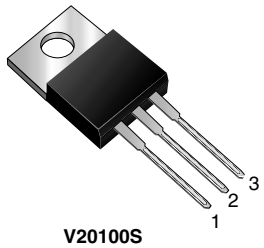
High-Voltage Trench MOS Barrier Schottky Rectifier

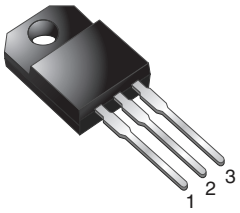
Ultra Low V_F = 0.446 V at I_F = 5 A

TMBS®

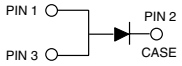
TO-220AB



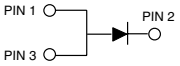
ITO-220AB



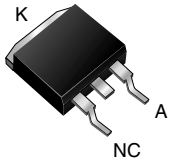
V20100S



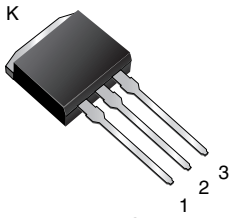
VF20100S



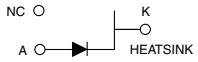
TO-263AB



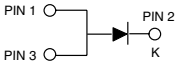
TO-262AA



VB20100S



VI20100S



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	20 A
V_{RRM}	100 V
I_{FSM}	250 A
V_F at I_F = 20 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

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**	**V20100S**	**VF20100S**	**VB20100S**	**VI20100S**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	100				V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	20				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

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 = 20 A	T_A = 25 °C	V_F	0.51 0.60 0.79	- - 0.90	V
	I_F = 5 A I_F = 10 A I_F = 20 A	T_A = 125 °C		0.45 0.53 0.69	- - 0.76	
Reverse current (2)	V_R = 70 V	T_A = 25 °C T_A = 125 °C	I_R	17 7	- -	µA mA
	V_R = 100 V	T_A = 25 °C T_A = 125 °C		70 14	500 30	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**	**V20100S**	**VF20100S**	**VB20100S**	**VI20100S**	**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	V20100S-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VF20100S-E3/4W	1.75	4W	50/tube	Tube
TO-263AB	VB20100S-E3/4W	1.37	4W	50/tube	Tube
TO-263AB	VB20100S-E3/8W	1.37	8W	800/reel	Tape and reel
TO-262AA	VI20100S-E3/4W	1.45	4W	50/tube	Tube

