

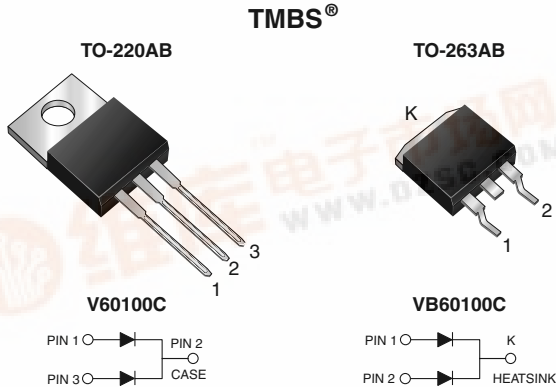


# V60100C & VB60100C

Vishay General Semiconductor

## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.36\text{ V}$  at  $I_F = 5\text{ A}$



### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

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

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 30 A
$V_{RRM}$	100 V
$I_{FSM}$	320 A
$V_F$ at $I_F = 30\text{ A}$	0.66 V
$T_J$ max.	150 °C

### MECHANICAL DATA

**Case:** TO-220AB and TO-263AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for commercial grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs Maximum

### MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	V60100C	VB60100C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100		V
Maximum average forward rectified current (Fig. 1) per device per diode	$I_{F(AV)}$	60 30		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	320		
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150		°C



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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1.0 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	100 (minimum)	-	V
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 5 A I <sub>F</sub> = 10 A I <sub>F</sub> = 15 A I <sub>F</sub> = 20 A I <sub>F</sub> = 30 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.45	-	
				0.52	-	
				0.58	0.63	
				0.63	-	
				0.73	0.79	
	I <sub>F</sub> = 5 A I <sub>F</sub> = 10 A I <sub>F</sub> = 15 A I <sub>F</sub> = 20 A I <sub>F</sub> = 30 A	T <sub>A</sub> = 125 °C		0.36	-	
0.45	-					
0.53	0.58					
0.58	-					
0.66	0.70					
Reverse current at rated V <sub>RM</sub> per diode <sup>(2)</sup>	V <sub>R</sub> = 80 V	T <sub>A</sub> = 25 °C	I <sub>R</sub>	24	500	μA
		T <sub>A</sub> = 125 °C		13	20	mA
	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C		65	1000	μA
		T <sub>A</sub> = 125 °C		30	-	mA

**Notes:**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: 10 ms pulse width

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V60100C	VB60100C	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	2.5	2.5	°C/W

ORDERING INFORMATION					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V60100C-E3/4W	1.89	4W	50/tube	Tube
TO-263AB	VB60100C-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	VB60100C-E3/8W	1.38	8W	800/reel	Tape and reel

