

## Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F$  = 0.33 V at  $I_F$  = 10 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 30 A
$V_{RRM}$	45 V
$I_{FSM}$	320 A
$V_F$ at $I_F$ = 30 A	0.47 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	VFT6045C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	60	A
per device per diode		30	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	320	A
Isolation voltage from terminal to heatsink $t = 1$ min	$V_{AC}$	1500	V
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 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	$I_F = 10 \text{ A}$	$T_A = 25^\circ\text{C}$	0.44	-	V
	$I_F = 15 \text{ A}$		0.47	-	
	$I_F = 30 \text{ A}$		0.54	0.64	
	$I_F = 10 \text{ A}$	$T_A = 125^\circ\text{C}$	0.33	-	
	$I_F = 15 \text{ A}$		0.37	-	
	$I_F = 30 \text{ A}$		0.47	0.56	
	$V_R = 45 \text{ V}$	$T_A = 25^\circ\text{C}$	-	3000	$\mu\text{A}$
		$T_A = 125^\circ\text{C}$	18	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 ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	VFT6045C			UNIT
Typical thermal resistance	per diode	$R_{\theta\text{JC}}$	5.0		$^\circ\text{C/W}$
	per device		3.5		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	VFT6045C-M3/4W	1.76	4W	50/tube	Tube

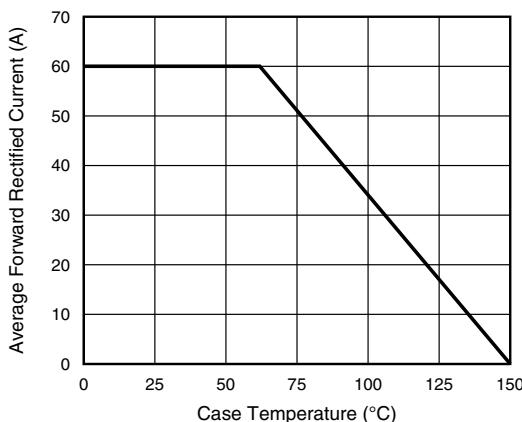
**RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**


Fig. 1 - Maximum Forward Current Derating Curve

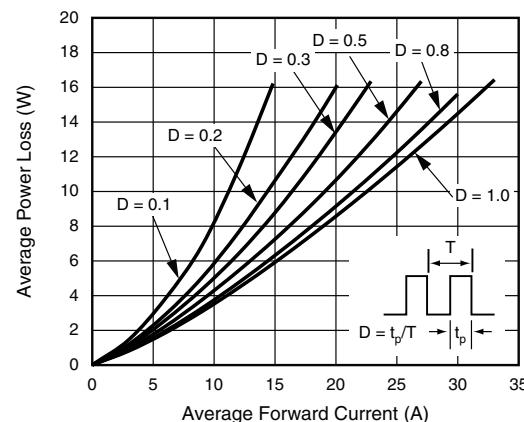


Fig. 2 - Forward Power Loss Characteristics Per Diode

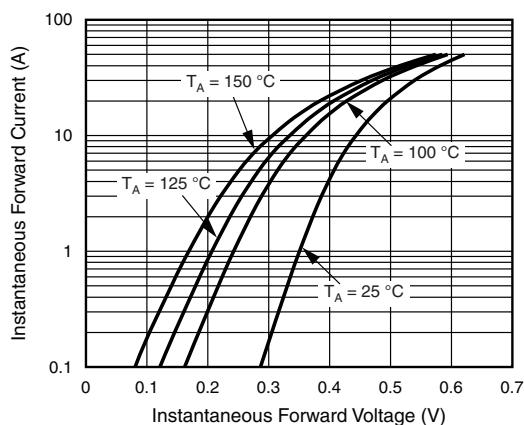


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

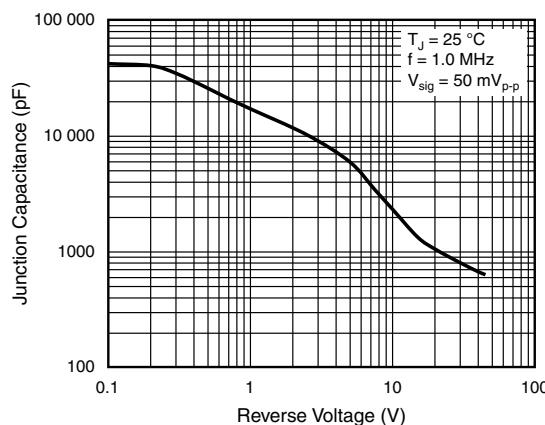


Fig. 5 - Typical Junction Capacitance Per Diode

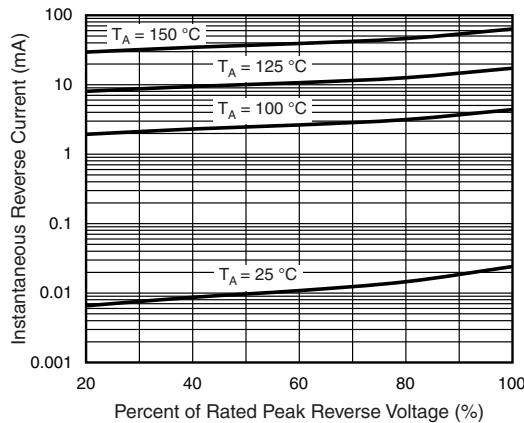


Fig. 4 - Typical Reverse Characteristics Per Diode

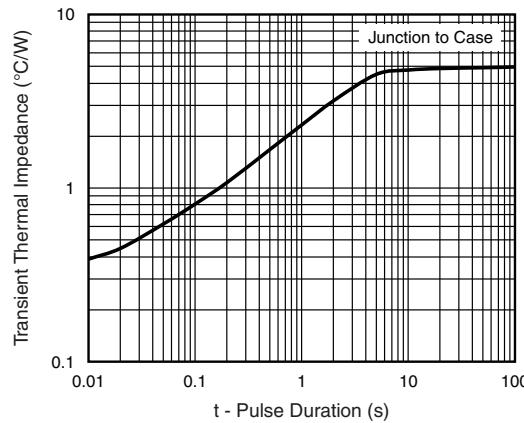
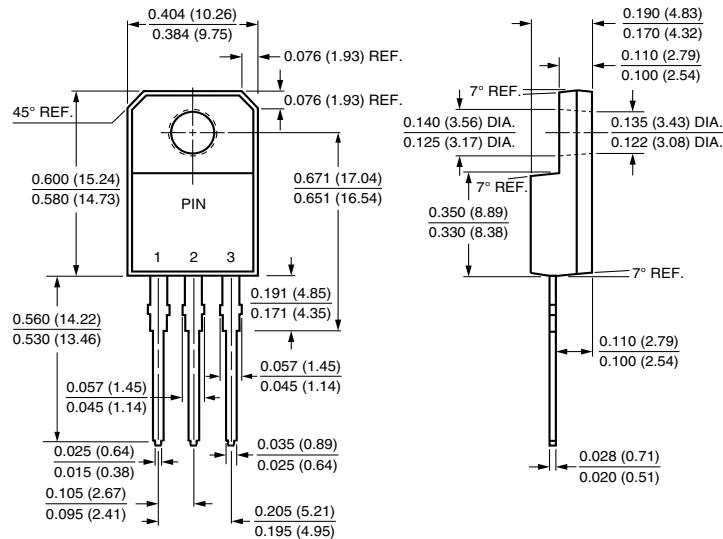


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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

ITO-220AB



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