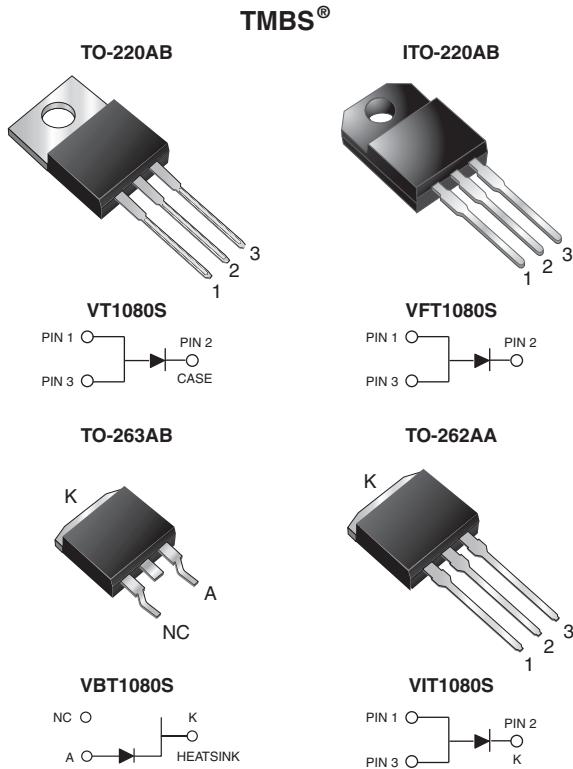


Trench MOS Barrier Schottky Rectifier

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



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, 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

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

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	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			A
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 $t_p = 2$ µs, 1 kHz, $T_J = 38$ °C ± 2 °C	I_{RRM}			1.0		A
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

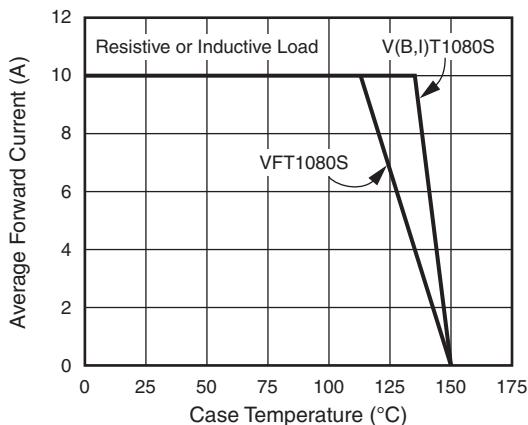
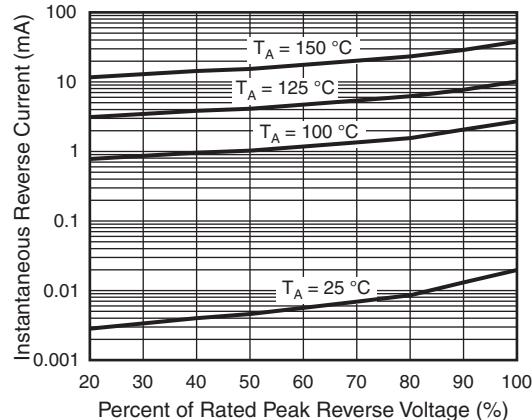
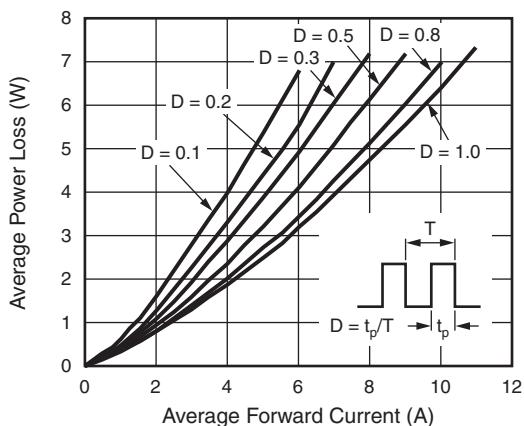
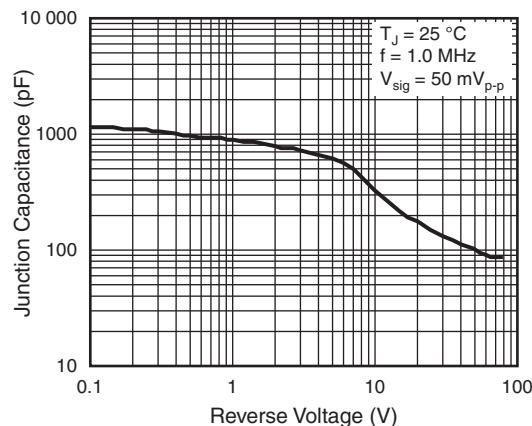
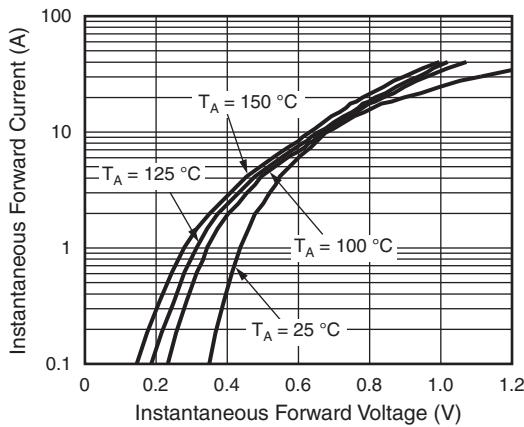
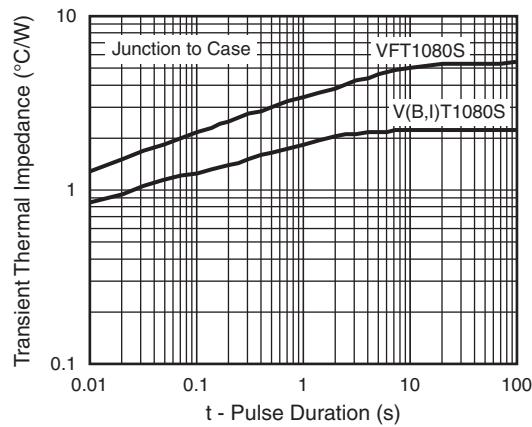


ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Breakdown voltage	$I_R = 10 \text{ mA}$	$T_A = 25^\circ\text{C}$	V_{BR}	80 (minimum)	-	V	
Instantaneous forward voltage	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.57	-	V	
	$I_F = 10 \text{ A}$			0.67	0.81		
	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.52	-		
	$I_F = 10 \text{ A}$			0.60	0.70		
Reverse current	$V_R = 80 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	20	600	μA	
		$T_A = 125^\circ\text{C}$		10	20	mA	

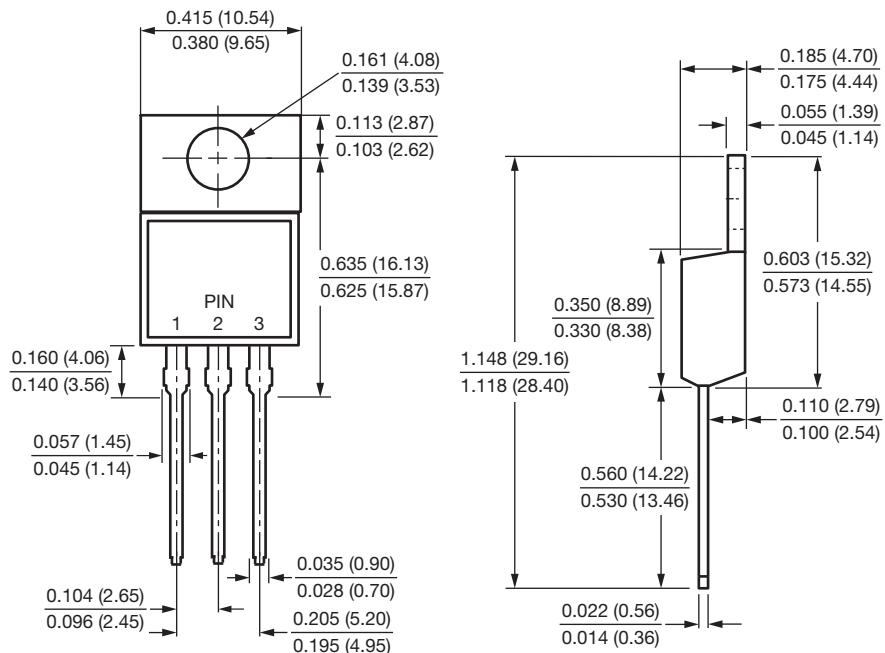
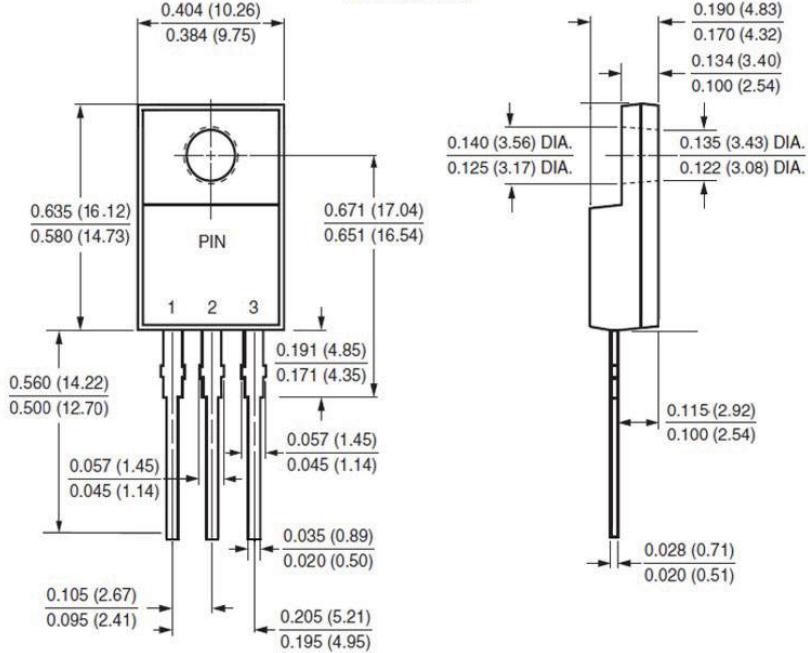
Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40 \text{ ms}$

