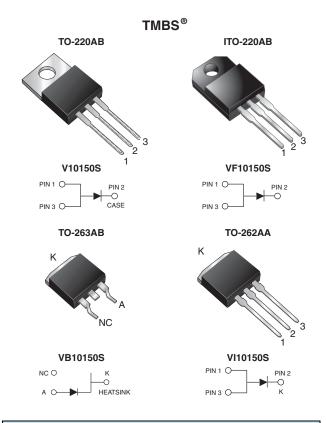


V10150S, VF10150S, VB10150S, VI10150S

Vishay General Semiconductor

High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.59$ V at $I_F = 5$ A



PRIMARY CHARACTERISTICS					
I _{F(AV)}	10 A				
V _{RRM}	150 V				
I _{FSM}	120 A				
V_F at $I_F = 10 A$	0.69 V				
T _J max.	150 °C				
Package	TO-220AB, ITO-220AB, TO-263AB, TO-262AA				
Diode variation	Single die				

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) RoHS



- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB, ITO-220AB, and TO-262AA package)
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/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 max.

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	V10150S	VF10150S	VB10150S	VI10150S	UNIT
Max. repetitive peak reverse voltage	V _{RRM}	150			V	
Max. average forward rectified current (fig. 1)	I _{F(AV)}	10				А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	120			А	
Non-repetitive avalanche energy at $T_J = 25 \text{ °C}$, L = 60 mH	E _{AS}	70			mJ	
Peak repetitive reverse current at $t_p = 2 \ \mu s$, 1 kHz, $T_J = 38 \ ^\circ C \pm 2 \ ^\circ C$	I _{RRM}	0.5			А	
Voltage rate of change (rated V _R)	dV/dt	10 000			V/µs	
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}		- 55 to	o + 150		°C

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT	
Breakdown voltage	I _R = 1.0 mA	T _A = 25 °C	V _{BR}	150 (min.)	-	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	
	$v_{\rm R} = 100 v$	T _A = 125 °C		1.2	-	mA	
	V _B = 150 V	T _A = 25 °C		-	150	μA	
	v _R = 150 v	T _A = 125 °C		3	15	mA	

Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	SYMBOL	V10150S	VF10150S	VB10150S	VI10150S	UNIT	
Typical thermal resistance	$R_{ extsf{ heta}JC}$	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	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)

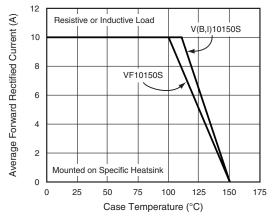


Fig. 1 - Maximum Forward Current Derating Curve

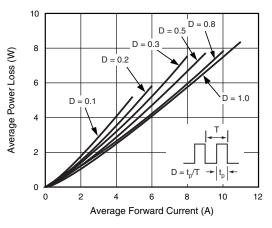


Fig. 2 - Forward Power Loss Characteristics

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Fig. 5 - Typical Junction Capacitance

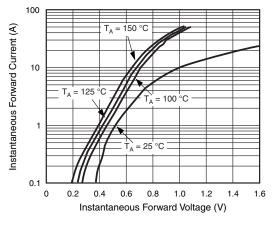


Fig. 3 - Typical Instantaneous Forward Characteristics

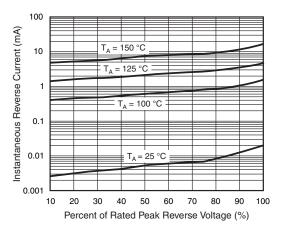
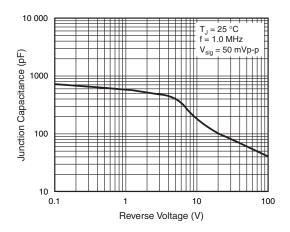


Fig. 4 - Typical Reverse Characteristics



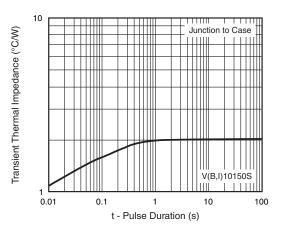


Fig. 6 - Typical Transient Thermal Impedance

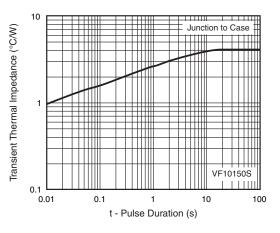


Fig. 7 - Typical Transient Thermal Impedance

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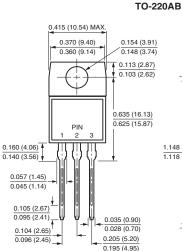
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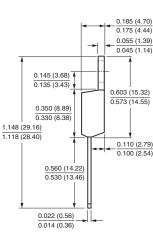


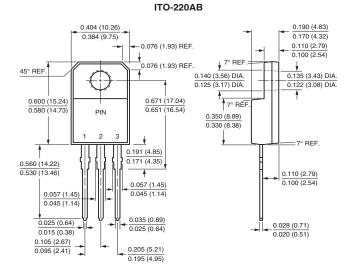
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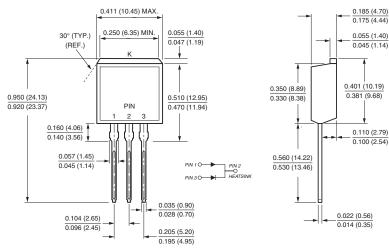
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



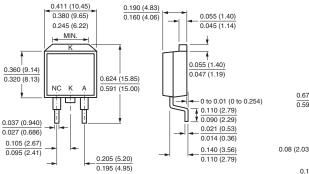




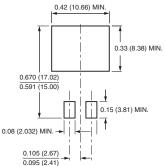




TO-263AB







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