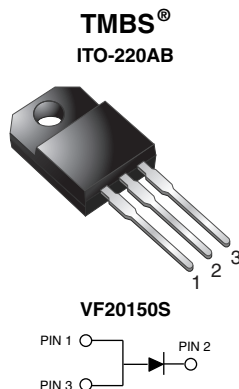




High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.59\text{ V}$ at $I_F = 5\text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	20 A
V_{RRM}	150 V
I_{FSM}	160 A
V_F at $I_F = 20\text{ A}$	0.75 V
T_J max.	150 °C

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

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

PARAMETER	SYMBOL	VF20150S	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	150	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}	160	A
Voltage rate of change (rated V_R)	dV/dt	10 000	V/ μ 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}	- 55 to + 150	°C

VF20150S

Vishay General Semiconductor

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

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 5\text{ A}$	$V_F^{(1)}$	0.69	-	V
	$I_F = 10\text{ A}$		0.84	-	
	$I_F = 20\text{ A}$		1.15	1.43	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^{\circ}\text{C}$	0.55	-	
	$I_F = 10\text{ A}$		0.64	-	
	$I_F = 20\text{ A}$		0.75	0.82	
Reverse current	$V_R = 100\text{ V}$	$T_A = 25\text{ }^{\circ}\text{C}$	2.0	-	μA
		$T_A = 125\text{ }^{\circ}\text{C}$	2.5	-	mA
	$V_R = 150\text{ V}$	$T_A = 25\text{ }^{\circ}\text{C}$	-	250	μA
		$T_A = 125\text{ }^{\circ}\text{C}$	5	25	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	VF20150S	UNIT
Typical thermal resistance	$R_{\theta JC}$	4.0	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	VF20150S-M3/4W	1.75	4W	50/tube	Tube

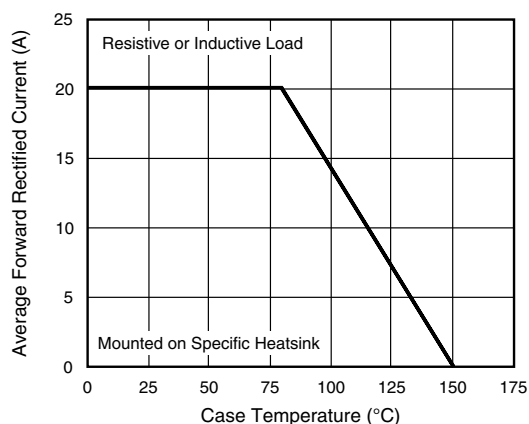
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

