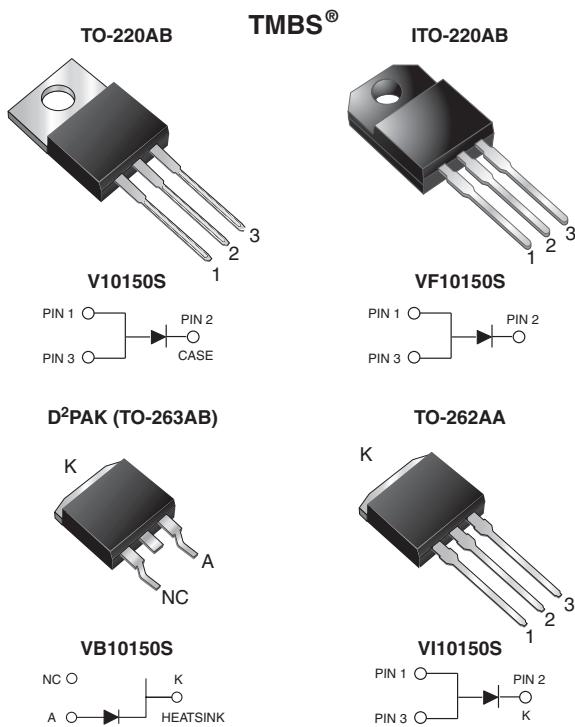


High Voltage Trench MOS Barrier Schottky Rectifier

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



DESIGN SUPPORT TOOLS


[click logo to get started](#)

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)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

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, D²PAK (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.

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, D ² PAK (TO-263AB), TO-262AA
Circuit configuration	Single

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			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 $T_J = 25$ °C, $L = 60$ mH	E_{AS}		70			mJ
Peak repetitive reverse current at $t_p = 2$ µs, 1 kHz, $T_J = 38$ °C ± 2 °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 $t = 1$ min	V_{AC}		1500			V
Operating junction and storage temperature range	T_J, T_{STG}		-55 to +150			°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	$I_R = 1.0 \text{ mA}$	$T_A = 25^\circ\text{C}$	V_{BR}	150 (min.)	-	V	
Instantaneous forward voltage ⁽¹⁾	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	V_F	0.79	-	V	
	$I_F = 10 \text{ A}$			1.05	1.20		
	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.59	-		
	$I_F = 10 \text{ A}$			0.69	0.75		
Reverse current ⁽²⁾	$V_R = 100 \text{ V}$	$T_A = 25^\circ\text{C}$	I_R	1.3	-	μA	
		$T_A = 125^\circ\text{C}$		1.2	-	mA	
	$V_R = 150 \text{ V}$	$T_A = 25^\circ\text{C}$		-	150	μA	
		$T_A = 125^\circ\text{C}$		3	15	mA	

Notes

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

(2) Pulse test: Pulse width $\leq 40 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	V10150S	VF10150S	VB10150S	VI10150S	UNIT
Typical thermal resistance	$R_{\theta\text{JC}}$	2.0	4.0	2.0	2.0	$^\circ\text{C/W}$

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

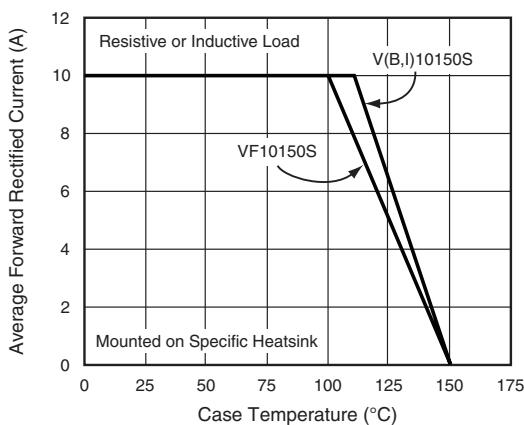
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

