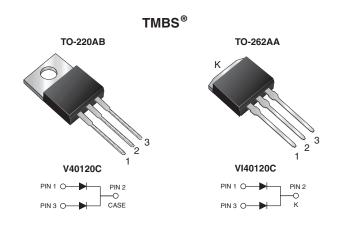


# **Dual High Voltage Trench MOS Barrier Schottky Rectifier**

Ultra Low  $V_F = 0.43 \text{ V}$  at  $I_F = 5 \text{ A}$ 



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	2 x 20 A				
$V_{RRM}$	120 V				
I <sub>FSM</sub>	250 A				
V <sub>F</sub> at I <sub>F</sub> = 20 A	0.63 V				
T <sub>J</sub> max.	150 °C				
Package	TO-220AB, TO-262AA				
Diode variation	Common cathode				

### **FEATURES**

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

High efficiency operation

ROHS COMPLIANT HALOGEN

- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <a href="https://www.vishav.com/doc?99912">www.vishav.com/doc?99912</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: 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 testt

Polarity: as marked

Mounting Torque: 10 in-lbs max.

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V40120C	VI40120C	UNIT
Max. repetitive peak reverse voltage		V <sub>RRM</sub>	120		V
Max. average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub>	40		А
	per diode		20		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I <sub>FSM</sub>	250		А
Voltage rate of change (rated V <sub>R</sub> )	ge rate of change (rated V <sub>R</sub> )		10 000		V/µs
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-40 to	+150	°C



<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>	0.50	-	V	
	I <sub>F</sub> = 10 A			0.60	-		
	I <sub>F</sub> = 20 A			0.78	0.88		
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.43	-		
	I <sub>F</sub> = 10 A			0.53	-		
	I <sub>F</sub> = 20 A			0.63	0.71		
Reverse current per diode	V <sub>R</sub> = 90 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	19	-	μΑ	
		T <sub>A</sub> = 125 °C		10	-	mA	
	$V_R = 120 \text{ V}$ $T_A = 25 ^{\circ}\text{C}$ $T_A = 125 ^{\circ}\text{C}$	T <sub>A</sub> = 25 °C		-	500	μΑ	
		T <sub>A</sub> = 125 °C		22	45	mA	

## Notes

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

(2) Pulse test: Pulse width  $\leq$  40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	V40120C	VI40120C	UNIT	
Typical thermal resistance per diode	$R_{ heta JC}$	1.8		°C/W	

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	V40120C-M3/4W	1.88	4W	50/tube	Tube		
TO-262AA	VI40120C-M3/4W	1.45	4W	50/tube	Tube		

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

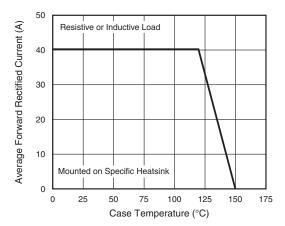


Fig. 1 - Maximum Forward Current Derating Curve

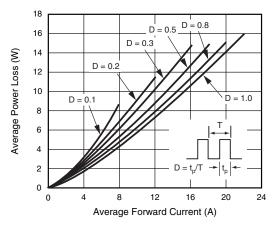


Fig. 2 - Forward Power Loss Characteristics Per Diode

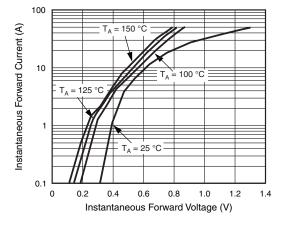


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

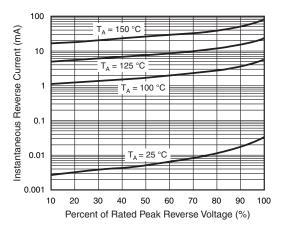


Fig. 4 - Typical Reverse Characteristics Per Diode

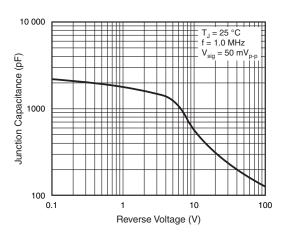


Fig. 5 - Typical Junction Capacitance Per Diode

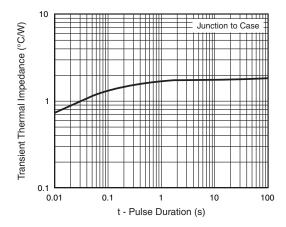
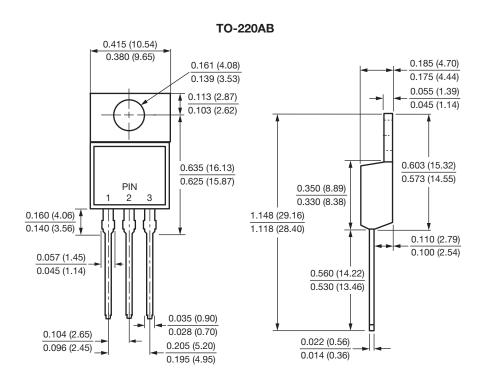


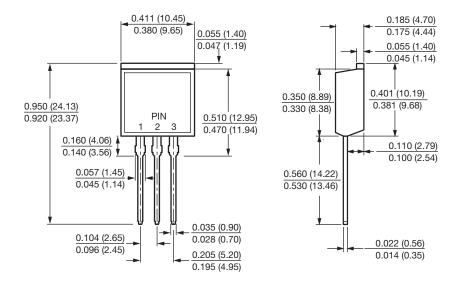
Fig. 6 - Typical Transient Thermal Impedance Per Diode



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



### **TO-262AA**





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