

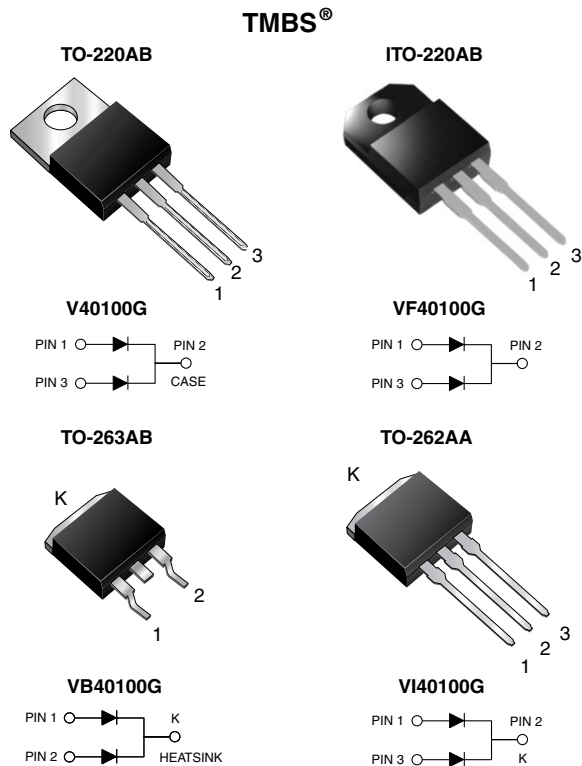


New Product
V40100G, VF40100G, VB40100G & VI40100G

Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

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



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB, ITO-220AB and TO-262AA package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high frequency inverters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-dc converters and reverse battery protection.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB and TO-262AA

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for commercial grade, 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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	V40100G	VF40100G	VB40100G	VI40100G	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100				V
Maximum average forward rectified current (Fig. 1) per device per diode	$I_{F(AV)}$	40 20				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	200				A
Isolation voltage (ITO-220AB only) From terminal to heatsink $t = 1\text{ min}$	V_{AC}	1500				V
Operating junction and storage temperature	T_J, T_{STG}	- 40 to + 150				°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown Voltage	at $I_R = 1.0$	$T_A = 25\text{ }^\circ\text{C}$	V_{BR}	100 (minimum)	-	
Instantaneous forward voltage per diode ⁽¹⁾	at $I_F = 5\text{ A}$ $I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F	0.49 0.59 0.75	- - 0.81	V
		$T_A = 125\text{ }^\circ\text{C}$		0.42 0.54 0.67	- - 0.73	
Reverse current per diode ⁽²⁾	at $V_R = 70\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	I_R	12	-	μA
		$T_A = 125\text{ }^\circ\text{C}$		8	-	mA
	at $V_R = 100\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$		55	500	μA
		$T_A = 125\text{ }^\circ\text{C}$		21	35	mA

Notes:

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: 10 ms pulse width

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	V40100G	VF40100G	VB40100G	VI40100G	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	5.0	2.0	2.0	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V40100G-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VF40100G-E3/4W	1.75	4W	50/tube	Tube
TO-263AB	VB40100G-E3/4W	1.39	4W	50/tube	Tube
TO-263AB	VB40100G-E3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VI40100G-E3/4W	1.46	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

