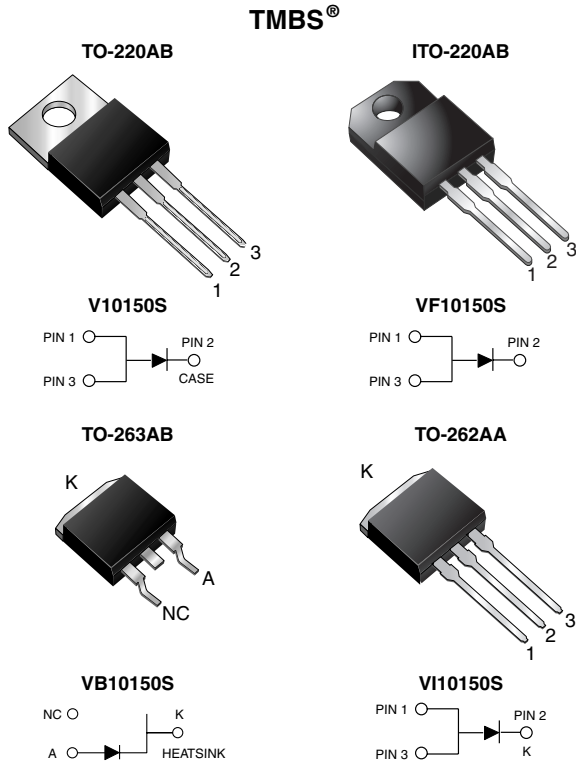


High-Voltage Trench MOS Barrier Schottky Rectifier

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
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB, ITO-220AB, and TO-262AA package)
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency converters, 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

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	10 A
V_{RRM}	150 V
I_{FSM}	120 A
V_F at $I_F = 10\text{ A}$	0.69 V
T_J max.	150 °C

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

PARAMETER	SYMBOL	V10150S	VF10150S	VB10150S	VI10150S	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}		150			V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$		10			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}		120			A
Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, $L = 60\text{ mH}$	E_{AS}		70			mJ
Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$, 1 kHz, $T_J = 38\text{ °C} \pm 2\text{ °C}$	I_{RRM}		0.5			A
Voltage rate of change (rated V_R)	dV/dt		10 000			V/ μs
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}		- 55 to + 150			°C

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I _R = 1.0 mA	T _A = 25 °C	V _{BR}	150 (minimum)	-	V
Instantaneous forward voltage ⁽¹⁾	I _F = 5 A	T _A = 25 °C	V _F	0.79	-	V
	I _F = 10 A			1.05	1.20	
	I _F = 5 A	T _A = 125 °C		0.59	-	
	I _F = 10 A			0.69	0.75	
Reverse current ⁽²⁾	V _R = 100 V	T _A = 25 °C	I _R	1.3	-	μA
		T _A = 125 °C		1.2	-	mA
	V _R = 150 V	T _A = 25 °C		-	150	μA
		T _A = 125 °C		3	15	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	V10150S	VF10150S	VB10150S	VI10150S	UNIT
Typical thermal resistance	R _{θJC}	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	V10150S-E3/4W	1.88	4W	50/tube	Tube	
ITO-220AB	VF10150S-E3/4W	1.75	4W	50/tube	Tube	
TO-263AB	VB10150S-E3/4W	1.37	4W	50/tube	Tube	
TO-263AB	VB10150S-E3/8W	1.37	8W	800/reel	Tape and reel	
TO-262AA	VI10150S-E3/4W	1.45	4W	50/tube	Tube	