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

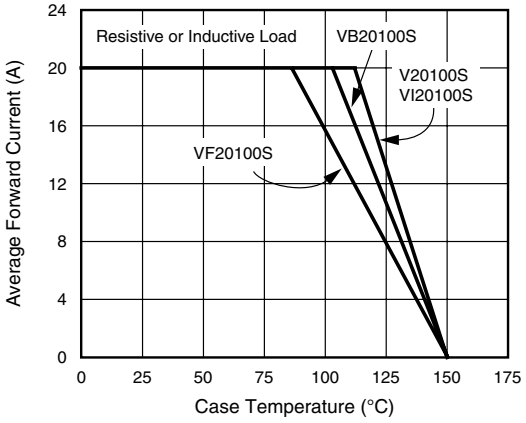


Figure 1. Maximum Forward Current Derating Curve

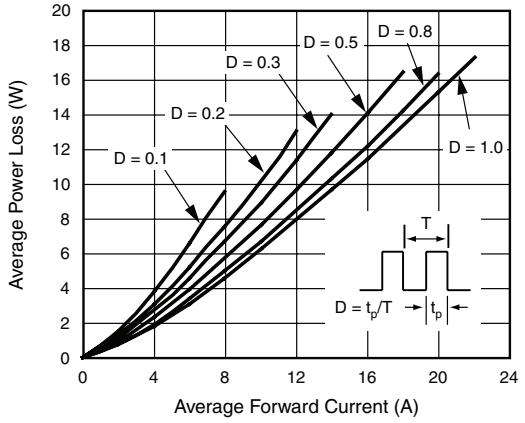


Figure 2. Forward Power Loss Characteristics

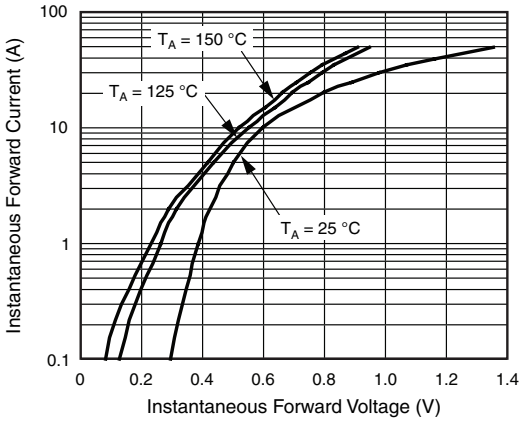


Figure 3. Typical Instantaneous Forward Characteristics

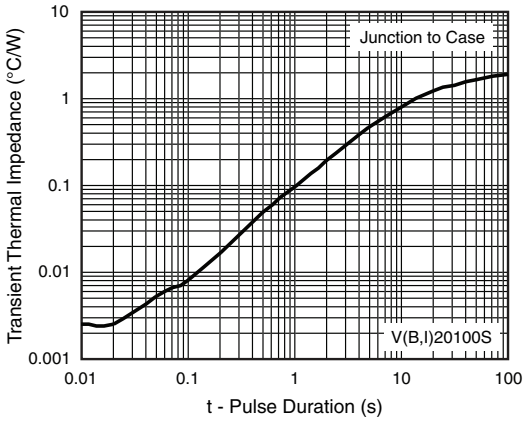


Figure 6. Typical Transient Thermal Impedance

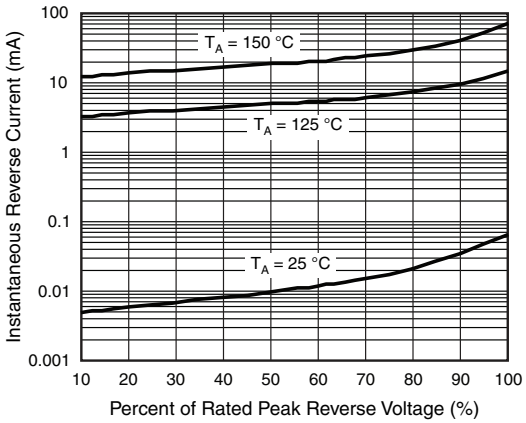


Figure 4. Typical Reverse Characteristics

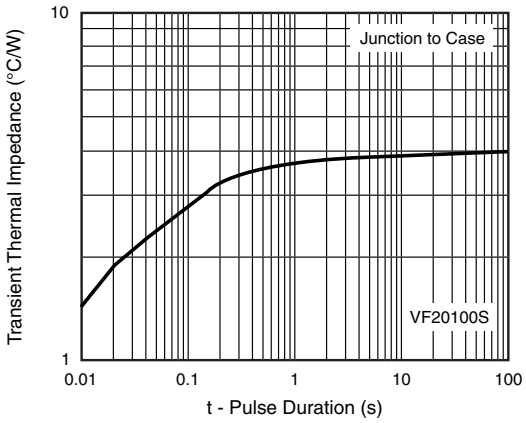


Figure 7. Typical Transient Thermal Impedance

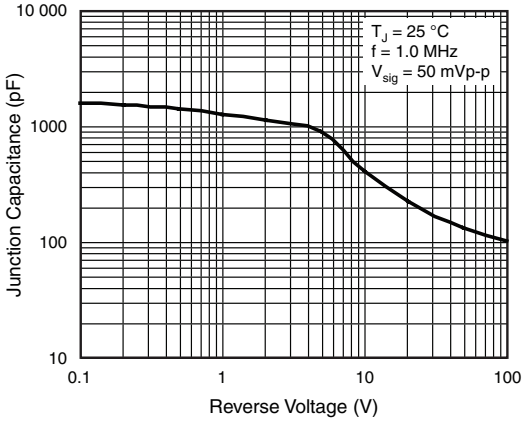
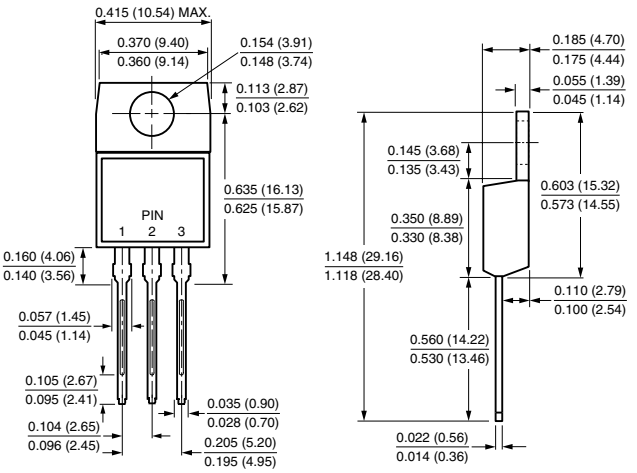


