New Product

V30100S, VF30100S, VB30100S & VI30100S

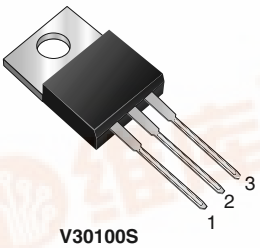
Vishay General Semiconductor

High-Voltage Trench MOS Barrier Schottky Rectifier

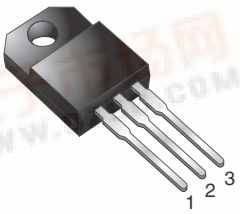
Ultra Low V_F = 0.39 V at I_F = 5 A

TMBS®

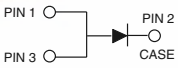
TO-220AB



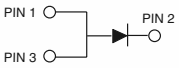
ITO-220AB



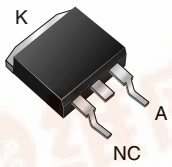
V30100S



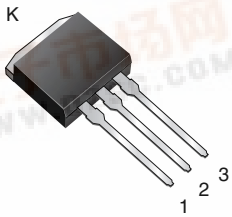
VF30100S



TO-263AB

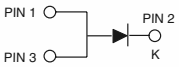


TO-262AA



VB30100S

VI30100S



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A
V_{RRM}	100 V
I_{FSM}	250 A
V_F at I_F = 30 A	0.69 V
T_J max.	150 °C

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

Pb

e3

RoHS COMPLIANT

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 consumer grade, 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	V30100S	VF30100S	VB30100S	VI30100S	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100				V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	30				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	250				A
Isolation voltage (ITO-220AB only) From terminal to heatsink t = 1 min	V_{AC}	1500				V
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 150				°C

V30100S, VF30100S, VB30100S & VI30100S

Vishay General Semiconductor

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Breakdown voltage	I_R = 10 mA	T_A = 25 °C	V_{BR}	105 (minimum)	-	V
Instantaneous forward voltage (1)	I_F = 5 A I_F = 10 A I_F = 30 A	T_A = 25 °C	V_F	0.47 0.55 0.80	- - 0.91	V
	I_F = 5 A I_F = 10 A I_F = 30 A	T_A = 125 °C		0.39 0.49 0.69	- - 0.78	
Reverse current (2)	V_R = 70 V	T_A = 25 °C T_A = 125 °C	I_R	27 11	- -	µA mA
	V_R = 100 V	T_A = 25 °C T_A = 125 °C		70 23	1000 45	µA 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**	**V30100S**	**VF30100S**	**VB30100S**	**VI30100S**	**UNIT**
Typical thermal resistance	$R_{\theta JC}$	2.0	4.0	2.0	2.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AB	V30100S-E3/45	1.875	45	50/tube	Tube
ITO-220AB	VF30100S-E3/45	1.805	45	50/tube	Tube
TO-263AB	VB30100S-E3/4W	1.380	4W	50/tube	Tube
TO-263AB	VB30100S-E3/8W	1.380	8W	800/reel	Tape and reel
TO-262AA	VI30100S-E3/4W	1.455	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

