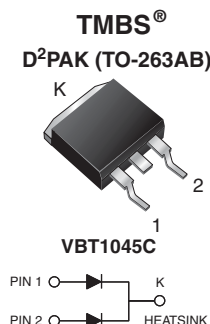


# Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.34\text{ V}$  at  $I_F = 2.5\text{ A}$



## DESIGN SUPPORT TOOLS

[click logo to get started](#)

**3D**  
Models  
Available

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5.0 A
$V_{RRM}$	45 V
$I_{FSM}$	100 A
$V_F$ at $I_F = 5.0\text{ A}$	0.41 V
$T_J$ 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 DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, 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	VB1045C	UNIT	
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	V	
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	10	A	
		5		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100	A	
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150	°C	

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I <sub>F</sub> = 2.5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.44	-	V
	I <sub>F</sub> = 5.0 A			0.49	0.58	
	I <sub>F</sub> = 2.5 A	T <sub>A</sub> = 125 °C		0.34	-	
	I <sub>F</sub> = 5.0 A			0.41	0.50	
Reverse current per diode	V <sub>R</sub> = 45 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	500	μA
		T <sub>A</sub> = 125 °C		5	15	mA

### Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

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

PARAMETER		SYMBOL	VBT1045C	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	3.5	$^{\circ}\text{C/W}$
	per device		2.5	

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VBT1045C-M3/4W	1.38	4W	50/tube	Tube
TO-263AB	VBT1045C-M3/8W	1.38	8W	800/reel	Tape and reel

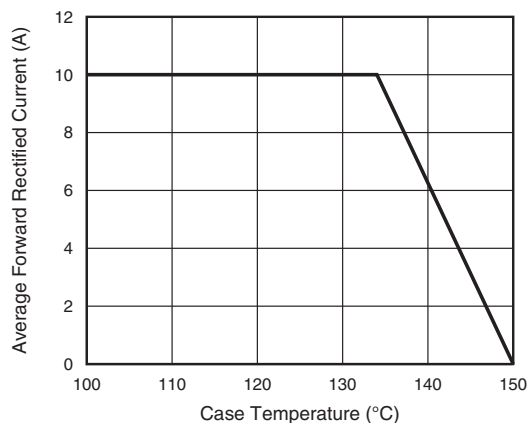
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

