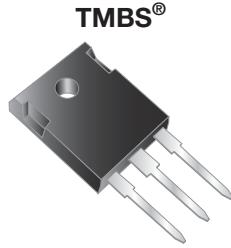
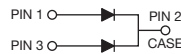


# Dual High-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low  $V_F = 0.43 \text{ V}$  at  $I_F = 10 \text{ A}$ 

**TMBS®**
**TO-3PW**


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


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** TO-3PW

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

**Mounting Torque:** 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 40 A
$V_{RRM}$	100 V
$I_{FSM}$	450 A
$E_{AS}$ at $L = 180 \text{ mH}$	700 mJ
$V_F$ at $I_F = 40 \text{ A}$	0.64 V
$T_J$ max.	150 °C
Package	TO-3PW
Diode variations	Dual common cathode

MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V80100PW	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	80
		per diode	40
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	450	A
Non-repetitive avalanche energy at $T_J = 25 \text{ °C}$ , $L = 180 \text{ mH}$ per diode	$E_{AS}$	700	mJ
Peak repetitive reverse current at $t_p = 2 \text{ }\mu\text{s}$ , 1 kHz, $T_J = 38 \text{ °C} \pm 2 \text{ °C}$ per diode	$I_{RRM}$	1.0	A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000	V/ $\mu\text{s}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150	°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1.0 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	100 (minimum)	-	V
Instantaneous forward voltage per diode	I <sub>F</sub> = 10 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> (1)	0.49	-	V
	I <sub>F</sub> = 20 A			0.59	-	
	I <sub>F</sub> = 40 A			0.76	0.84	
	I <sub>F</sub> = 10 A	T <sub>J</sub> = 125 °C		0.43	-	
	I <sub>F</sub> = 20 A			0.55	-	
	I <sub>F</sub> = 40 A			0.64	0.76	
Reverse current per diode	V <sub>R</sub> = 80 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> (2)	38	-	μA
		T <sub>A</sub> = 125 °C		17	-	mA
	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C		85	1000	μA
		T <sub>A</sub> = 125 °C		33	76	mA

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	V80100PW	UNIT
Typical thermal resistance	per diode	R <sub>θJC</sub>	1.5	°C/W
	per device		0.8	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-3PW	V80100PW-M3/4W	4.5	4W	30/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

