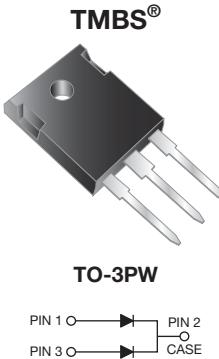


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.42 V at I_F = 5 A



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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 20 A
V_{RRM}	100 V
I_{FSM}	250 A
E_{AS} at $L = 70$ mH	250 mJ
V_F at $I_F = 20$ A	0.67 V
T_J max.	150 °C
Package	TO-3PW
Diode variations	Dual common cathode

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	V40100PGW	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum average forward rectified current (fig. 1) per device per diode	$I_{F(AV)}$	40	A
		20	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	250	A
Non-repetitive avalanche energy at $T_J = 25$ °C, $L = 70$ mH per diode	E_{AS}	250	mJ
Peak repetitive reverse current at $t_p = 2$ µs, 1 kHz, $T_J = 38$ °C ± 2 °C per diode	I_{RRM}	1.0	A
Voltage rate of change (rated V_R)	dV/dt	10 000	V/µs
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	$I_R = 1.0 \text{ mA}$	$T_A = 25^\circ\text{C}$	V_{BR}	100 (minimum)	-	V	
Instantaneous forward voltage per diode	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.49	-	V	
	$I_F = 10 \text{ A}$			0.58	-		
	$I_F = 20 \text{ A}$			0.76	0.85		
	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.42	-		
	$I_F = 10 \text{ A}$			0.54	-		
	$I_F = 20 \text{ A}$			0.67	0.73		
	$V_R = 70 \text{ V}$			16	-	μA	
Reverse current per diode	$V_R = 100 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	8.3	-	mA	
		$T_A = 125^\circ\text{C}$		69	1000	μA	
		$T_A = 25^\circ\text{C}$		21	47	mA	
		$T_A = 125^\circ\text{C}$					

Notes

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

(2) Pulse test: Pulse width $\leq 40 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V40100PGW			UNIT
Typical thermal resistance	per diode	$R_{\theta\text{JC}}$	2.0		$^\circ\text{C/W}$
	per device		1.4		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-3PW	V40100PGW-M3/4W	4.5	4W	30/tube	Tube

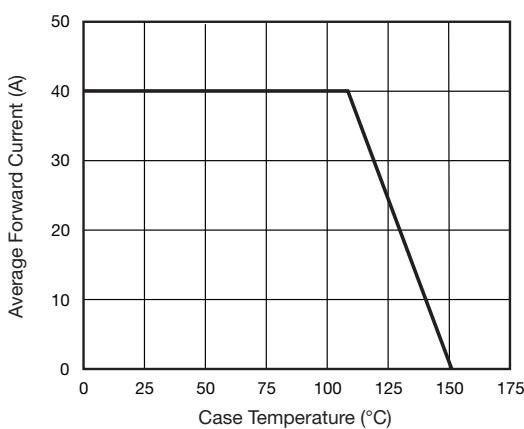
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