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

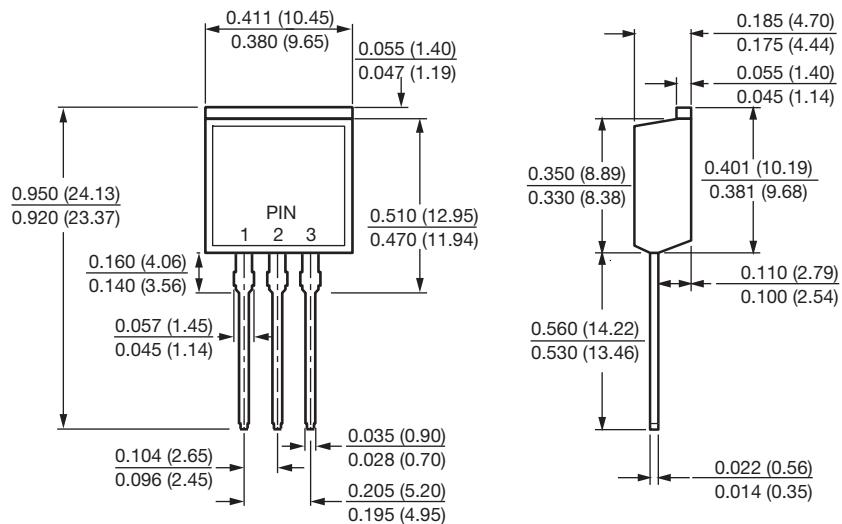
ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT1080S-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VFT1080S-E3/4W	1.73	4W	50/tube	Tube
TO-263AB	VBT1080S-E3/4W	1.36	4W	50/tube	Tube
TO-263AB	VBT1080S-E3/8W	1.36	8W	800/reel	Tape and reel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

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

Fig. 1 - Maximum Forward Current Derating Curve

Fig. 4 - Typical Reverse Characteristics

Fig. 2 - Forward Power Loss Characteristics

Fig. 5 - Typical Junction Capacitance

Fig. 3 - Typical Instantaneous Forward Characteristics

Fig. 6 - Typical Transient Thermal Impedance

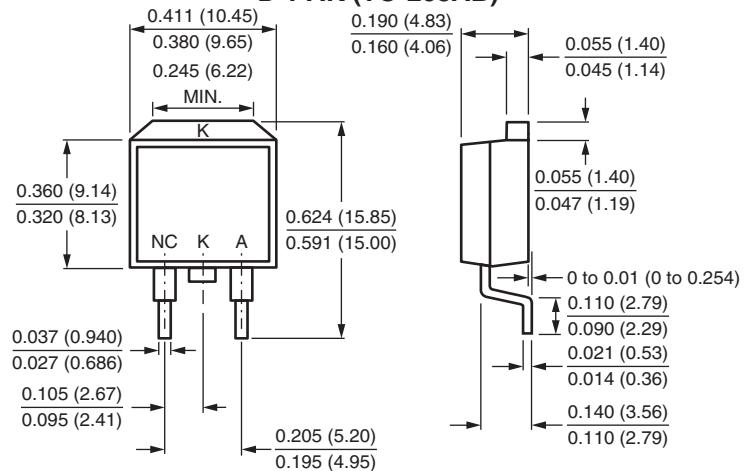
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

ITO-220AB


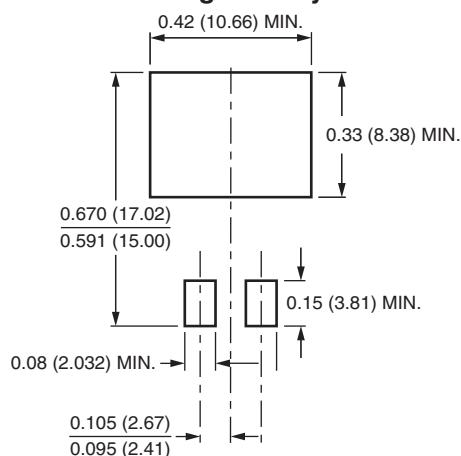
TO-262AA



D²PAK (TO-263AB)



Mounting Pad Layout



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