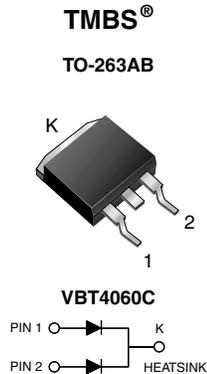


Dual Trench MOS Barrier Schottky Rectifier

 Ultra Low $V_F = 0.32\text{ V}$ at $I_F = 5.0\text{ A}$


FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHM3
- 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

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

M3 and HM3 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 $I_F = 20\text{ A}$	0.48 V
T_J max.	150 °C
Diode variations	Common cathode

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VBT4060C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	40
		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/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MIN.	UNIT	
Instantaneous forward voltage per diode ⁽¹⁾	$I_F = 5.0\text{ A}$	$T_A = 25\text{ °C}$	V_F	0.43	-	V	
				$I_F = 10\text{ A}$	0.48		-
				$I_F = 20\text{ A}$	0.53		0.62
	$I_F = 5.0\text{ A}$	$T_A = 125\text{ °C}$		0.32	-		
				$I_F = 10\text{ A}$	0.39		-
				$I_F = 20\text{ A}$	0.48		0.57
Reverse current per diode ⁽²⁾	$V_R = 60\text{ V}$	$T_A = 25\text{ °C}$	I_R	-	6.0	mA	
		$T_A = 125\text{ °C}$		34	190		

Notes

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

⁽²⁾ Pulse test: Pulse width $\leq 40\text{ ms}$



THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VBT4060C	UNIT
Typical thermal resistance	per diode	R _{θJC}	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
TO-263AB	VBT4060CHM3/I (1)	1.38	I	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified

