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[Vishay Semiconductor/Diodes Division](#)  
[VB40170C-E3/8W](#)

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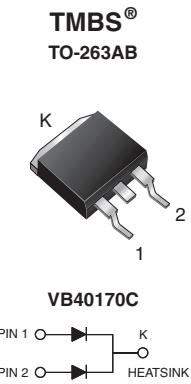
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**VB40170C-E3**

Vishay General Semiconductor

## Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.52$  V at  $I_F = 5$  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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### 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:** 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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 20 A
$V_{RRM}$	170 V
$I_{FSM}$	200 A
$V_F$ at $I_F = 20$ A	0.68 V
$T_J$ max.	175 °C
Package	TO-263AB
Diode variations	Common cathode

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VB40170C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	170	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	40	A
		20	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	200	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



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ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	
Instantaneous forward voltage per diode	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.66	-	
	$I_F = 10 \text{ A}$			0.75	-	
	$I_F = 20 \text{ A}$			0.86	1.20	
Reverse current per diode	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.52	-	
	$I_F = 10 \text{ A}$			0.59	-	
	$I_F = 20 \text{ A}$			0.68	0.76	
Reverse current per diode	$V_R = 136 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	1.3	-	
		$T_A = 125^\circ\text{C}$		2.2	-	
	$V_R = 170 \text{ V}$	$T_A = 25^\circ\text{C}$		-	250	
		$T_A = 125^\circ\text{C}$		4.2	50	

### Notes

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width  $\leq 20 \text{ ms}$

THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	VB40170C			UNIT
Typical thermal resistance	per diode	$R_{0JC}$	1.2	0.85	$^\circ\text{C/W}$
	per device		0.85		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VB40170C-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	VB40170C-E3/8W	1.38	8W	800/reel	Tape and reel

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

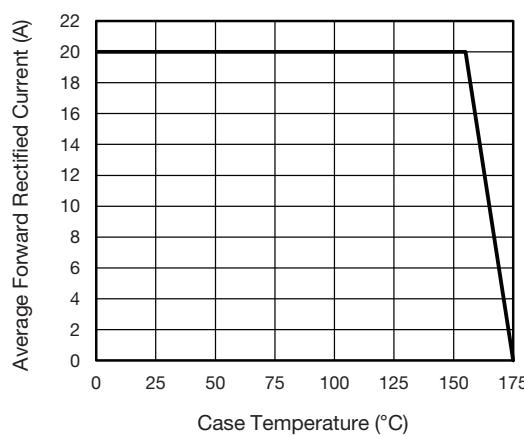


Fig. 1 - Maximum Forward Current Derating Curve

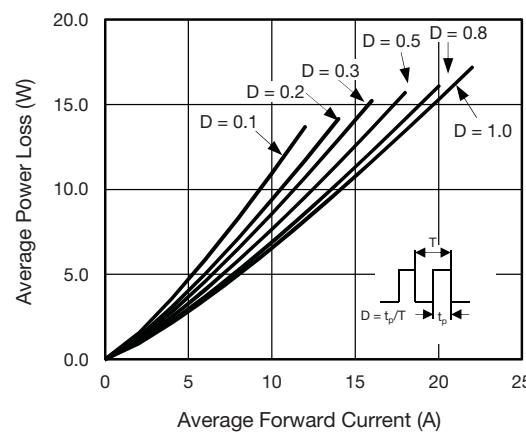


Fig. 2 - Forward Power Loss Characteristics Per Diode



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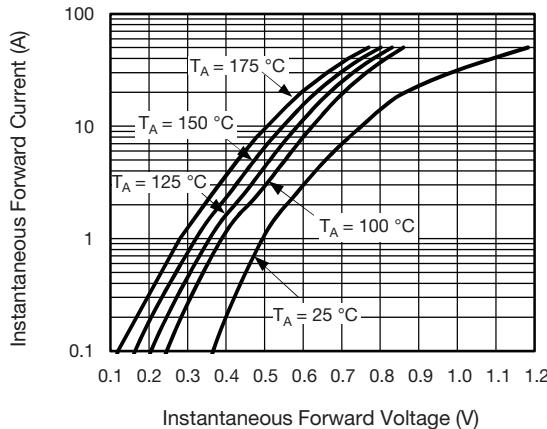


