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[Vishay Semiconductor/Diodes Division](#)
[VB20150S-M3/8W](#)

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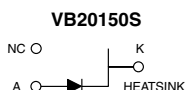
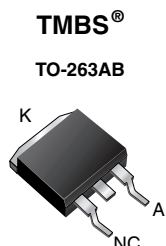
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VB20150S-M3

Vishay General Semiconductor

High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.55 \text{ V}$ at $I_F = 5.0 \text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- 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.

PRIMARY CHARACTERISTICS	
Package	TO-263AB
$I_{F(AV)}$	20 A
V_{RRM}	150 V
I_{FSM}	160 A
V_F at $I_F = 20 \text{ A}$	0.75 V
T_J max.	150 °C
Diode variations	Single die

MECHANICAL DATA

Case: TO-263AB

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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	VB20150S	UNIT	
Maximum repetitive peak reverse voltage	V_{RRM}	150	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}	160	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 ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode (1)	$I_F = 5.0 \text{ A}$	$T_A = 25 \text{ °C}$	V_F	0.69	-	V
				0.84	-	
	$I_F = 20 \text{ A}$	$T_A = 25 \text{ °C}$		1.15	1.43	
				0.55	-	
	$I_F = 10 \text{ A}$	$T_A = 125 \text{ °C}$		0.64	-	
				0.75	0.82	
Reverse current per diode (2)	$V_R = 100 \text{ V}$	$T_A = 25 \text{ °C}$	I_R	2	-	μ A
		$T_A = 125 \text{ °C}$		2.5	-	mA
	$V_R = 150 \text{ V}$	$T_A = 25 \text{ °C}$		-	250	μ A
		$T_A = 125 \text{ °C}$		5	25	mA

Notes

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

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



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THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VB20150S	UNIT
Typical thermal resistance	$R_{\theta JC}$	2.0	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VB20150S-M3/4W	1.39	4W	50/tube	Tube
TO-263AB	VB20150S-M3/8W	1.39	8W	800/reel	Tape and reel

