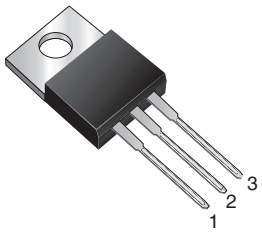
Trench MOS Barrier Schottky Rectifier

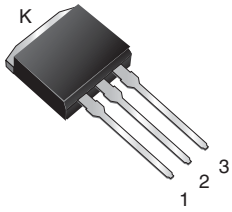
Ultra Low V_F = 0.46 V at I_F = 5 A

TMBS®

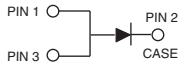
TO-220AB



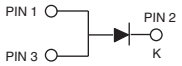
TO-262AA



VT2080S



VIT2080S



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 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-220AB and TO-262AA
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	
$I_{F(AV)}$	20 A
V_{RRM}	80 V
I_{FSM}	150 A
V_F at I_F = 20 A	0.70 V
T_J max.	150 °C
Package	TO-220AB, TO-262AA
Diode variation	Single

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	VT2080S	VIT2080S	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	80		V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	20		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150		A
Voltage rate of change (rated V_R)	dV/dt	10 000		V/µs
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150		°C

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage per diode	I_F = 5 A	T_A = 25 °C	V_F (1)	0.52	-	V
	I_F = 10 A			0.61	-	
	I_F = 20 A			0.80	0.92	
	I_F = 5 A	T_A = 125 °C		0.46	-	
	I_F = 10 A			0.54	-	
	I_F = 20 A			0.70	0.78	
Reverse current per diode	V_R = 80 V	T_A = 25 °C	I_R (2)	30	700	µA
		T_A = 125 °C		20	35	mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**VT2080S**	**VIT2080S**	**UNIT**
Typical thermal resistance	$R_{\theta JC}$	1.8		°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AB	VT2080S-M3/4W	1.88	4W	50/tube	Tube
TO-262AA	VIT2080S-M3/4W	1.45	4W	50/tube	Tube

