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## Vishay General Semiconductor

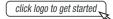
# **Dual Trench MOS Barrier Schottky Rectifier**

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





### **DESIGN SUPPORT TOOLS**





PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2 x 20 A			
V <sub>RRM</sub>	60 V			
I <sub>FSM</sub>	240 A			
V <sub>F</sub> at I <sub>F</sub> = 20 A	0.48 V			
T <sub>J</sub> max.	150 °C			
Package	D <sup>2</sup> PAK (TO-263AB)			
Circuit configuration	Common cathode			

#### **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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### 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<sup>2</sup>PAK (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 2 whisker test

Polarity: as marked

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER  Maximum repetitive peak reverse voltage		SYMBOL	VBT4060C	UNIT V	
		$V_{RRM}$	60		
Maximum average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub>	40	А	
	per diode		20		
Peak forward surge current 8.3 ms single half sine- on rated load	I <sub>FSM</sub>	240	А		
Voltage rate of change (rated V <sub>R</sub> )		dV/dt	10 000	V/µs	
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-40 to +150	°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode (1)	I <sub>F</sub> = 5.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.43	-	. V	
	I <sub>F</sub> = 10 A			0.48	-		
	I <sub>F</sub> = 20 A			0.53	0.62		
	I <sub>F</sub> = 5.0 A	T <sub>A</sub> = 125 °C		0.32	-		
	I <sub>F</sub> = 10 A			0.39	-		
	I <sub>F</sub> = 20 A			0.48	0.57		
Reverse current per diode (2)	V <sub>R</sub> = 60 V	T <sub>A</sub> = 25 °C		-	6.0	mA	
	v <sub>R</sub> = 60 v	T <sub>A</sub> = 125 °C		34	190		

#### Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	VBT4060C	UNIT	
Typical thermal resistance	per diode	- R <sub>θJC</sub>	1.5	°C/W	
	per device		0.8	J/ VV	

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	

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

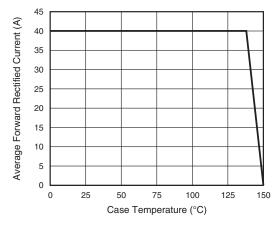


Fig. 1 - Maximum Forward Current Derating Curve

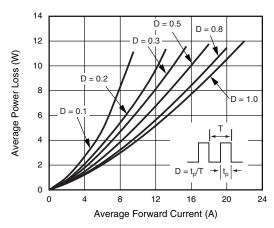


Fig. 2 - Forward Power Dissipation Characteristics Per Diode



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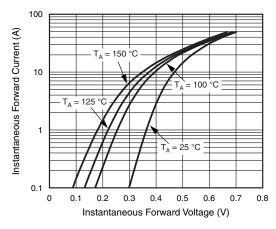


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

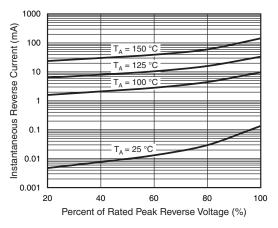


Fig. 4 - Typical Reverse Characteristics Per Diode

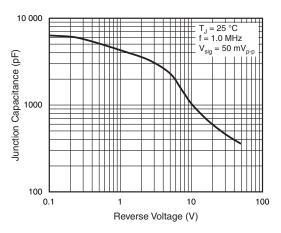


Fig. 5 - Typical Junction Capacitance Per Diode

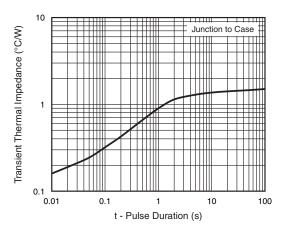
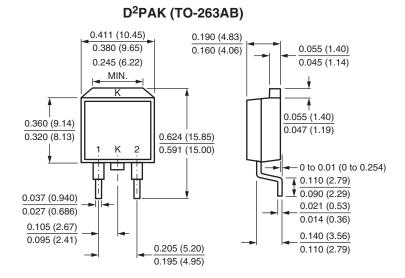
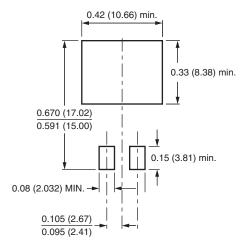


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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



### **Mounting Pad Layout**





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