

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.51\text{ V}$ at $I_F = 10\text{ A}$



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



RoHS
 COMPLIANT
 HALOGEN
FREE

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-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}	170 V
I_{FSM}	280 A
V_F at $I_F = 40\text{ A}$	0.68 V
T_J max.	175 °C

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V80170PW	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	170	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	80	A
		40	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	280	A
Voltage rate of change (rated V_R)	dV/dt	10 000	V/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 175	°C

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I _F = 10 A	T _A = 25 °C	V _F ⁽¹⁾	0.65	-	V
	I _F = 20 A			0.74	-	
	I _F = 40 A			0.82	0.91	
	I _F = 10 A	T _A = 125 °C		0.51	-	
	I _F = 20 A			0.59	-	
	I _F = 40 A			0.68	0.76	
Reverse current per diode	V _R = 136 V	T _A = 25 °C	I _R ⁽²⁾	3.1	-	μA
		T _A = 125 °C		3.8	-	mA
	V _R = 170 V	T _A = 25 °C		-	600	μA
		T _A = 125 °C		7.3	80	mA

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width $\leq 20\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)				
PARAMETER		SYMBOL	V80170PW	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	0.7	$^{\circ}\text{C/W}$
	per device		0.5	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-3PW	V80170PW-M3/4W	4.5	4W	30/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

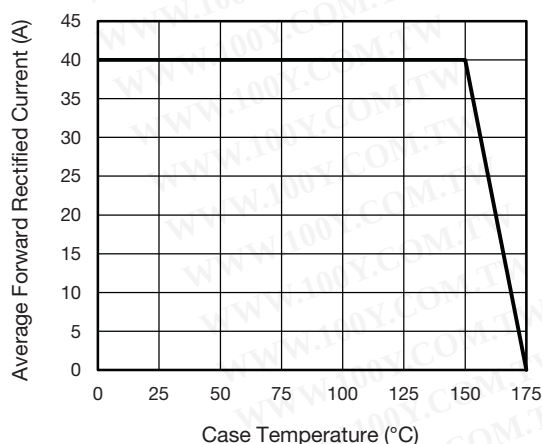
($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

