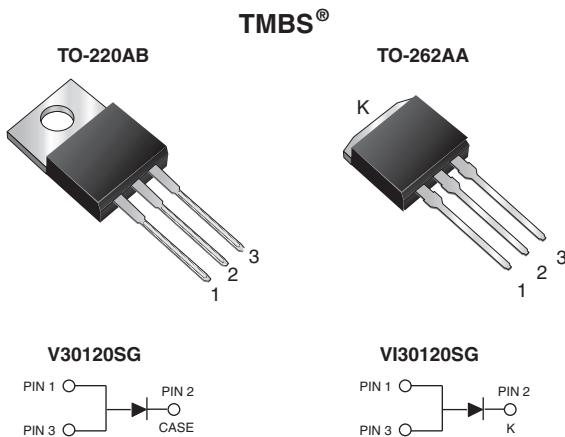


High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low V_F = 0.47 V at I_F = 5 A



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see 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}	120 V
I_{FSM}	220 A
V_F at I_F = 30 A	0.81 V
T_J max.	150 °C
Package	TO-220AB, TO-262AA
Diode variation	Single

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	V30120SG	VI30120SG	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	120		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}	220		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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 5 \text{ A}$	$T_A = 25^\circ\text{C}$	0.54	-	V
	$I_F = 15 \text{ A}$		0.80	-	
	$I_F = 30 \text{ A}$		1.16	1.28	
	$I_F = 5 \text{ A}$	$T_A = 125^\circ\text{C}$	0.47	-	
	$I_F = 15 \text{ A}$		0.66	-	
	$I_F = 30 \text{ A}$		0.81	0.90	
Reverse current	$V_R = 90 \text{ V}$	$T_A = 25^\circ\text{C}$	13	-	μA
		$T_A = 125^\circ\text{C}$	13	-	mA
	$V_R = 120 \text{ V}$	$T_A = 25^\circ\text{C}$	-	500	μA
		$T_A = 125^\circ\text{C}$	23	55	mA

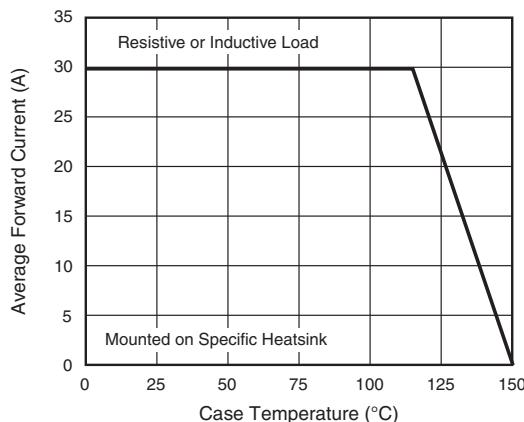
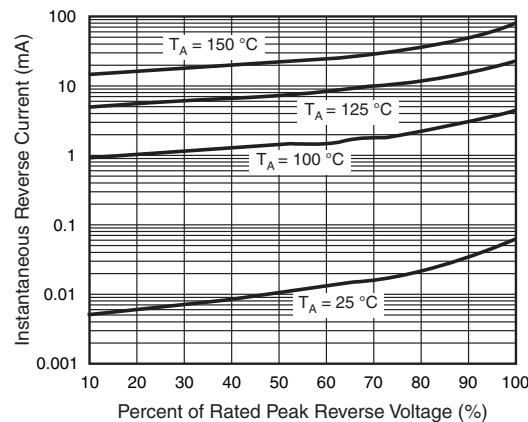
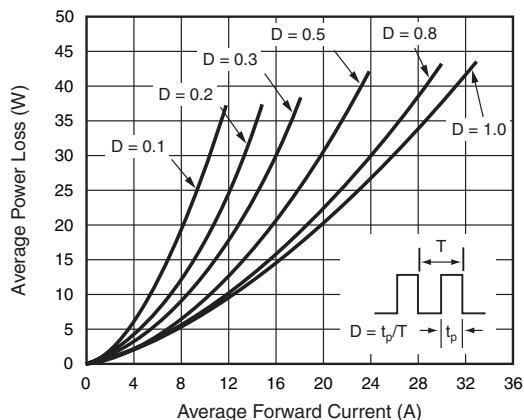
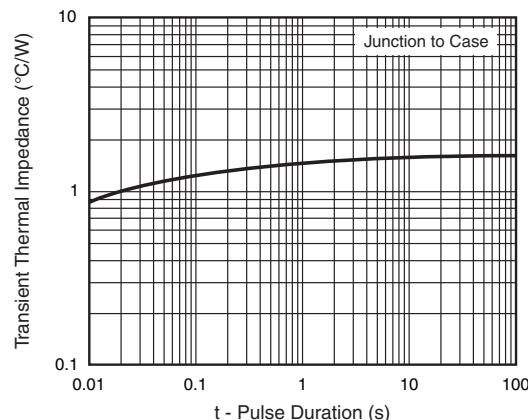
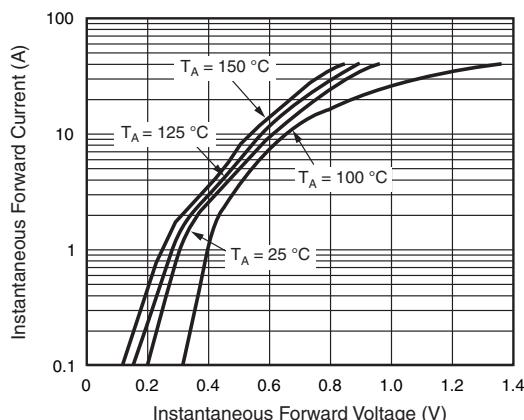
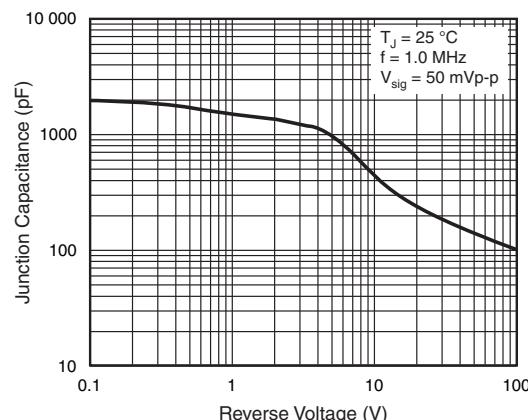
Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

