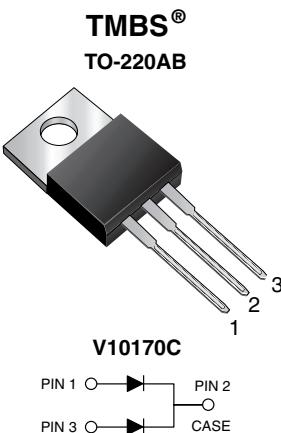


## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F$  = 0.57 V at  $I_F$  = 2.5 A



### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.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

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5 A
$V_{RRM}$	170 V
$I_{FSM}$	80 A
$V_F$ at $I_F$ = 5.0 A	0.65 V
$T_J$ max.	175 °C
Package	TO-220AB
Diode variation	Dual common cathode

MAXIMUM RATINGS ( $T_A$ = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	V10170C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	170	V
Maximum average forward rectified current (fig. 1)	per device	10	A
	per diode	5	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	80	A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000	V/μs
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +175	°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 2.5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.74	-	V	
	$I_F = 5.0 \text{ A}$			0.84	1.03		
	$I_F = 2.5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.57	-		
	$I_F = 5.0 \text{ A}$			0.65	0.74		
Reverse current per diode	$V_R = 136 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	0.3	-	$\mu\text{A}$	
		$T_A = 125^\circ\text{C}$		0.9	-	$\text{mA}$	
	$V_R = 170 \text{ V}$	$T_A = 25^\circ\text{C}$		-	90	$\mu\text{A}$	
		$T_A = 125^\circ\text{C}$		1.3	10	$\text{mA}$	

**Notes**
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq 20 \text{ ms}$ 

THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V10170C			UNIT
Typical thermal resistance	per diode	$R_{\theta\text{JC}}$	3.0		$^\circ\text{C/W}$
	per device		1.7		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V10170C-M3/4W	1.87	4W	50/tube	Tube

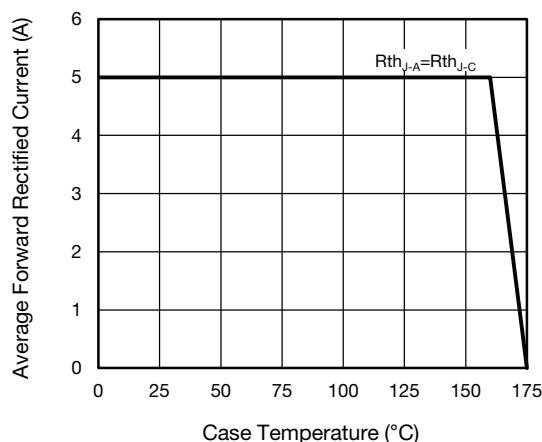
**RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**


