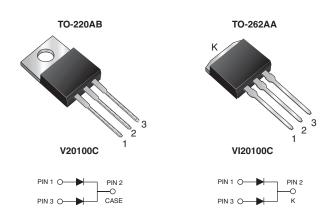


## Vishay General Semiconductor

# Dual High Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low  $V_F = 0.50 \text{ V}$  at  $I_F = 5 \text{ A}$ 



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 10 A				
$V_{RRM}$	100 V				
I <sub>FSM</sub>	150 A				
V <sub>F</sub> at I <sub>F</sub> = 10 A	0.58 V				
T <sub>J</sub> max.	150 °C				
Package	TO-220AB, TO-262AA				
Circuit configurations	Common cathode				

#### **FEATURES**

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses

· High efficiency operation HALOGEN Solder dip 275 °C max. 10 s, per JESD 22-B106

FREE · Material categorization: for definitions of compliance please see www.vishav.com/doc?99912

### 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: TO-220AB and TO-262AA

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 max.

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	V20100C	VI20100C	UNIT	
Max. repetitive peak reverse voltage		$V_{RRM}$	100		V	
Max. average forward rectified current (fig. 1)	per device	_	20		А	
	per diode	I <sub>F(AV)</sub>	10			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I <sub>FSM</sub>	150		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	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.55	-	V	
	$I_F = 10 A$			0.65	0.79		
	$I_F = 5 A$	T <sub>A</sub> = 125 °C		0.50	-		
	I <sub>F</sub> = 10 A			0.58	0.68		
Reverse current per diode	V <sub>R</sub> = 70 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	17	-	μΑ	
		T <sub>A</sub> = 125 °C		5.3	-	mA	
	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C		-	800	μA	
		T <sub>A</sub> = 125 °C		12	25	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		V20100C	VI20100C	UNIT	
Typical thermal resistance per diode	$R_{\theta JC}$	2.8		°C/W	

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	V20100C-M3/4W	1.881	4W	50/tube	Tube		
TO-262AA	VI20100C-M3/4W	1.45	4W	50/tube	Tube		

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

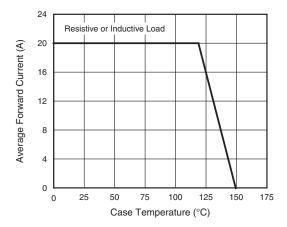


Fig. 1 - Maximum Forward Current Derating Curve

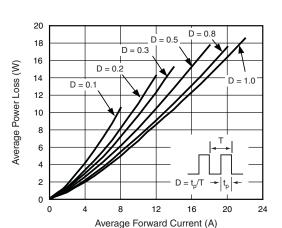


Fig. 2 - Forward Power Loss Characteristics Per Diode

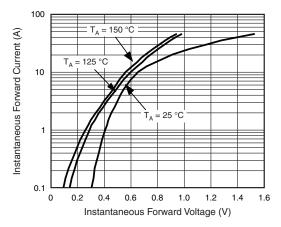


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

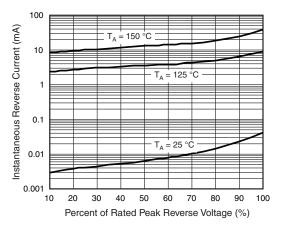


Fig. 4 - Typical Reverse Characteristics Per Diode

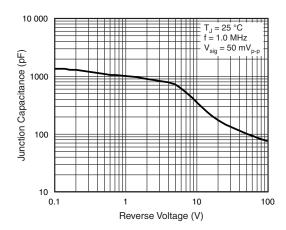


Fig. 5 - Typical Junction Capacitance Per Diode

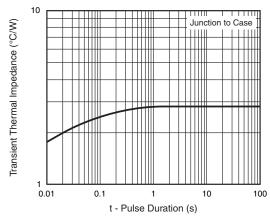
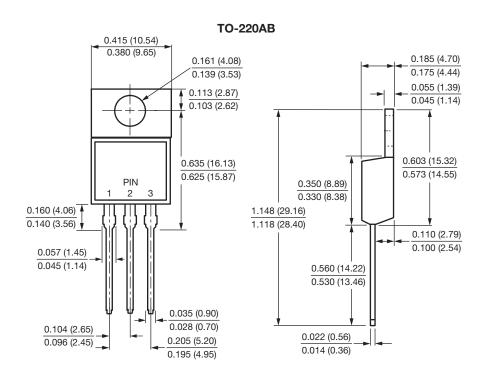


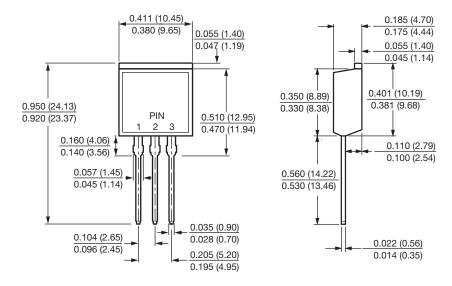
Fig. 6 - Typical Transient Thermal Impedance Per Diode

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### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



### **TO-262AA**





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