

Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.42 \text{ V}$ at $I_F = 5 \text{ A}$

TMBS® ITO-220AB VF40100G PIN1 O PIN2

PRIMARY CHARACTERISTICS			
I _{F(AV)}	2 x 20 A		
V_{RRM}	100 V		
I _{FSM}	200 A		
V_F at $I_F = 20 A$	0.67 V		
T_J max.	150 °C		
Package	ITO-220AB		
Circuit configuration	Single		

FEATURES

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

• High efficiency operation

• Low thermal resistance

ROHS
COMPLIANT
HALOGEN
FREE

- Solder dip 275 °C maximum, 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 converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters 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	VF40100G	UNIT	
Maximum repetitive peak reverse voltage		V_{RRM}	100	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	40	Α	
	per diode		20		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	200	А	
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs	
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	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	I _R = 1 mA	T _A = 25 °C	V_{BR}	100 min.	-		
Instantaneous forward voltage per diode ⁽¹⁾	I _F = 5 A	T _A = 25 °C	V _F	0.49	-	V	
	I _F = 10 A			0.59	-		
	I _F = 20 A			0.75	0.81		
	I _F = 5 A	T _A = 125 °C		0.42	-		
	I _F = 10 A			0.54	-		
	I _F = 20 A			0.67	0.73		
Rverse current per diode (2)	V _R = 70 V	T _A = 25 °C	I _R	12	-	μA	
		T _A = 125 °C		8	-	mA	
	V _R = 100 V	T _A = 25 °C		55	500	μΑ	
	v _R = 100 v	T _A = 125 °C		21	35	mA	

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	VF40100G	UNIT	
Typical thermal resistance per diode	$R_{ heta JC}$	5.0	°C/W	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	VF40100G-M3/4W	1.75	4W	50/tube	Tube

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

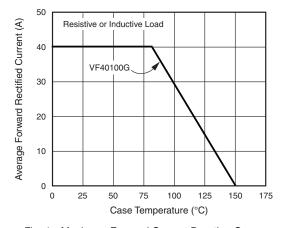


Fig. 1 - Maximum Forward Current Derating Curve

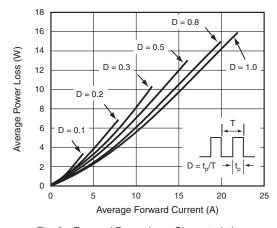


Fig. 2 - Forward Power Loss Characteristics



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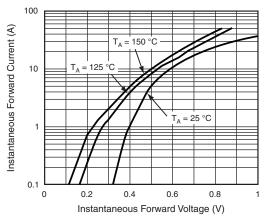
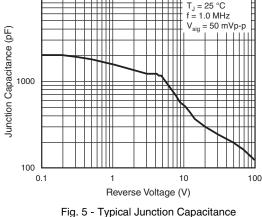


Fig. 3 - Typical Instantaneous Forward Characteristics



10 000

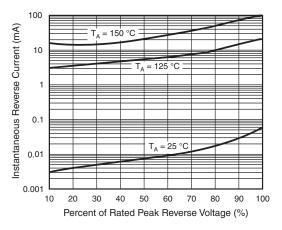


Fig. 4 - Typical Reverse Characteristics

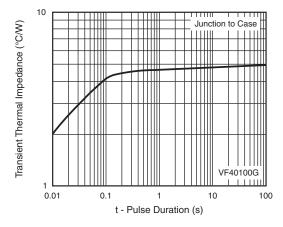
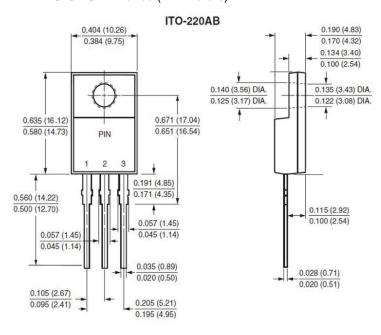


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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