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

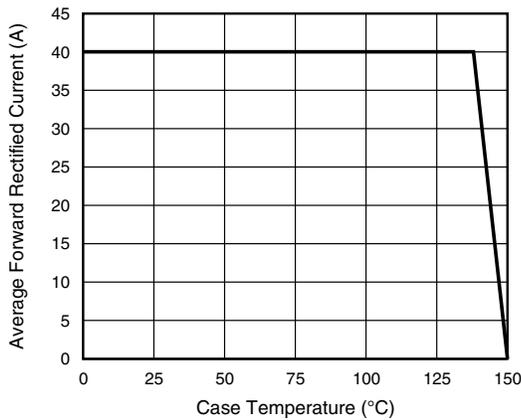


Fig. 1 - Maximum Forward Current Derating Curve

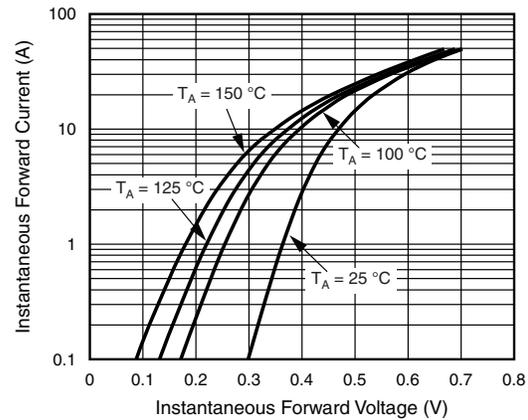


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

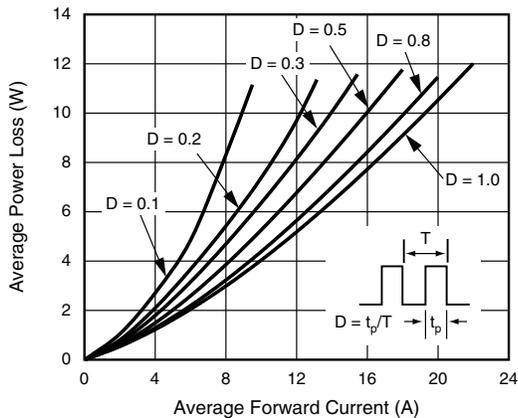


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

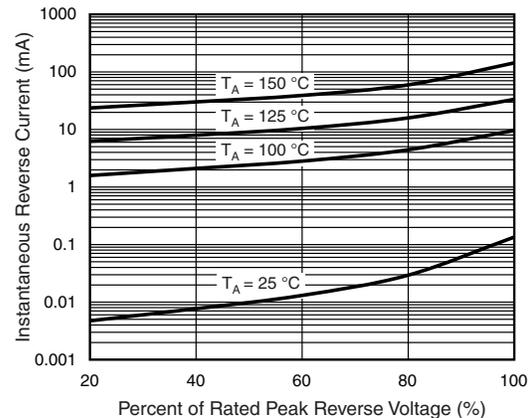


Fig. 4 - Typical Reverse Characteristics Per Diode

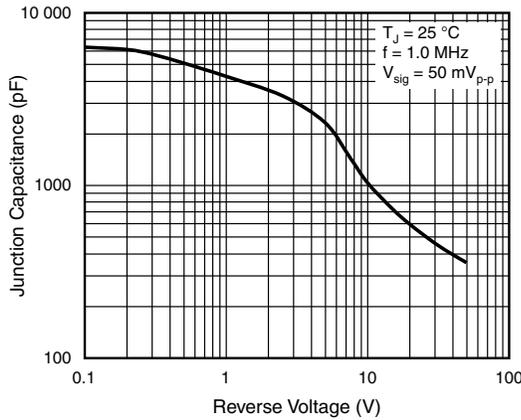


Fig. 5 - Typical Junction Capacitance Per Diode

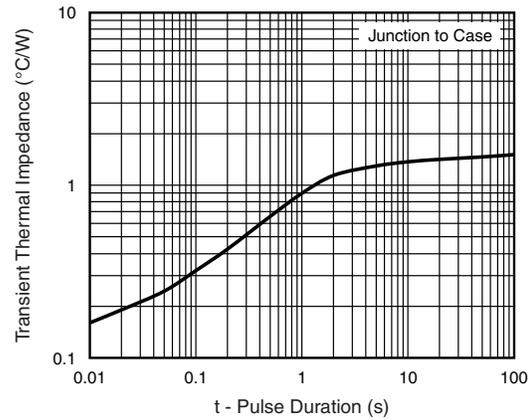
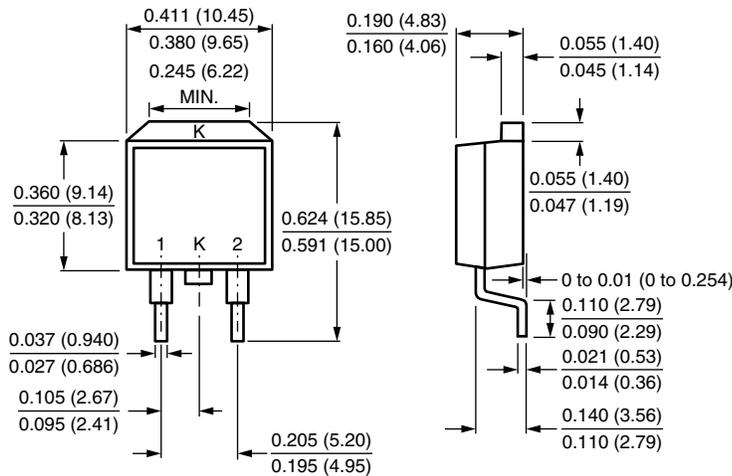


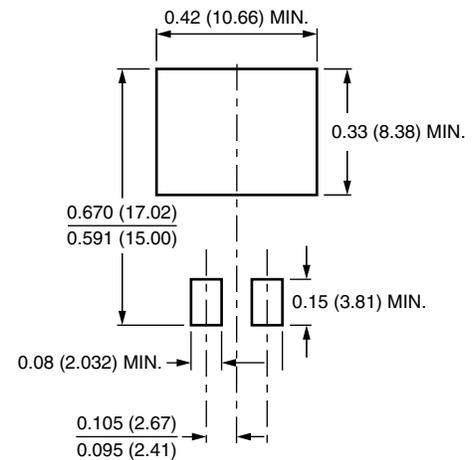
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-263AB



Mounting Pad Layout





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