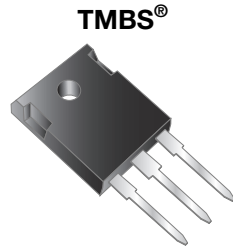
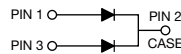


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low $V_F = 0.27\text{ V}$ at $I_F = 5\text{ A}$

TMBS®
TO-3PW


PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 20 A
V_{RRM}	45 V
I_{FSM}	280 A
V_F at $I_F = 20\text{ A}$ ($T_A = 125\text{ °C}$)	0.41 V
T_J max.	150 °C
Package	TO-3PW
Diode variations	Dual common cathode

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


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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VT40L45PW	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum average forward rectified current (fig. 1)		per device	40
		per diode	20
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	280	A
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F (1)	0.39	-	V
	$I_F = 10\text{ A}$			0.43	-	
	$I_F = 20\text{ A}$			0.49	0.57	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.27	-	
	$I_F = 10\text{ A}$	0.33		-		
	$I_F = 20\text{ A}$	0.41		0.50		
Reverse current per diode	$V_R = 45\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	I_R (2)	-	5	mA
		$T_A = 125\text{ }^\circ\text{C}$		32	70	mA

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
 (2) Pulse test: Pulse width $\leq 5\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	VT40L45PW	UNIT	
Typical thermal resistance	per diode	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
	per device		0.8	
	per device	$R_{\theta JA}$ (1)(2)	50	

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-3PW	VT40L45PW-M3/4W	4.5	4W	30/tube	Tube

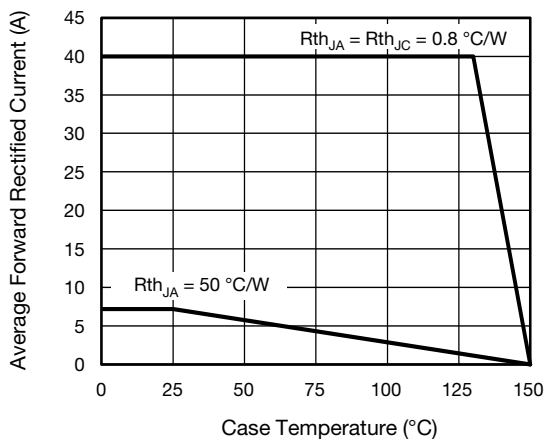
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