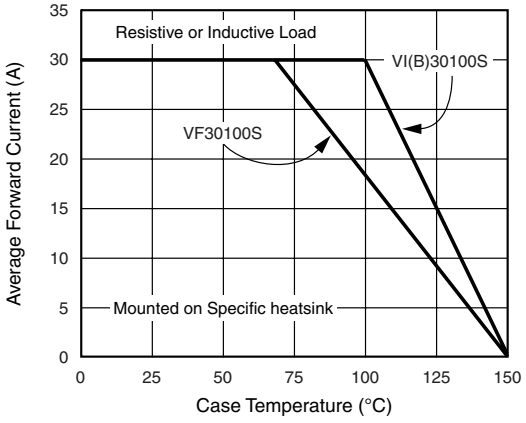


Figure 1. Forward Current Derating Curve

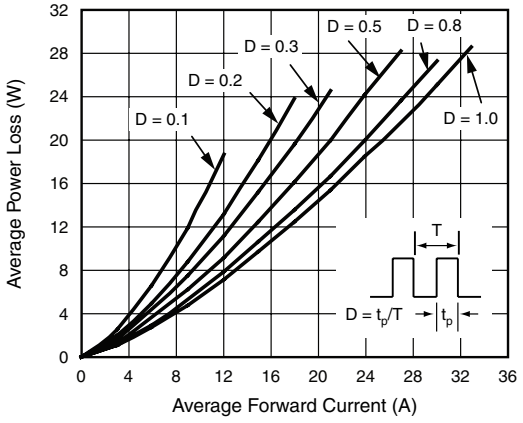


Figure 2. Forward Power Loss Characteristics

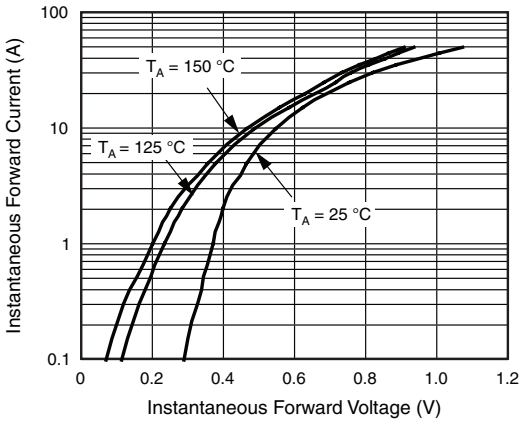


Figure 3. Typical Instantaneous Forward Characteristics

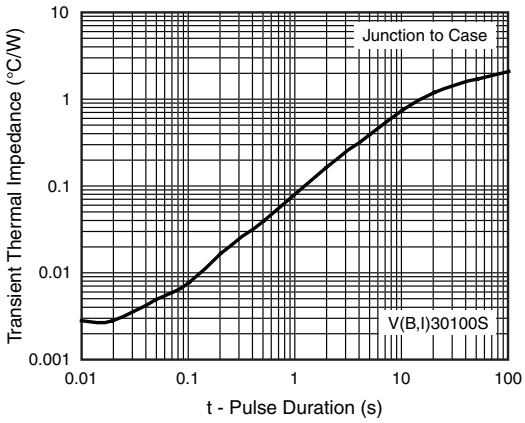


Figure 6. Typical Transient Thermal Impedance

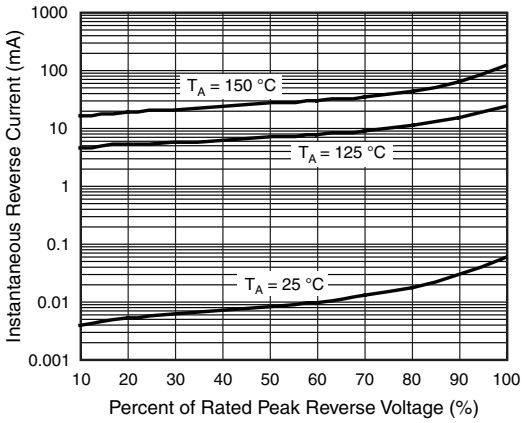


Figure 4. Typical Reverse Characteristics

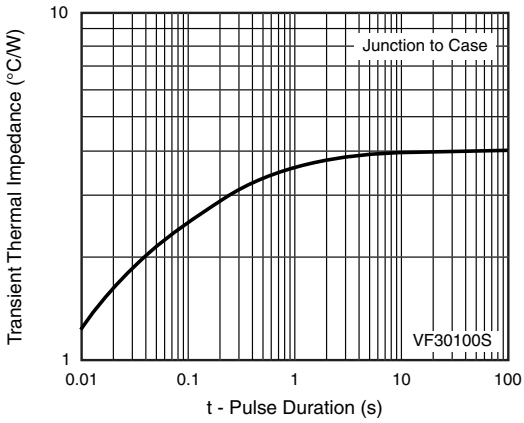