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

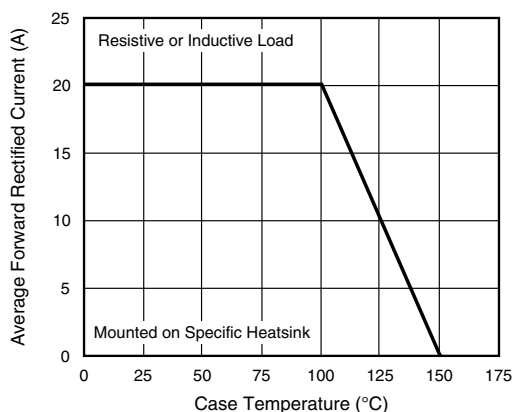


Fig. 1 - Maximum Forward Current Derating Curve

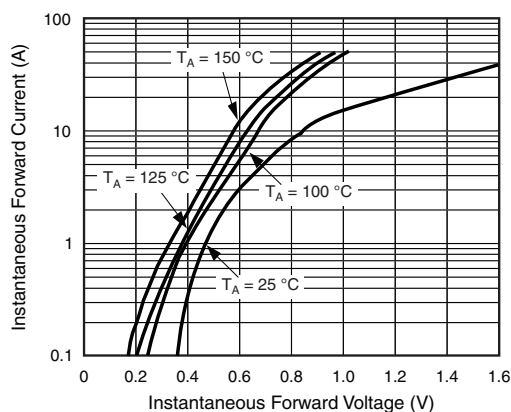


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

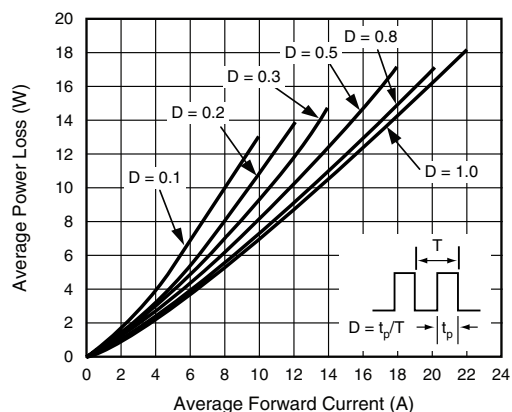


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

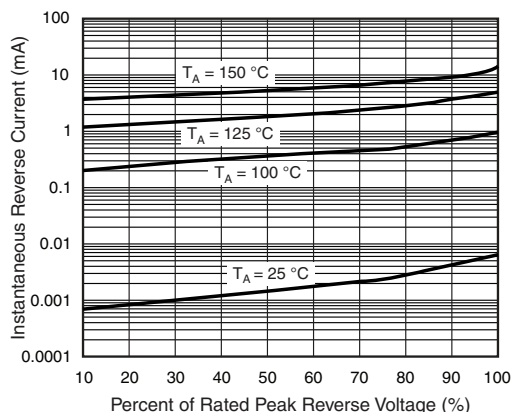


Fig. 4 - Typical Reverse Characteristics Per Diode



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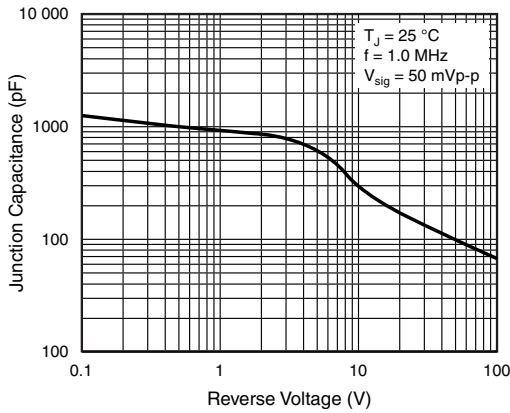


Fig. 5 - Typical Junction Capacitance Per Diode

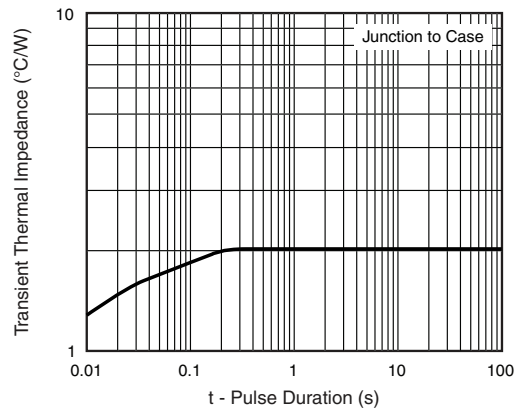
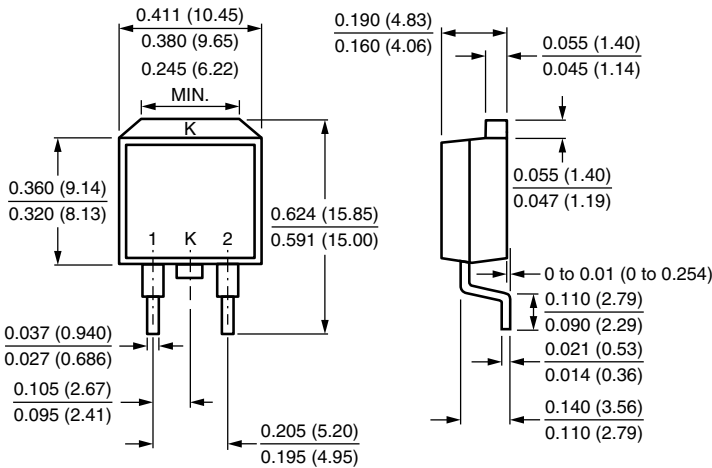


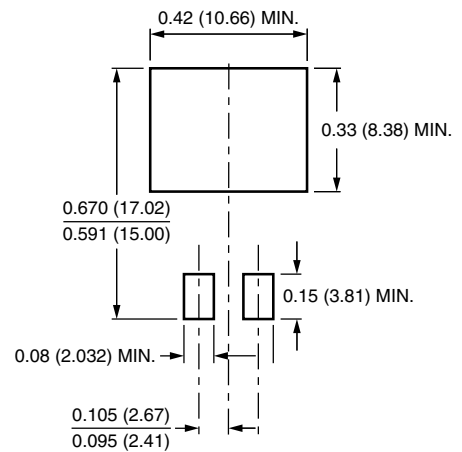
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-263AB



Mounting Pad Layout





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