Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.46$ V at $I_F = 5$ A

TMBS® ITO-220AB

PRIMARY CHARACTERISTICS					
I _{F(AV)}	2 x 20 A				
V _{RRM}	120 V				
I _{FSM}	250 A				
V_F at $I_F = 20$ A	0.64 V				
T _J max.	150 °C				
Package	ITO-220AB				
Diode variation	Dual common cathode				

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 <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 ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER		SYMBOL	VF40M120C	UNIT	
Maximum repetitive peak reverse voltage		V _{RRM}	120	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	40		
	per diode		20	А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	250		
Voltage rating of change (rated V _R)		dV/dt	10 000	V/µs	
Isolation voltage from thermal to heatsink t = 1 min		V _{AC}	1500	V	
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +150	°C	

RoHS COMPLIANT HALOGEN





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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)	0.54	-	V	
	I _F = 10 A			0.64	-		
	I _F = 20 A			0.79	0.89		
	$I_F = 5 A$	T _A = 125 °C		0.46	-		
	I _F = 10 A			0.54	-		
	I _F = 20 A			0.64	0.72		
Reverse current per diode	V _R = 90 V	T _A = 25 °C	I _R (2)	4	-	μA	
		T _A = 125 °C		3	-	mA	
	$V_{\rm D} = 120 V$	T _A = 25 °C		-	500	μA	
		T _A = 125 °C		6	32	mA	

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 20 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	VMBOL VF40M120C		
Typical thermal resistance per diode	$R_{ ext{ heta}JC}$	4.0	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
ITO-220AB	VF40M120C-M3/4W	1.76	4W	50/tube	Tube	

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

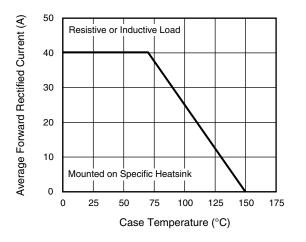


Fig. 1 - Maximum Forward Current Derating Curve

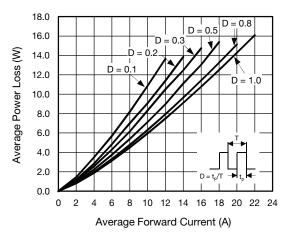


Fig. 2 - Forward Power Loss Characteristics Per Diode

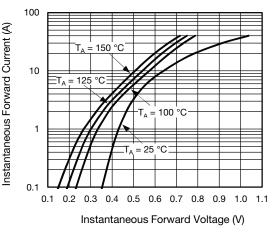
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Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

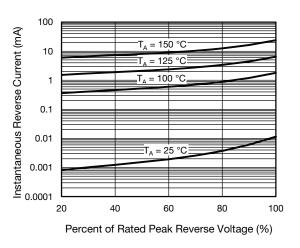
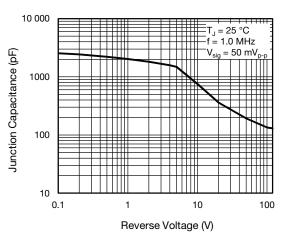
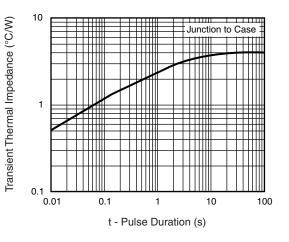
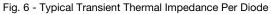


Fig. 4 - Typical Reverse Characteristics Per Diode



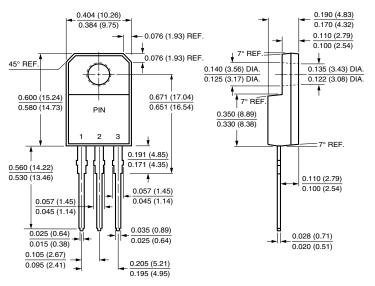






PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

ITO-220AB



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