VF10150S

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Vishay General Semiconductor

High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.59$ V at $I_F = 5$ A



PRIMARY CHARACTERISTICS			
I _{F(AV)}	10 A		
V _{RRM}	150 V		
I _{FSM}	120 A		
V_F at I_F = 10 A	0.69 V		
T _J max.	150 °C		
Package	ITO-220AB		
Diode variation	Single		

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 ($T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	VF10150S	UNIT	
Maximum repetitive peak reverse voltage	V _{RRM}	150	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	10	А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	120	А	
Voltage rate 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}	-55 to +150	°C	



ROHS COMPLIANT

HALOGEN

FREE

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT	
Instantaneous forward voltage	I _F = 5 A	T _A = 25 °C		0.79	-	V	
	I _F = 10 A	$I_A = 25 C$	V _F ⁽¹⁾	1.05	1.20		
	I _F = 5 A	T _A = 125 °C		0.59	-		
	I _F = 10 A			0.69	0.75		
Reverse current	V _B = 100 V	T _A = 25 °C	I _R (2)	1.3	-	μA	
	V _R = 100 V	T _A = 125 °C		1.2	-	mA	
	V _B = 150 V	T _A = 25 °C		-	150	μA	
	v _R = 150 v	T _A = 125 °C		3	15	mA	

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	ER SYMBOL VF10150S			
Typical thermal resistance	$R_{ ext{ heta}JC}$	4.0	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
ITO-220AB	VF10150S-M3/4W	1.75	4W	50/tube	Tube	

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

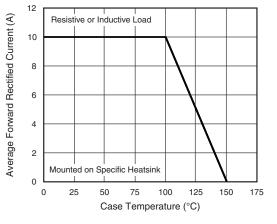


Fig. 1 - Maximum Forward Current Derating Curve

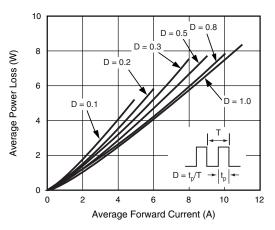


Fig. 2 - Forward Power Dissipation Characteristics

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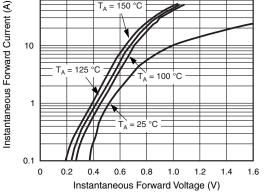
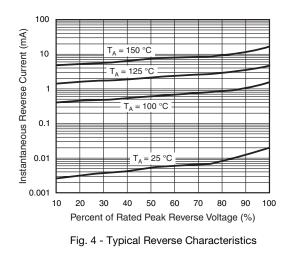
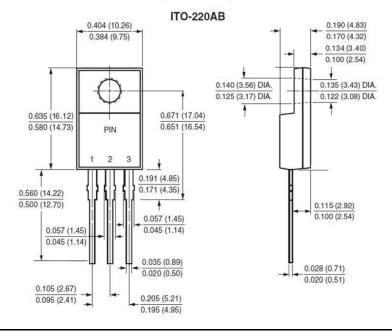


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Tarsient Junction to Case Junction to Ca

Fig. 5 - Typical Transient Thermal Impedance

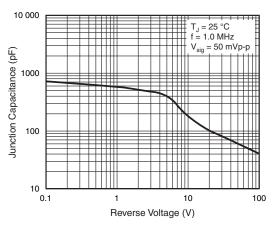


Fig. 6 - Typical Junction Capacitance

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