HALOGEN

FREE



Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.63 \text{ V}$ at $I_F = 3 \text{ A}$





VF10150C

PRIMARY CHARACTERISTICS			
I _{F(AV)}	2 x 5.0 A		
V _{RRM} 150 V			
I _{FSM}	60 A		
V _F at I _F = 5.0 A	0.69 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
- 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	VF10150C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	150	V
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	10	^
	per diode		5.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	60	А
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}	-55 to +150	°C



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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 = 3 A	T _A = 25 °C	V _F ⁽¹⁾	0.82	-	V	
	I _F = 5 A			0.99	1.41		
	I _F = 3 A	T _A = 125 °C		0.63	-		
	I _F = 5 A			0.69	0.75		
Reverse current per diode	V _R = 100 V	T _A = 25 °C	I _R ⁽²⁾	0.5	-	μΑ	
		T _A = 125 °C		0.5	-	mA	
	V _R = 150 V	T _A = 25 °C		-	100	μA	
		T _A = 125 °C		1.0	10	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	VF10150C	UNIT	
Typical thermal resistance per diode	$R_{\theta JC}$	6.5	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g) PACKAGE CODE BASE QUANTITY			DELIVERY MODE	
ITO-220AB	VF10150C-M3/4W	1.74	4W	50/tube	Tube	

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

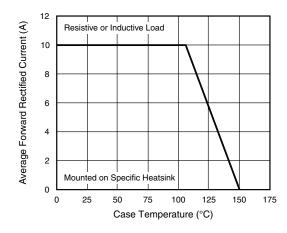


Fig. 1 - Maximum Forward Current Derating Curve

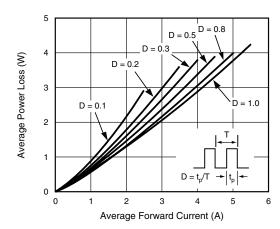


Fig. 2 - Forward Power Loss Characteristics Per Diode



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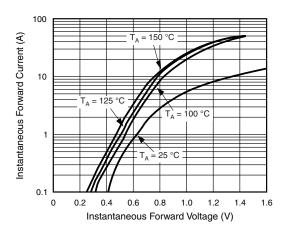


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

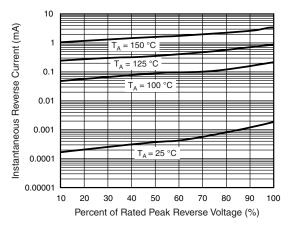


Fig. 4 - Typical Reverse Characteristics Per Diode

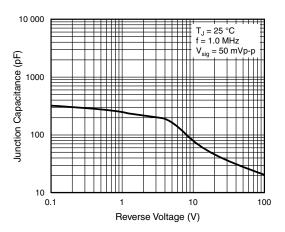


Fig. 5 - Typical Junction Capacitance Per Diode

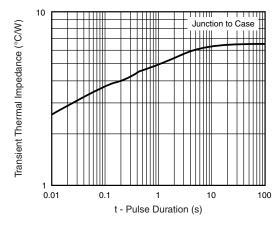
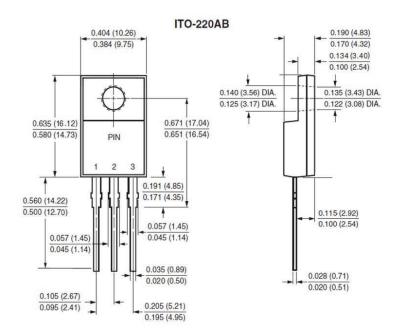


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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