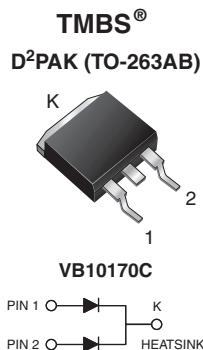


Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.57 V at I_F = 2.5 A



DESIGN SUPPORT TOOLS



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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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
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
E3 and M3 suffix meet JESD 201 class 2 whisker test

Polarity: as marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5 A
V_{RRM}	170 V
I_{FSM}	80 A
V_F at I_F = 5.0 A	0.65 V
T_J max.	175 °C
Package	D²PAK (TO-263AB)
Circuit configuration	Common cathode

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VB10170C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	170	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	10	A
per device per diode		5	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	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}	-40 to +175	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 2.5 \text{ A}$	$T_A = 25^\circ\text{C}$	V_F ⁽¹⁾	0.74	-	V	
	$I_F = 5.0 \text{ A}$			0.84	1.03		
	$I_F = 2.5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.57	-		
	$I_F = 5.0 \text{ A}$			0.65	0.74		
Reverse current per diode	$V_R = 136 \text{ V}$	$T_A = 25^\circ\text{C}$	I_R ⁽²⁾	0.3	-	μA	
		$T_A = 125^\circ\text{C}$		0.9	-	mA	
	$V_R = 170 \text{ V}$	$T_A = 25^\circ\text{C}$		-	90	μA	
		$T_A = 125^\circ\text{C}$		1.3	10	mA	

Notes
⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle

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

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	VB10170C		UNIT	
Typical thermal resistance	per diode	$R_{\theta JC}$	3.0	$^\circ\text{C}/\text{W}$	
	per device		1.7		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VB10170C-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	VB10170C-E3/8W	1.38	8W	800/reel	Tape and reel
TO-263AB	VB10170C-M3/I	1.38	I	800/reel	Tape and reel

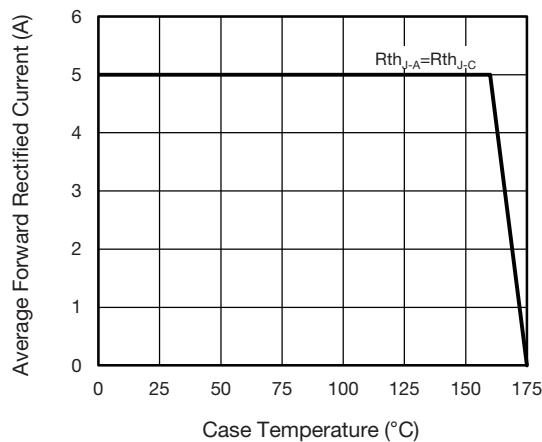
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

