HALOGEN

FREE



Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.38 \text{ V}$ at $I_F = 5 \text{ A}$



PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 20 A			
V_{RRM}	100 V			
I _{FSM}	250 A			
V_F at $I_F = 20 A$	0.61 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
- Low thermal resistance
- Solder dip 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 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-E3 - RoHS-compliant, commercial grade 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	VF40100C	UNIT		
Maximum repetitive peak reverse voltage		V_{RRM}	100	V		
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	40 20	Α		
	per diode					
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	250	Α		
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 temperature range		TJ	-40 to +150	°C		
Storage temperature range		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	$I_F = 5 A$	T _A = 25 °C		0.47	-		
	I _F = 10 A			0.54	-		
	I _F = 20 A	= 20 A		0.67	0.73	v	
	$I_F = 5 A$	T _A = 125 °C	V _F ⁽¹⁾	0.38	-	V	
	I _F = 10 A			0.45	-		
	$I_F = 20 \text{ A}$			0.61	0.67		
Reverse current at rated V _R per diode	V _R = 70 V	T _A = 25 °C	I _R ⁽²⁾	9	-	μΑ	
		T _A = 125 °C		10	-	mA	
	V _R = 100 V	T _A = 25 °C		=	1000	μΑ	
		T _A = 125 °C		21	45	mA	

Notes

⁽²⁾ Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	VF40100C	UNIT	
Typical thermal resistance per diode	$R_{ heta JC}$	4.0	°C/W	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
ITO-220AB	VF40100C-M3/4W	1.75	4W	50/tube	Tube	
ITO-220AB	VF40100C-E3/4W	1.75	4W	50/tube	Tube	

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

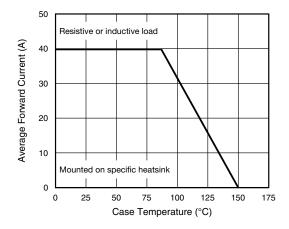


Fig. 1 - Forward Current Derating Curve

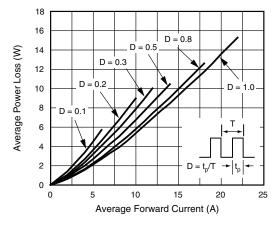


Fig. 2 - Forward Power Loss Characteristics Per Diode

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



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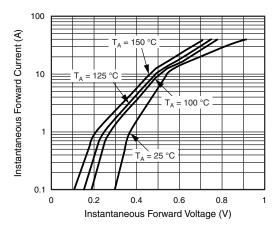


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

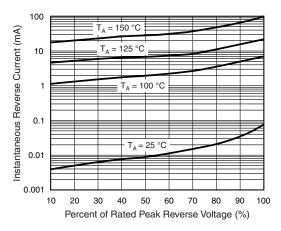


Fig. 4 - Typical Reverse Characteristics Per Diode

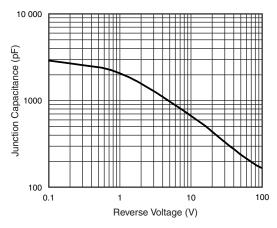


Fig. 5 - Typical Junction Capacitance Per Diode

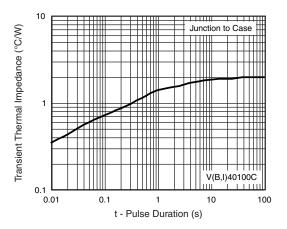


Fig. 6 - Typical Transient Thermal Impedance Per Diode

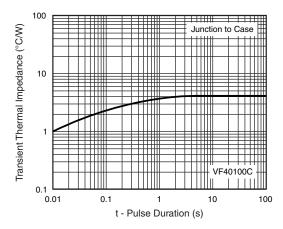
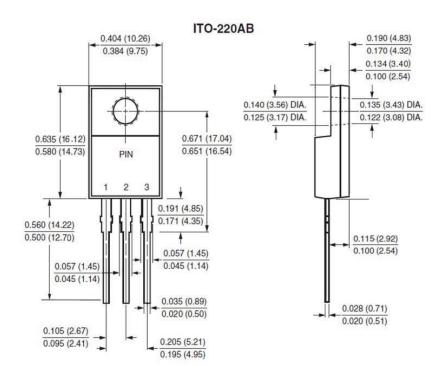


Fig. 7 - Typical Transient Thermal Impedance Per Diode

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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