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

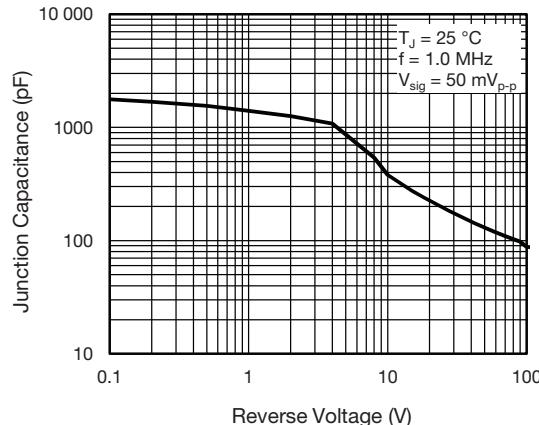


Fig. 5 - Typical Junction Capacitance Per Diode

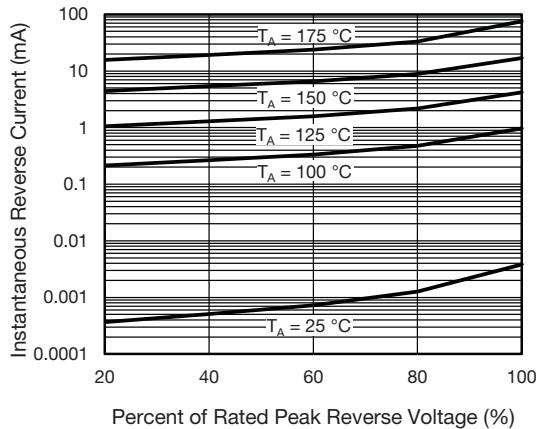


Fig. 4 - Typical Reverse Characteristics Per Diode

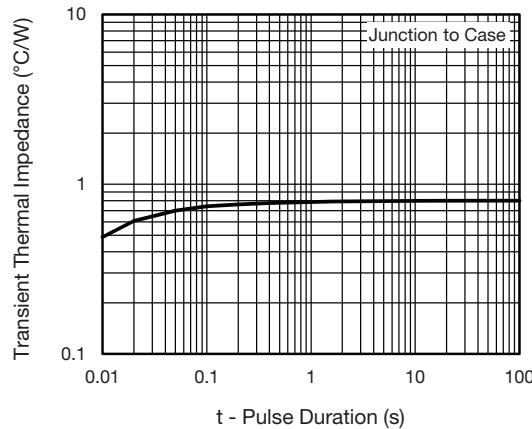
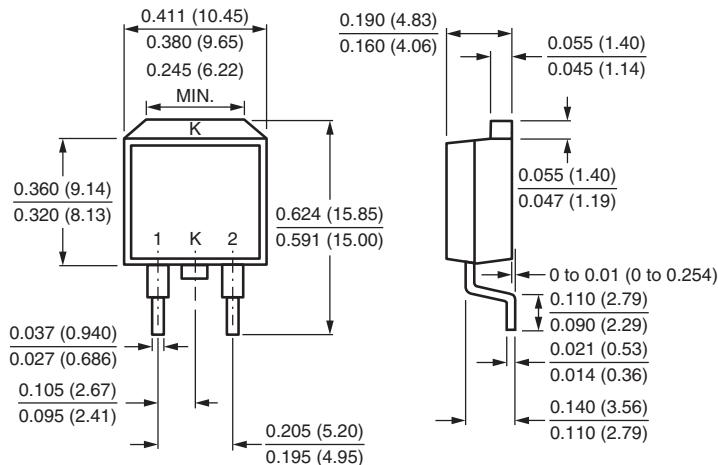


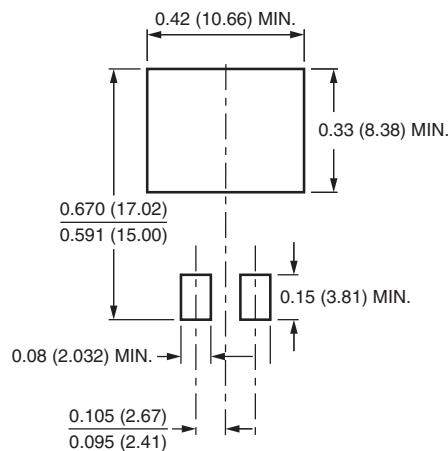
Fig. 6 - Typical Transient Thermal Impedance Per Diode

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### TO-263AB



#### Mounting Pad Layout





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