

# Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F$  = 0.55 V at  $I_F$  = 5 A

**TMBS®**  
ITO-220AB



**VF40150C**  
PIN 1 —> PIN 2  
PIN 3 —> PIN 2

## 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.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
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

PRIMARY CHARACTERISTICS	
$I_F(AV)$	2 x 20 A
$V_{RRM}$	150 V
$I_{FSM}$	160 A
$V_F$ at $I_F$ = 20 A	0.75 V
$T_J$ max.	150 °C
Package	ITO-220AB
Diode variation	Dual common cathode

MAXIMUM RATINGS ( $T_A$ = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VF40150C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	150	V
Maximum average forward rectified current (fig. 1)	$I_F(AV)$	40	A
per device		20	
per diode			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	160	A
Voltage rate of change (rated $V_F$ )	$dV/dt$	10 000	V/μs
Isolation voltage from terminal to heatsink $t$ = 1 min	$V_{AC}$	1500	V
Operating junction and storage temperature range	$T_J$ , $T_{STG}$	-55 to +150	°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$I_F = 5 \text{ A}$ $I_F = 10 \text{ A}$ $I_F = 20 \text{ A}$	$V_F$ <sup>(1)</sup>	0.69	-	V	
			0.84	-		
			1.15	1.43		
	$I_F = 5 \text{ A}$ $I_F = 10 \text{ A}$ $I_F = 20 \text{ A}$		0.55	-		
			0.64	-		
			0.75	0.82		
Reverse current per diode	$V_R = 100 \text{ V}$	$I_R$ <sup>(2)</sup>	2.0	-	$\mu\text{A}$	
			2.5	-	$\text{mA}$	
	$V_R = 150 \text{ V}$		-	250	$\mu\text{A}$	
			5	25	$\text{mA}$	

**Notes**

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

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

THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	VF40150C		UNIT	
Typical thermal resistance per diode	$R_{\theta\text{JC}}$	4.0		$^\circ\text{C/W}$	

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

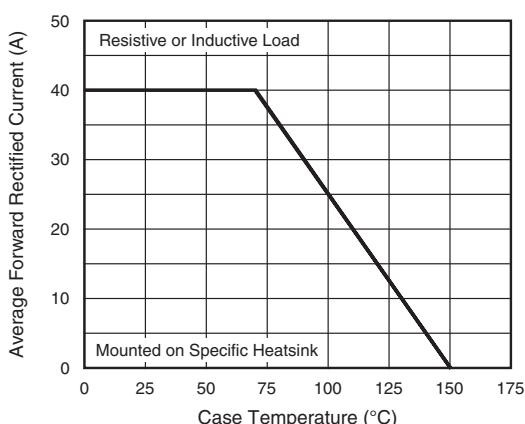
**RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**