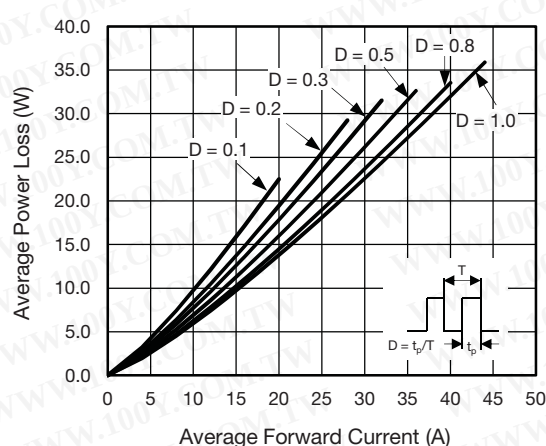


Fig. 2 - Forward Power Loss Characteristics Per Diode

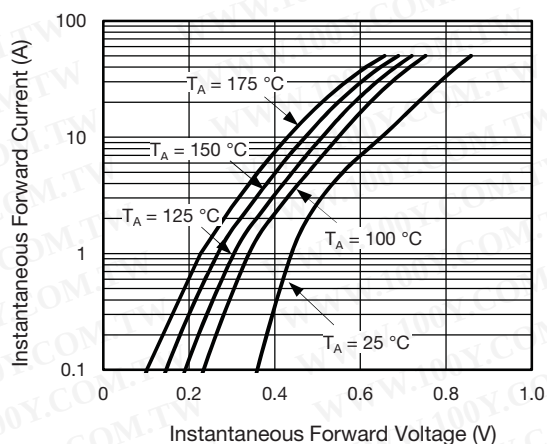


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

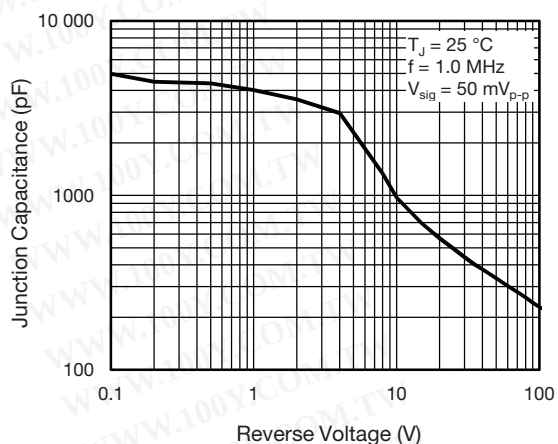


Fig. 5 - Typical Junction Capacitance Per Diode

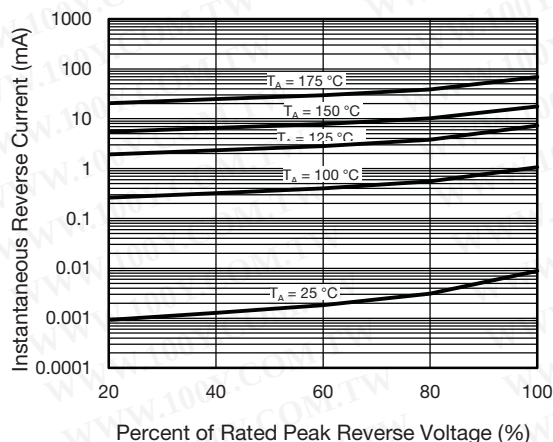


Fig. 4 - Typical Reverse Characteristics Per Diode

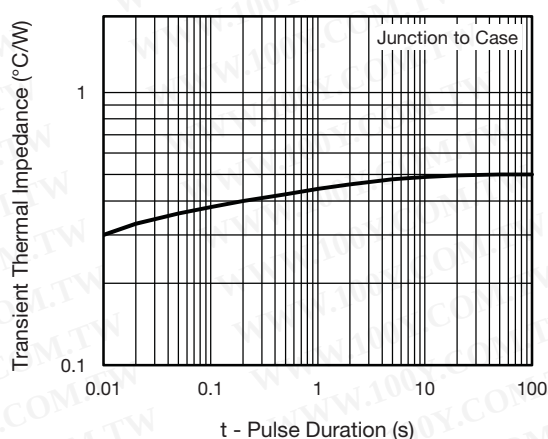
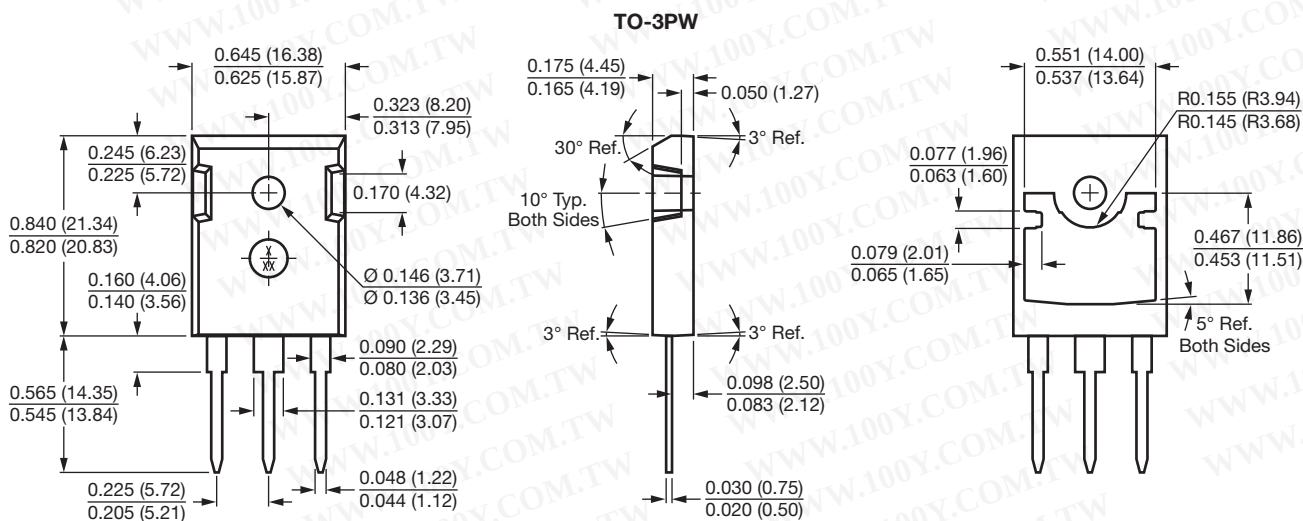


Fig. 6 - Typical Transient Thermal Impedance Per Device

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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