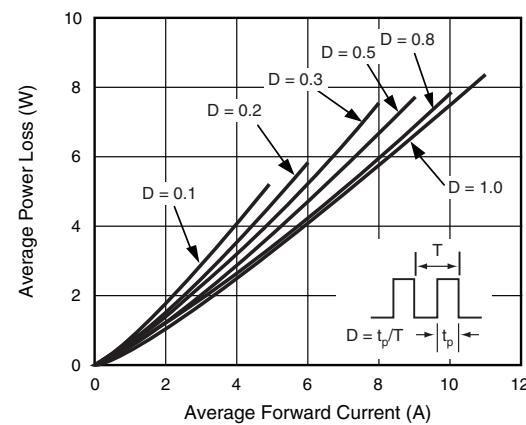


Fig. 2 - Forward Power Loss Characteristics

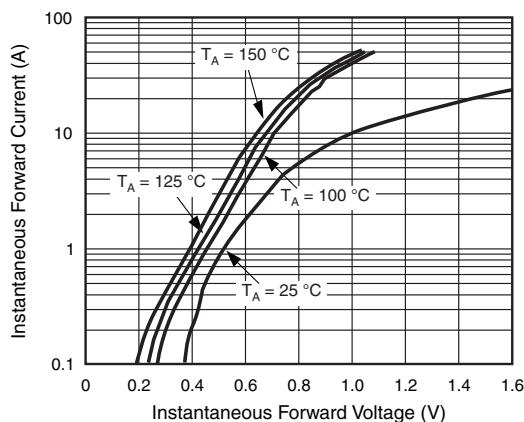


Fig. 3 - Typical Instantaneous Forward Characteristics

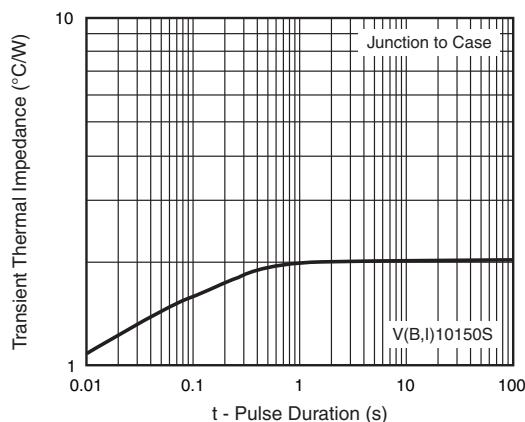


Fig. 6 - Typical Transient Thermal Impedance

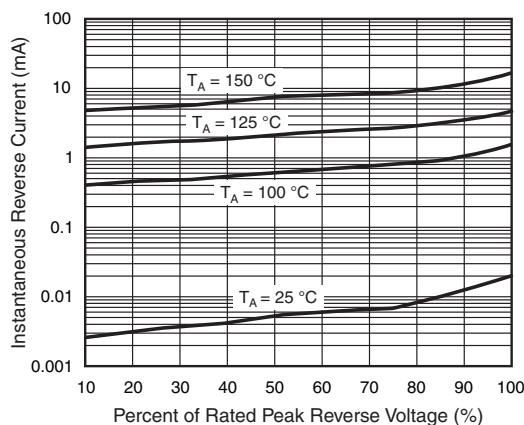