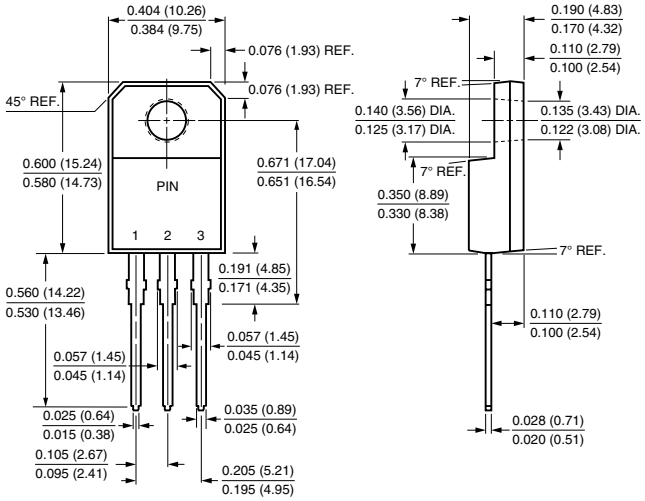
Figure 5. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

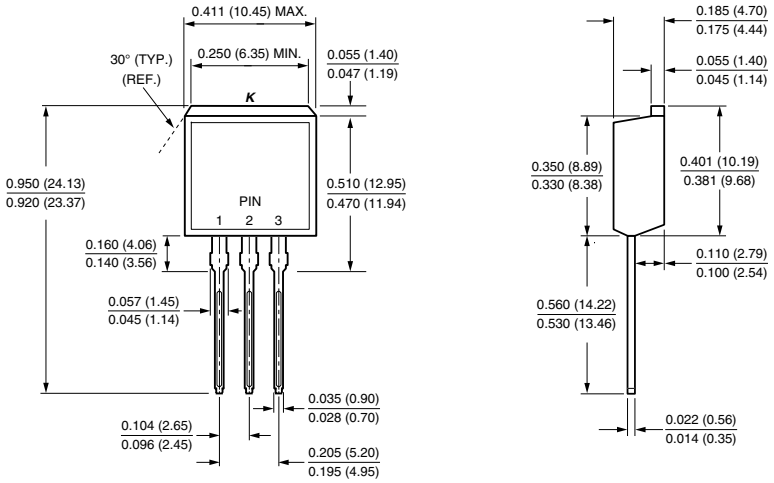
TO-220AB



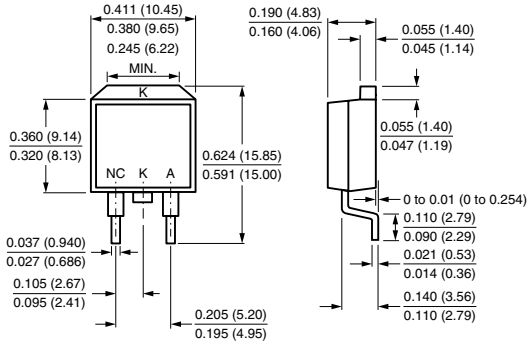
ITO-220AB



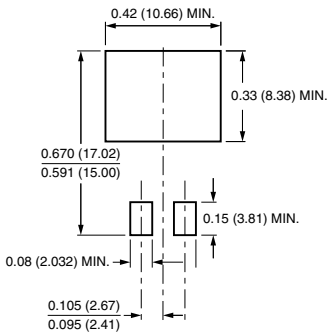
TO-262AA



TO-263AB



Mounting Pad Layout



For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

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