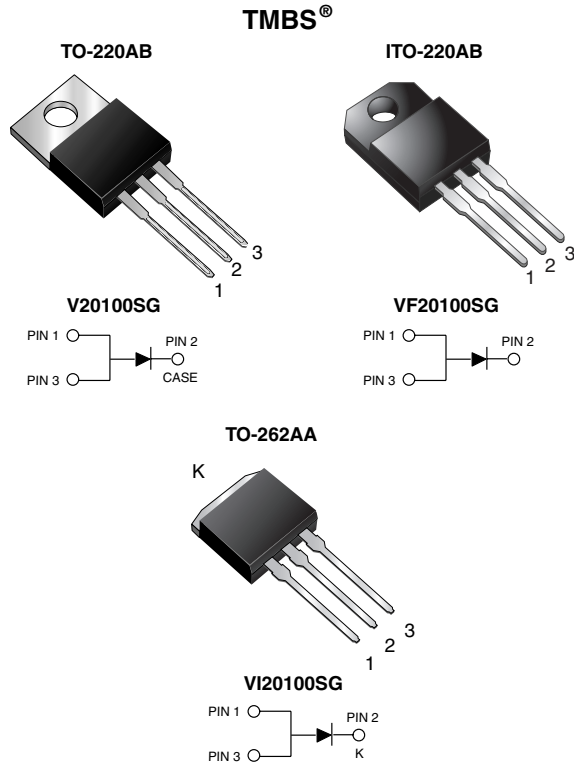


High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.50\text{ V}$ 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 260 °C, 40 s
- 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 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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	20 A
V_{RRM}	100 V
I_{FSM}	150 A
V_F at $I_F = 20\text{ A}$	0.75 V
T_J max.	150 °C

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

PARAMETER	SYMBOL	V20100SG	VF20100SG	VI20100SG	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 10 ms single half sine-wave superimposed on rated load	I_{FSM}	150			A
Isolation voltage (ITO-220AB only) 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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 10\text{ mA}$	$T_A = 25\text{ }^\circ\text{C}$	V_{BR}	105 (minimum)	-	
Instantaneous forward voltage ⁽¹⁾	$I_F = 5\text{ A}$ $I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F	0.55 0.66 0.91	- - 1.07	V
	$I_F = 5\text{ A}$ $I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.50 0.59 0.75	- - 0.82	
Reverse current ⁽²⁾	$V_R = 70\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	I_R	15 6	- -	μA mA
	$V_R = 100\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$		60 13	350 25	μA mA

Notes:

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V20100SG	VF20100SG	VI20100SG	UNIT
Typical thermal resistance	$R_{\theta JC}$	2.2	4.0	2.2	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V20100SG-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VF20100SG-E3/4W	1.74	4W	50/tube	Tube
TO-262AA	VI20100SG-E3/4W	1.45	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

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

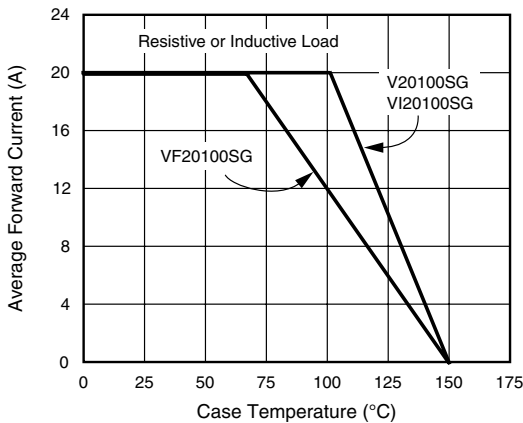


Figure 1. Maximum Forward Current Derating Curve

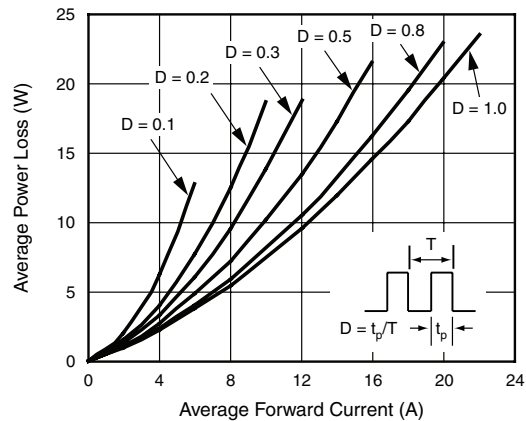


Figure 2. Forward Power Loss Characteristics

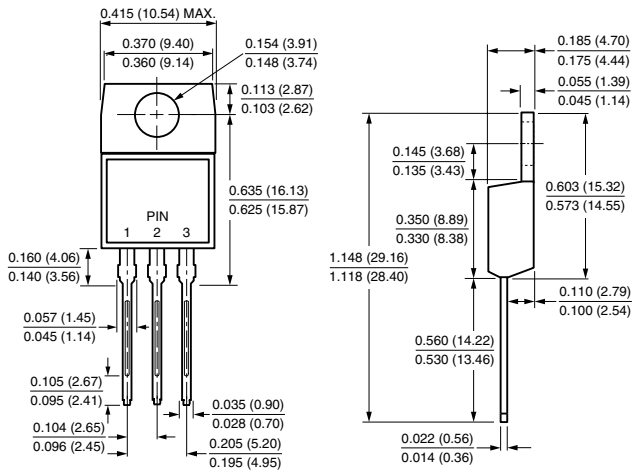
New Product V20100SG, VF20100SG & VI20100SG



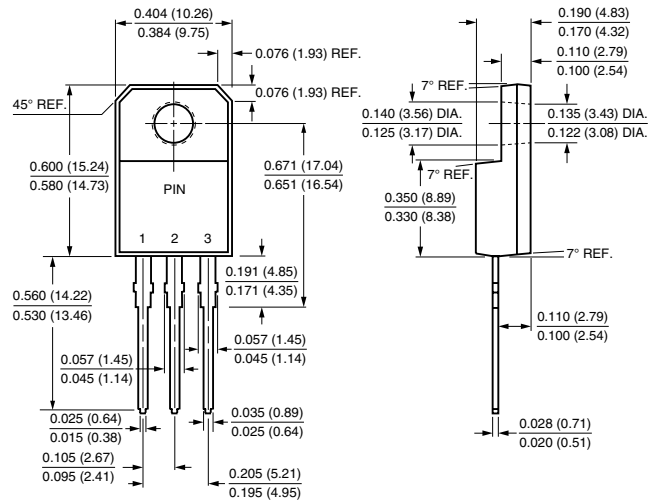
Vishay General Semiconductor

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



ITO-220AB



TO-262AA

