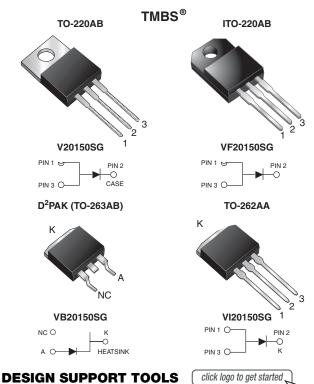
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High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.57 \text{ V}$ at $I_F = 5 \text{ A}$





PRIMARY CHARACTERISTICS					
I _{F(AV)}	20 A				
V_{RRM}	150 V				
I _{FSM}	140 A				
V _F at I _F = 20 A	0.77 V				
T _J max.	150 °C				
Package	TO-220AB, ITO-220AB, D ² PAK (TO-263AB), TO-262AA				
Circuit configuration	Single				

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 www.vishay.com/doc?99912

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.

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	V20150SG	VF20150SG	VB20150SG	VI20150SG	UNIT		
Max. repetitive peak reverse voltage	V_{RRM}	150				V		
Max. average forward rectified current (fig. 1)	I _{F(AV)}	20				Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	140				Α		
Non-repetitive avalanche energy at T _J = 25 °C, L = 60 mH	E _{AS}	110			mJ			
Peak repetitive reverse current at $t_p = 2 \mu s$, 1 kHz, $T_J = 38 ^{\circ}\text{C} \pm 2 ^{\circ}\text{C}$	I _{RRM}	0.5			Α			
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		٧				
Operating junction and storage temperature range	T _J , T _{STG}		-55 to	+150		°C		

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ELECTRICAL CHARACTERISTICS (T _A = 25 °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		V _F	0.72	-	V		
	I _F = 10 A	T _A = 25 °C		0.87	-			
	I _F = 20 A			1.24	1.60			
	I _F = 5 A	T _A = 125 °C		0.57	-			
	I _F = 10 A			0.65	-			
	I _F = 20 A			0.77	0.84			
Reverse current (2)	V _R = 100 V	T _A = 25 °C	I _R	1.5	-	μA		
	V _R = 100 V	T _A = 125 °C		2	-	mA		
	V _R = 150 V	T _A = 25 °C		-	200	μΑ		
	v _R = 150 v	T _A = 125 °C		4	20	mA		

Notes

⁽²⁾ Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	V20150SG	VF20150SG	VB20150SG	VI20150SG	UNIT	
Typical thermal resistance	$R_{ heta JC}$	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	V20150SG-E3/4W	1.88	4W	50/tube	Tube		
ITO-220AB	VF20150SG-E3/4W	1.75	4W	50/tube	Tube		
TO-263AB	VB20150SG-E3/4W	1.38	4W	50/tube	Tube		
TO-263AB	VB20150SG-E3/8W	1.38	8W	800/reel	Tape and reel		
TO-262AA	VI20150SG-E3/4W	1.45	4W	50/tube	Tube		

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

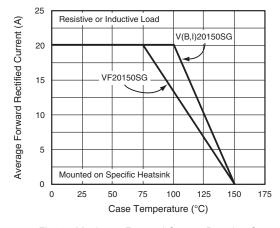


Fig. 1 - Maximum Forward Current Derating Curve

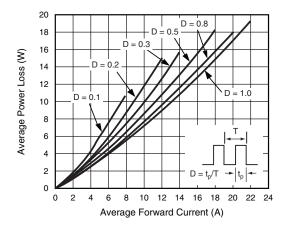


Fig. 2 - Forward Power Loss Characteristics

 $^{^{(1)}\,}$ Pulse test: 300 μs pulse width, 1 % duty cycle

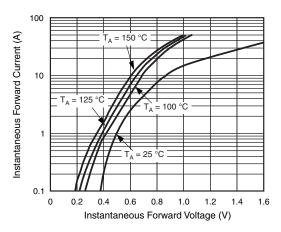


Fig. 3 - Typical Instantaneous Forward Characteristics

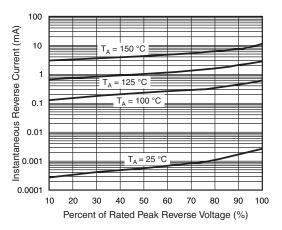


Fig. 4 - Typical Reverse Characteristics

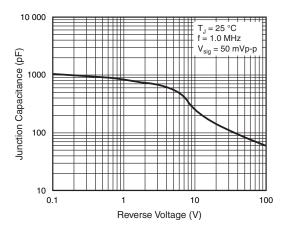


Fig. 5 - Typical Junction Capacitance

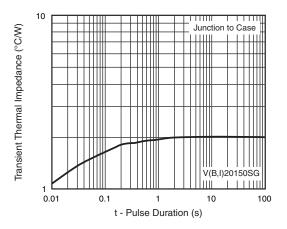


Fig. 6 - Typical Transient Thermal Impedance

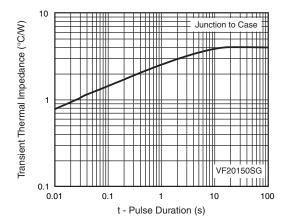
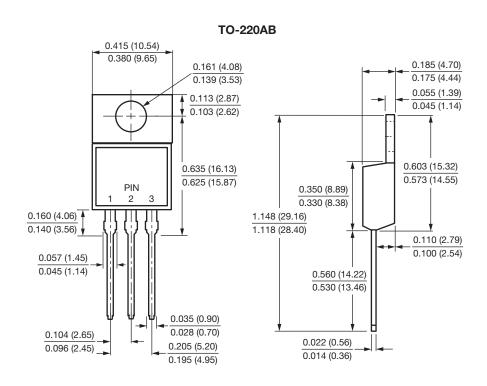
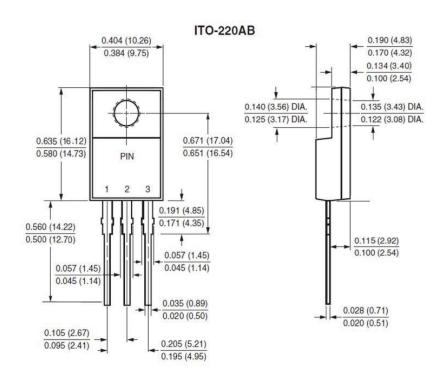


Fig. 7 - Typical Transient Thermal Impedance

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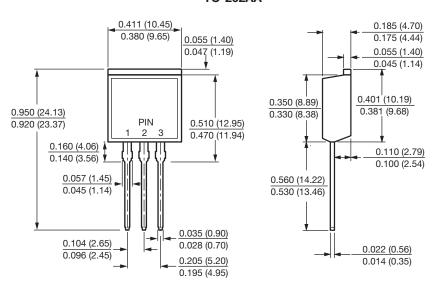
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

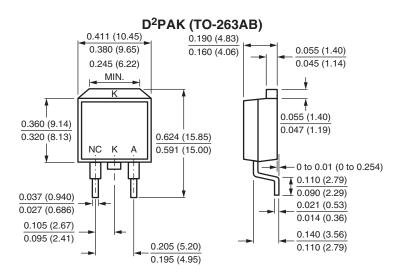


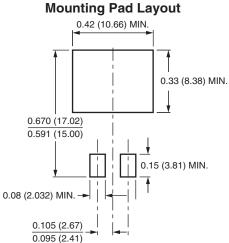


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TO-262AA









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