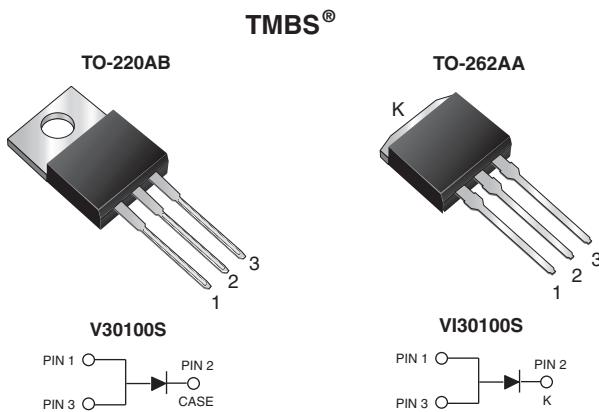


## High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F$  = 0.39 V at  $I_F$  = 5 A



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

### MECHANICAL DATA

#### Case: TO-220AB and TO-262AA

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** as marked

**Mounting Torque:** 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A
$V_{RRM}$	100 V
$I_{FSM}$	250 A
$V_F$ at $I_F$ = 30 A	0.69 V
$T_J$ max.	150 °C
Package	TO-220AB, TO-262AA
Diode variations	Single

MAXIMUM RATINGS ( $T_A$ = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	V30100S	VI30100S	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100		V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	30		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	250		A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000		V/μs
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150		°C

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 5 \text{ A}$	$V_F$ <sup>(1)</sup>	0.47	-	V
	$I_F = 10 \text{ A}$		0.55	-	
	$I_F = 30 \text{ A}$		0.80	0.91	
	$I_F = 5 \text{ A}$		0.39	-	
	$I_F = 10 \text{ A}$		0.49	-	
	$I_F = 30 \text{ A}$		0.69	0.78	
Reverse current	$V_R = 70 \text{ V}$	$T_A = 25^\circ\text{C}$	27	-	$\mu\text{A}$
		$T_A = 125^\circ\text{C}$	11	-	mA
	$V_R = 100 \text{ V}$	$T_A = 25^\circ\text{C}$	70	1000	$\mu\text{A}$
		$T_A = 125^\circ\text{C}$	23	45	mA

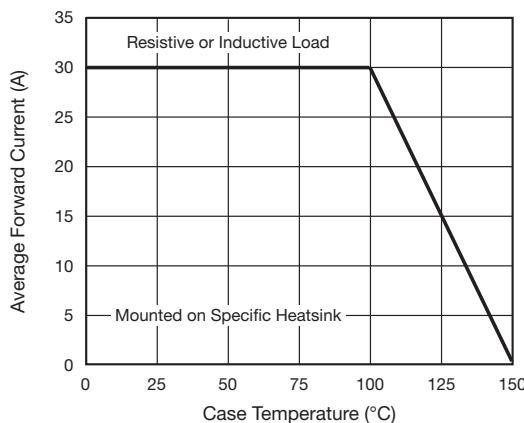
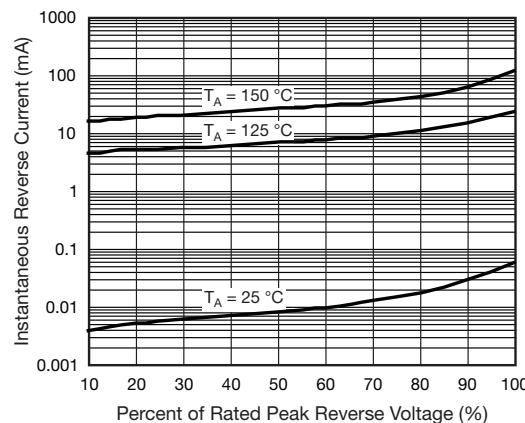
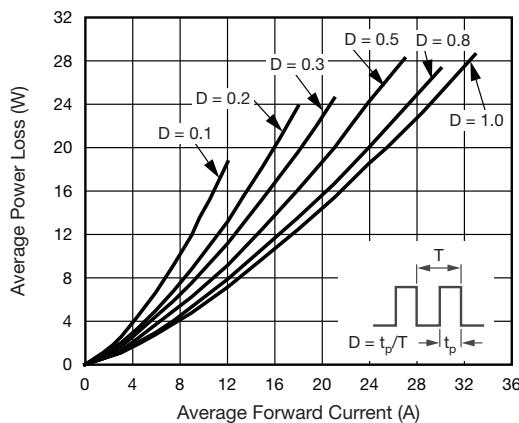
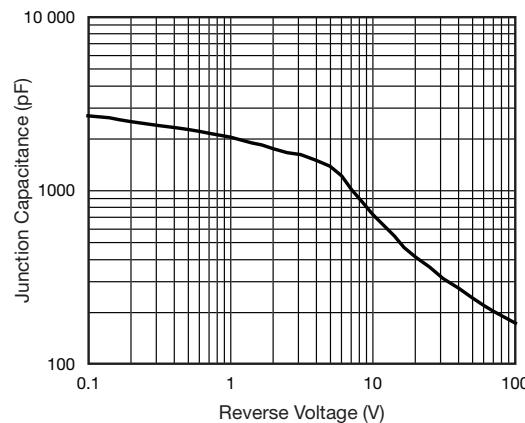
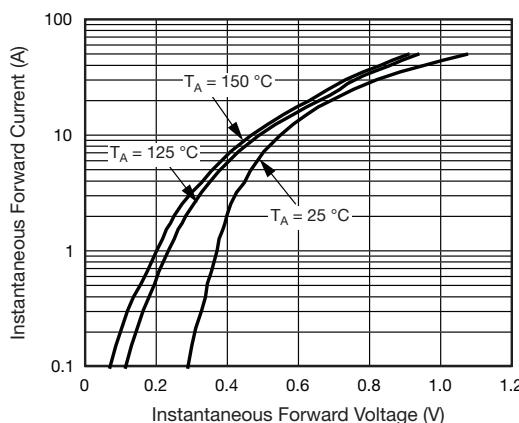
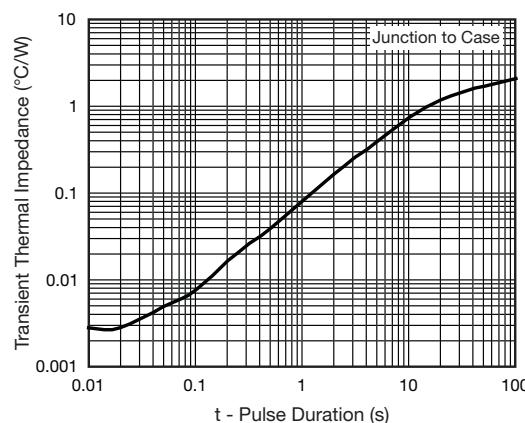
**Notes**

