ROHS COMPLIANT

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Vishay General Semiconductor

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

Ultra Low  $V_F = 0.30$  V at  $I_F = 5.0$  A



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 15 A				
V <sub>RRM</sub>	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	ITO-220AB				
Circuit configuration	Common cathode				

## FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

## **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: ITO-220AB

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 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

<b>MAXIMUM RATINGS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER		SYMBOL	VFT3045C	UNIT		
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	45	V		
Maximum average forward rectified current (fig. 1)	per device		30	^		
	per diode	IF(AV)	15	A		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	200	А		
Isolation voltage from termal to heatsink t = 1 min		V <sub>AC</sub>	1500	V		
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-40 to +150	°C		

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ 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 <sub>F</sub> = 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	μA	
		T <sub>A</sub> = 125 °C		17	50	mA	

#### Notes

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

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms

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<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER		SYMBOL	VFT3045C	UNIT	
Typical thermal resistance	per diode	- R <sub>θJC</sub>	6.0	°C/W	
	per device		4.0	0/10	

ORDERING INFORMATION (Example)							
PACKAGE	KAGE PREFERRED P/N L		PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ITO-220AB	VFT3045C-M3/4W	1.76	4W	50/tube	Tube		

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

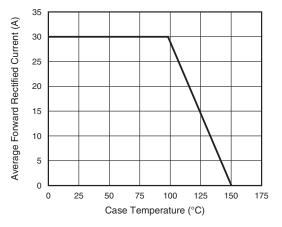


Fig. 1 - Maximum Forward Current Derating Curve

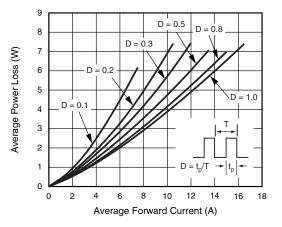
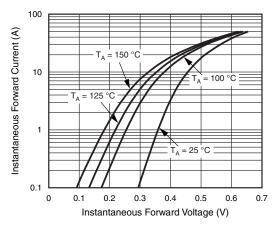


Fig. 2 - Forward Power Loss Characteristics Per Diode





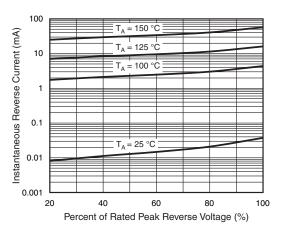
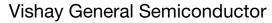


Fig. 4 - Typical Reverse Characteristics Per Diode

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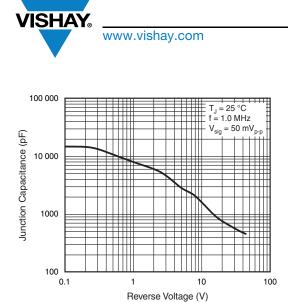


Fig. 5 - Typical Junction Capacitance Per Diode

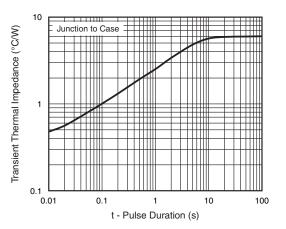
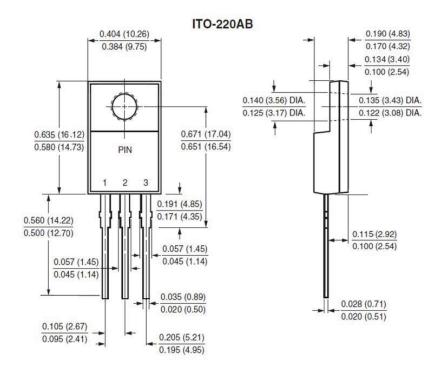


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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





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