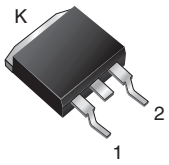
Dual Trench MOS Barrier Schottky Rectifier

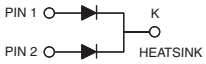
Ultra Low V_F = 0.32 V at I_F = 5.0 A

TMBS®

TO-263AB



VBT4060C



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.

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 2 whisker test

Polarity: as marked

PRIMARY CHARACTERISTICS	
Package	TO-263AB
$I_{F(AV)}$	2 x 20 A
V_{RRM}	60 V
I_{FSM}	240 A
V_F at I_F = 20 A	0.48 V
T_J max.	150 °C
Diode variations	Common cathode

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	VBT4060C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	60	V
Maximum average forward rectified current (fig. 1)	per device	$I_{F(AV)}$	40	A
	per diode		20	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I_{FSM}	240	A
Voltage rate of change (rated V_R)		dV/dt	10 000	V/µs
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 (1)	I_F = 5.0 A	T_A = 25 °C	V_F	0.43	-	V
	I_F = 10 A			0.48	-	
	I_F = 20 A			0.53	0.62	
	I_F = 5.0 A	T_A = 125 °C		0.32	-	
	I_F = 10 A			0.39	-	
	I_F = 20 A			0.48	0.57	
Reverse current per diode (2)	V_R = 60 V	T_A = 25 °C	I_R	-	6.0	mA
		T_A = 125 °C		34	190	

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	VBT4060C	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	1.5	°C/W
	per device		0.8	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VBT4060C-M3/4W	1.39	4W	50/tube	Tube
TO-263AB	VBT4060C-M3/8W	1.39	8W	800/reel	Tape and reel

