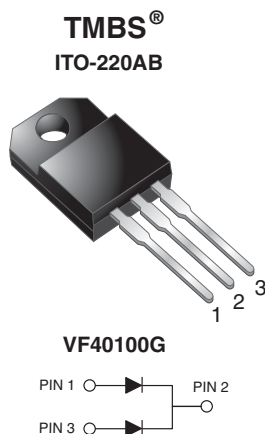


# Dual High-Voltage Trench MOS Barrier Schottky Rectifier

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



## FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Solder dip 275 °C maximum, 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## 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

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

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VF40100G	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	40	A
per device per diode		20	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	200	A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000	V/ $\mu$ s
Isolation voltage from terminal to heatsink $t = 1\text{ min}$	$V_{AC}$	1500	V
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150	°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	100 min.	-	V
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.49	-	
	I <sub>F</sub> = 10 A			0.59	-	
	I <sub>F</sub> = 20 A			0.75	0.81	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.42	-	
	I <sub>F</sub> = 10 A			0.54	-	
	I <sub>F</sub> = 20 A			0.67	0.73	
Rverse current per diode <sup>(2)</sup>	V <sub>R</sub> = 70 V	T <sub>A</sub> = 25 °C	I <sub>R</sub>	12	-	μA
		T <sub>A</sub> = 125 °C		8	-	mA
	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C		55	500	μA
		T <sub>A</sub> = 125 °C		21	35	mA

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VF40100G	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	5.0	$^{\circ}\text{C/W}$

<b>ORDERING INFORMATION</b> (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

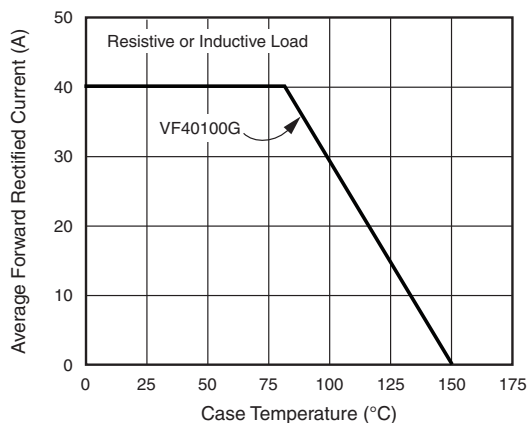
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