Fig. 1 - Maximum Forward Current Derating Curve

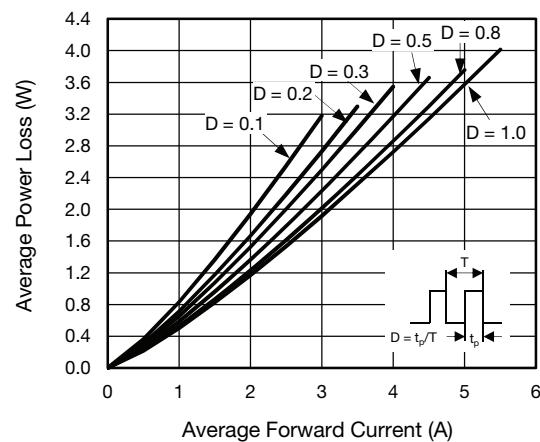


Fig. 2 - Forward Power Loss Characteristics Per Diode

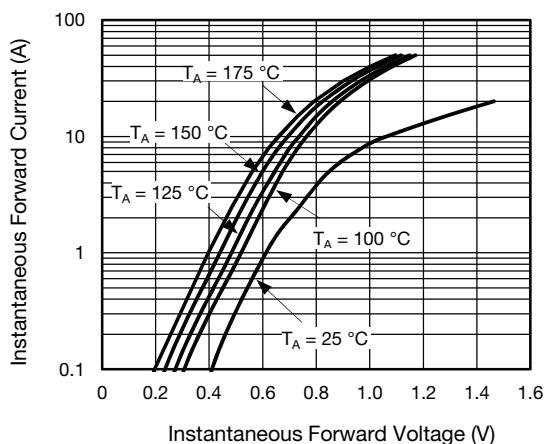


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

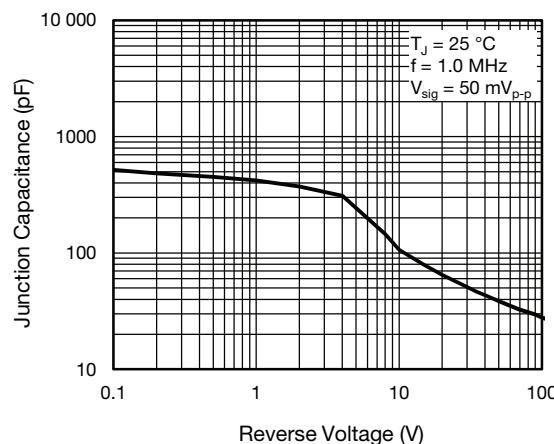


Fig. 5 - Typical Junction Capacitance Per Diode

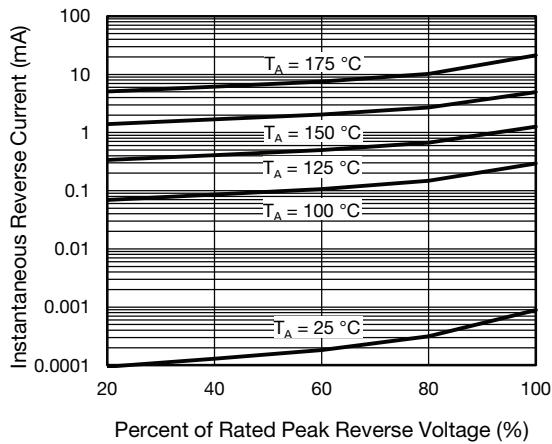


Fig. 4 - Typical Reverse Characteristics Per Diode

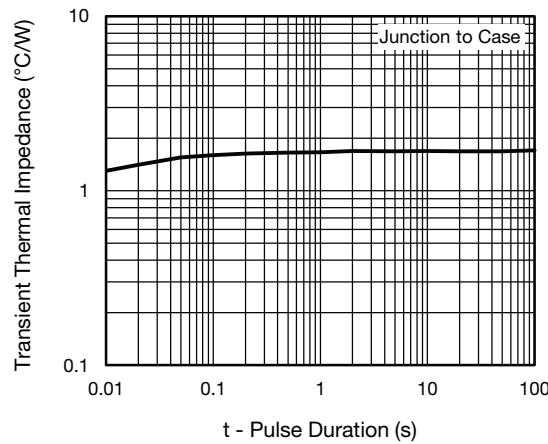
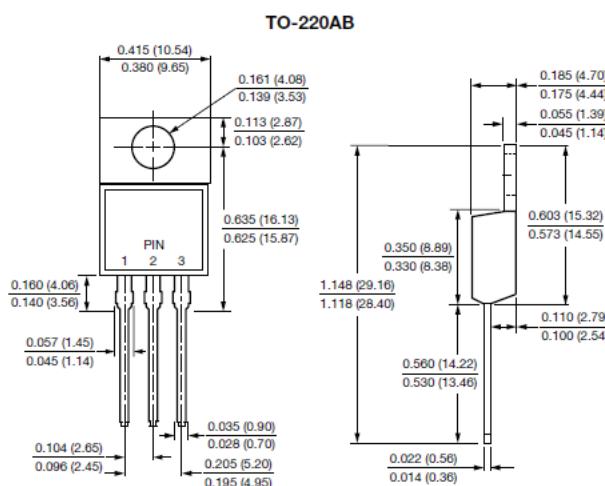


Fig. 6 - Typical Transient Thermal Impedance Per Device

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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