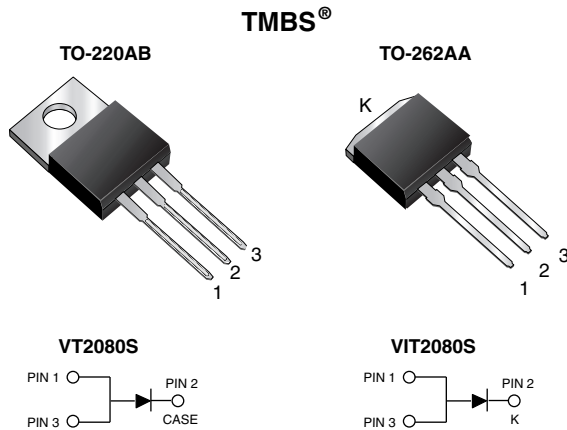


Trench MOS Barrier Schottky Rectifier

 Ultra Low $V_F = 0.46\text{ V}$ at $I_F = 5\text{ A}$


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
- AEC-Q101 qualified
- 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.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	20 A
V_{RRM}	80 V
I_{FSM}	150 A
V_F at $I_F = 20\text{ A}$	0.70 V
T_J max.	150 °C
Package	TO-220AB, TO-262AA
Diode variation	Single die

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

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150		°C



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

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
(2) Pulse test: Pulse width $\leq 40\text{ ms}$

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

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
TO-220AB	VT2080SHM3/4W ⁽¹⁾	1.88	4W	50/tube	Tube
TO-262AA	VIT2080SHM3/4W ⁽¹⁾	1.45	4W	50/tube	Tube