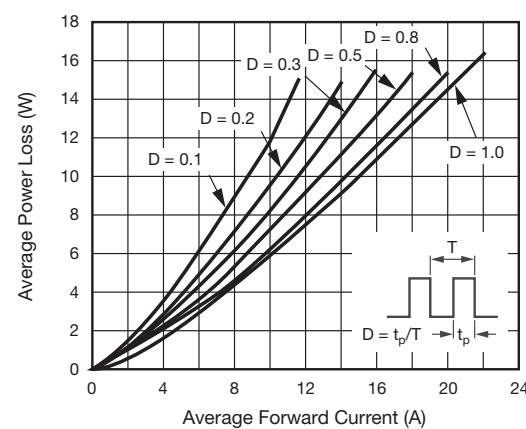


Fig. 2 - Forward Power Loss Characteristics Per Diode

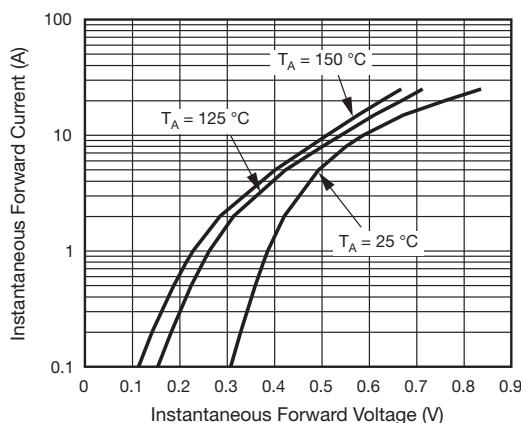


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

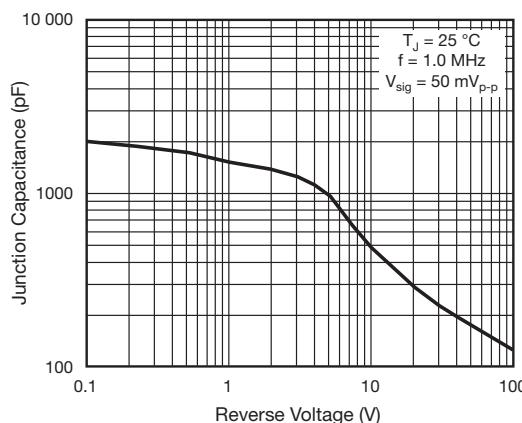


Fig. 5 - Typical Junction Capacitance Per Diode

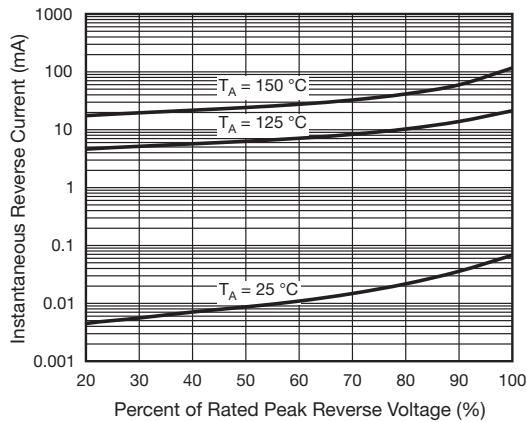


Fig. 4 - Typical Reverse Characteristics Per Diode

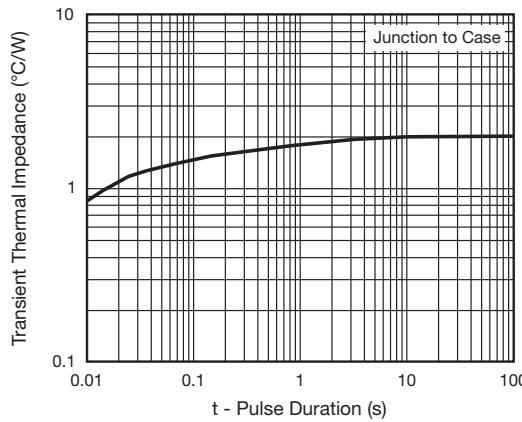
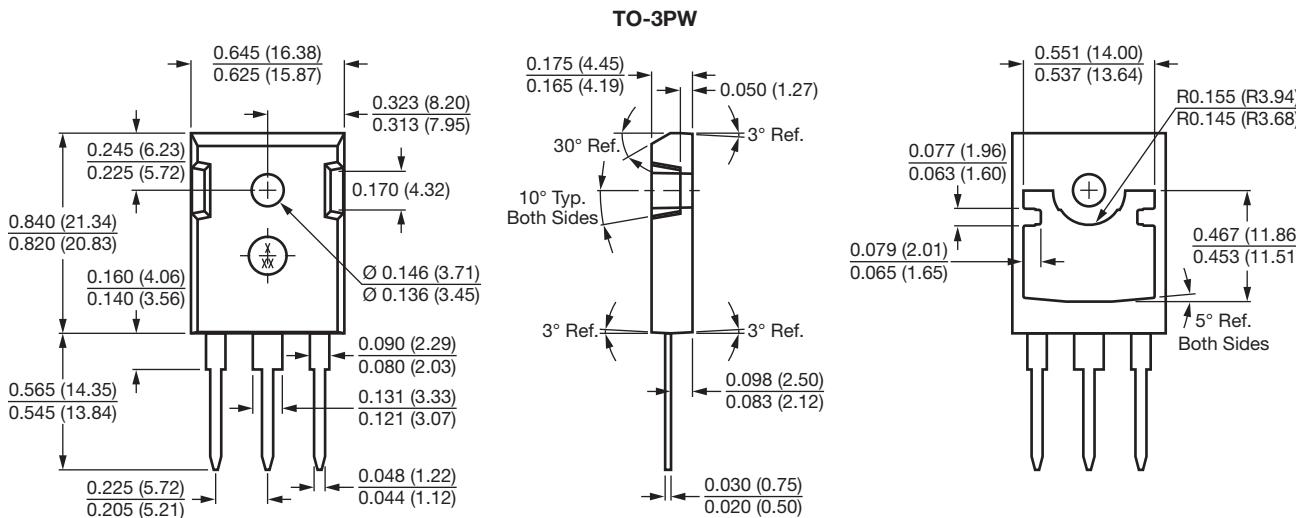


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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