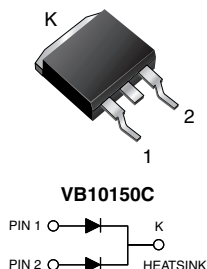


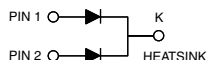
# High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.63\text{ V}$  at  $I_F = 3\text{ A}$

TMBS®  
D<sup>2</sup>PAK (TO-263AB)



VB10150C



## LINKS TO ADDITIONAL RESOURCES



3D Models

## PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 5.0 A
$V_{RRM}$	150 V
$I_{FSM}$	60 A
$V_F$ at $I_F = 10\text{ A}$	0.69 V
$T_J\text{ max.}$	150 °C
Package	D <sup>2</sup> PAK (TO-263AB)
Circuit configuration	Common cathode

## 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](http://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:** D<sup>2</sup>PAK (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	VB10150C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	150	V
Maximum average forward rectified current (fig. 1) <span style="float:right">per device</span>	$I_{F(AV)}$	10	A
<span style="float:right">per diode</span>		5.0	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	60	
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000	V/ $\mu$ 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.	MIN.	UNIT
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 3.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.82	-	V
	I <sub>F</sub> = 5.0 A			0.99	1.41	
	I <sub>F</sub> = 3.0 A	T <sub>A</sub> = 125 °C		0.63	-	
	I <sub>F</sub> = 5.0 A			0.69	0.75	
Reverse current per diode <sup>(2)</sup>	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C	I <sub>R</sub>	0.5	-	μA
		T <sub>A</sub> = 125 °C		0.5	-	mA
	V <sub>R</sub> = 150 V	T <sub>A</sub> = 25 °C		-	100	μA
		T <sub>A</sub> = 125 °C		1	10	mA

### Notes

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$



**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	VB10150C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	4.0	$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
D <sup>2</sup> PAK (TO-263AB)	VB10150C-M3/4W	1.39	4W	50/tube	Tube
D <sup>2</sup> PAK (TO-263AB)	VB10150C-M3/8W	1.39	8W	800/reel	Tape and reel