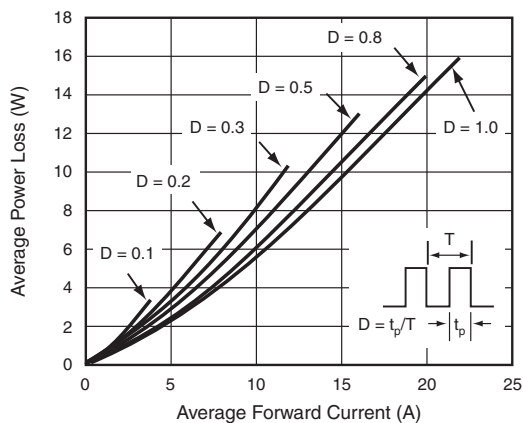


Fig. 2 - Forward Power Loss Characteristics

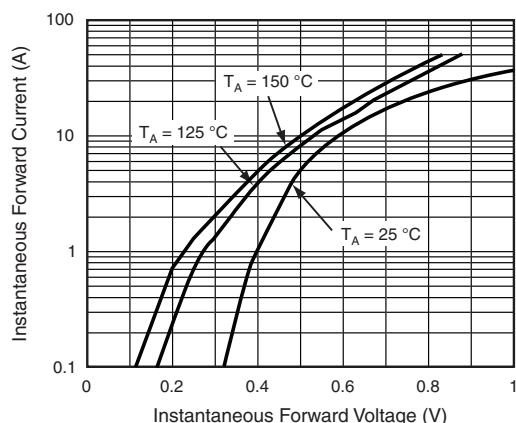


Fig. 3 - Typical Instantaneous Forward Characteristics

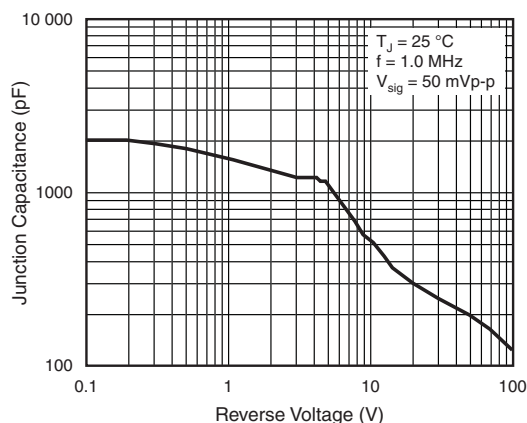


Fig. 5 - Typical Junction Capacitance

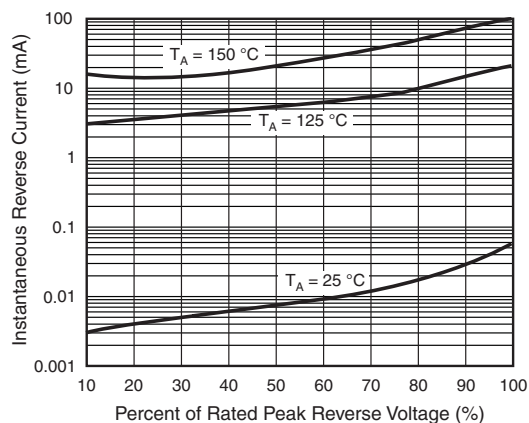


Fig. 4 - Typical Reverse Characteristics

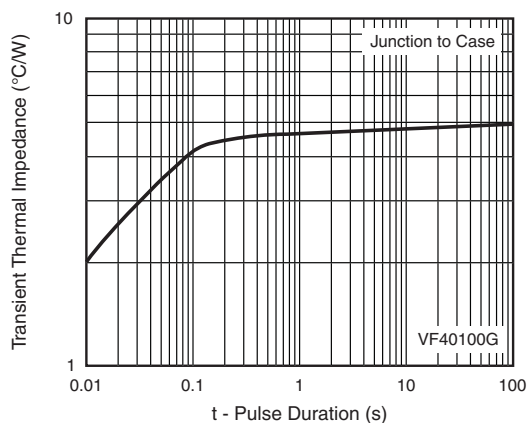
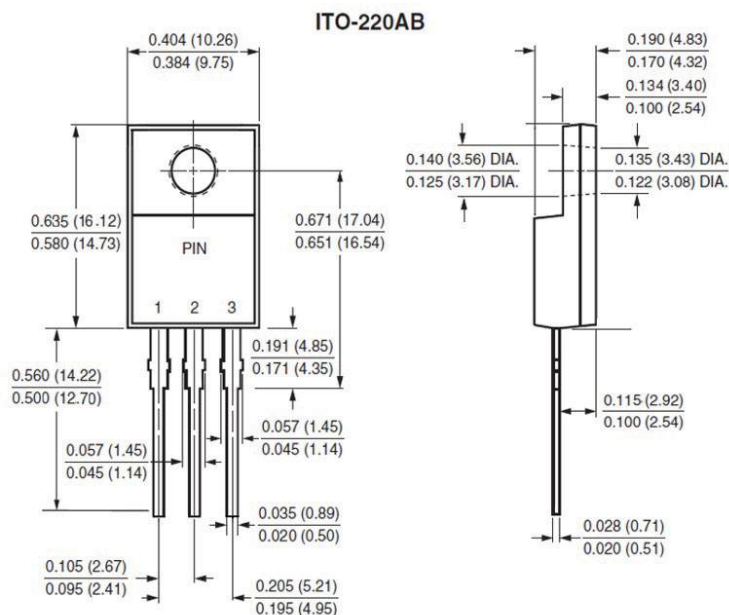


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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