

Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low $V_F = 0.33\text{ V}$ 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


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.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 10 A
V_{RRM}	45 V
I_{FSM}	160 A
V_F at $I_F = 10\text{ A}$	0.41 V
T_J max.	150 °C
Package	ITO-220AB
Circuit configuration	Common cathode

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

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

PARAMETER	SYMBOL	VFT2045C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	20
		per diode	10
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	160	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	$I_F = 5\text{ A}$	$T_A = 25\text{ °C}$	$V_F^{(1)}$	0.44	-	V
				$I_F = 10\text{ A}$	0.49	
	$I_F = 5\text{ A}$	$T_A = 125\text{ °C}$		0.33	-	
				$I_F = 10\text{ A}$	0.41	
Reverse current per diode	$V_R = 45\text{ V}$	$T_A = 25\text{ °C}$	$I_R^{(2)}$	-	2000	μA
		$T_A = 125\text{ °C}$		10	30	mA

Notes

 (1) Pulse test: 300 μs 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	VFT2045C	UNIT	
Typical thermal resistance	per diode	$R_{\theta JC}$	6.0	$^\circ\text{C/W}$	
	per device		4.5		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	VFT2045C-M3/4W	1.76	4W	50/tube	Tube

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

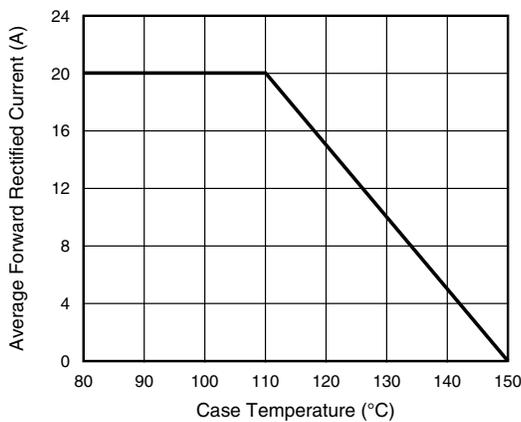


Fig. 1 - Maximum Forward Current Derating Curve

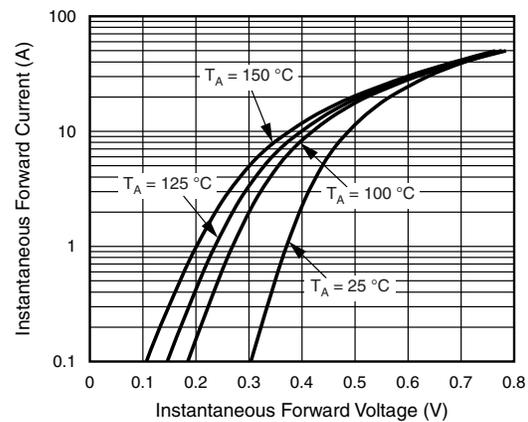


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

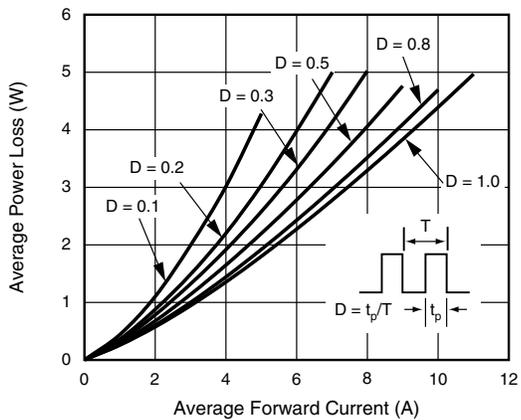


Fig. 2 - Forward Power Loss Characteristics Per Diode

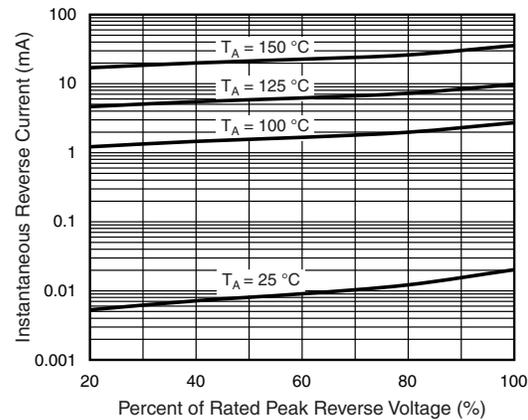


Fig. 4 - Typical Reverse Characteristics Per Diode

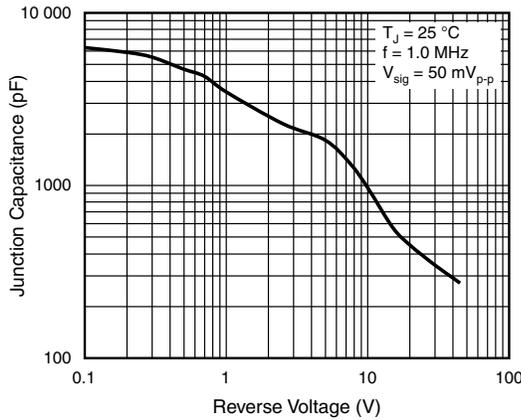


Fig. 5 - Typical Junction Capacitance Per Diode

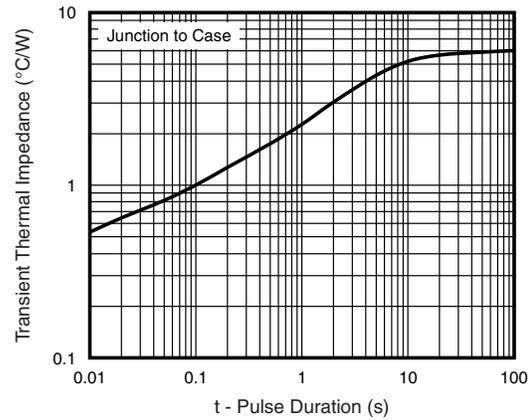
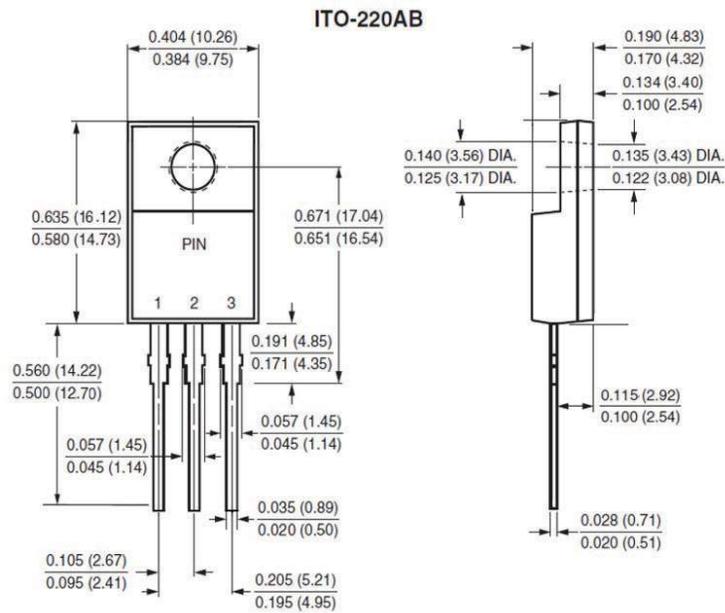


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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