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

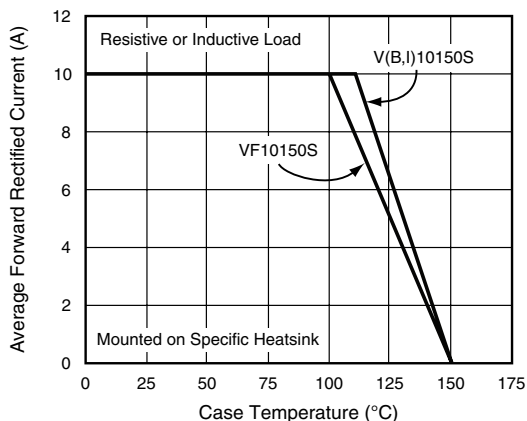


Figure 1. Maximum Forward Current Derating Curve

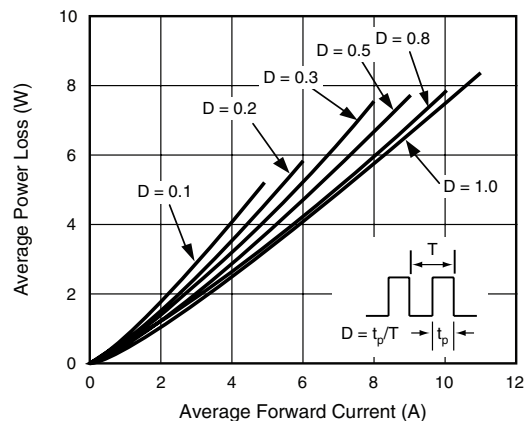


Figure 2. Forward Power Loss Characteristics

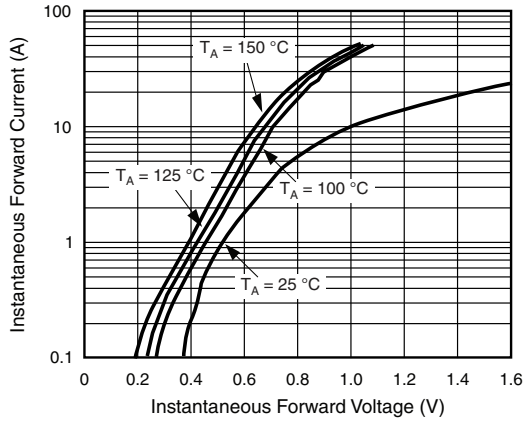


Figure 3. Typical Instantaneous Forward Characteristics

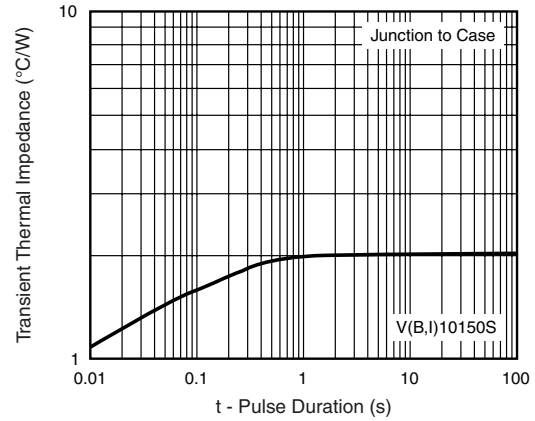


Figure 6. Typical Transient Thermal Impedance

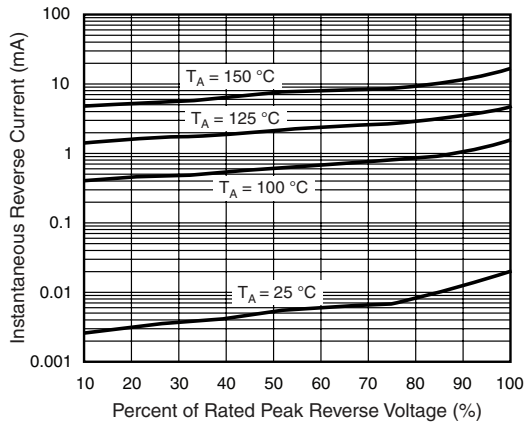


Figure 4. Typical Reverse Characteristics

