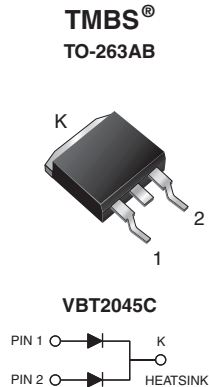




Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.33\text{ V}$ 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 10 A
V_{RRM}	45 V
I_{FSM}	160 A
V_F at $I_F = 10\text{ A}$	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	VBT2045C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	20
		per diode	10
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	160	A
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 150	°C



ELECTRICAL CHARACTERISTICS (T _A = 25 °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)	0.44	-	V
	I _F = 10 A			0.49	0.58	
	I _F = 5 A	T _A = 125 °C		0.33	-	
	I _F = 10 A			0.41	0.52	
Reverse current per diode	V _R = 45 V	T _A = 25 °C	-	2000	μA	
		T _A = 125 °C	10	30	mA	

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VBT2045C	UNIT
Typical thermal resistance	per diode	R _{θJC}	3.0	°C/W
	per device		2.0	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VBT2045C-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	VBT2045C-E3/8W	1.38	8W	800/reel	Tape and reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

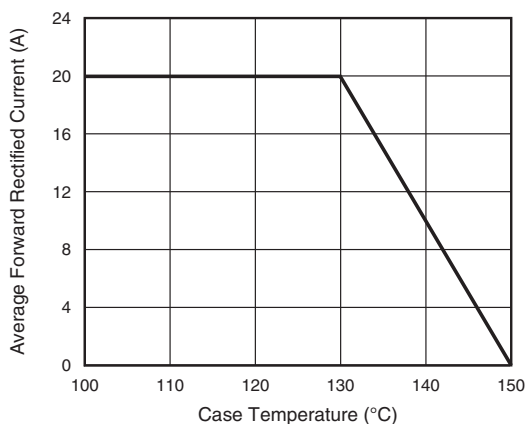


Fig. 1 - Maximum Forward Current Derating Curve

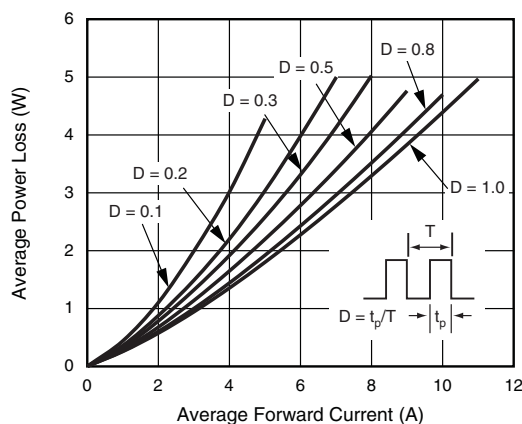


Fig. 2 - Forward Power Loss Characteristics Per Diode

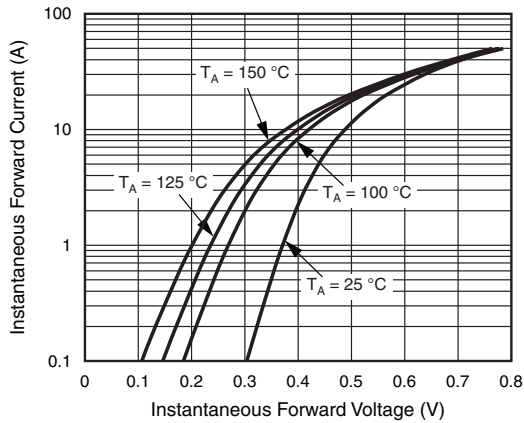


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

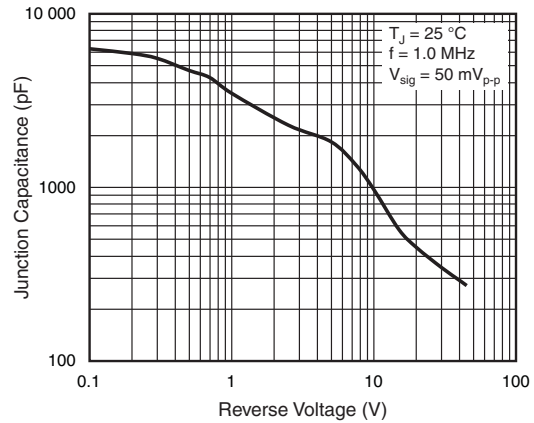


Fig. 5 - Typical Junction Capacitance Per Diode

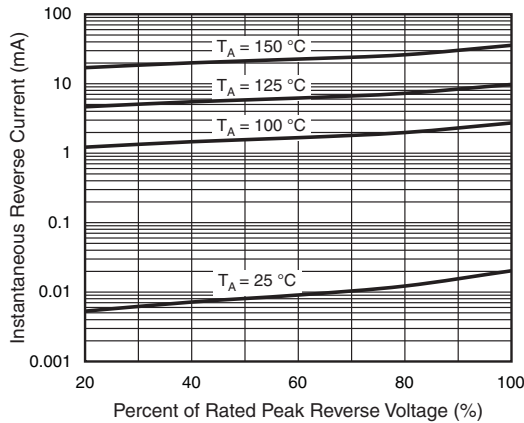


Fig. 4 - Typical Reverse Characteristics Per Diode

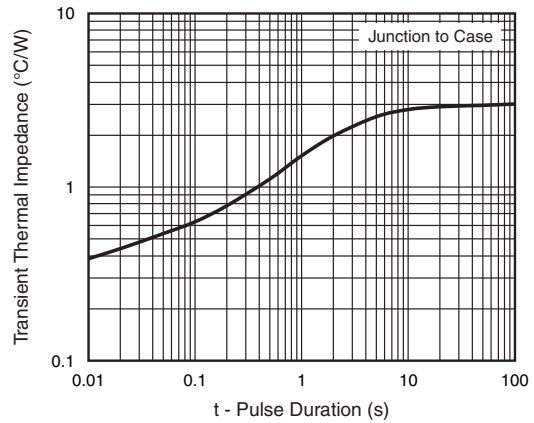
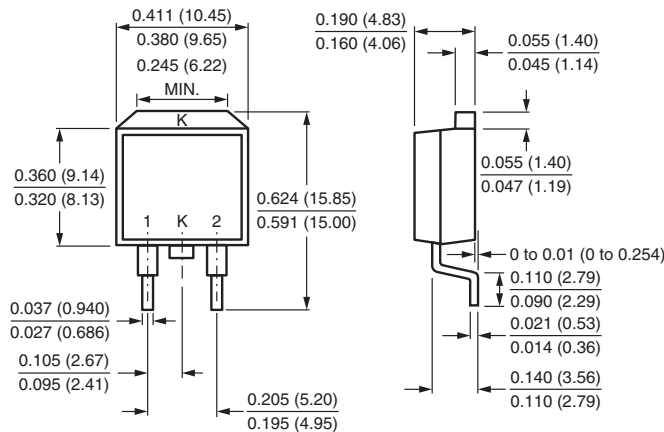


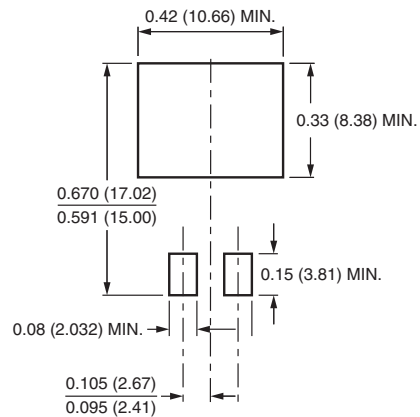
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-263AB



Mounting Pad Layout





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