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[Vishay Semiconductor/Diodes Division](#)  
[VT80L45PW-M3/4W](#)

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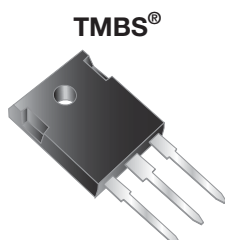
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**VT80L45PW**

Vishay General Semiconductor

## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.23\text{ V}$  at  $I_F = 5\text{ A}$



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.

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
$V_{RRM}$	45 V
$I_{FSM}$	450 A
$V_F$ at $I_F = 40\text{ A}$ ( $T_A = 125\text{ °C}$ )	0.43 V
$T_J$ max.	150 °C
Package	TO-3PW
Diode variations	Dual common cathode

### 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	VT80L45PW	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	V
Maximum average forward rectified current (fig. 1)		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
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150	°C



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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> (1)	0.36	-	V
	I <sub>F</sub> = 20 A			0.43	-	
	I <sub>F</sub> = 40 A			0.50	0.58	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.23	-	
	I <sub>F</sub> = 20 A			0.34	-	
	I <sub>F</sub> = 40 A			0.43	0.52	
Reverse current per diode	V <sub>R</sub> = 45 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> (2)	-	9	mA
		T <sub>A</sub> = 125 °C		72	200	mA

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VT80L45PW	UNIT
Typical thermal resistance	per diode	R <sub>θJC</sub>	0.7	°C/W
	per device		0.5	
	per device	R <sub>θJA</sub> (1)(2)	45	

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>
- (2) Free air, without heatsink

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-3PW	VT80L45PW-M3/4W	4.5	4W	30/tube	Tube

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

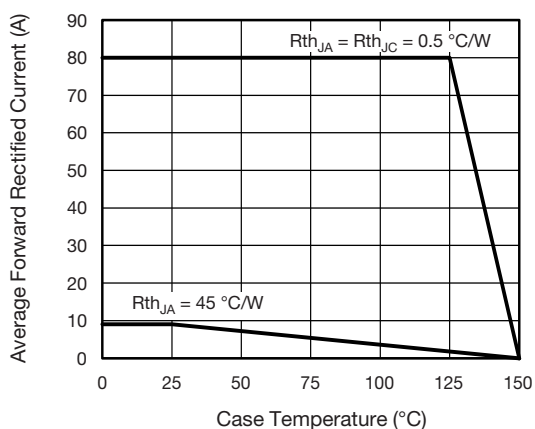


Fig. 1 - Forward Current Derating Curve

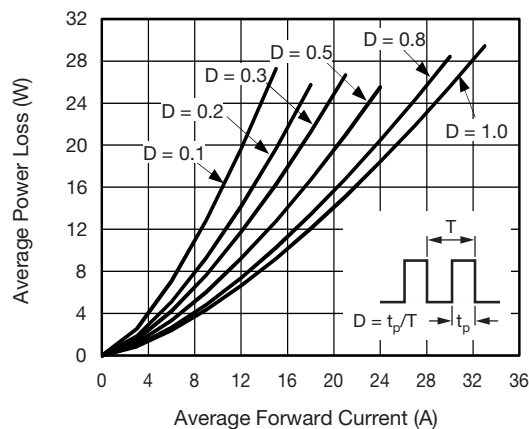


Fig. 2 - Forward Power Loss Characteristics Per Diode



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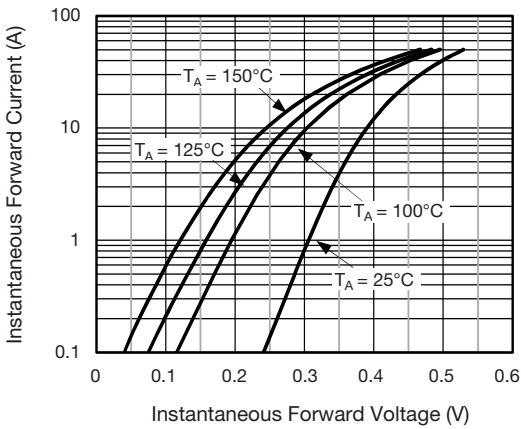