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

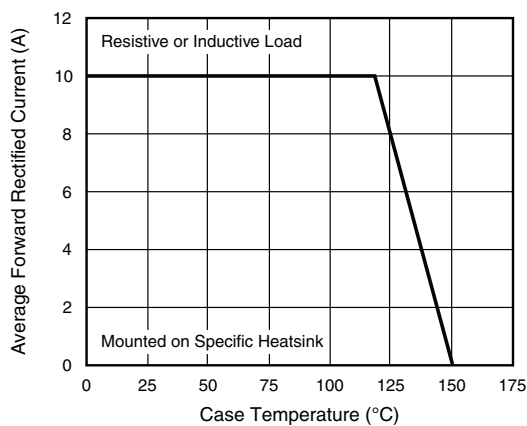


Fig. 1 - Maximum Forward Current Derating Curve

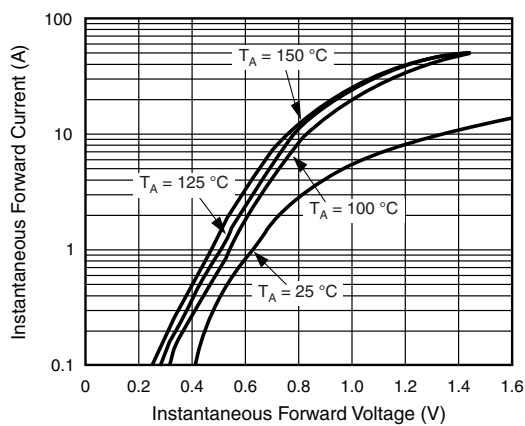


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

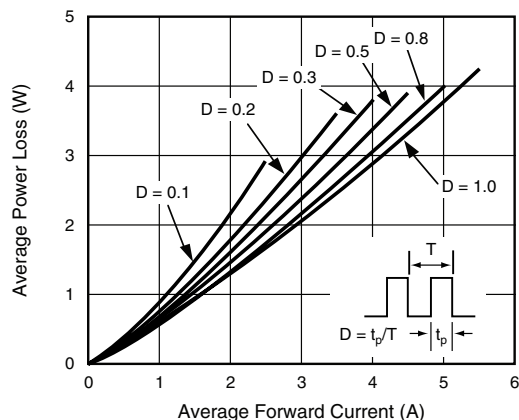


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

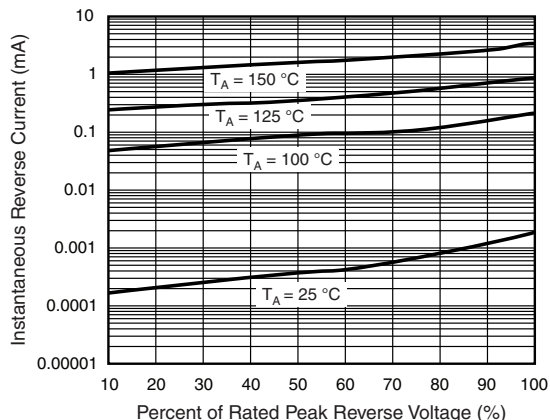


Fig. 4 - Typical Reverse Characteristics Per Diode

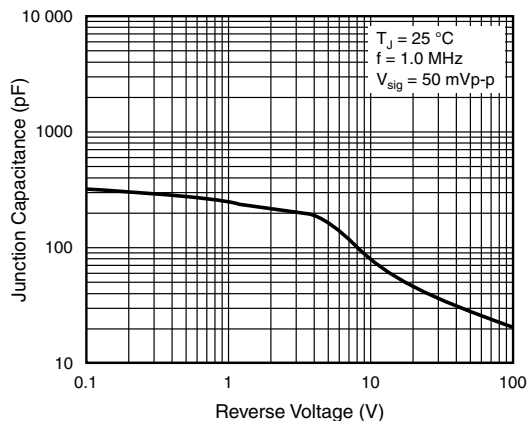


Fig. 5 - Typical Junction Capacitance Per Diode

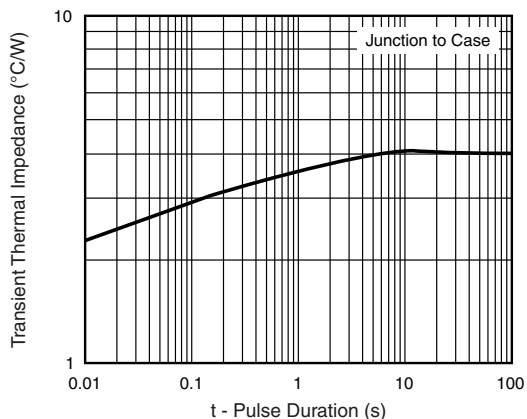
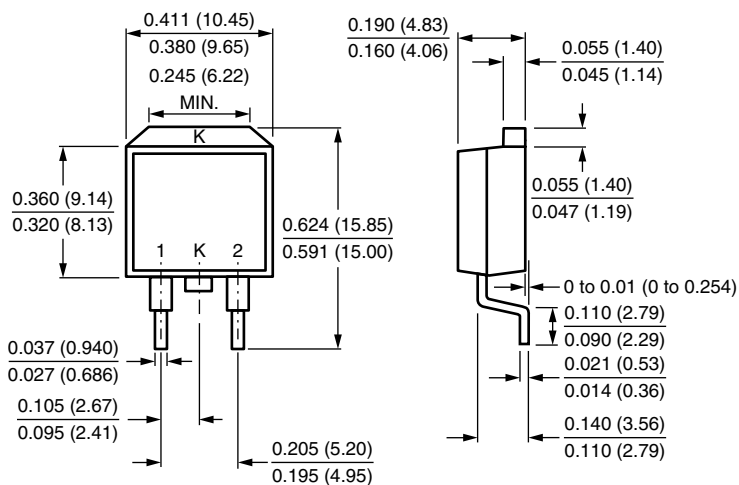


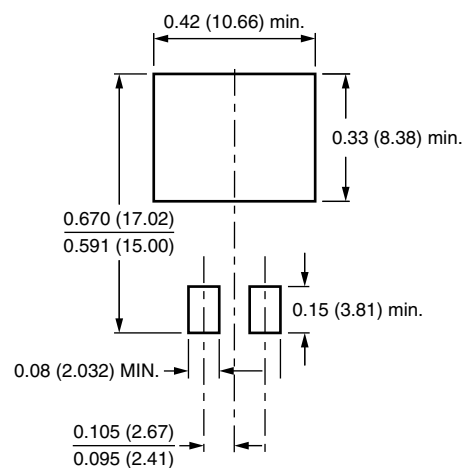
Fig. 6 - Typical Transient Thermal Impedance Per Diode

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### D<sup>2</sup>PAK (TO-263AB)



#### Mounting Pad Layout





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