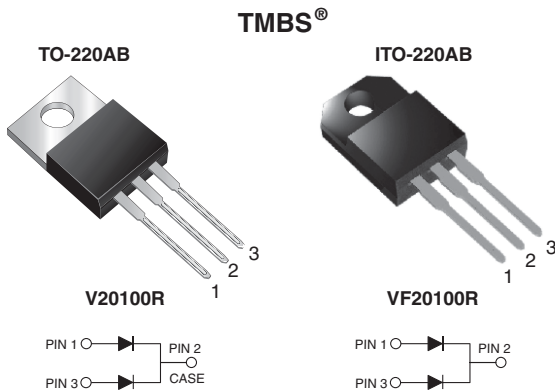


## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.54 \text{ V}$  at  $I_F = 5 \text{ A}$



### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

For use in high frequency inverters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-dc converters and reverse battery protection.

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 10 A
$V_{RRM}$	100 V
$I_{FSM}$	120 A
$V_F$ at $I_F = 10 \text{ A}$	0.65 V
$T_J$ max.	150 °C

### MECHANICAL DATA

**Case:** TO-220AB and ITO-220AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for commercial grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

### MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	V20100R	VF20100R	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100		V
Maximum average forward rectified current (Fig. 1) per device per diode	$I_{F(AV)}$	20 10		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	120		A
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1 \text{ min}$	$V_{AC}$	1500		V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150		°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1.0 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	100 (minimum)	-	V
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.62	-	V
	I <sub>F</sub> = 10 A	T <sub>A</sub> = 25 °C		0.81	0.90	
Reverse current per diode <sup>(2)</sup>	V <sub>R</sub> = 70 V	T <sub>A</sub> = 25 °C	I <sub>R</sub>	4	-	μA
		T <sub>A</sub> = 125 °C		4	-	
	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C		-	150	μA
		T <sub>A</sub> = 125 °C		5.6	15	

Notes:

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: 10 ms pulse width

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V20100R	VF20100R	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	2.8	5.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V20100R-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VF20100R-E3/4W	1.75	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

