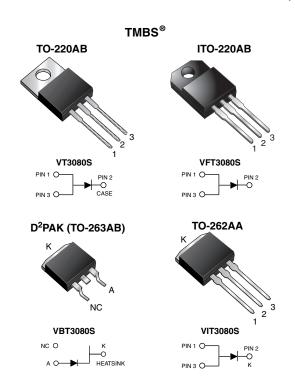
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## **Trench MOS Barrier Schottky Rectifier**

Ultra Low  $V_F = 0.39 \text{ V}$  at  $I_F = 5 \text{ A}$ 



#### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub>	30 A					
$V_{RRM}$	80 V					
I <sub>FSM</sub>	200 A					
V <sub>F</sub> at I <sub>F</sub> = 30 A	0.73 V					
T <sub>J</sub> max.	150 °C					
Package	TO-220AB, ITO-220AB, D <sup>2</sup> PAK (TO-263AB), TO-262AA					
Circuit configuration	Single					

#### **FEATURES**

Trench MOS Schottky technology



· Low forward voltage drop, low power losses

(e3)

• High efficiency operation

 Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for D<sup>2</sup>PAK (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 <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### **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,  $D^2PAK$  (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 <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	VT3080S	VFT3080S	VBT3080S	VIT3080S	UNIT	
Maximum repetitive peak reverse voltage	$V_{RRM}$	80			٧		
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	30				Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	200			Α		
Non-repetitive avalanche energy at T <sub>J</sub> = 25 °C, L = 100 mH	E <sub>AS</sub>	250			mJ		
Peak repetitive reverse current at $t_p$ = 2 $\mu$ s, 1 kHz, $T_J$ = 38 °C $\pm$ 2 °C	I <sub>RRM</sub>	1.0		Α			
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min	V <sub>AC</sub>	1500		V			
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	rg -55 to +150			°C		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	$I_R = 1.0 \text{ mA}$	T <sub>A</sub> = 25 °C	$V_{BR}$	80 (minimum)	-	V	
Instantaneous forward voltage	I <sub>F</sub> = 5 A		- V <sub>F</sub> <sup>(1)</sup>	0.47	-	V	
	I <sub>F</sub> = 15 A	T <sub>A</sub> = 25 °C		0.61	-		
	I <sub>F</sub> = 30 A			0.82	0.95		
	I <sub>F</sub> = 5 A			0.39	-		
	I <sub>F</sub> = 15 A	T <sub>A</sub> = 125 °C		0.57	-		
	I <sub>F</sub> = 30 A			0.73	0.82		
Reverse current	V <sub>R</sub> = 80 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	70	1000	μA	
	v <sub>R</sub> = 00 v	T <sub>A</sub> = 125 °C	'R '-'	23	45	mA	

#### Notes

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

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	VT3080S	VFT3080S	VBT3080S	VIT3080S	UNIT
Typical thermal resistance	$R_{\theta JC}$	1.5	5.0	1.5	1.5	°C/W

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	VT3080S-E3/4W	1.88	4W	50/tube	Tube		
ITO-220AB	VFT3080S-E3/4W	1.75	4W	50/tube	Tube		
D <sup>2</sup> PAK (TO-263AB)	VBT3080S-E3/4W	1.37	4W	50/tube	Tube		
D <sup>2</sup> PAK (TO-263AB)	VBT3080S-E3/8W	1.37	8W	800/reel	Tape and reel		
TO-262AA	VIT3080S-E3/4W	1.46	4W	50/tube	Tube		

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### **RATINGS AND CHARACTERISTICS CURVES** (T<sub>A</sub> = 25 °C unless otherwise noted)

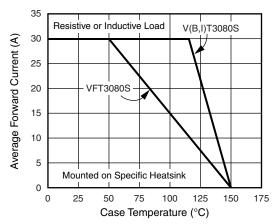
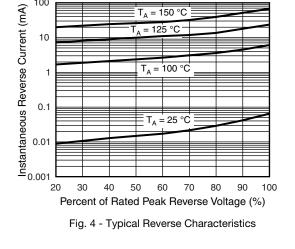


Fig. 1 - Forward Current Derating Curve



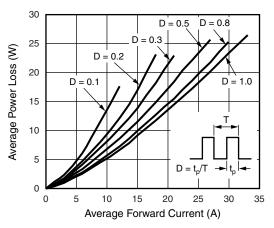


Fig. 2 - Forward Power Loss Characteristics

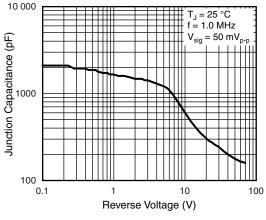


Fig. 5 - Typical Junction Capacitance

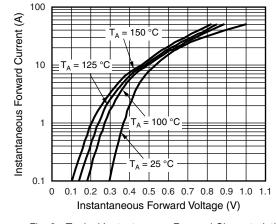


Fig. 3 - Typical Instantaneous Forward Characteristics

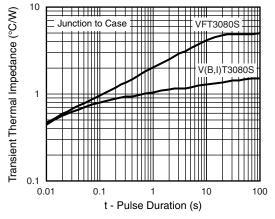
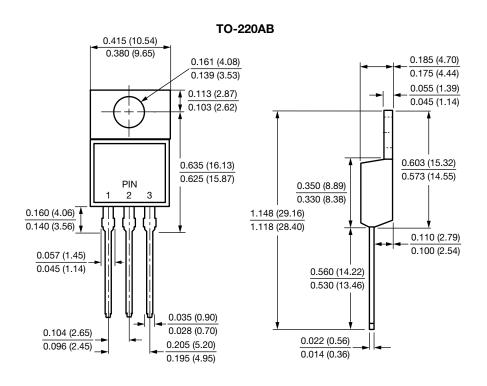


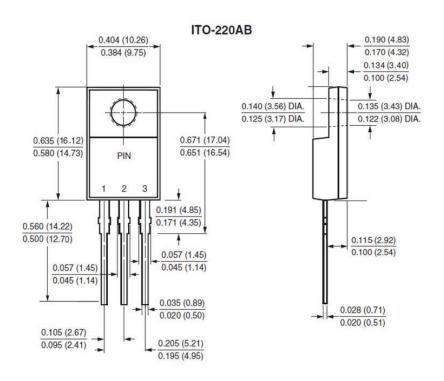
Fig. 6 - Typical Transient Thermal Impedance

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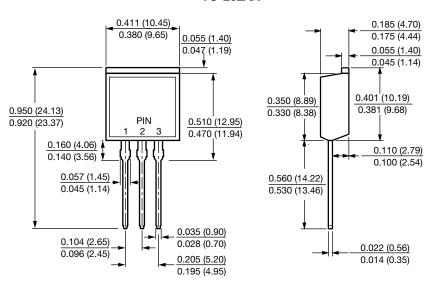
#### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

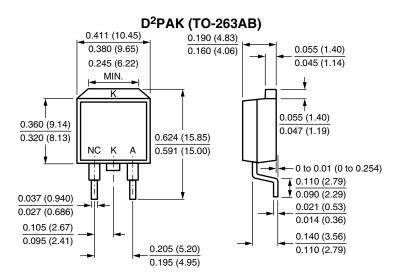




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#### TO-262AA





# 0.42 (10.66) MIN. 0.670 (17.02) 0.591 (15.00) 0.08 (2.032) MIN. 0.105 (2.67) 0.095 (2.41)



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