Fig. 4 - Typical Reverse Characteristics

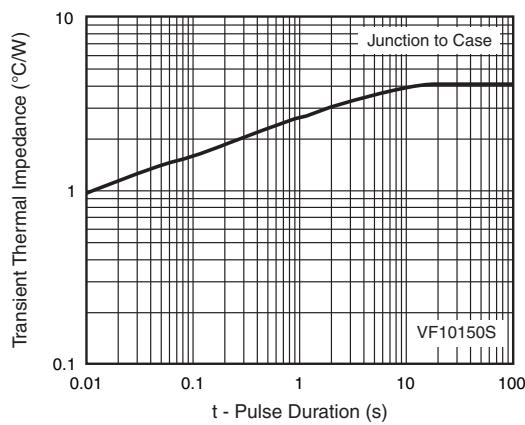


Fig. 7 - Typical Transient Thermal Impedance

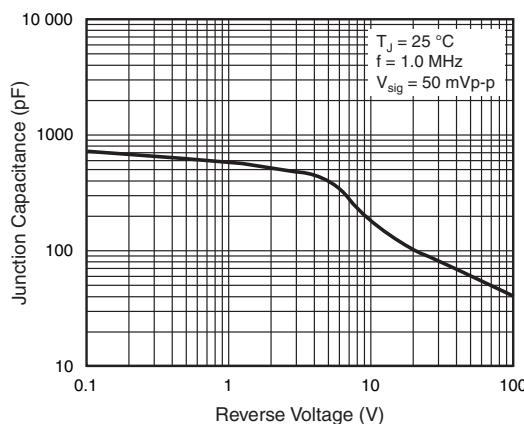
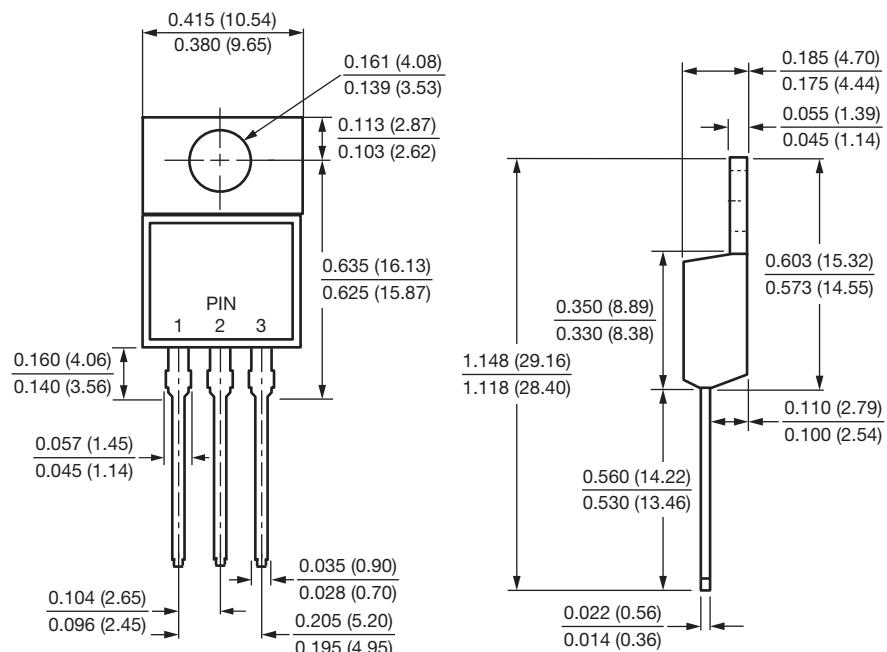


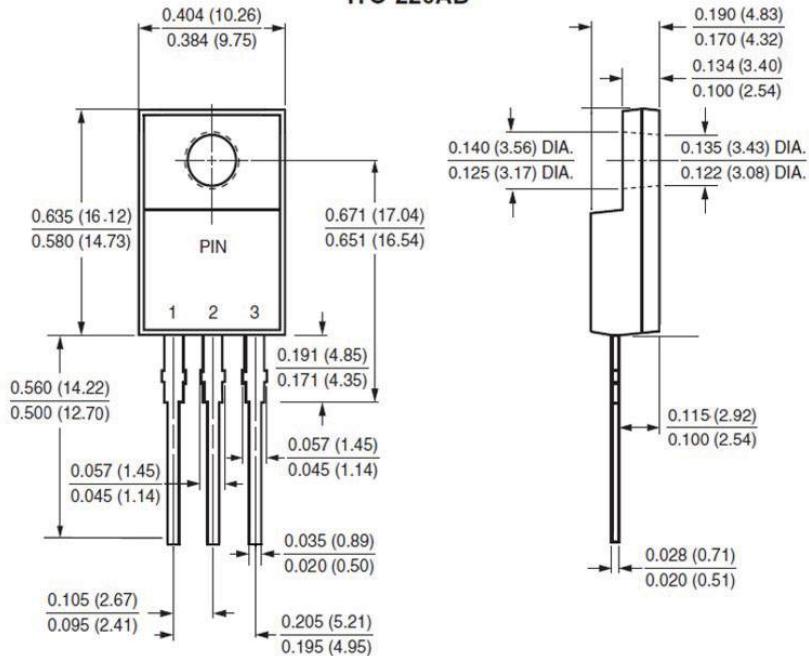
Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