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

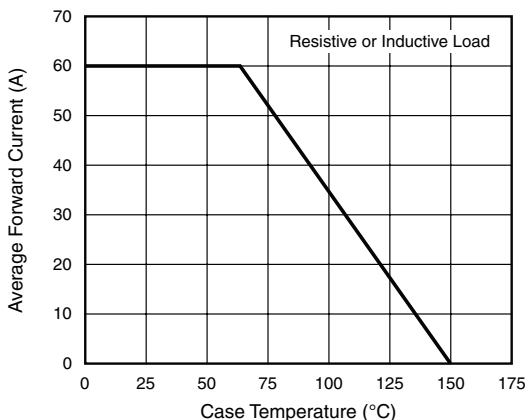


Figure 1. Forward Current Derating Curve

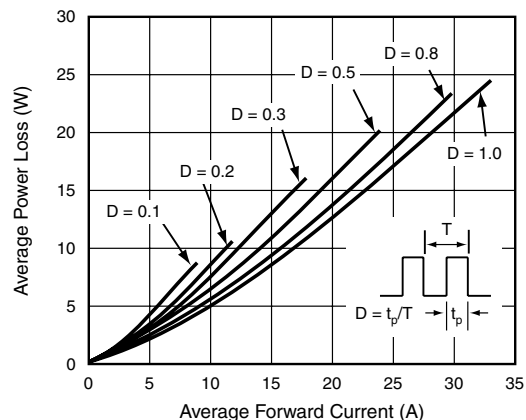


Figure 2. Forward Power Loss Characteristics Per Diode

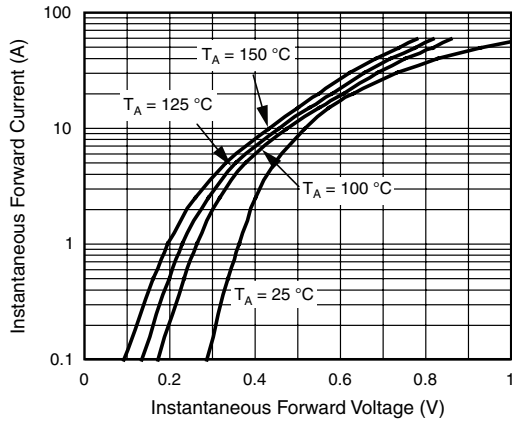


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

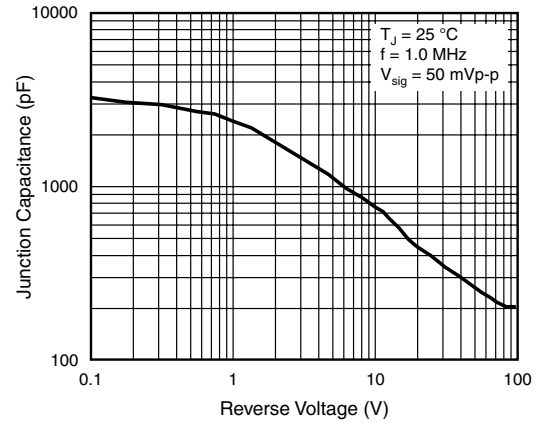


Figure 5. Typical Junction Capacitance Per Diode

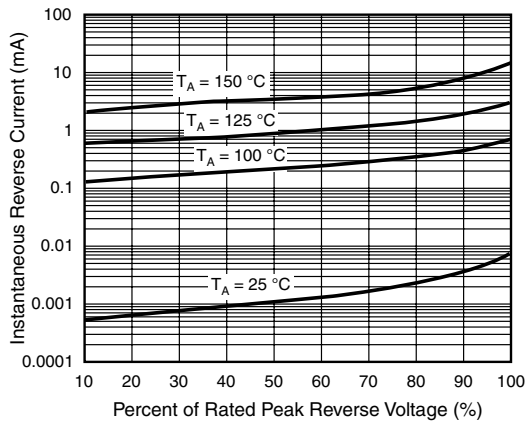


Figure 4. Typical Reverse Characteristics Per Diode

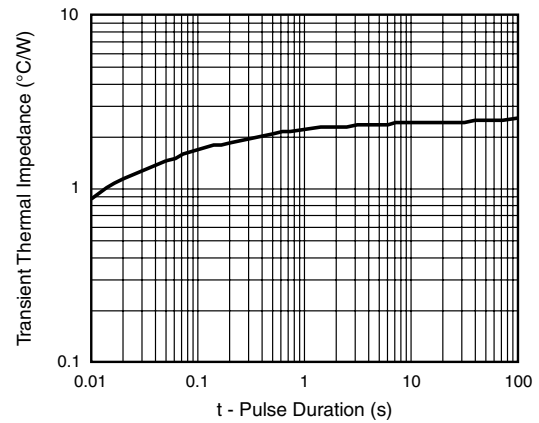


Figure 6. Typical Transient Thermal Impedance Per Diode

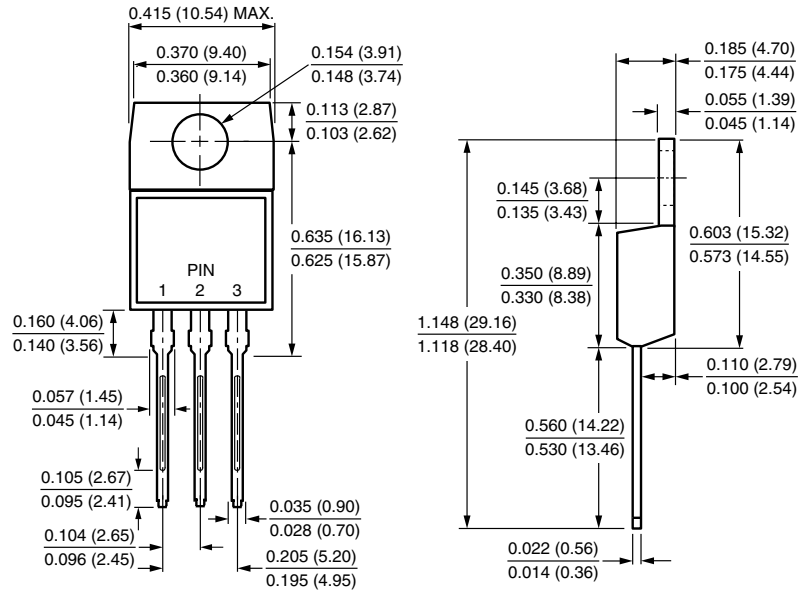
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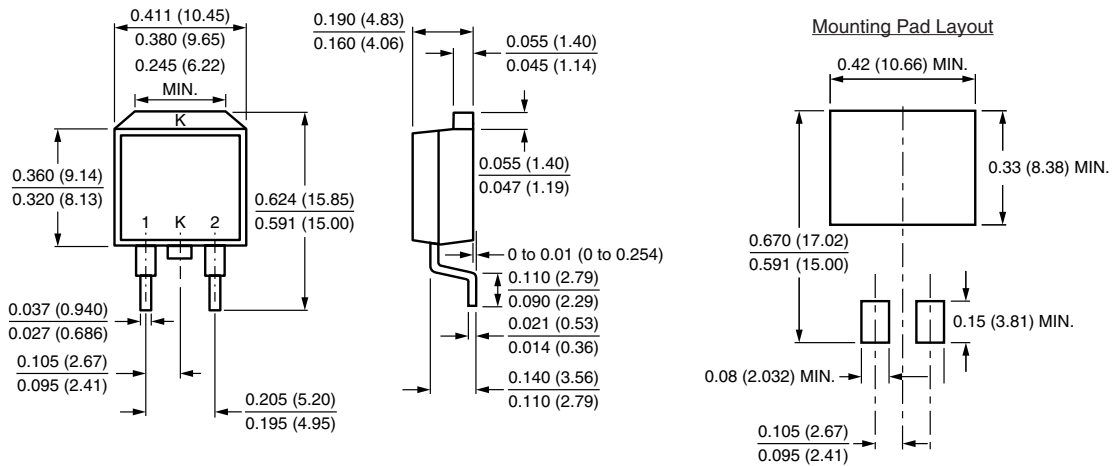


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-220AB**



**TO-263AB**





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