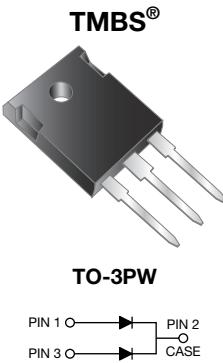


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.39 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-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 and RoHS compliant, 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 25 A
V_{RRM}	100 V
I_{FSM}	300 A
E_{AS} at $L = 100$ mH	280 mJ
V_F at $I_F = 25$ A	0.66 V
T_J max.	150 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	V50100PW	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	50	A
per device		25	
per diode			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	300	A
Non-repetitive avalanche energy at $T_J = 25$ °C, $L = 100$ mH per diode	E_{AS}	280	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	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.48	-	V
	$I_F = 10 \text{ A}$			0.56	-	
	$I_F = 20 \text{ A}$			0.69	-	
	$I_F = 25 \text{ A}$			0.76	0.84	
	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$	$V_F^{(1)}$	0.39	-	
	$I_F = 10 \text{ A}$			0.50	-	
	$I_F = 20 \text{ A}$			0.61	-	
	$I_F = 25 \text{ A}$			0.66	0.74	
	$V_R = 70 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	23	-	μA
		$T_A = 125^\circ\text{C}$		11	-	mA
	$V_R = 100 \text{ V}$	$T_A = 25^\circ\text{C}$		-	1000	μA
		$T_A = 125^\circ\text{C}$		29	80	mA

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	V50100PW		UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
	per device		0.8	

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-3PW	V50100PW-M3/4W	4.5	4W	30/tube	Tube

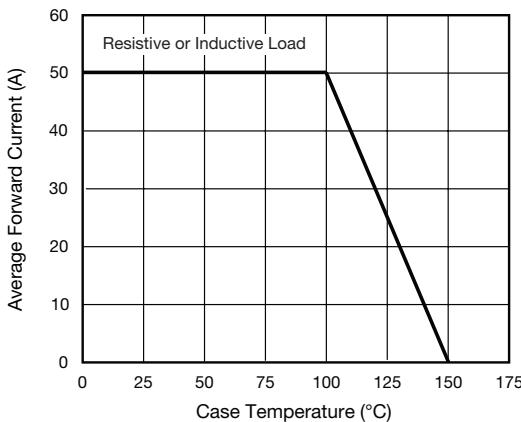
RATINGS AND CHARACTERISTICS CURVES $(T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