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

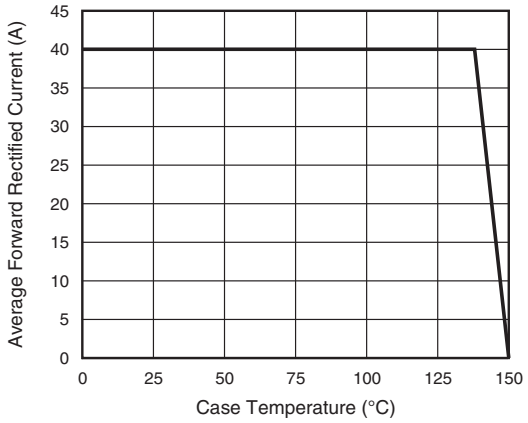


Fig. 1 - Maximum Forward Current Derating Curve

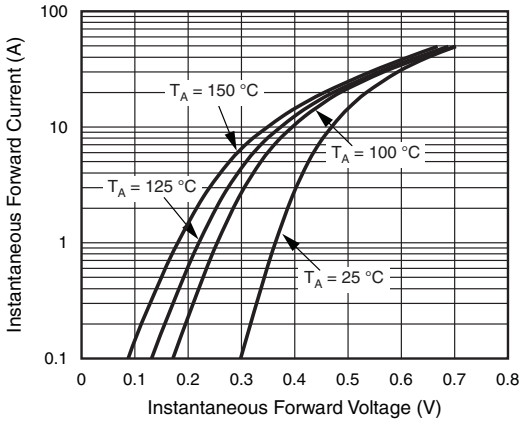


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

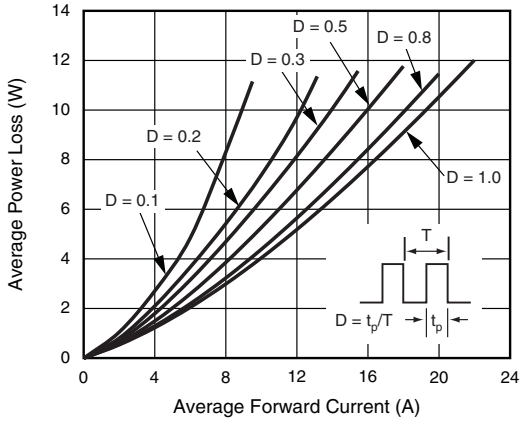


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

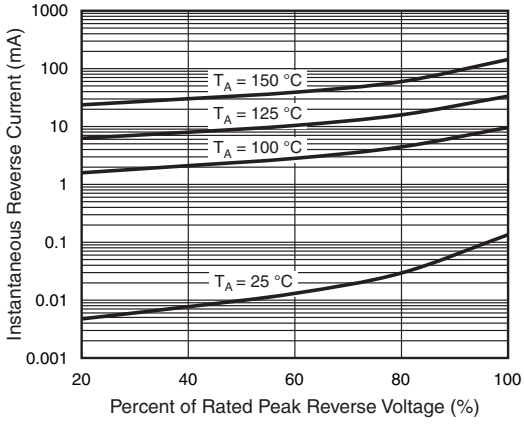


Fig. 4 - Typical Reverse Characteristics Per Diode

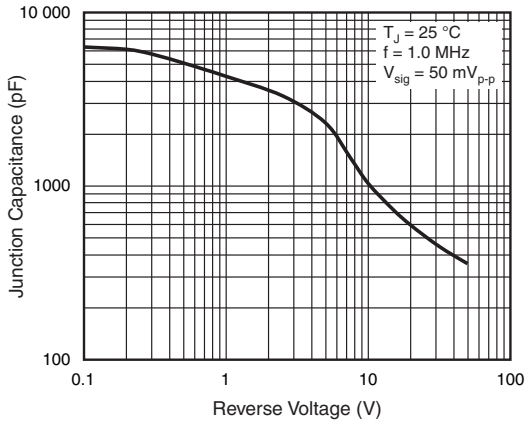


Fig. 5 - Typical Junction Capacitance Per Diode

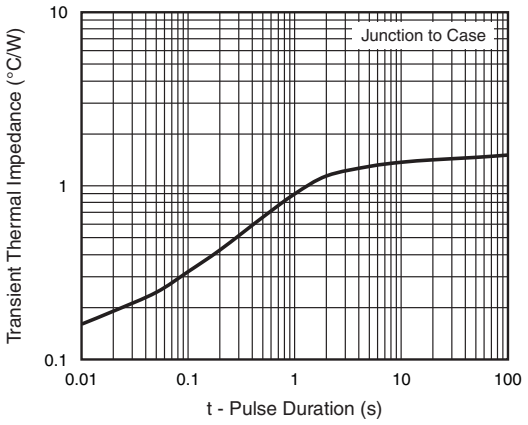
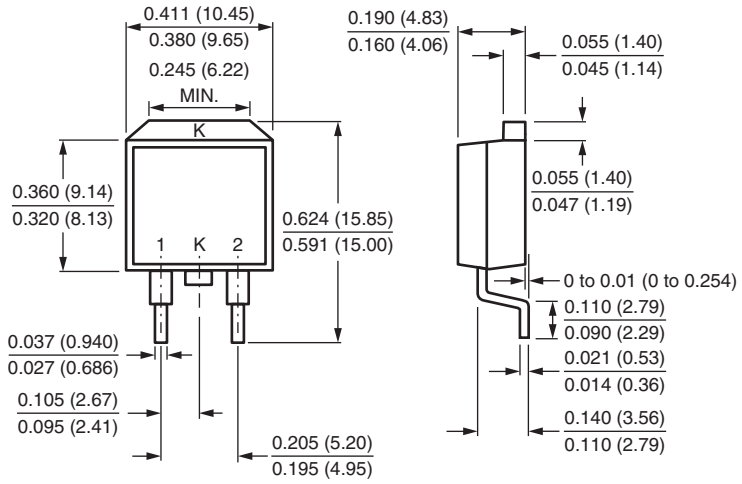


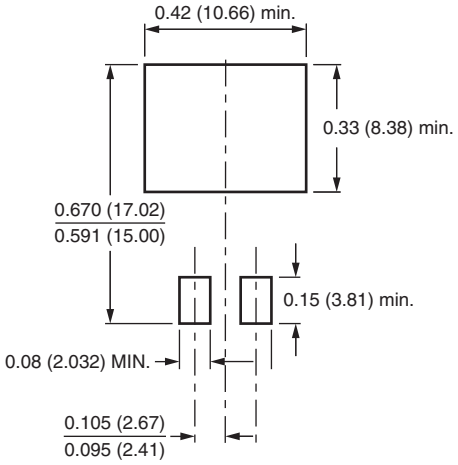
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout



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