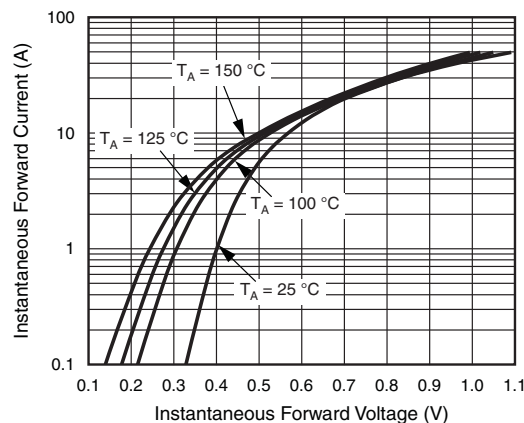


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

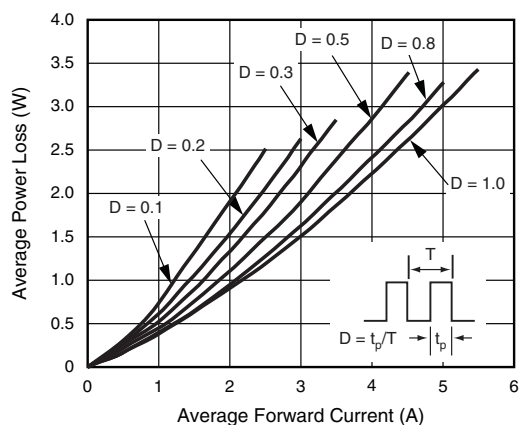


Fig. 2 - Forward Power Loss Characteristics Per Diode

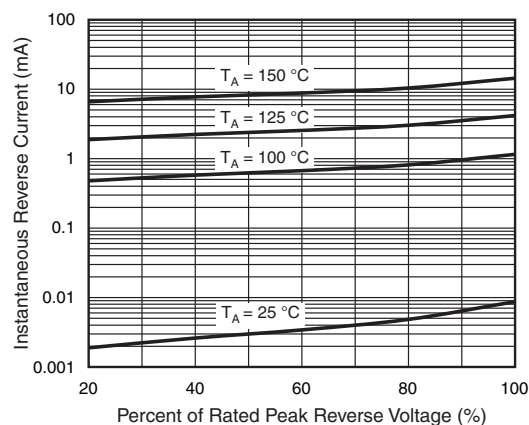


Fig. 4 - Typical Reverse Characteristics Per Diode

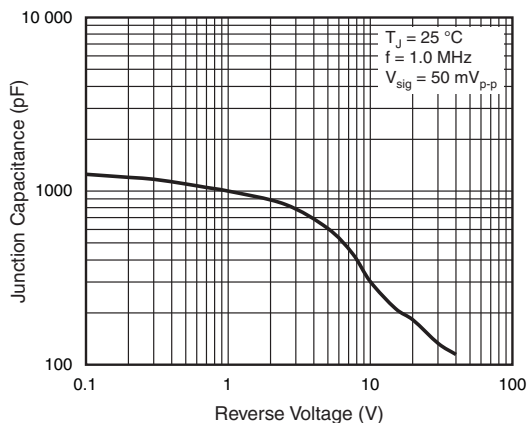


Fig. 5 - Typical Junction Capacitance Per Diode

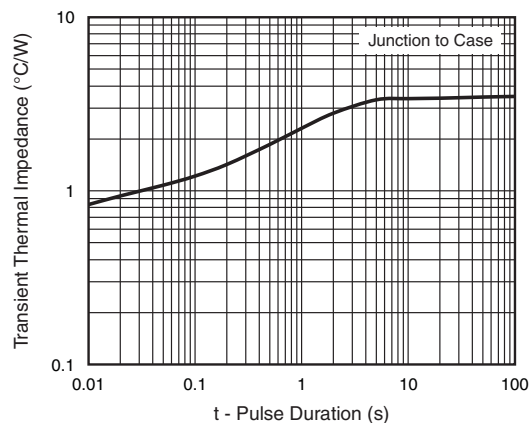
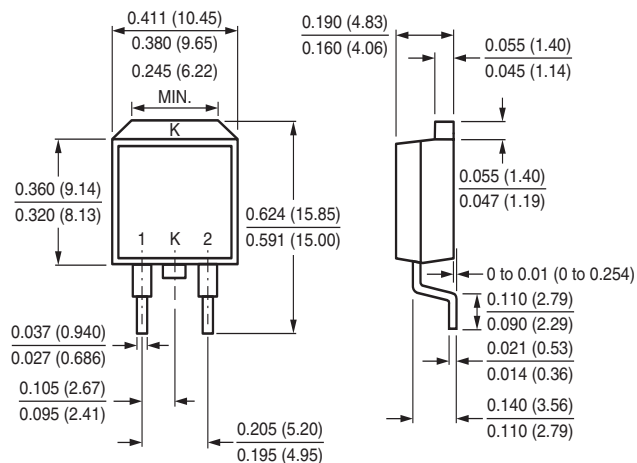
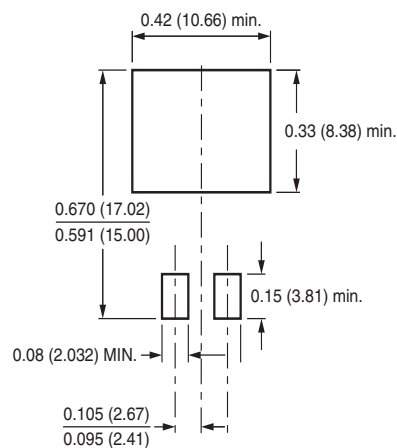


Fig. 6 - Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

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

**Mounting Pad Layout**




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