

# Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low  $V_F = 0.30\text{ V}$  at  $I_F = 5.0\text{ A}$ 


## 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 15 A
$V_{RRM}$	45 V
$I_{FSM}$	200 A
$V_F$ at $I_F = 15\text{ A}$	0.39 V
$T_J$ max.	150 °C
Package	ITO-220AB
Circuit configuration	Common cathode

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

PARAMETER	SYMBOL	VFT3045C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	30
		per diode	15
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	200	A
Isolation voltage 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 ( $T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	$T_A = 25\text{ °C}$	$V_F^{(1)}$	$I_F = 5\text{ A}$	0.42	-	V
			$I_F = 7.5\text{ A}$	0.44	-	
			$I_F = 15\text{ A}$	0.49	0.57	
	$T_A = 125\text{ °C}$		$I_F = 5\text{ A}$	0.30	-	
			$I_F = 7.5\text{ A}$	0.33	-	
			$I_F = 15\text{ A}$	0.39	0.48	
Reverse current per diode	$V_R = 45\text{ V}$	$I_R^{(2)}$	$T_A = 25\text{ °C}$	-	2000	$\mu\text{A}$
			$T_A = 125\text{ °C}$	17	50	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 ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER		SYMBOL	VFT3045C	UNIT	
Typical thermal resistance	per diode	$R_{\theta JC}$	6.0	$^\circ\text{C/W}$	
	per device		4.0		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	VFT3045C-M3/4W	1.76	4W	50/tube	Tube