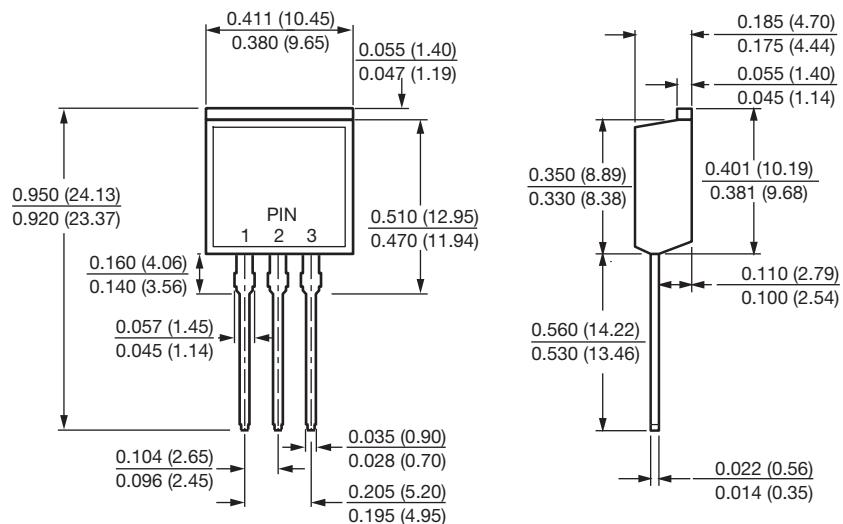
TO-220AB



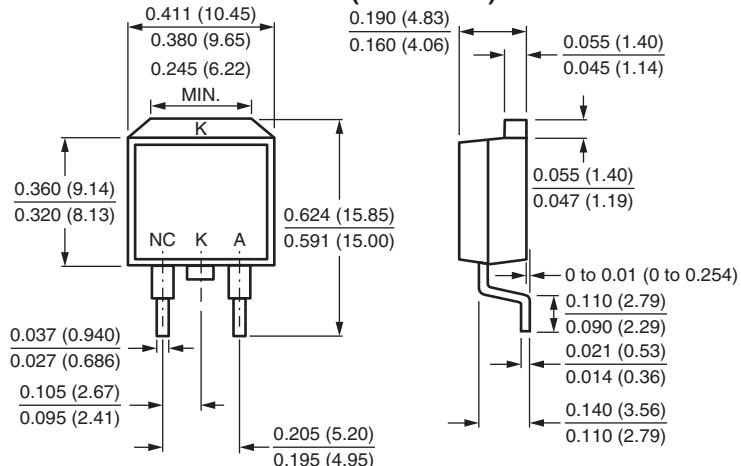
ITO-220AB



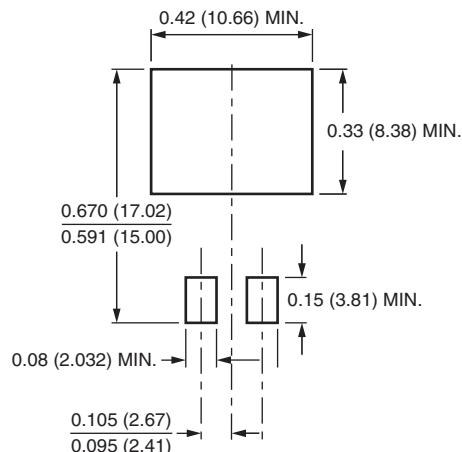
TO-262AA



D²PAK (TO-263AB)



Mounting Pad Layout



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