Figure 7. Typical Transient Thermal Impedance

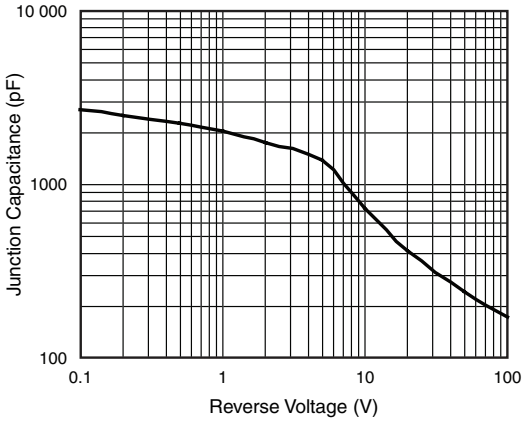
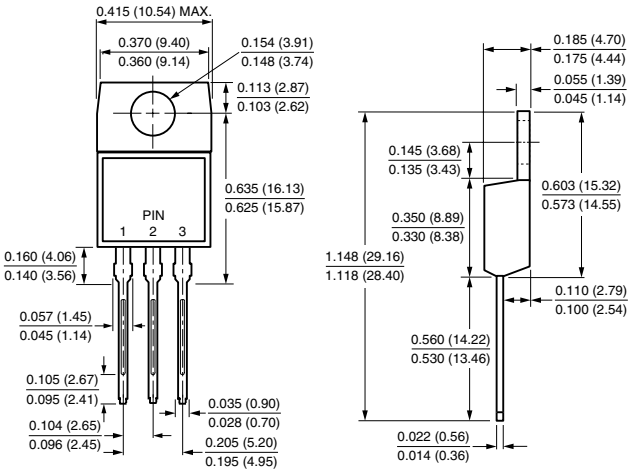


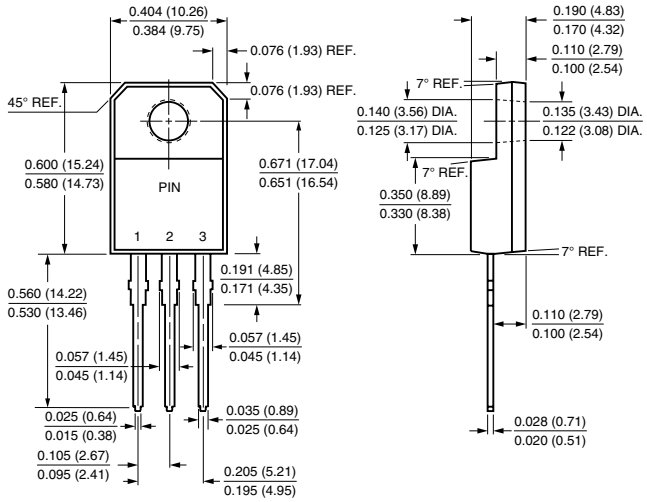
Figure 5. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

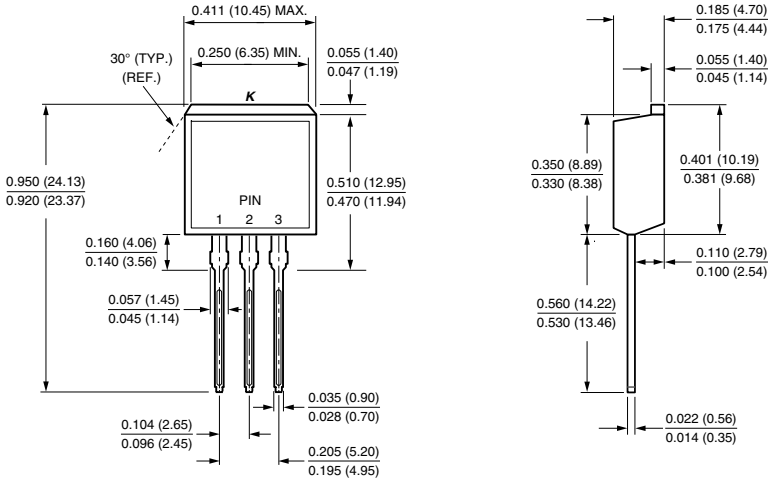
TO-220AB



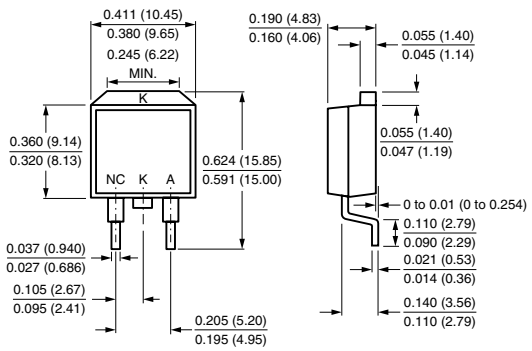
ITO-220AB



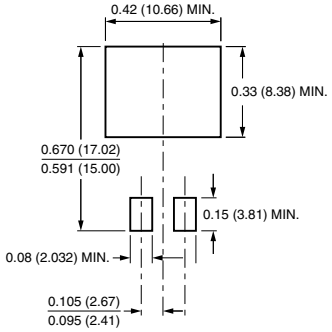
TO-262AA



TO-263AB



Mounting Pad Layout



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.