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

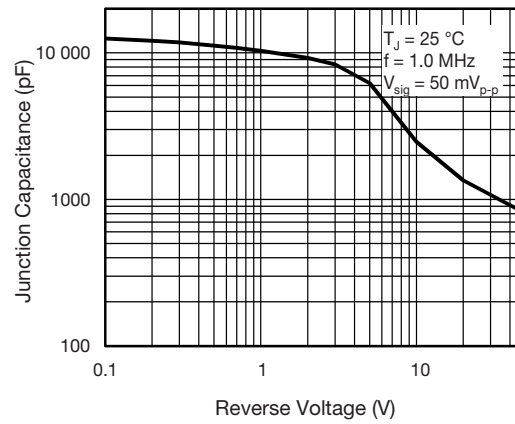


Fig. 5 - Typical Junction Capacitance Per Diode

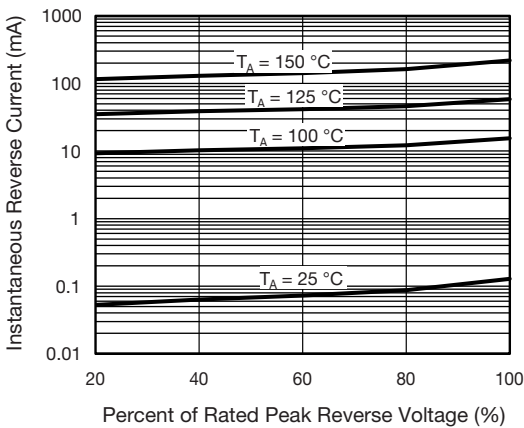


Fig. 4 - Typical Reverse Characteristics Per Diode

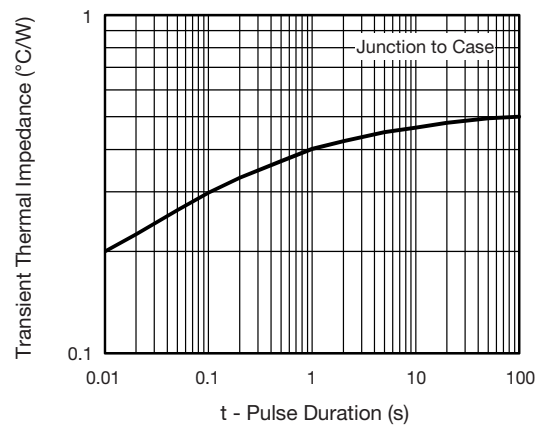
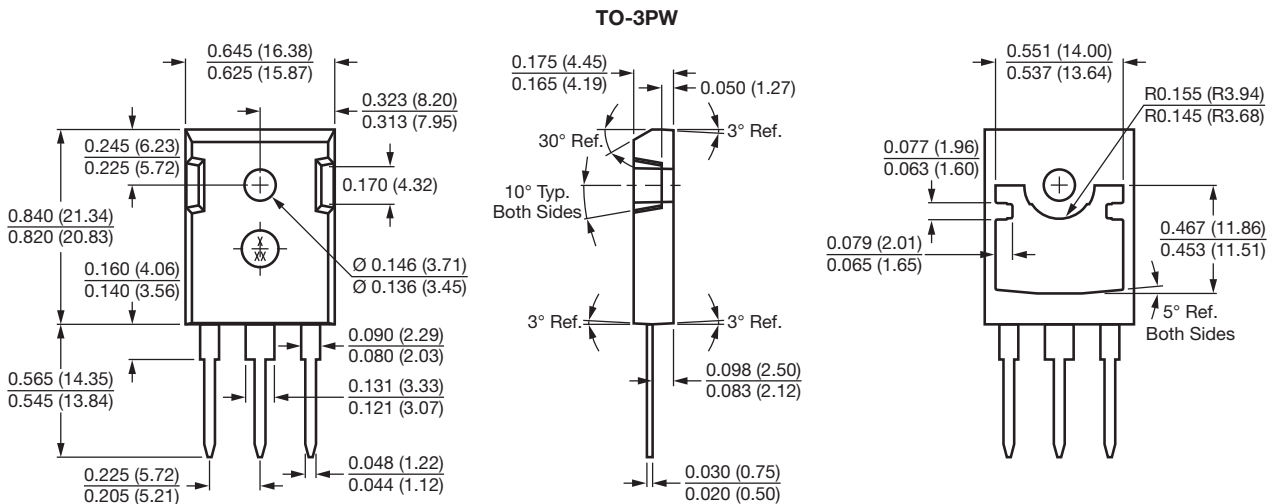


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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





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