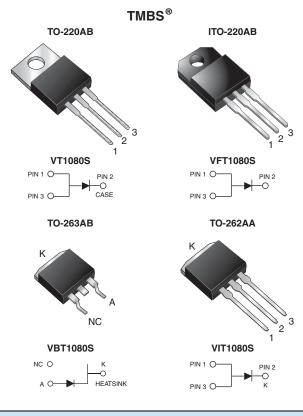
Vishay General Semiconductor

Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.52$ V at $I_F = 5$ A



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PRIMARY CHARACTERISTICS					
I _{F(AV)}	10 A				
V _{RRM}	80 V				
I _{FSM}	100 A				
V _F at I _F = 10 A	0.60 V				
T _J max.	150 °C				
Package	TO-220AB, ITO-220AB, 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 COMPLIANT
- 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 maximum

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER		VT1080S	VFT1080S	VBT1080S	VIT1080S	UNIT	
Maximum repetitive peak reverse voltage	V _{RRM}	80				V	
Maximum 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}	100			A		
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, $T_J = 38 \degree C \pm 2 \degree C$	I _{RRM}	1.0			А		
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		

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	I _R = 10 mA	T _A = 25 °C	V _{BR}	80 (minimum)	-	V	
Instantaneous forward voltage	I _F = 5 A	T _A = 25 °C	V _F (1)	0.57	-	v	
	I _F = 10 A			0.67	0.81		
	I _F = 5 A	– T _A = 125 °C		0.52	-		
	I _F = 10 A			0.60	0.70		
Reverse current	V 80.V	T _A = 25 °C	I _R ⁽²⁾	20	600	μA	
	$V_{R} = 80 V$ T_{A}	T _A = 125 °C		10	20	mA	

Notes

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

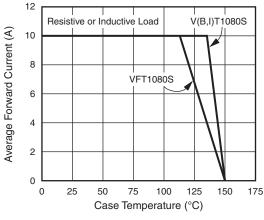
⁽²⁾ Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	SYMBOL	VT1080S	VFT1080S	VBT1080S	VIT1080S	UNIT	
Typical thermal resistance	$R_{ ext{ heta}JC}$	2.2	5.5	2.2	2.2	°C/W	

ORDERING INFORMATION (Example)								
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
TO-220AB	VT1080S-E3/4W	1.88	4W	50/tube	Tube			
ITO-220AB	VFT1080S-E3/4W	1.73	4W	50/tube	Tube			
TO-263AB	VBT1080S-E3/4W	1.36	4W	50/tube	Tube			
TO-263AB	VBT1080S-E3/8W	1.36	8W	800/reel	Tape and reel			
TO-262AA	VIT1080S-E3/4W	1.43	4W	50/tube	Tube			

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



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Fig. 1 - Maximum Forward Current Derating Curve

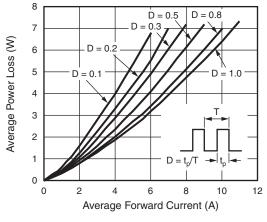


Fig. 2 - Forward Power Loss Characteristics

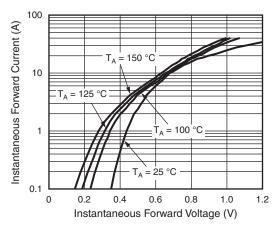


Fig. 3 - Typical Instantaneous Forward Characteristics

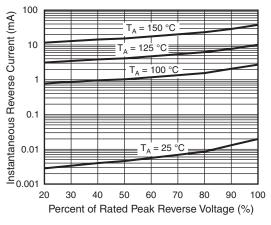


Fig. 4 - Typical Reverse Characteristics

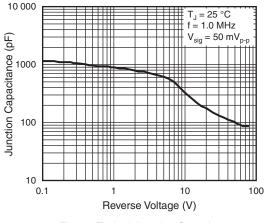


Fig. 5 - Typical Junction Capacitance

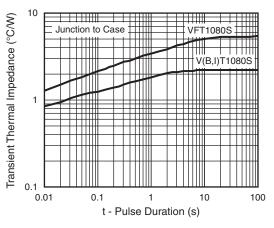


Fig. 6 - Typical Transient Thermal Impedance

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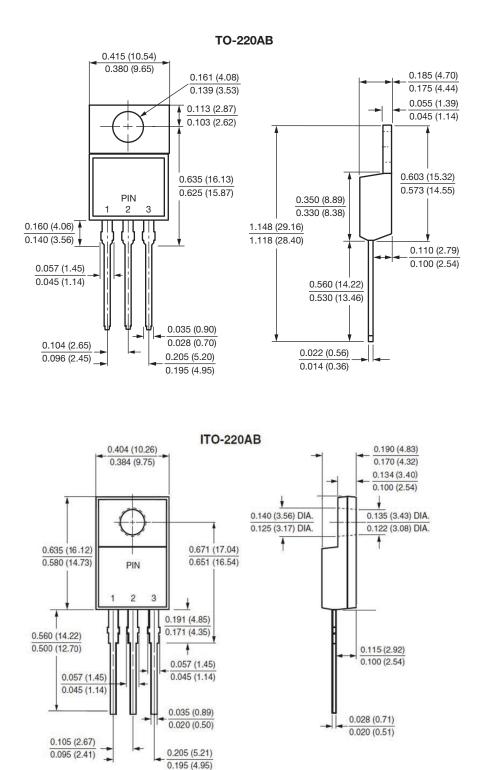
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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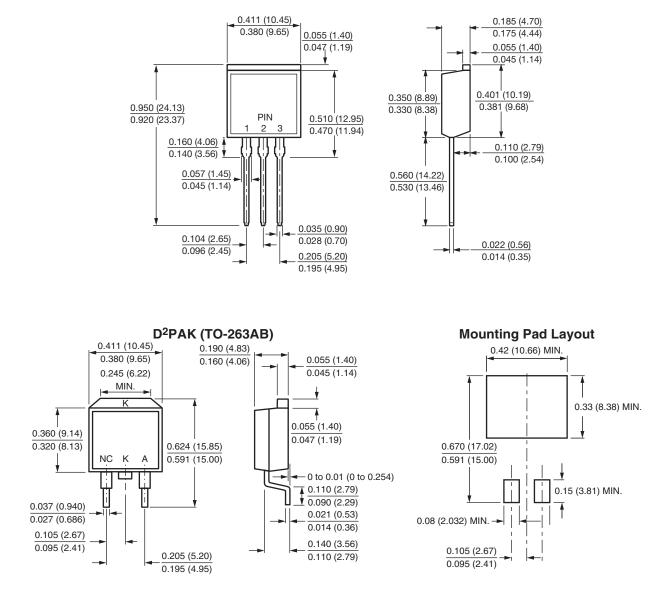
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TO-262AA





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