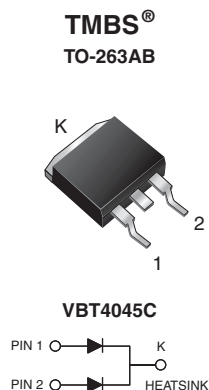




Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.28\text{ V}$ 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
- Not recommended for PCB bottom side wave mounting
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 20 A
V_{RRM}	45 V
I_{FSM}	240 A
V_F at $I_F = 20\text{ A}$	0.41 V
T_J max.	150 °C

MECHANICAL DATA

Case: TO-263AB

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, commercial grade

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

E3 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	VBT4045C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	40	A
		20	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	240	A
Operating junction and storage temperature range	T_J, T_{STG}	- 40 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 A	T _A = 25 °C	V _F ⁽¹⁾	0.41	-	V
	I _F = 10 A			0.44	-	
	I _F = 20 A			0.50	0.58	
	I _F = 5 A	T _A = 125 °C		0.28	-	
	I _F = 10 A			0.33	-	
	I _F = 20 A			0.41	0.50	
Reverse current per diode	V _R = 45 V	T _A = 25 °C	I _R ⁽²⁾	-	3000	μA
		T _A = 125 °C		18	50	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	VBT4045C	UNIT
Typical thermal resistance	$R_{\theta JC}$	1.5	$^{\circ}\text{C/W}$
		0.8	

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VBT4045C-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	VBT4045C-E3/8W	1.38	8W	800/reel	Tape and reel

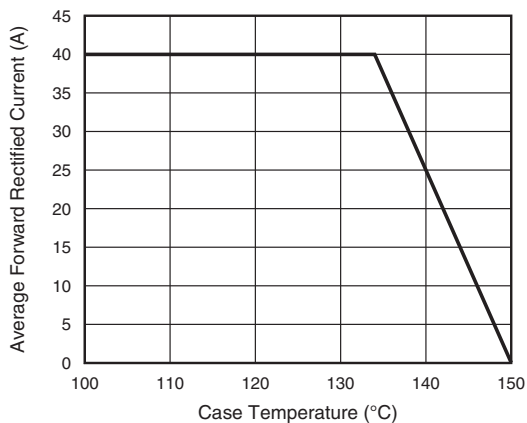
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

