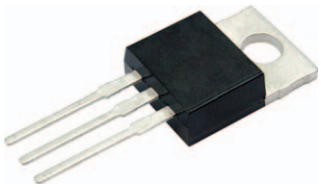
Dual High Voltage Trench MOS Barrier Schottky Rectifier

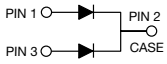
Ultra Low V_F = 0.58 V at I_F = 5 A

TMBS®

TO-220AB



V20M120M



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 **RoHS** COMPLIANT

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-220AB
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
V_{RRM}	120 V
I_{FSM}	110 A
V_F at I_F = 10 A (T_A = 125 °C)	0.68 V
T_J max.	175 °C
Package	TO-220AB
Diode variations	Common cathode

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)				
PARAMETER		**SYMBOL**	**V20M120M**	**UNIT**
Maximum repetitive peak reverse voltage		V_{RRM}	120	V
Maximum average forward rectified current (fig. 1)	per device	$I_{F(AV)}$	20	A
	per diode		10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I_{FSM}	110	A
Voltage rate of change (rated V_R)		dV/dt	10 000	V/µs
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +175	°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 = 5 A	T_A = 25 °C	V_F (1)	0.70	-	V
	I_F = 10 A			0.93	1.01	
	I_F = 5 A	T_A = 125 °C		0.58	-	
	I_F = 10 A			0.68	0.76	
Reverse current per diode	V_R = 100 V	T_A = 25 °C	I_R (2)	2.0	-	μA
		T_A = 125 °C		1.5	-	mA
	V_R = 120 V	T_A = 25 °C		-	500	μA
		T_A = 125 °C		2.0	12	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	V20M120M	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	2.8	°C/W
	per device		1.4	
	per device	$R_{\theta JA}$ (1)(2)	40	

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)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V20M120M-E3/4W	1.88	4W	50/tube	Tube

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

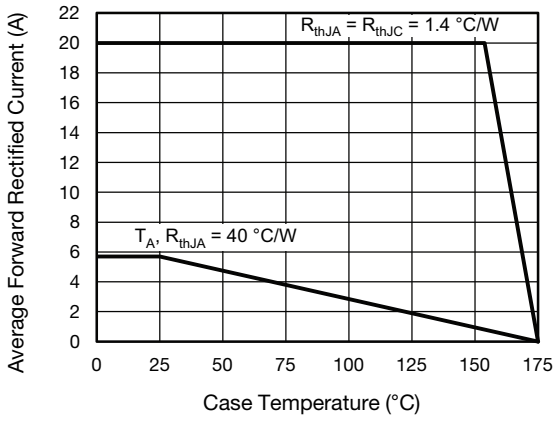


Fig. 1 - Maximum Forward Current Derating Curve

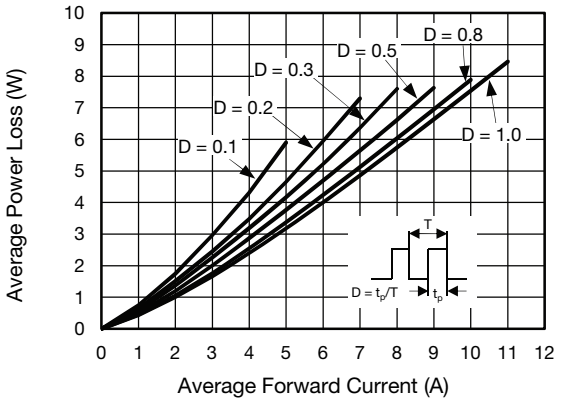


Fig. 2 - Forward Power Loss Characteristics Per Diode

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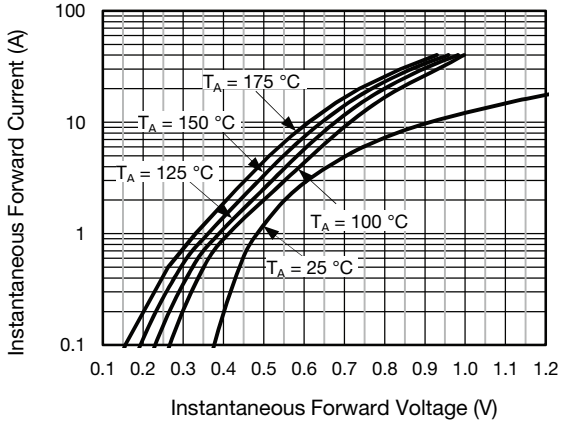