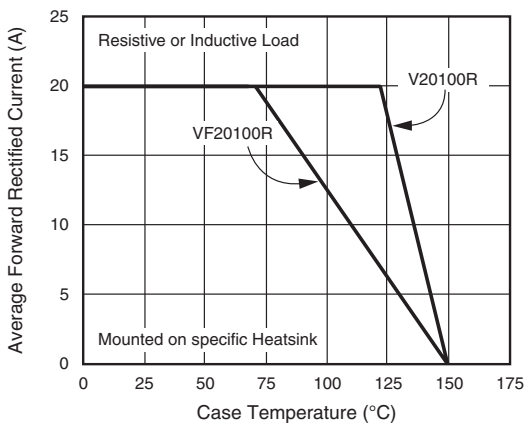


Figure 1. Maximum Forward Current Derating Curve

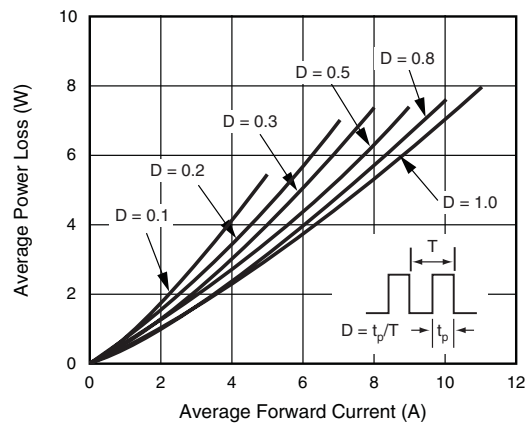


Figure 2. Forward Power Loss Characteristics Per Diode

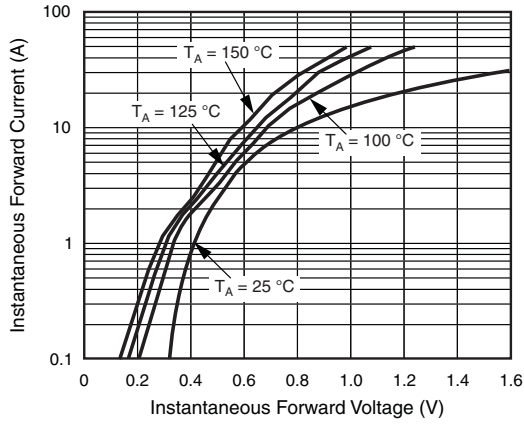


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

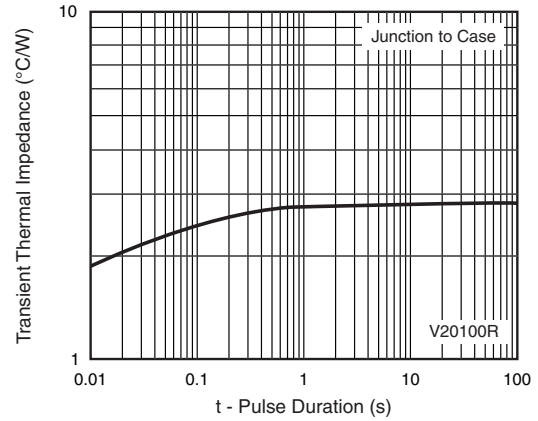


Figure 6. Typical Transient Thermal Impedance Per Diode

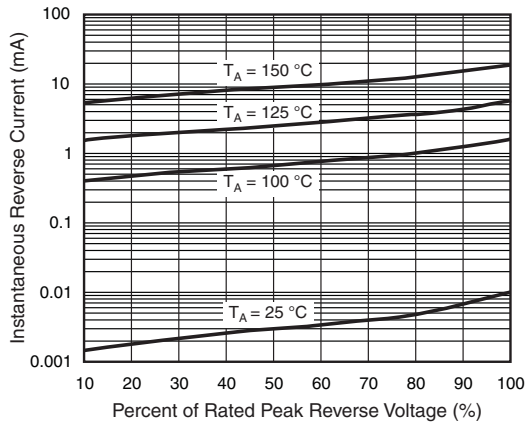


Figure 4. Typical Reverse Characteristics Per Diode

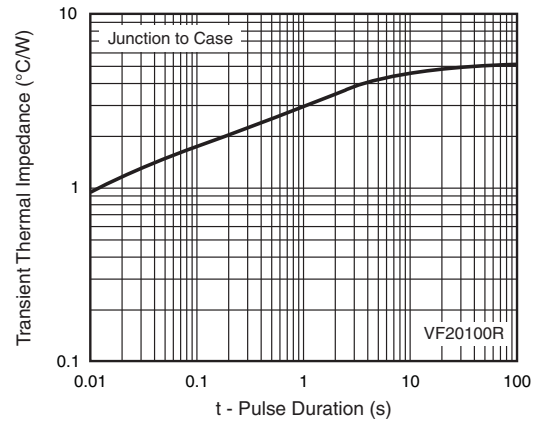


Figure 7. Typical Transient Thermal Impedance Per Diode

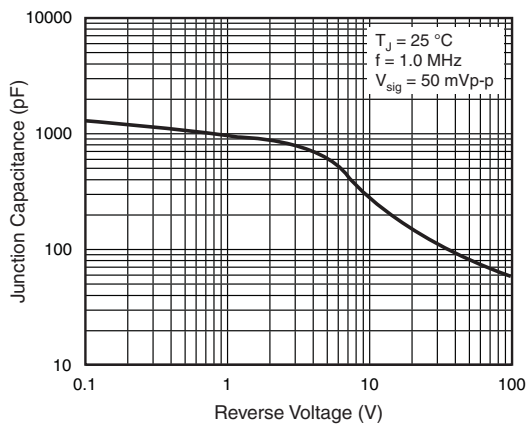
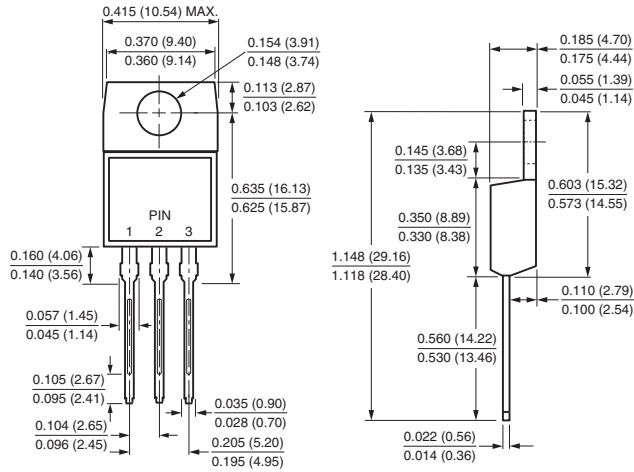


Figure 5. Typical Junction Capacitance Per Diode

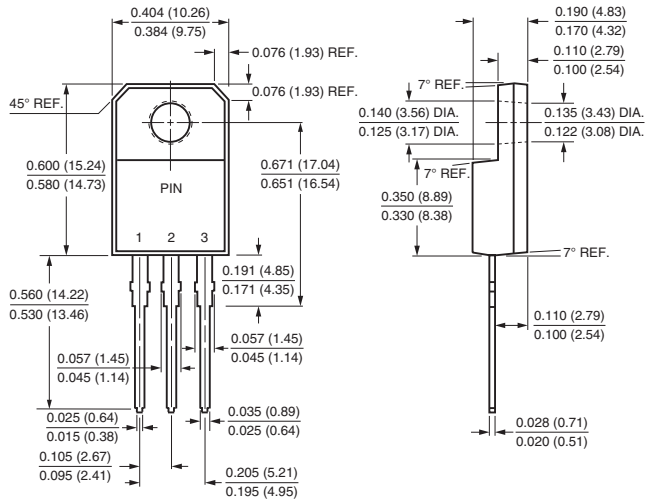


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-220AB**



**ITO-220AB**





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