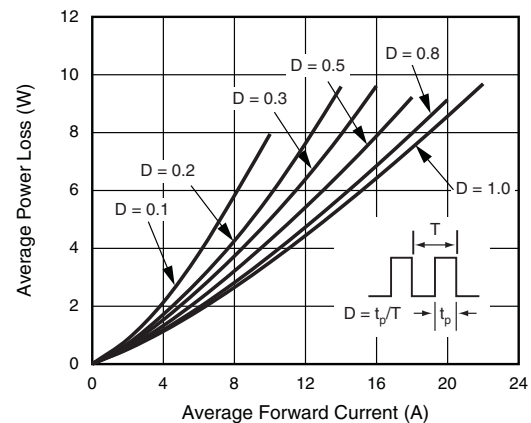


Fig. 2 - Forward Power Loss Characteristics Per Diode

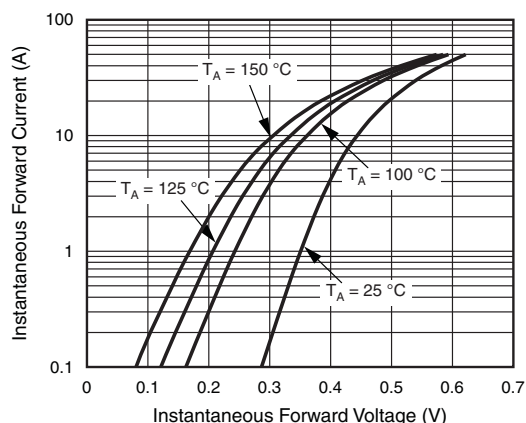


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

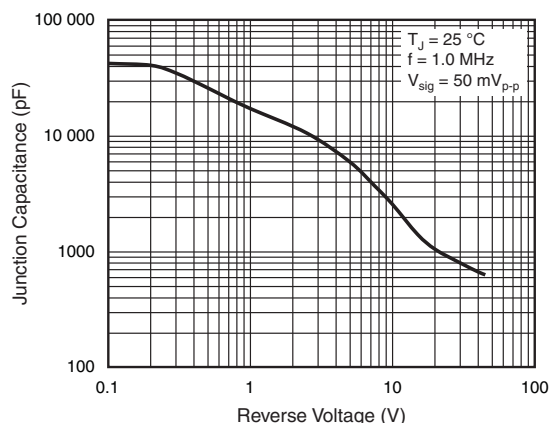


Fig. 5 - Typical Junction Capacitance Per Diode

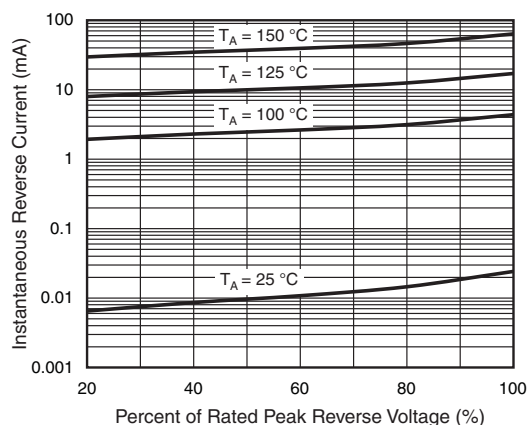


Fig. 4 - Typical Reverse Characteristics Per Diode

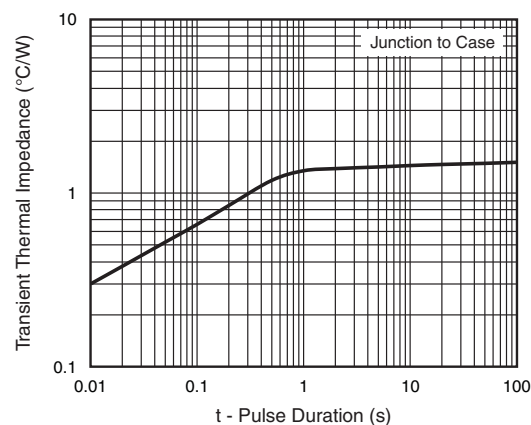
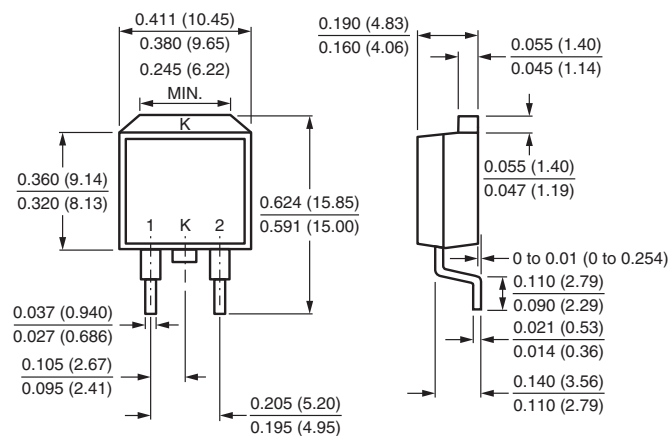
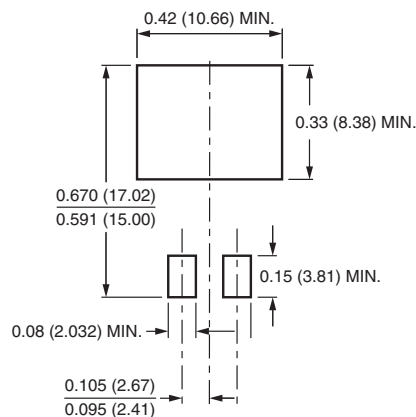


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)**TO-263AB****Mounting Pad Layout**



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