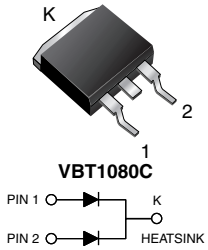
Dual Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.49 V at I_F = 3 A

TMBS®

D^2PAK (TO-263AB)



VBT1080C

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: D^2PAK (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

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5 A
V_{RRM}	80 V
I_{FSM}	80 A
V_F at I_F = 5 A	0.57 V
T_J max.	150 °C
Package	D^2PAK (TO-263AB)
Circuit configurations	Common cathode

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

PARAMETER		SYMBOL	VBT1080C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	80	V
Maximum average forward rectified current (fig. 1)	per device	$I_{F(AV)}$	10	A
	per diode		5	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	80	A
Voltage rate of change (rated V_R)		dV/dt	10 000	V/µs
Operating junction and storage temperature range		T_J, T_{STG}	-55 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 = 3 A	T_A = 25 °C	V_F	0.54	-	V
	I_F = 5 A			0.63	0.72	
	I_F = 3 A	T_A = 125 °C		0.49	-	
	I_F = 5 A			0.57	0.66	
Reverse current per diode (2)	V_R = 80 V	T_A = 25 °C	I_R	12	400	µA
		T_A = 125 °C		6	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 °C unless otherwise noted)				
PARAMETER		**SYMBOL**	**VBT1080C**	**UNIT**
Typical thermal resistance	per diode	$R_{\theta JC}$	3.5	°C/W
	per device		2.5	

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
D^2PAK (TO-263AB)	VBT1080C-M3/4W	1.35	4W	50/tube	Tube
D^2PAK (TO-263AB)	VBT1080C-M3/8W	1.35	8W	800/reel	Tape and reel