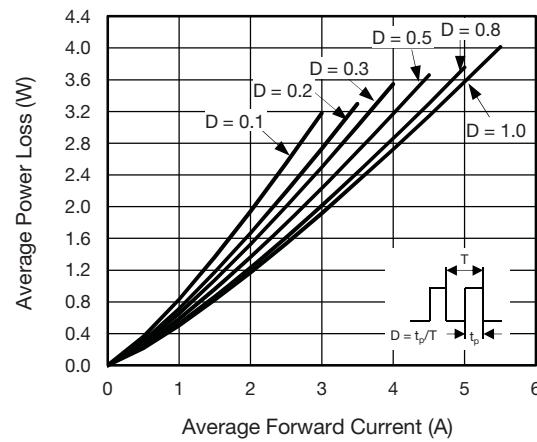


Fig. 2 - Forward Power Loss Characteristics Per Diode

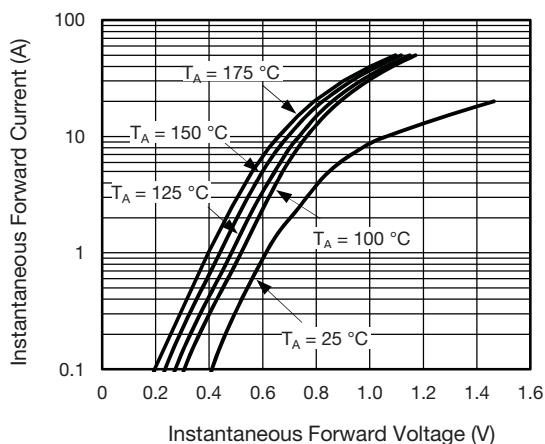


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

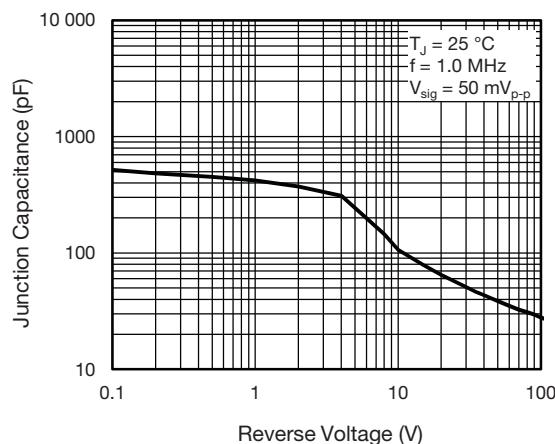


Fig. 5 - Typical Junction Capacitance Per Diode

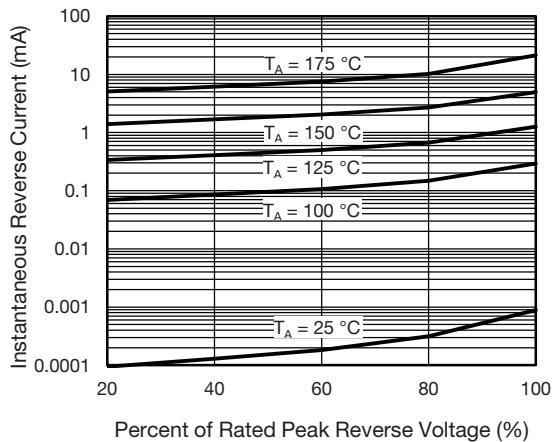


Fig. 4 - Typical Reverse Characteristics Per Diode

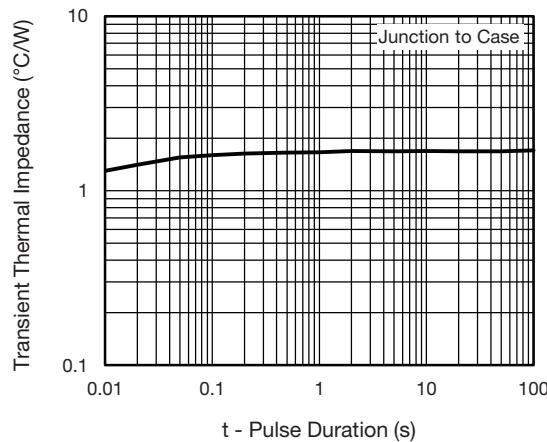
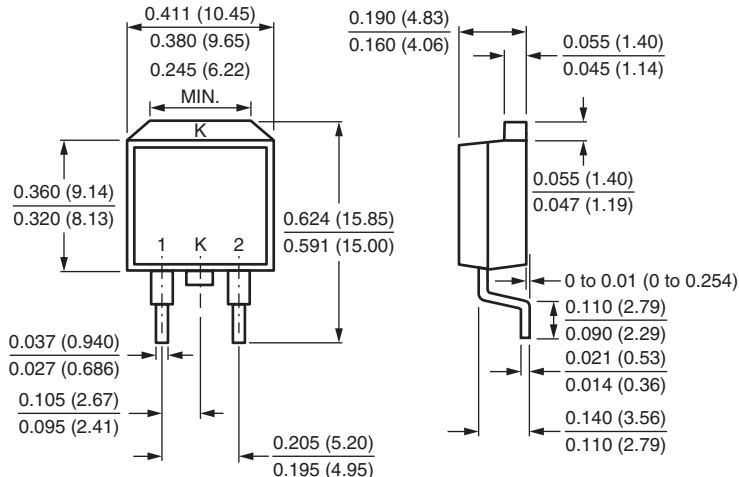


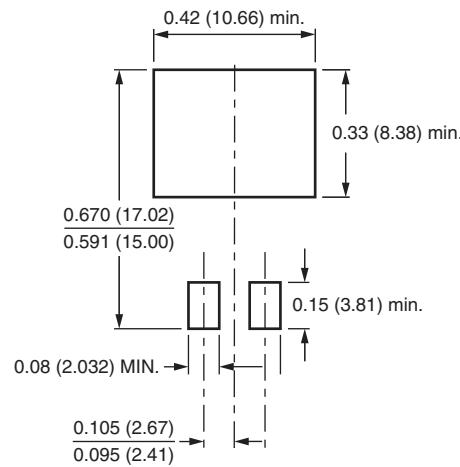
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout



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