HALOGEN

FREE



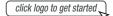
## Vishay General Semiconductor

# **Dual Low-Voltage Trench MOS Barrier Schottky Rectifier**

Ultra Low  $V_F = 0.30 \text{ V}$  at  $I_F = 5.0 \text{ A}$ 



#### **DESIGN SUPPORT TOOLS**





PRIMARY CHARACTERISTICS			
I <sub>F(AV)</sub>	2 x 15 A		
$V_{RRM}$	45 V		
I <sub>FSM</sub>	200 A		
V <sub>F</sub> at I <sub>F</sub> = 15 A	0.39 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 DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, 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

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

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	VBT3045C	UNIT		
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	V		
Maximum average forward rectified current per device	1	30	А		
(fig. 1) per diode	I <sub>F(AV)</sub>	15			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	200	А		
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	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.42	-	V
	$I_F = 7.5 A$			0.44	-	
	I <sub>F</sub> = 15 A			0.49	0.57	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.30	-	
	I <sub>F</sub> = 7.5 A			0.33	-	
	I <sub>F</sub> = 15 A			0.39	0.48	
Reverse current per diode	V <sub>R</sub> = 45 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	2000	μΑ
		T <sub>A</sub> = 125 °C		17	50	mA

#### Notes

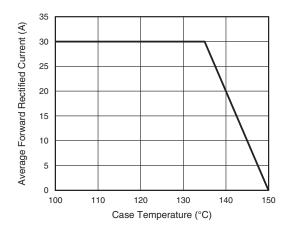
 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

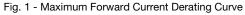
(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	VBT3045C	UNIT	
Typical thermal resistance	per diode	$R_{ hetaJC}$	1.6	°C/W	
	per device		0.85	- C/VV	

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-263AB	VBT3045C-M3/4W	1.38	4W	50/tube	Tube		
TO-263AB	VBT3045C-M3/8W	1.38	8W	800/reel	Tape and reel		

### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)





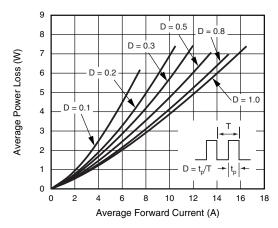


Fig. 2 - Forward Power Loss Characteristics Per Diode



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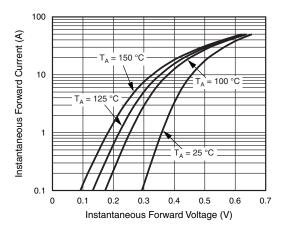


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

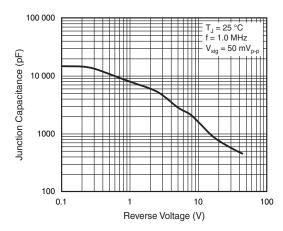


Fig. 5 - Typical Junction Capacitance Per Diode

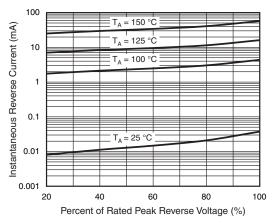


Fig. 4 - Typical Reverse Characteristics Per Diode

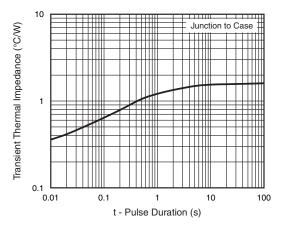
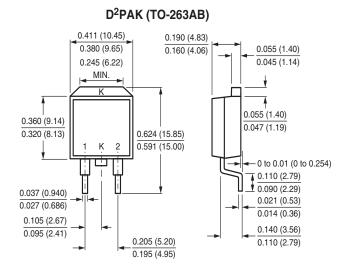
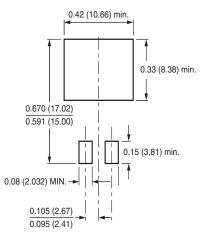


Fig. 6 - Typical Transient Thermal Impedance Per Diode

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



### **Mounting Pad Layout**





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