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

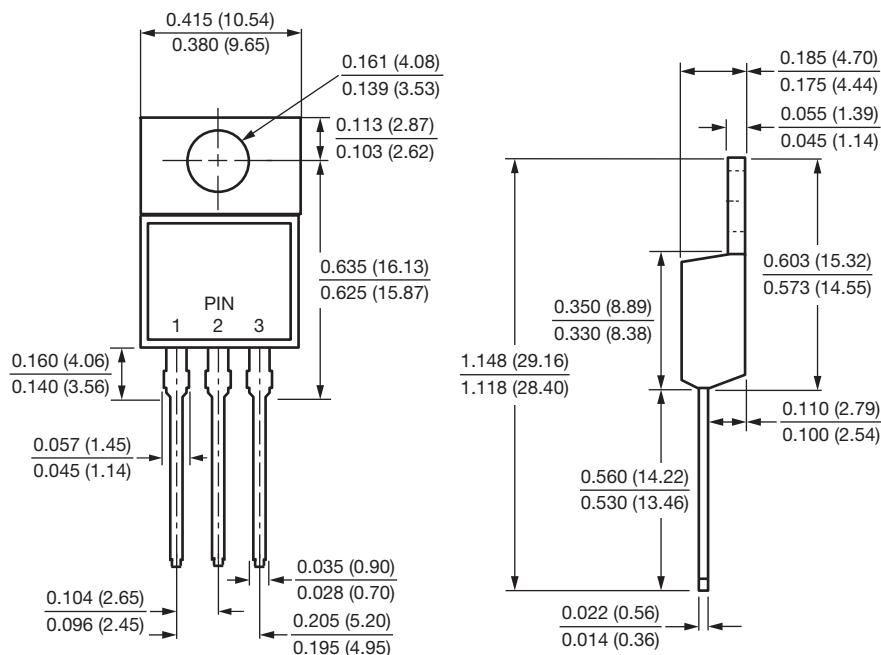
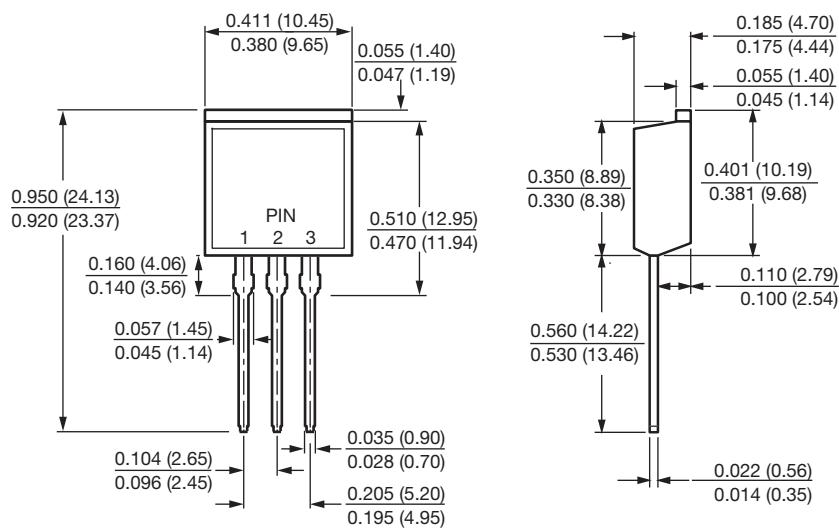
(2) Pulse test: Pulse width  $\leq 40 \text{ ms}$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V30100S	VI30100S	UNIT	
Typical thermal resistance	$R_{\theta\text{JC}}$	2.0		$^\circ\text{C}/\text{W}$	

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V30100S-M3/4W	1.88	4W	50/tube	Tube
TO-262AA	VI30100S-M3/4W	1.45	4W	50/tube	Tube

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

**Fig. 1 - 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**

**TO-262AA**


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