

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.55 \text{ V}$ at $I_F = 5 \text{ A}$



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 10 A			
V_{RRM}	120 V			
I _{FSM}	120 A			
V _F at I _F = 10 A	0.64 V			
T _J max.	150 °C			
Package	ITO-220AB			
Circuit configuration	Common cathode			

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses

· High efficiency operation

RoHS
COMPLIANT
HALOGEN
FREE

- Solder bath temperature 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	VF20M120C	UNIT	
Maximum repetitive peak reverse voltage		V_{RRM}	120	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	20	^	
	per diode		10	— A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	120	А	
Voltage rating of change (rated V _R)		dV/dt	10 000	V/µs	
Isolation voltage from termal 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 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I _F = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.65	-	V	
	I _F = 10 A			0.82	0.91		
	I _F = 5 A	T _A = 125 °C		0.55	-		
	I _F = 10 A			0.64	0.72		
Reverse current per diode	V _R = 90 V	T _A = 25 °C	- I _R ⁽²⁾	3	-	μΑ	
		T _A = 125 °C		1.5	-	mA	
	V _R = 120 V	T _A = 25 °C		-	700	μA	
		T _A = 125 °C		4	25	mA	

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 20 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	VF20M120C	UNIT	
Typical thermal resistance per diode	$R_{\theta JC}$	5.0	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g) PACKAGE CODE BASE QUANT			DELIVERY MODE	
ITO-220AB	VF20M120C-M3/4W	1.75	4W	50/tube	Tube	

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25$ °C unless otherwise noted)

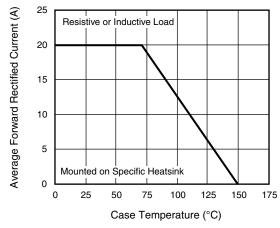


Fig. 1 - Maximum Forward Current Derating Curve

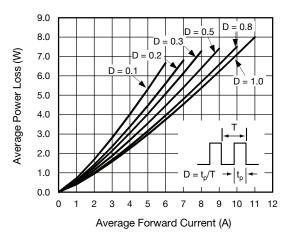


Fig. 2 - Forward Power Loss Characteristics Per Diode



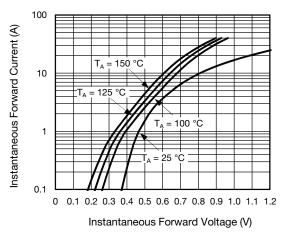


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

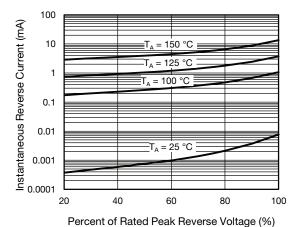


Fig. 4 - Typical Reverse Characteristics Per Diode

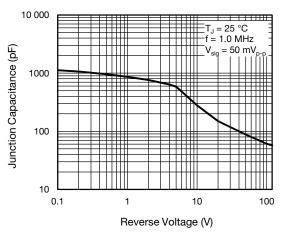


Fig. 5 - Typical Junction Capacitance Per Diode

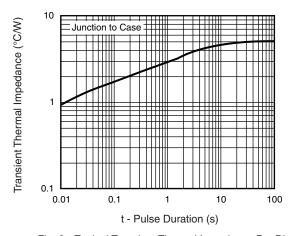
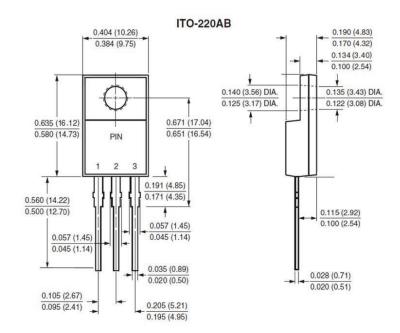


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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