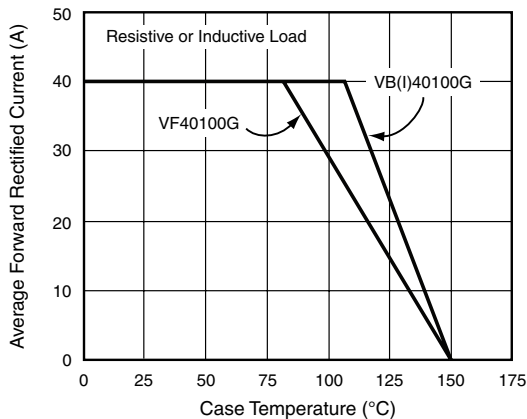


Figure 1. Maximum Forward Current Derating Curve

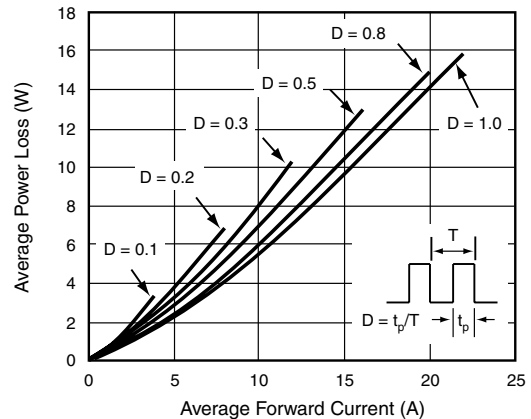


Figure 2. Forward Power Loss Characteristics



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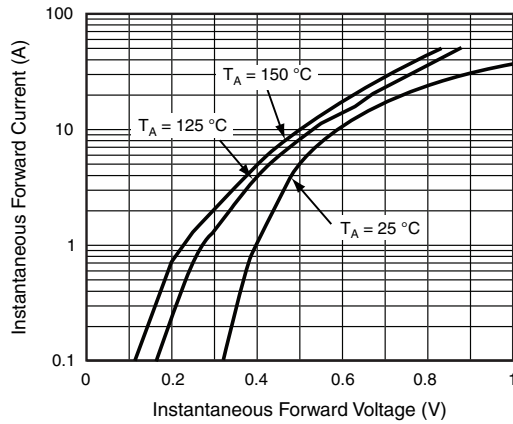