Note

- (1) AEC-Q101 qualified



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

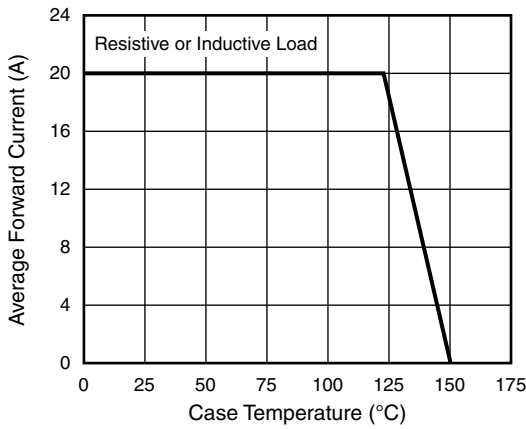


Fig. 1 - Maximum Forward Current Derating Curve

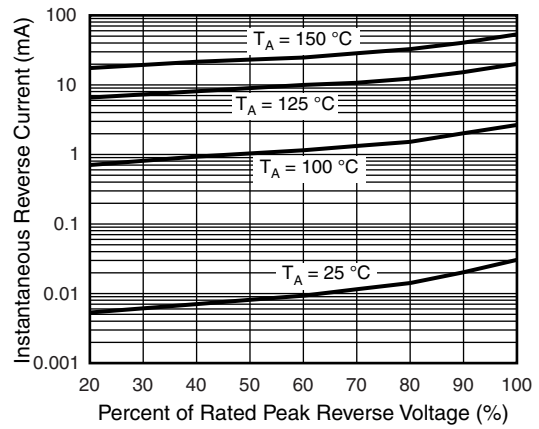


Fig. 4 - Typical Reverse Characteristics

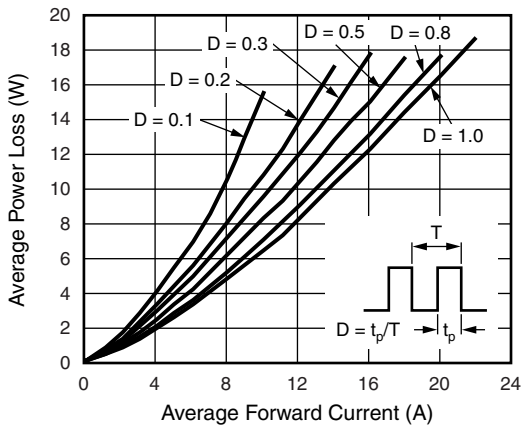


Fig. 2 - Forward Power Dissipation Characteristics

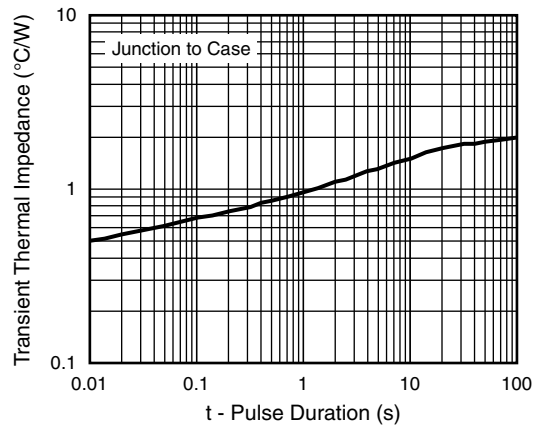


Fig. 5 - Typical Transient Thermal Impedance

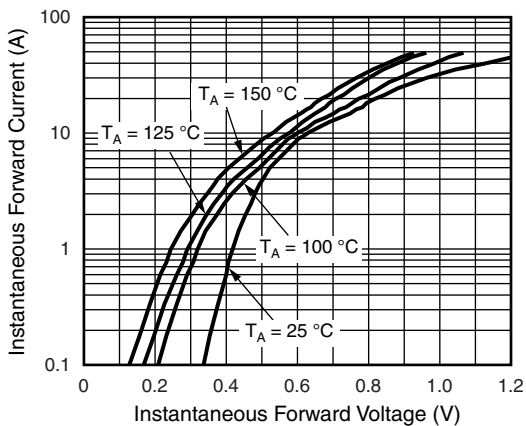


Fig. 3 - Typical Instantaneous Forward Characteristics

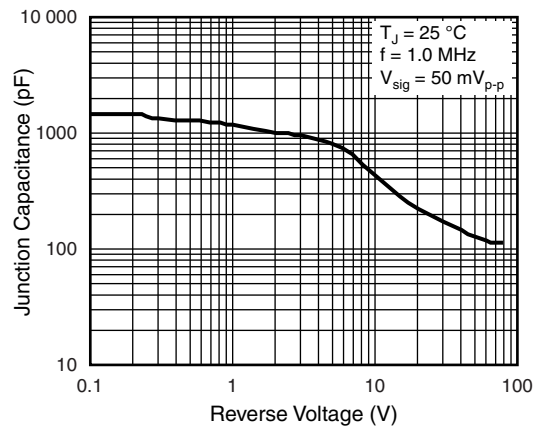
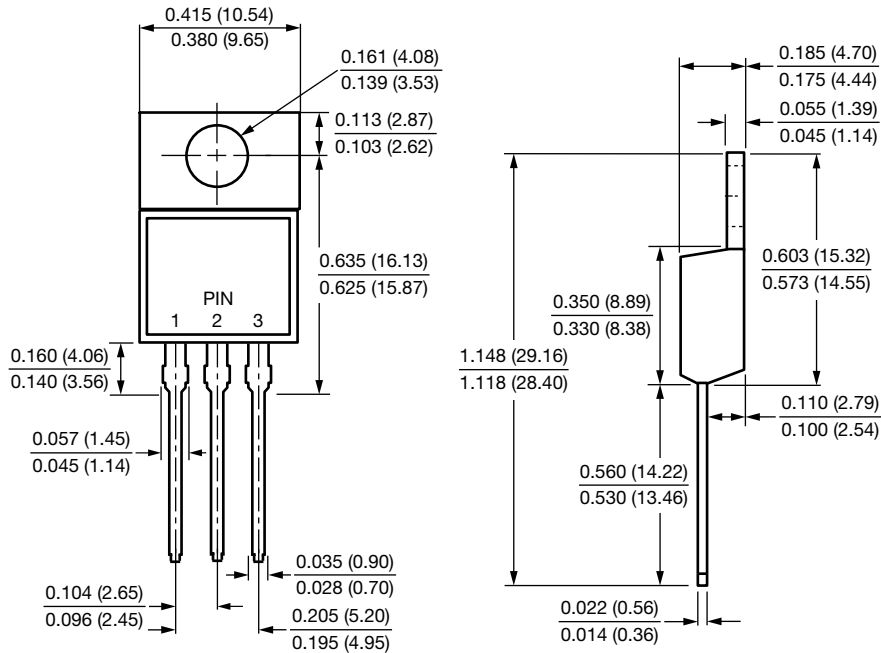


Fig. 6 - Typical Junction Capacitance

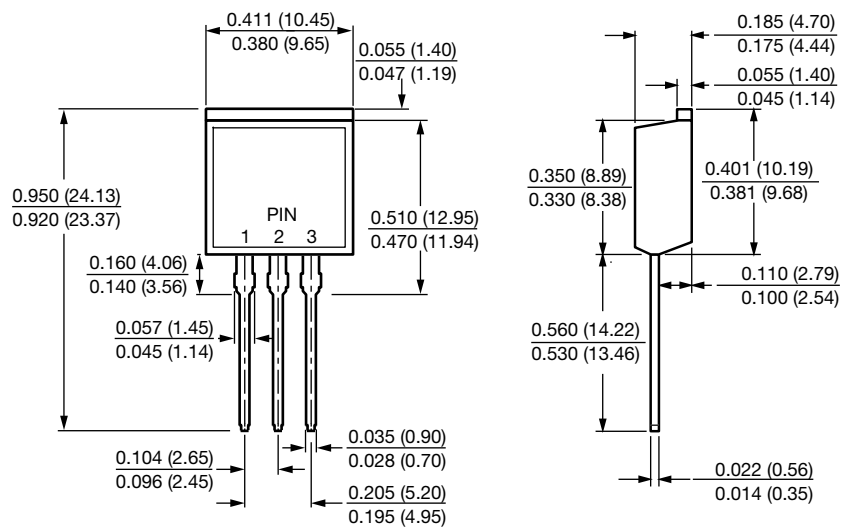


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-262AA





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