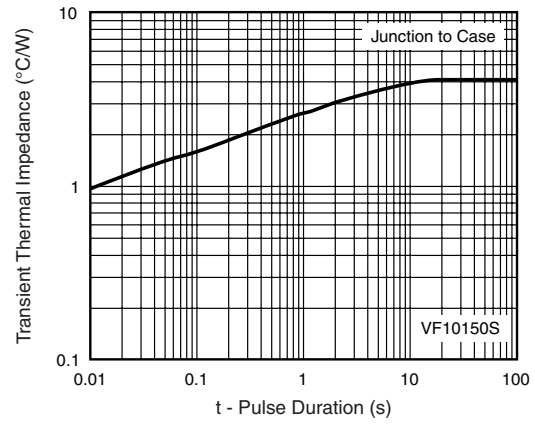


Figure 7. Typical Transient Thermal Impedance

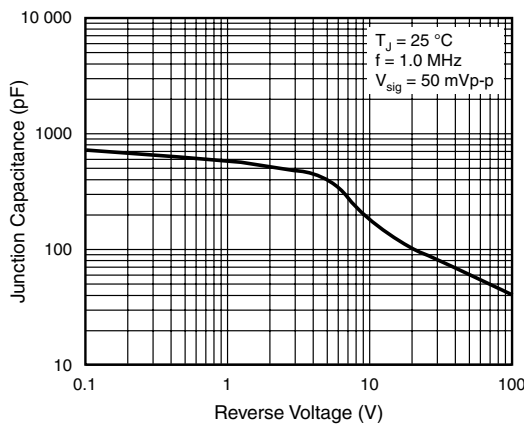


Figure 5. Typical Junction Capacitance

V10150S, VF10150S, VB10150S & VI10150S

Vishay General Semiconductor



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

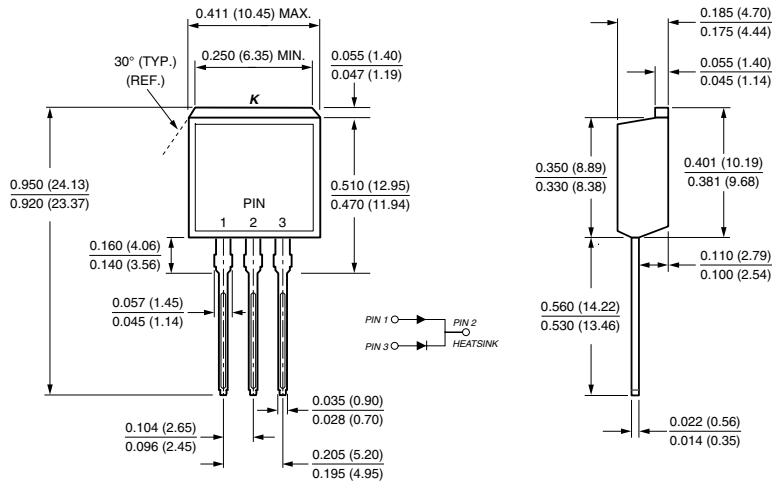
TO-220AB



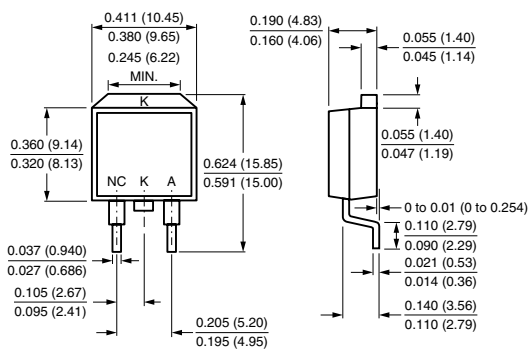
ITO-220AB



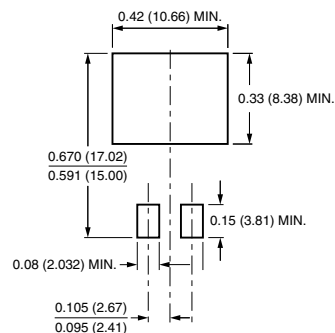
TO-262AA



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.