Figure 3. Typical Instantaneous Forward Characteristics

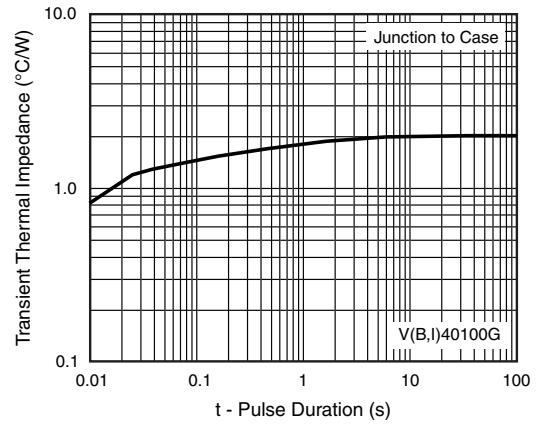


Figure 6. Typical Transient Thermal Impedance

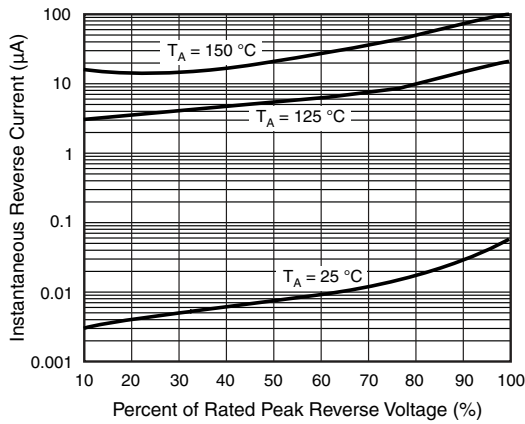


Figure 4. Typical Reverse Characteristics

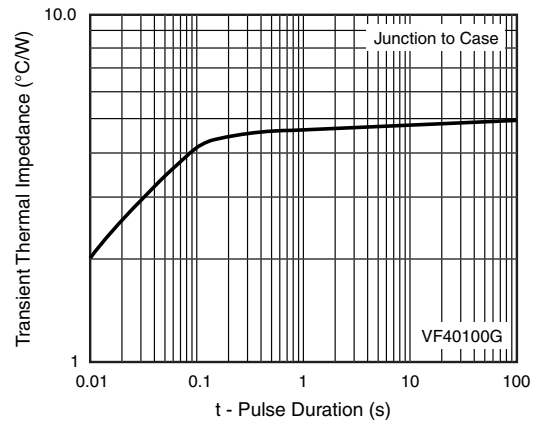


Figure 7. Typical Transient Thermal Impedance

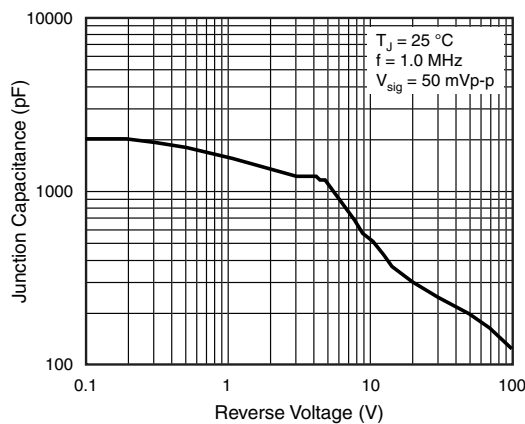


Figure 5. Typical Junction Capacitance

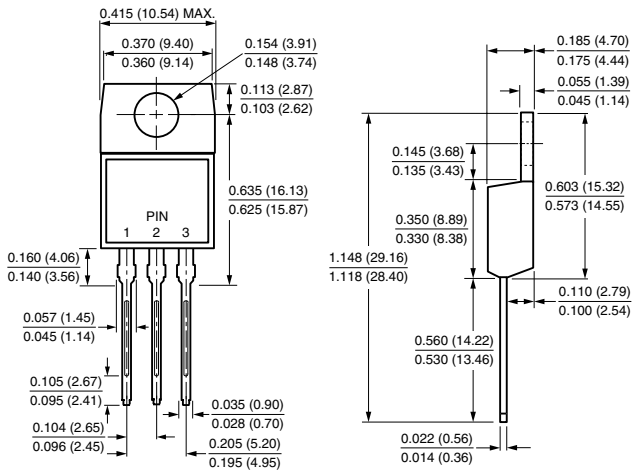
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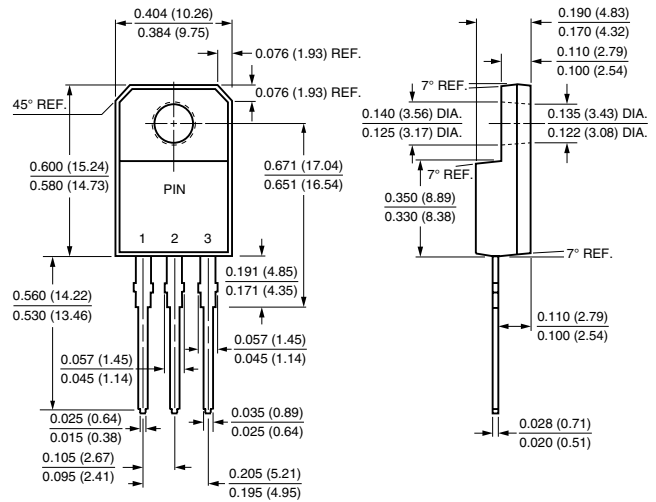
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

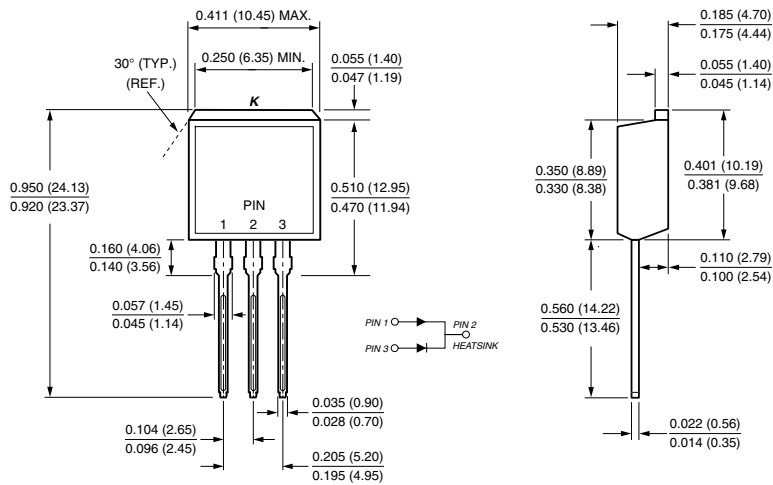
TO-220AB



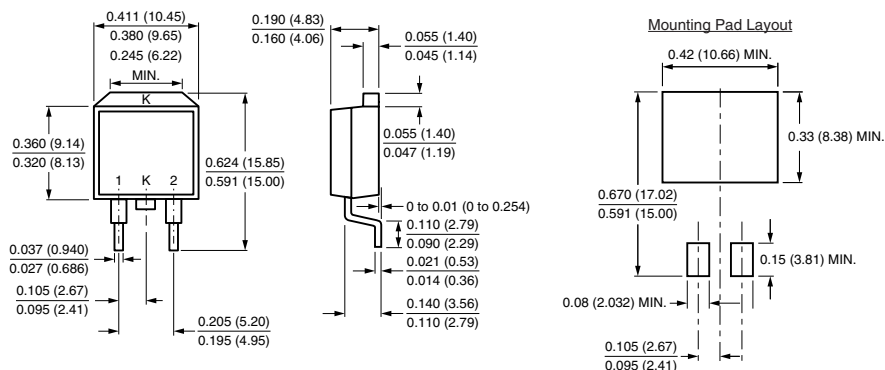
ITO-220AB



TO-262AA



TO-263AB





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