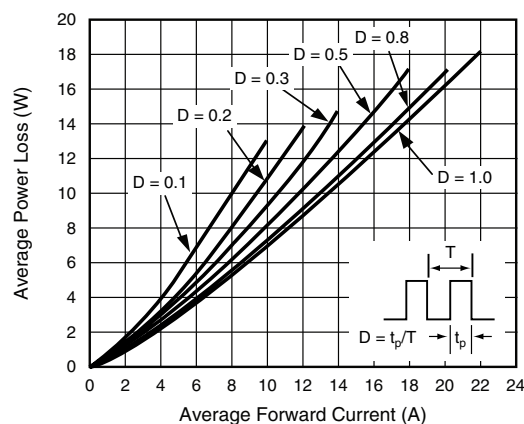


Fig. 2 - Forward Power Dissipation Characteristics

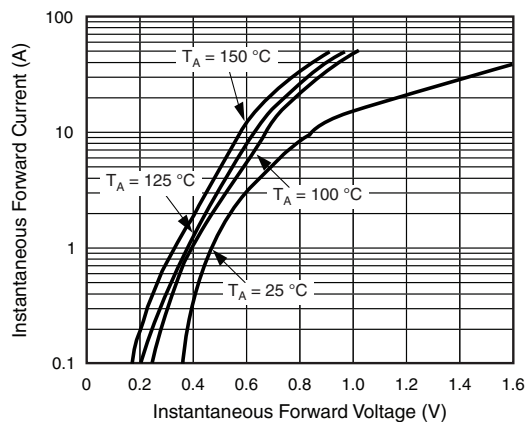


Fig. 3 - Typical Instantaneous Forward Characteristics

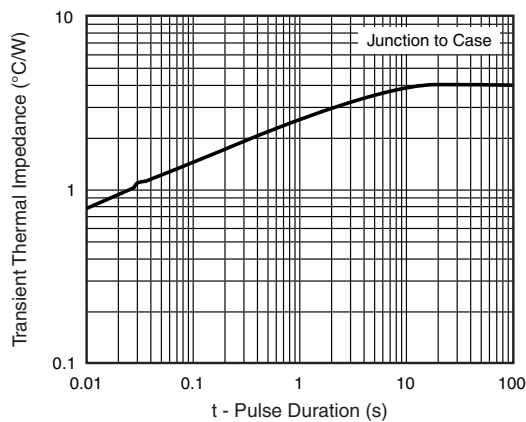


Fig. 5 - Typical Transient Thermal Impedance

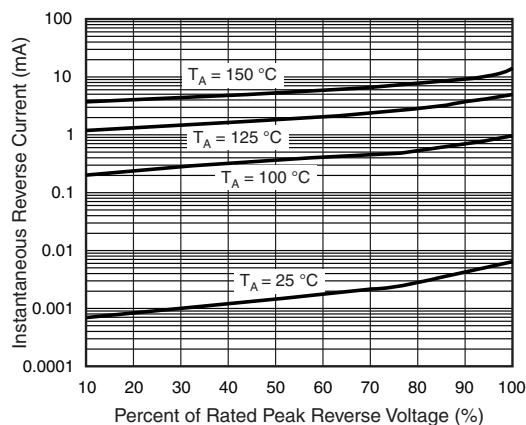


Fig. 4 - Typical Reverse Characteristics

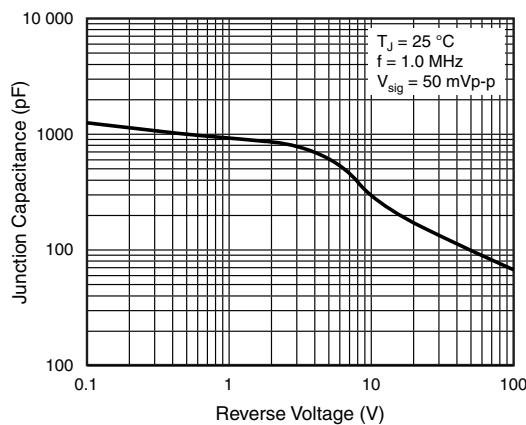
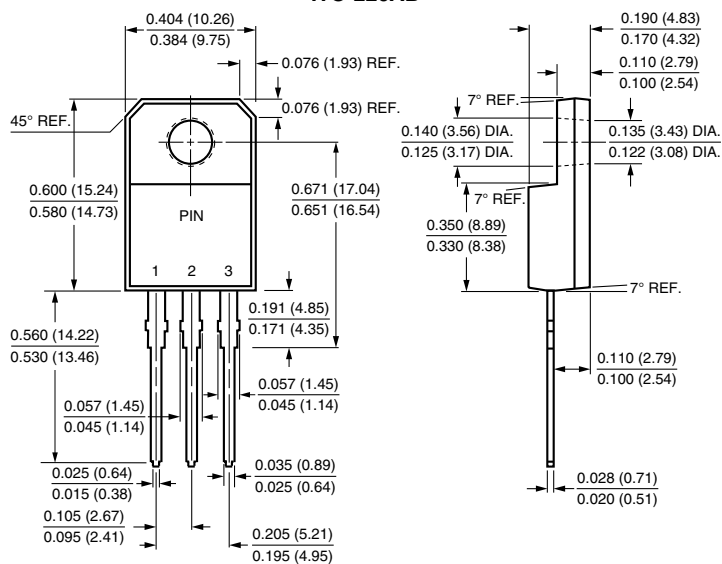


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

ITO-220AB





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