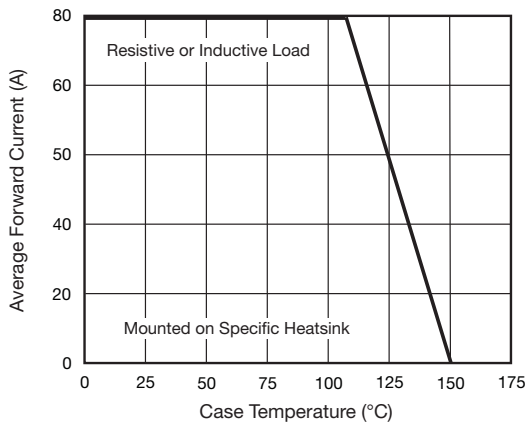


Fig. 1 - Forward Current Derating Curve

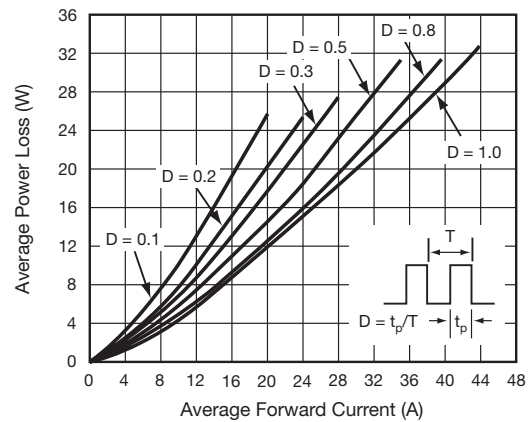


Fig. 2 - Forward Power Loss Characteristics Per Diode

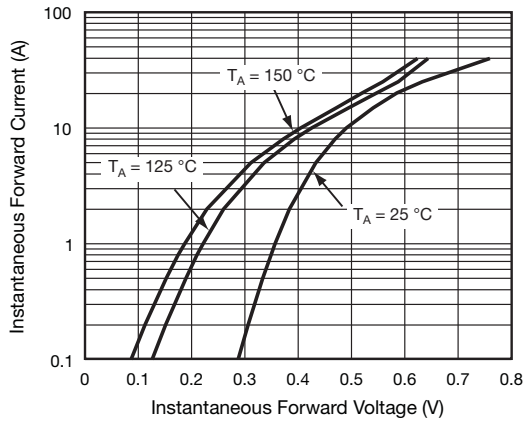


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

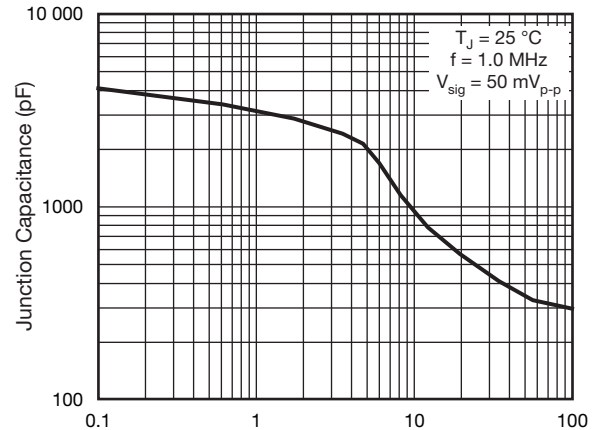


Fig. 5 - Typical Junction Capacitance Per Diode

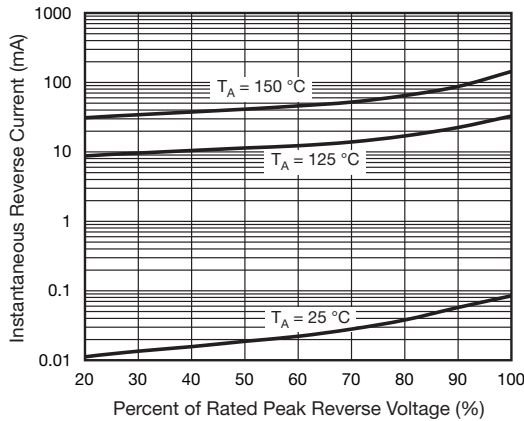


Fig. 4 - Typical Reverse Characteristics Per Diode

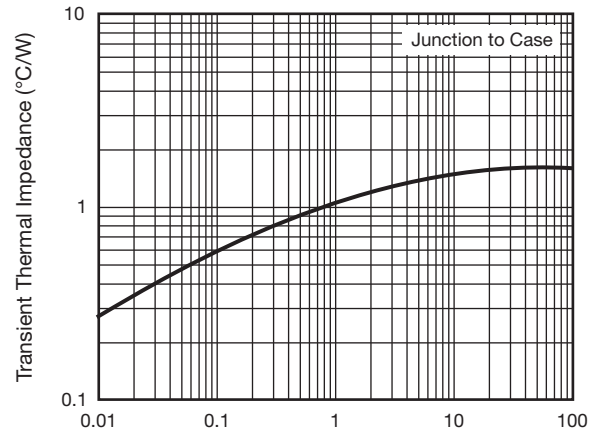
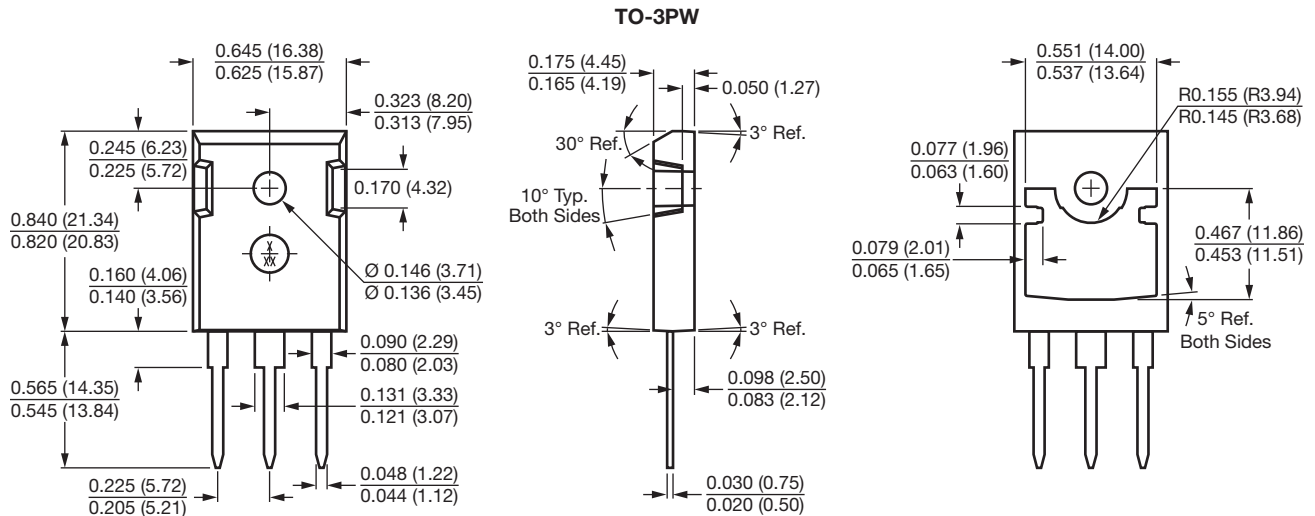


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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





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