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

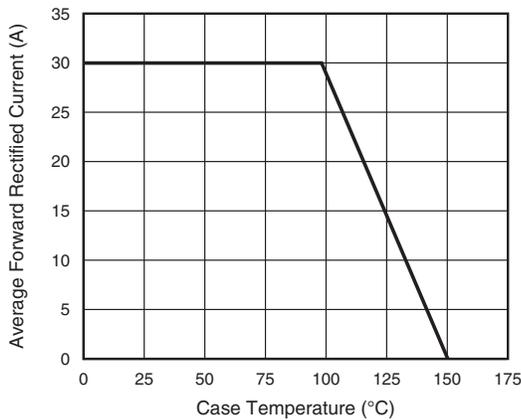


Fig. 1 - Maximum Forward Current Derating Curve

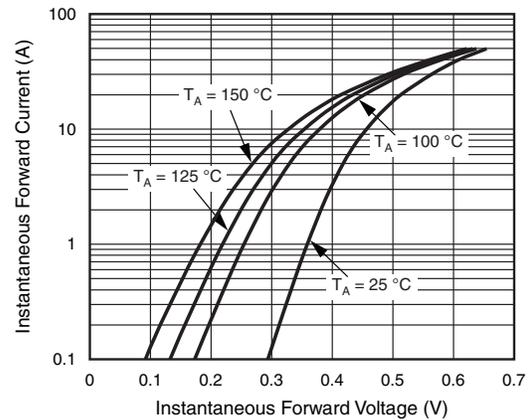


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

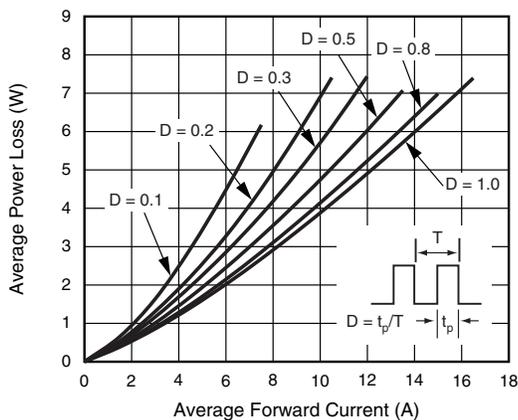


Fig. 2 - Forward Power Loss Characteristics Per Diode

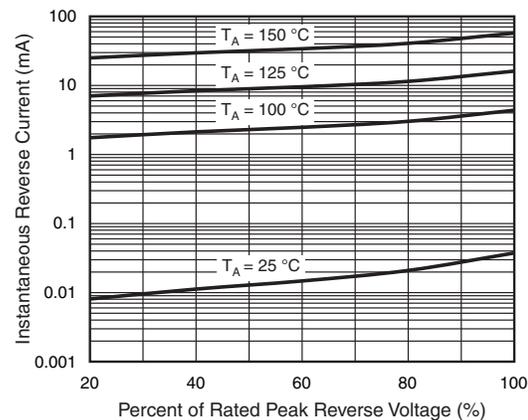


Fig. 4 - Typical Reverse Characteristics Per Diode

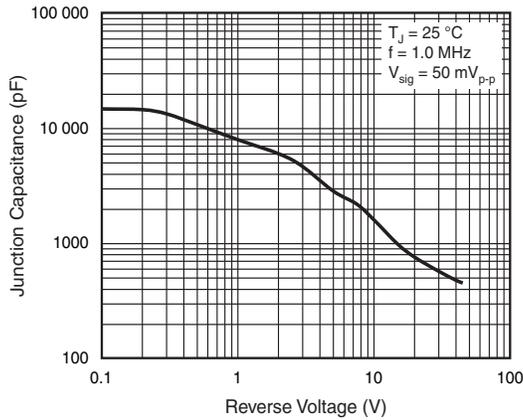


Fig. 5 - Typical Junction Capacitance Per Diode

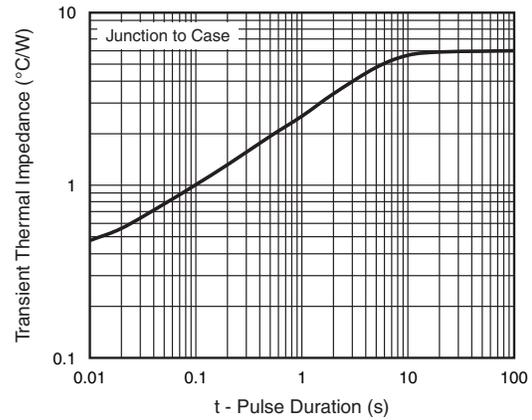
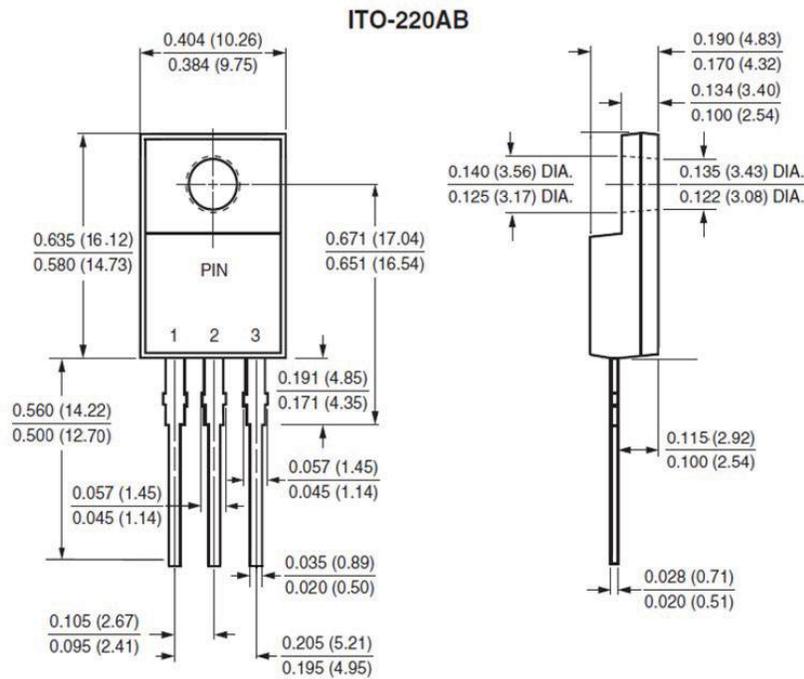


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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





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