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

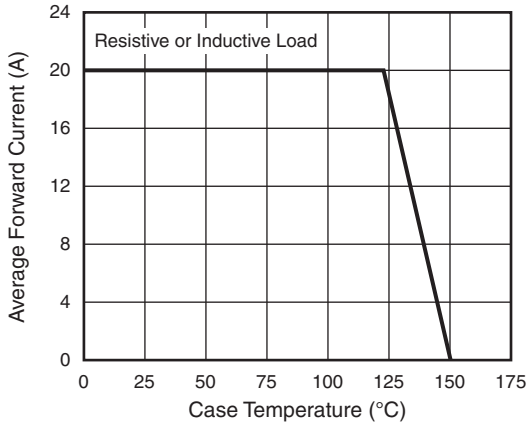


Fig. 1 - Maximum Forward Current Derating Curve

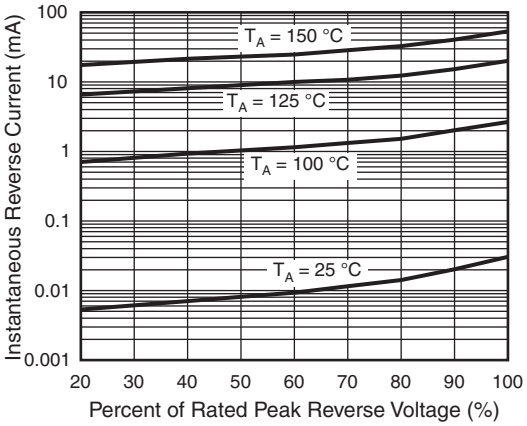


Fig. 4 - Typical Reverse Characteristics

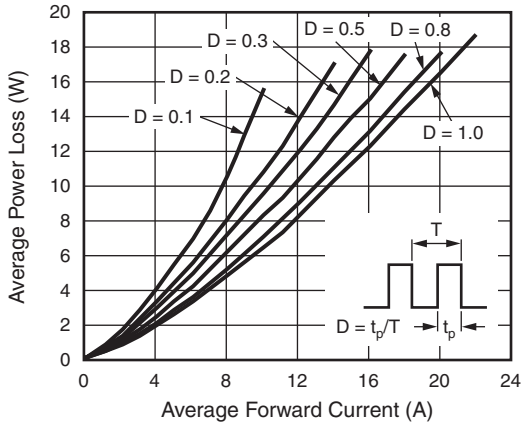


Fig. 2 - Forward Power Dissipation Characteristics

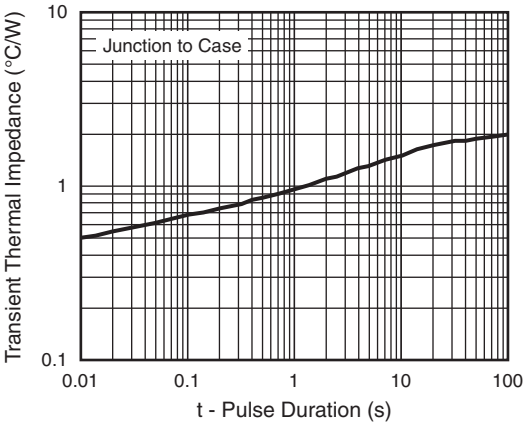


Fig. 5 - Typical Transient Thermal Impedance

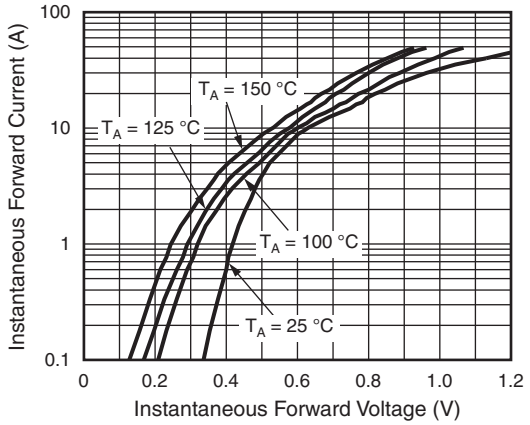


Fig. 3 - Typical Instantaneous Forward Characteristics

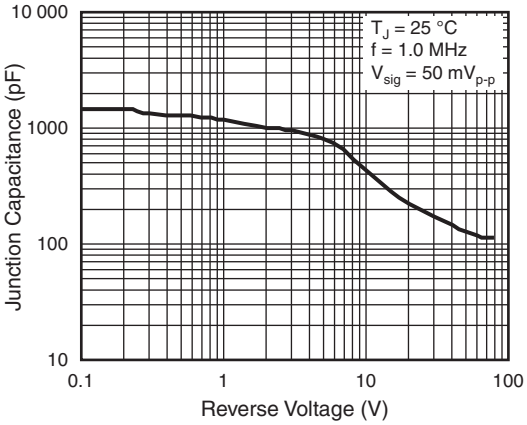
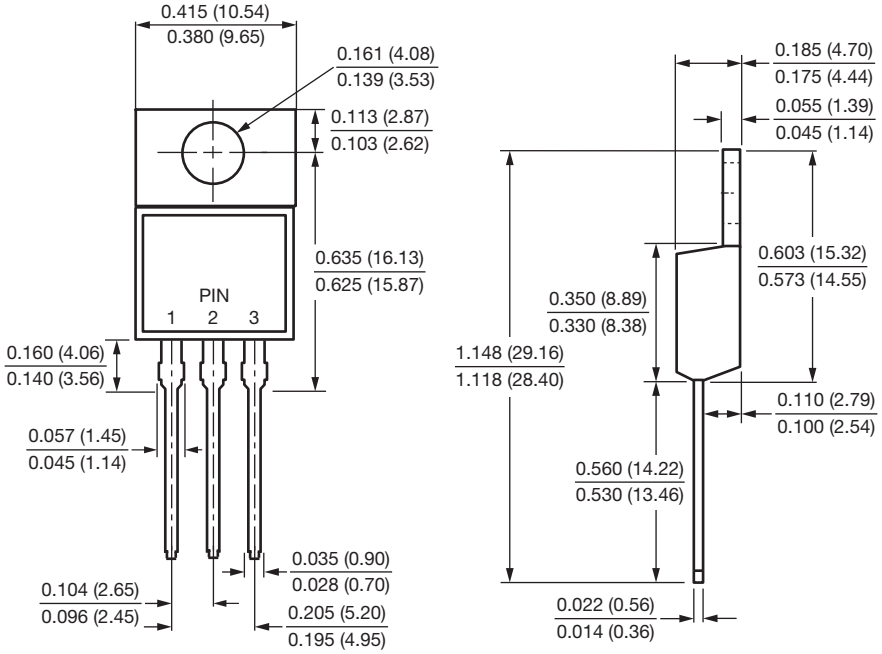


Fig. 6 - Typical Junction Capacitance

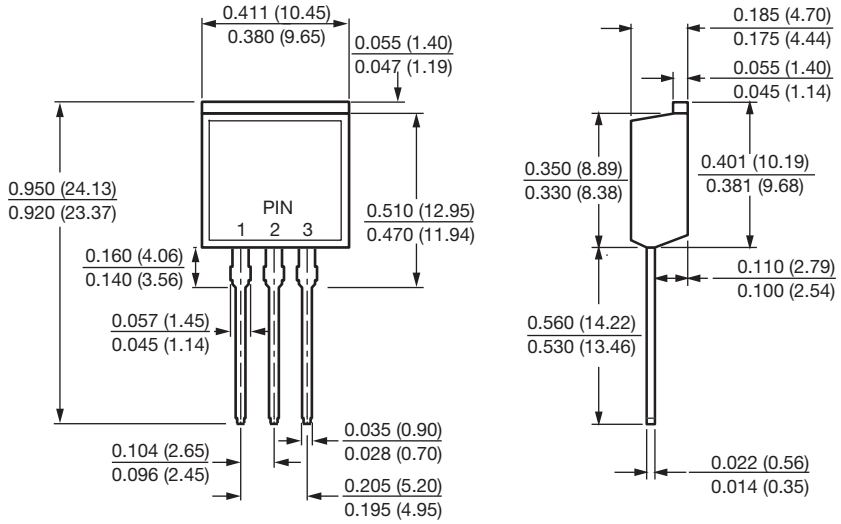
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-262AA



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