

## Vishay General Semiconductor

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

Ultra Low  $V_F = 0.52 \text{ V}$  at  $I_F = 5 \text{ A}$ 



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2 x 15 A			
$V_{RRM}$	120 V			
I <sub>FSM</sub>	150 A			
V <sub>F</sub> at I <sub>F</sub> = 15 A	0.68 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 <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

# RoHS

HALOGEN FREE

## **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

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VF30M120C	UNIT
Maximum repetitive peak reverse voltage		$V_{RRM}$	120	V
Maximum average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub>	30	
	per diode		15	А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	150	
Voltage rating of change (rated V <sub>R</sub> )		dV/dt	10 000	V/µs
Isolation voltage from thermal to heatsink t = 1 min		$V_{AC}$	1500	V
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>	0.60	-	V	
	I <sub>F</sub> = 7.5 A			0.67	-		
	I <sub>F</sub> = 15 A			0.87	0.98		
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.52	-		
	$I_F = 7.5 A$			0.57	-		
	I <sub>F</sub> = 15 A			0.68	0.76		
Reverse current per diode	V <sub>R</sub> = 90 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	3.5	-	μA	
		T <sub>A</sub> = 125 °C		2	-	mA	
	V <sub>R</sub> = 120 V	T <sub>A</sub> = 25 °C		-	800	μA	
		T <sub>A</sub> = 125 °C		5	27	mA	

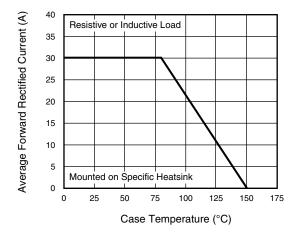
#### **Notes**

<sup>(2)</sup> Pulse test: Pulse width ≤ 20 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VF30M120C	UNIT
Typical thermal resistance per diode	$R_{ heta JC}$	4.5	°C/W

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ITO-220AB	VF30M120C-M3/4W	1.75	4W	50/tube	Tube		

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





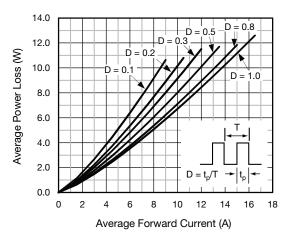


Fig. 2 - Forward Power Loss Characteristics Per Diode

<sup>(1)</sup> Pulse test: 300 µs pulse width, 1 % duty cycle



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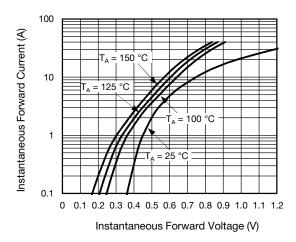


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

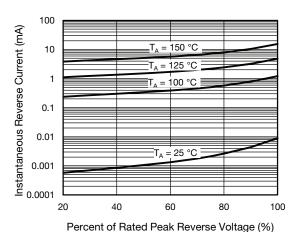


Fig. 4 - Typical Reverse Characteristics Per Diode

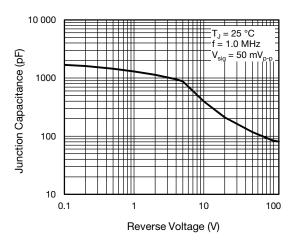


Fig. 5 - Typical Junction Capacitance Per Diode

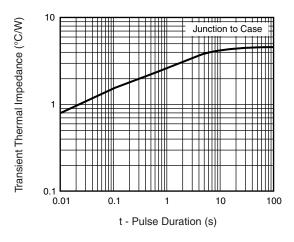
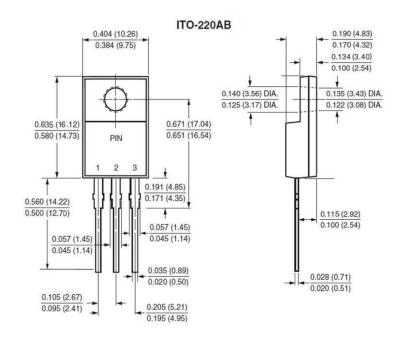


Fig. 6 - Typical Transient Thermal Impedance Per Diode



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





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