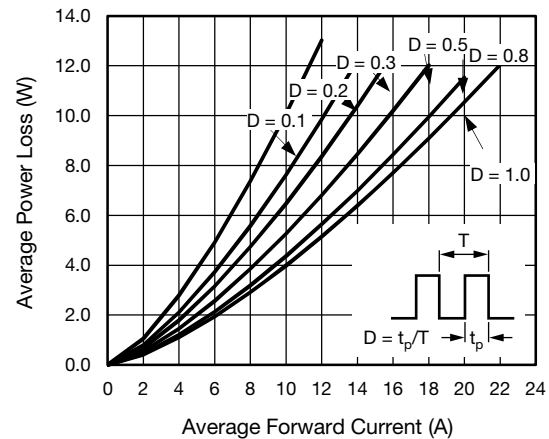


Fig. 2 - Forward Power Loss Characteristics Per Diode

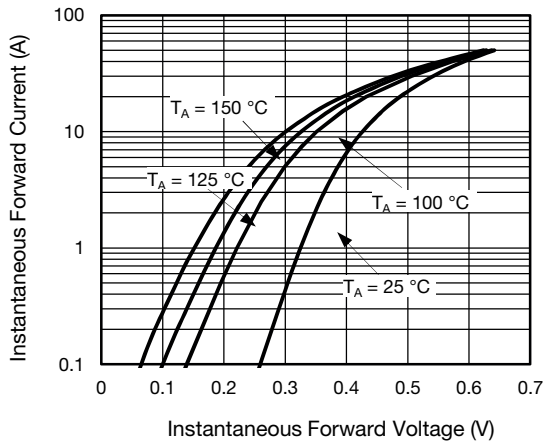


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

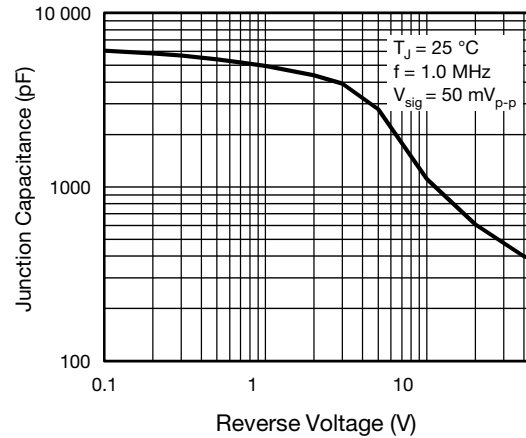


Fig. 5 - Typical Junction Capacitance Per Diode

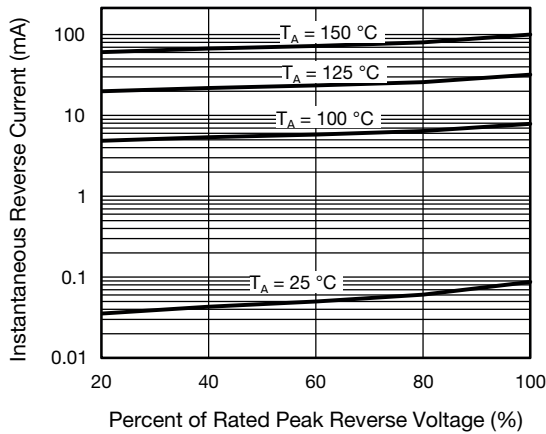


Fig. 4 - Typical Reverse Characteristics Per Diode

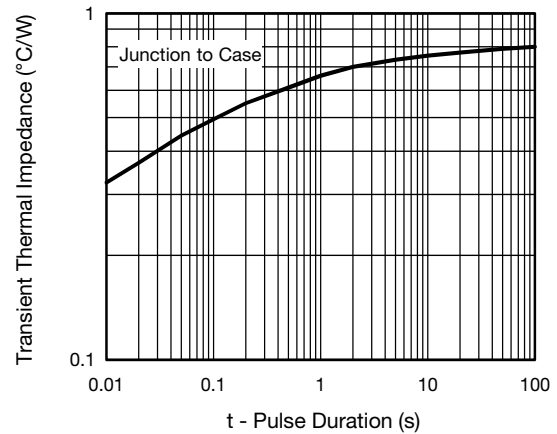
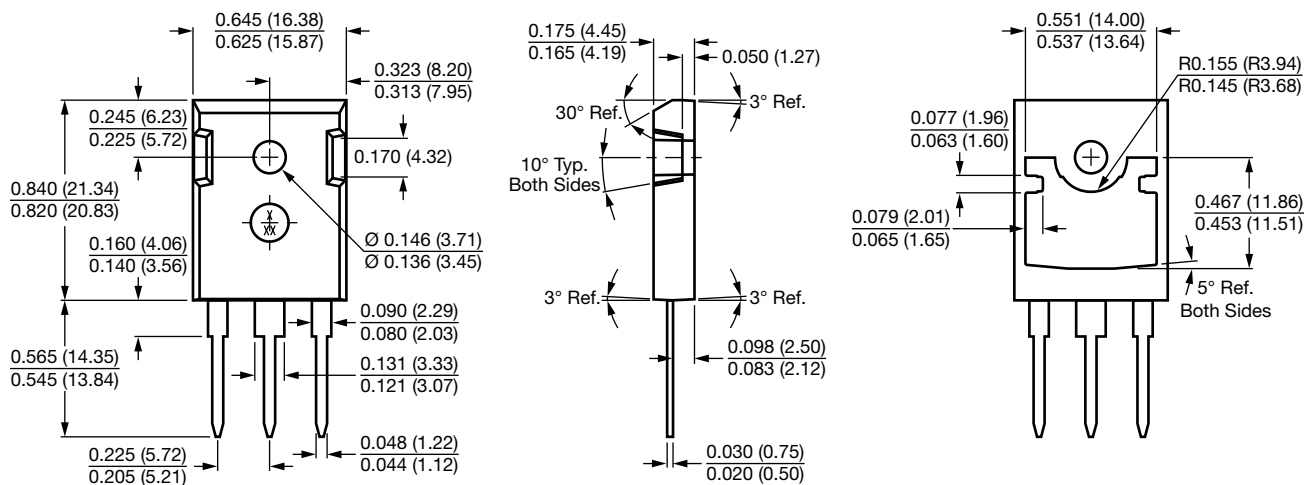


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-3PW





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