

## Vishay General Semiconductor

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

Ultra Low  $V_F = 0.55 \text{ V}$  at  $I_F = 5 \text{ A}$ 



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2 x 20 A			
V <sub>RRM</sub>	150 V			
I <sub>FSM</sub>	160 A			
V <sub>F</sub> at I <sub>F</sub> = 20 A	0.75 V			
T <sub>J</sub> max.	150 °C			
Package	ITO-220AB			
Diode variation	Dual 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 www.vishav.com/doc?99912

# 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	VF40150C	UNIT
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	150	V
Maximum average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub>	40	_
	per diode		20	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	160	А
Voltage rate of change (rated V <sub>R</sub> )		dV/dt	10 000	V/µs
Isolation voltage from terminal 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>	-55 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>	0.69	-	V	
	I <sub>F</sub> = 10 A			0.84	-		
	I <sub>F</sub> = 20 A			1.15	1.43		
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.55	-		
	I <sub>F</sub> = 10 A			0.64	-		
	I <sub>F</sub> = 20 A			0.75	0.82		
Reverse current per diode	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	2.0	-	μΑ	
		T <sub>A</sub> = 125 °C		2.5	-	mA	
	V <sub>R</sub> = 150 V	T <sub>A</sub> = 25 °C		-	250	μΑ	
		T <sub>A</sub> = 125 °C		5	25	mA	

#### Notes

<sup>(2)</sup> Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL VF40150C		UNIT	
Typical thermal resistance per diode	$R_{ heta JC}$	4.0	°C/W	

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ITO-220AB	VF40150C-M3/4W	1.75	4W	50/tube	Tube		

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

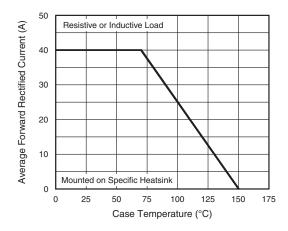


Fig. 1 - Maximum Forward Current Derating Curve

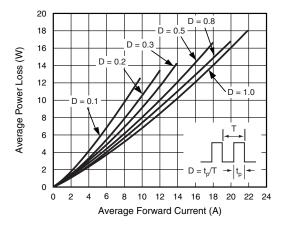


Fig. 2 - Forward Power Dissipation Characteristics

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



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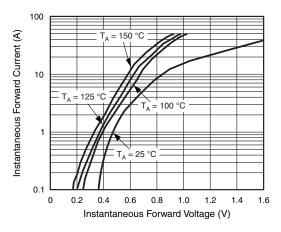


Fig. 3 - Typical Instantaneous Forward Characteristics

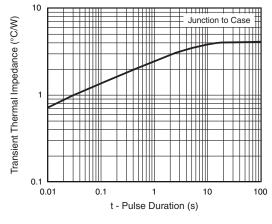


Fig. 5 - Typical Transient Thermal Impedance

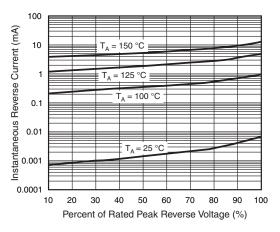


Fig. 4 - Typical Reverse Characteristics

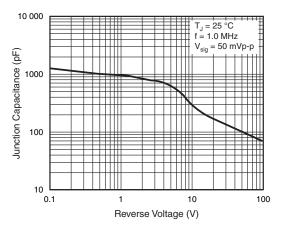
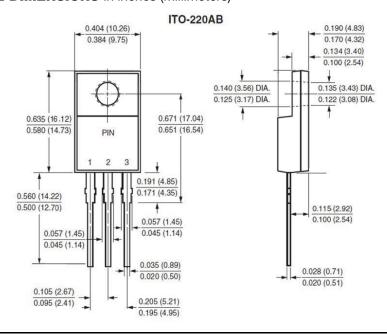


Fig. 6 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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