Fig. 1 - Maximum Forward Current Derating Curve

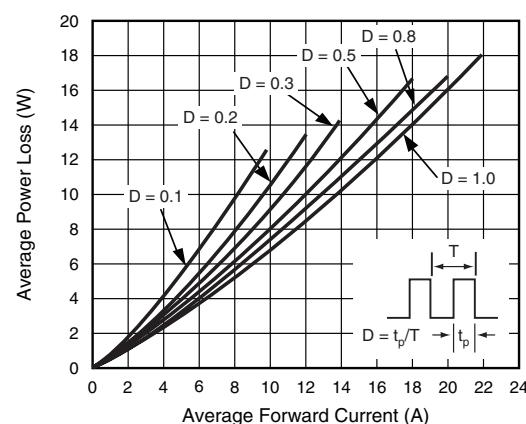


Fig. 2 - Forward Power Dissipation Characteristics

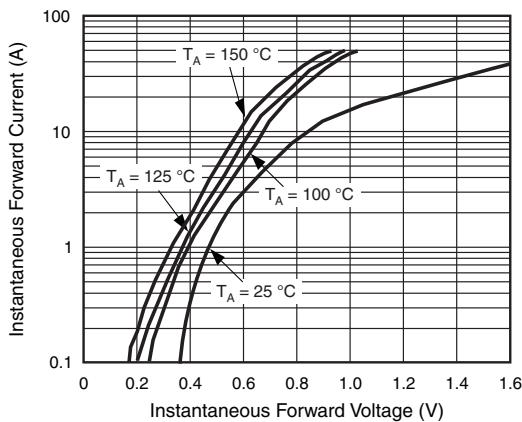


Fig. 3 - Typical Instantaneous Forward Characteristics

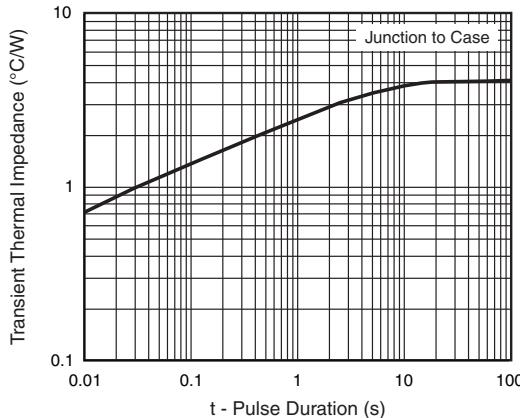


Fig. 5 - Typical Transient Thermal Impedance

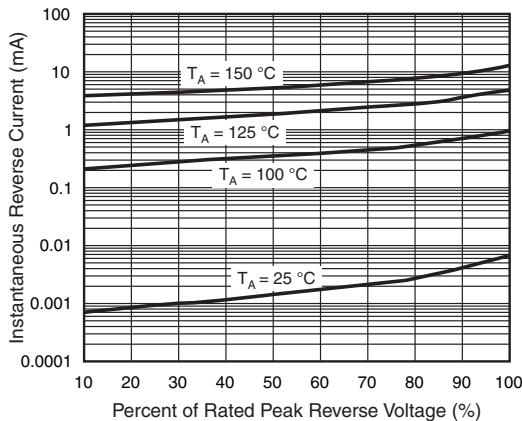


Fig. 4 - Typical Reverse Characteristics

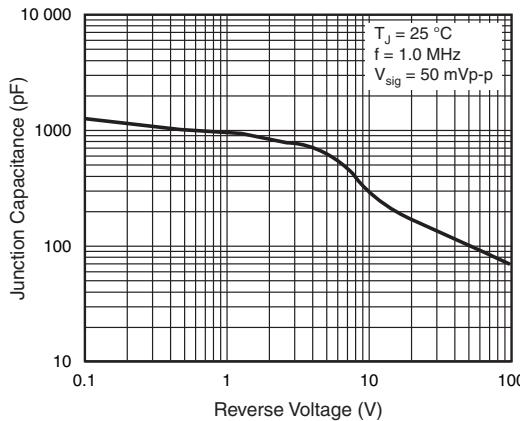
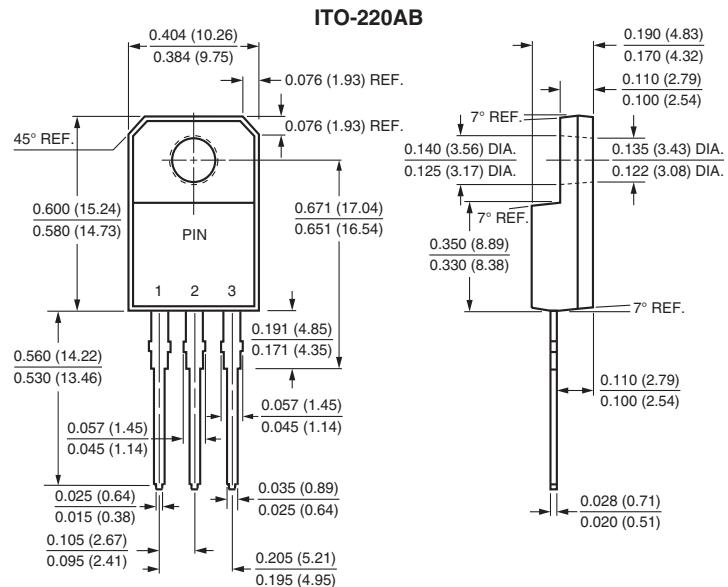


Fig. 6 - Typical Junction Capacitance

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



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