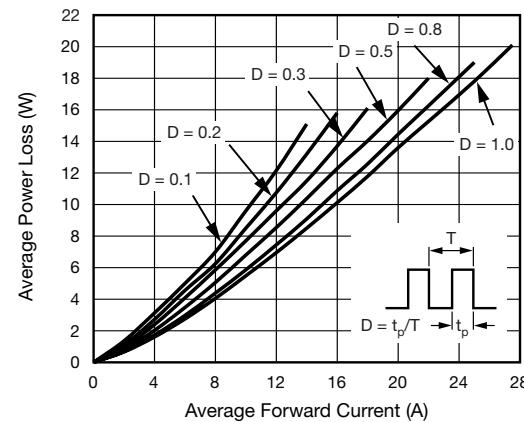


Fig. 2 - Forward Power Loss Characteristics Per Diode

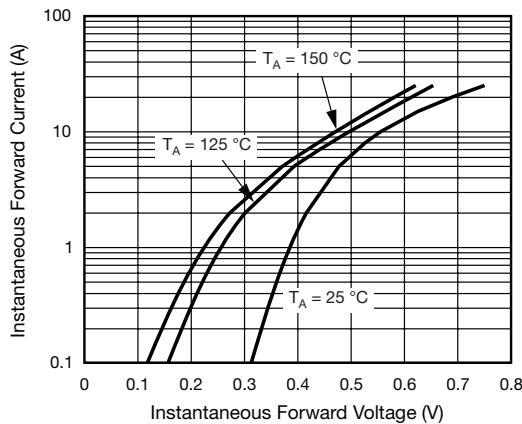


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

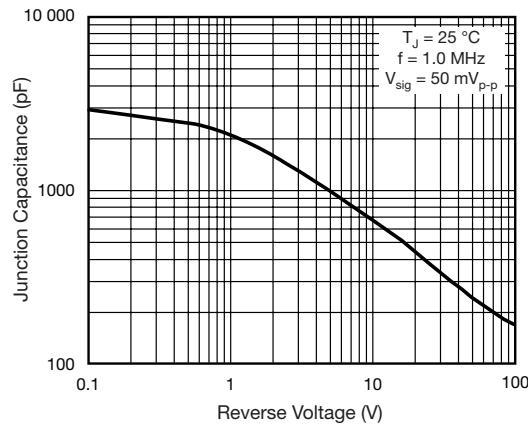


Fig. 5 - Typical Junction Capacitance Per Diode

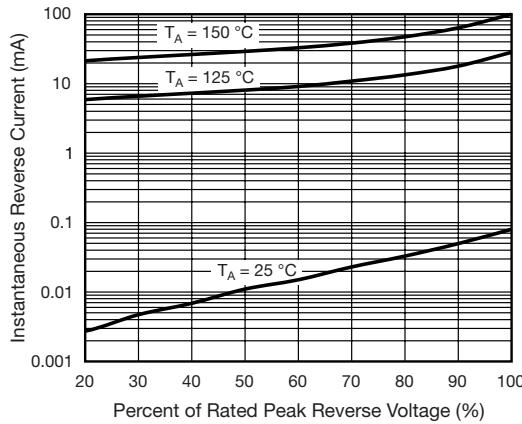


Fig. 4 - Typical Reverse Characteristics Per Diode

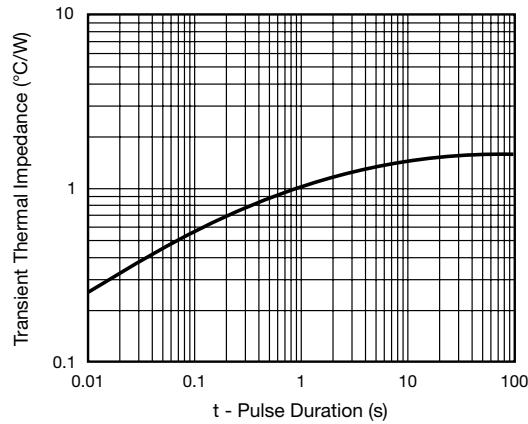
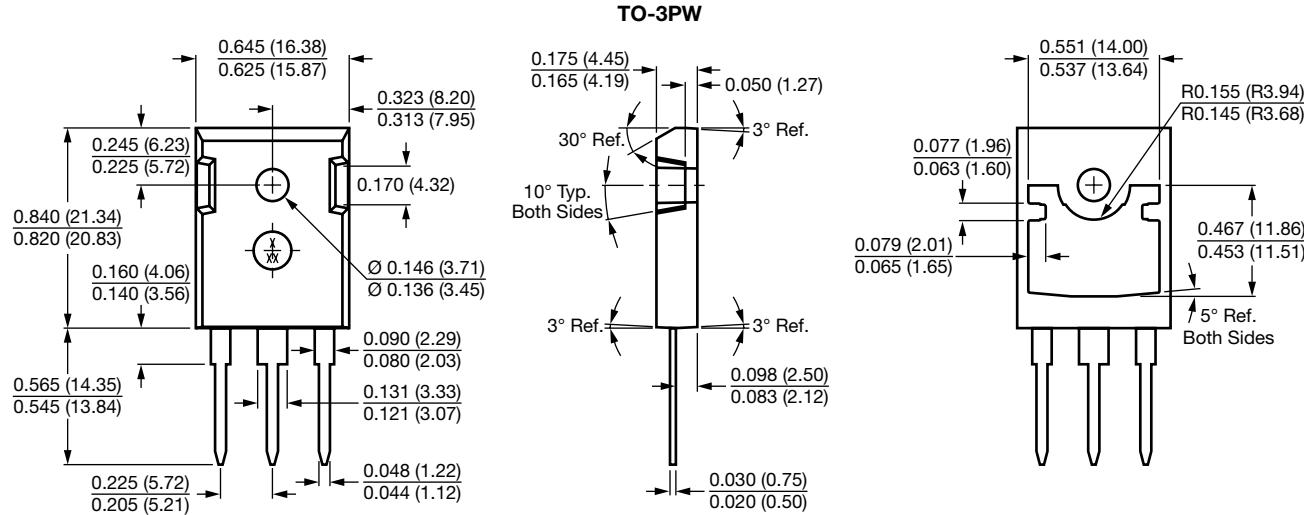


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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