
A O-	HEATSINK
7.0	112/11/01/11

PRIMARY CHARACTERISTICS					
I _{F(AV)} 2 x 7.5 A					
V_{RRM}	60 V				
I _{FSM}	90 A				
V_F at $I_F = 7.5$ A $(T_A = 125 ^{\circ}C)$	0.51 V				
T _J max.	150 °C				
Package	TO-252 (D-PAK)				
Diode variation	Dual common cathode				

FEATURES

Trench MOS Schottky technology

· 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

 Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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-252 (D-PAK)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and

commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V15W60C	UNIT	
Maximum repetitive peak reverse voltage		V_{RRM}	60	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	15	А	
	per diode		7.5		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	90	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 CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I _F = 3 A	T _A = 25 °C	V _F ⁽¹⁾	0.47	-	V
	I _F = 7.5 A			0.56	0.65	
	I _F = 3 A	T _A = 125 °C		0.38	-	
	I _F = 7.5 A			0.51	0.63	
Reverse current per diode	V _R = 60 V	T _A = 25 °C	I _R ⁽²⁾	-	3500	μA
	V _R = 60 V T _A = 125 °C	'K ⁽⁻⁾	9	27	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	V15W60C	UNIT	
Typical thermal resistance	per diode	$R_{ heta JC}$	2.8	°C/W	
	per device		1.4		
	per device	R _{θJA} (1)(2)	65		

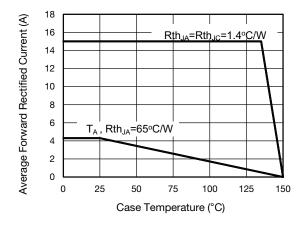
Notes

(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)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V15W60C-M3/I	0.38	I	2500/reel	13" diameter plastic tape and reel		

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)





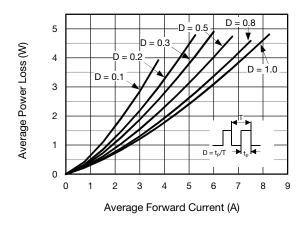


Fig. 2 - Forward Power Loss Characteristics Per Diode



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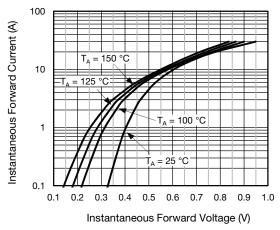


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

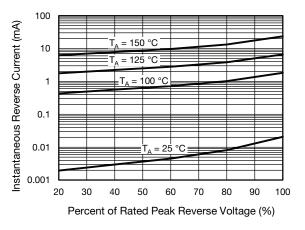


Fig. 4 - Typical Reverse Characteristics Per Diode

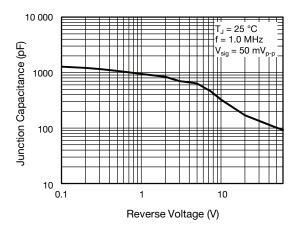


Fig. 5 - Typical Junction Capacitance Per Diode

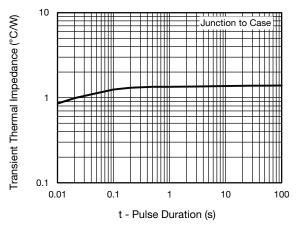
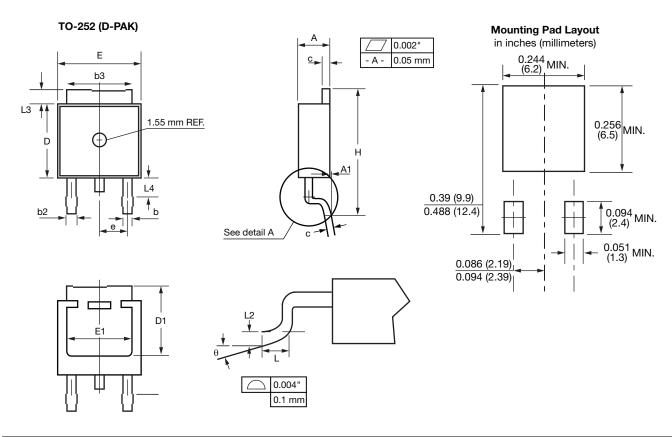


Fig. 6 - Typical Transient Thermal Impedance Per Device



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



SYMBOL	INC	CHES	MILLIMETERS		
	MIN.	MAX.	MIN.	MAX.	
Α	0.086	0.094	2.19	2.38	
A1	-	0.005	-	0.13	
b	0.025	0.035	0.64	0.89	
b2	0.033	0.045	0.84	1.14	
b3	0.205	0.215	5.21	5.46	
С	0.018	0.024	0.46	0.61	
D	0.235	0.250	5.97	6.22	
D1	0.205	-	5.21	-	
Е	0.250	0.265	6.35	6.73	
E1	0.190	-	4.83	-	
е	0.09	0.090 BSC.		BSC.	
Н	0.380	0.410	9.65	10.41	
L	0.055	0.070	1.40	1.78	
L2	0.02	0.020 BSC.		BSC.	
L3	0.035	0.050	0.89	1.27	
L4	0.025	0.039	0.64	1.01	
θ	0°	8°	0°	8°	

Note

• Conforms to JEDEC TO-252 variation AA except dimension "D"

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