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

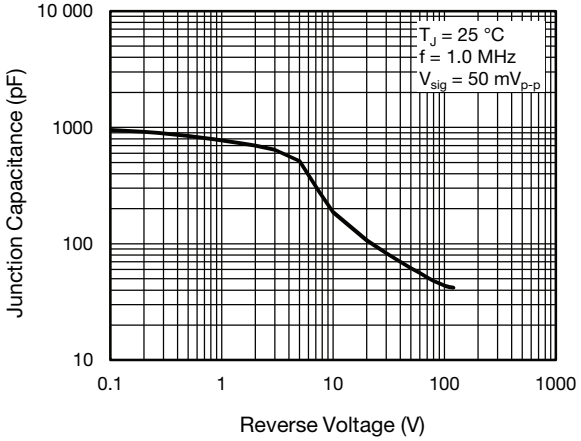


Fig. 5 - Typical Junction Capacitance Per Diode

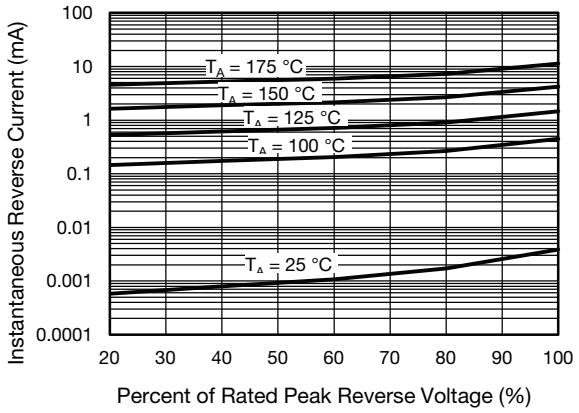


Fig. 4 - Typical Reverse Characteristics Per Diode

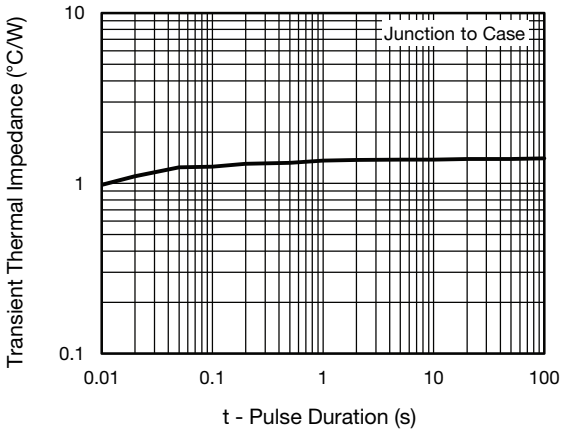
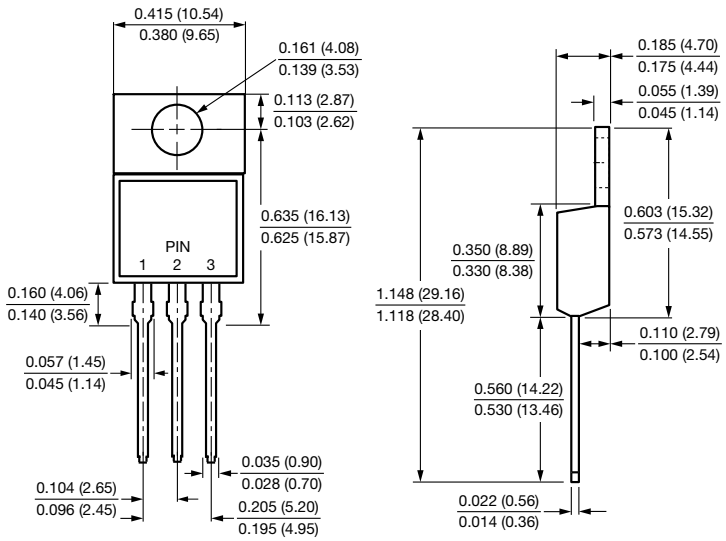


Fig. 6 - Typical Transient Thermal Impedance Per Device

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



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