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

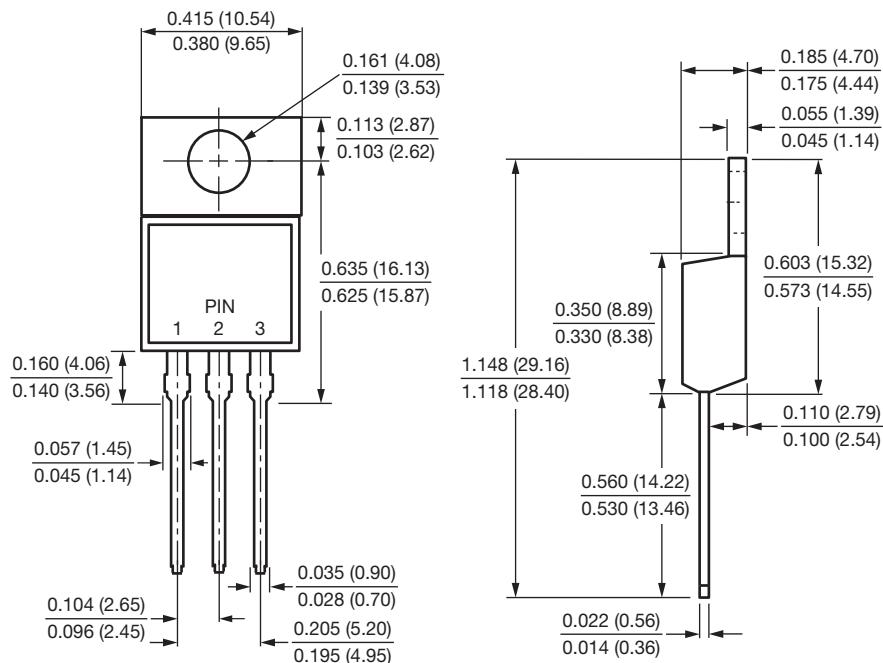
THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V30120SG	VI30120SG	UNIT	
Typical thermal resistance	$R_{\theta\text{JC}}$	1.6		$^\circ\text{C/W}$	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V30120SG-M3/4W	1.88	4W	50/tube	Tube
TO-262AA	VI30120SG-M3/4W	1.45	4W	50/tube	Tube

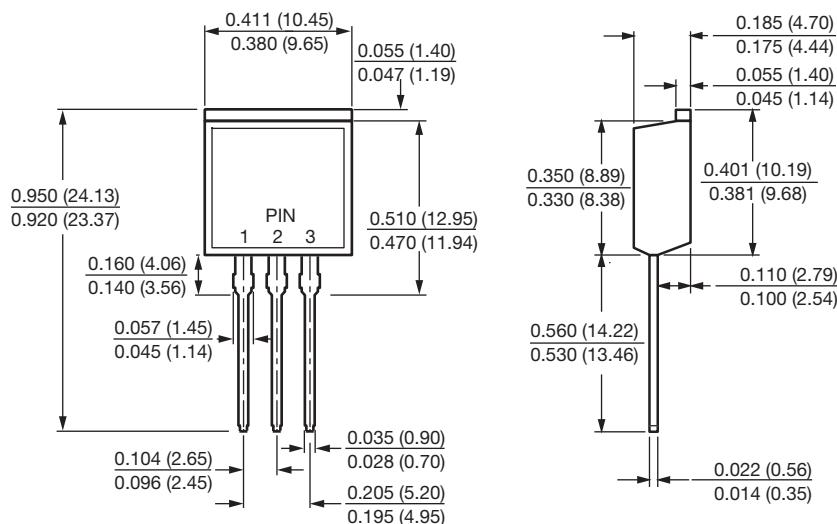
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

Fig. 4 - Typical Reverse Characteristics

Fig. 2 - Forward Power Dissipation Characteristics

Fig. 5 - Typical Transient Thermal Impedance

Fig. 3 - Typical Instantaneous Forward Characteristics

Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-262AA



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