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

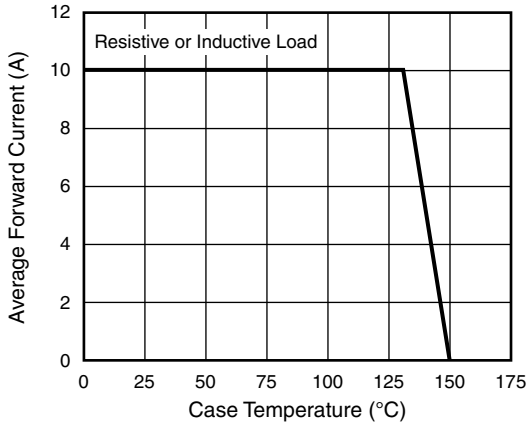


Fig. 1 - Maximum Forward Current Derating Curve

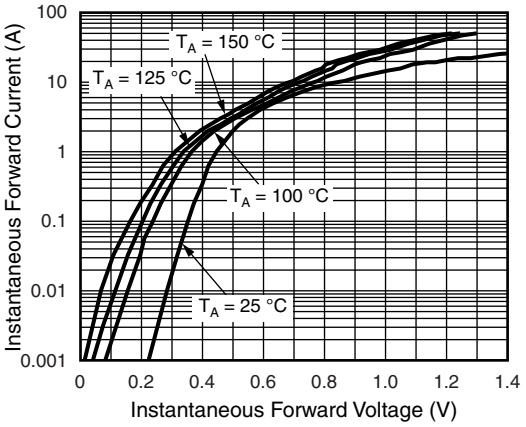


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

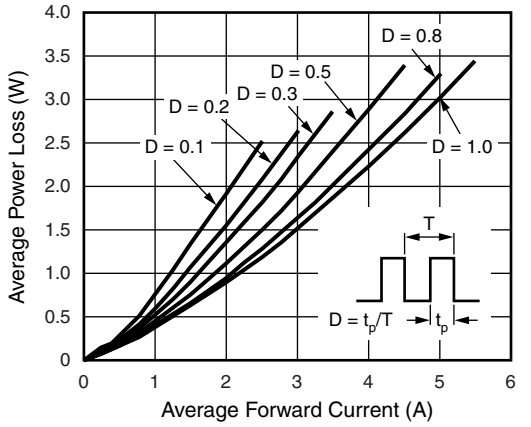


Fig. 2 - Forward Power Loss Characteristics Per Diode

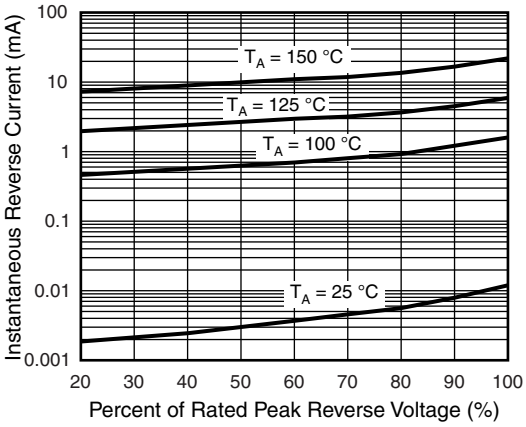


Fig. 4 - Typical Reverse Characteristics Per Diode

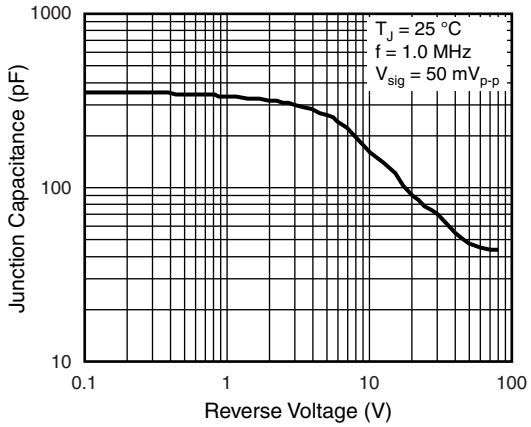


Fig. 5 - Typical Junction Capacitance Per Diode

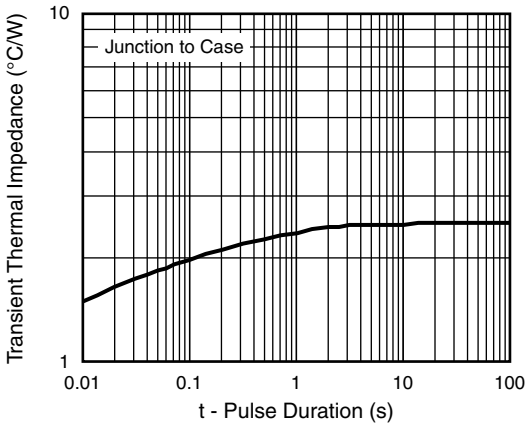
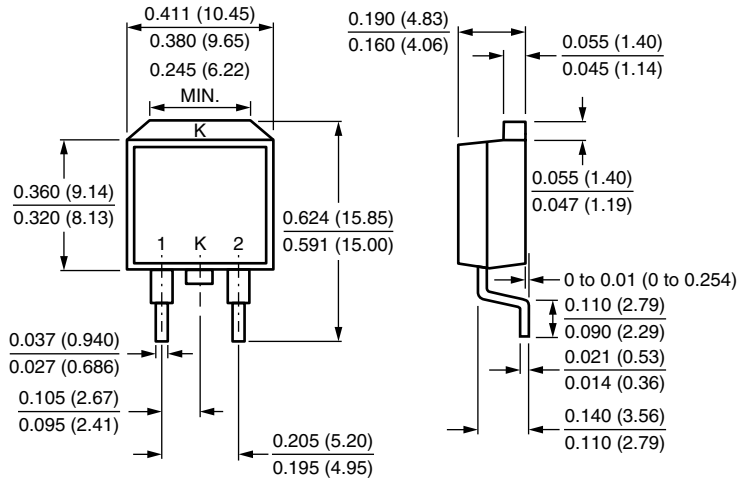


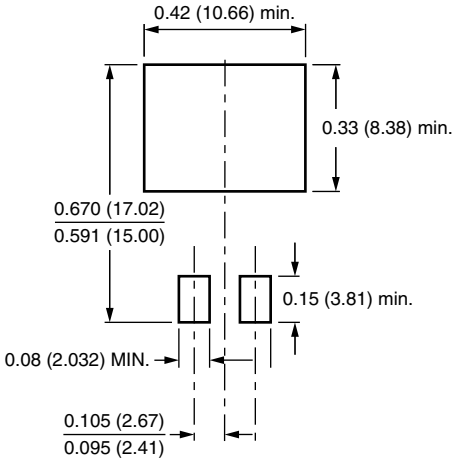
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D^2PAK (TO-263AB)



Mounting Pad Layout



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