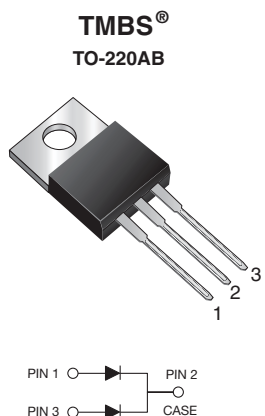


# Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.49\text{ V}$  at  $I_F = 5\text{ A}$



## FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C maximum, 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)



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

## 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

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	
$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	120 V
$I_{FSM}$	160 A
$V_F$ at $I_F = 15\text{ A}$ (125 °C)	0.66 V
$T_J$ max.	150 °C
Package	TO-220AB
Diode variation	Common cathode

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V30120CI	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	120	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	30	A
		15	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	160	A
Operating junction temperature range	$T_J$ <sup>(1)</sup>	-40 to +150	°C
Storage temperature range	$T_{STG}$	-55 to +150	

### Note

<sup>(1)</sup> The heat generated must be less than the thermal conductivity from junction to ambient:  $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.55	-	V
	I <sub>F</sub> = 7.5 A			0.62	-	
	I <sub>F</sub> = 15 A			0.82	0.90	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.49	-	
	I <sub>F</sub> = 7.5 A			0.55	-	
	I <sub>F</sub> = 15 A			0.66	0.74	
Reverse current per diode	V <sub>R</sub> = 90 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	0.01	-	mA
		T <sub>A</sub> = 125 °C		5.0	-	
	V <sub>R</sub> = 120 V	T <sub>A</sub> = 25 °C		-	0.5	
		T <sub>A</sub> = 125 °C		11.0	25	
Junction capacitance	4 V, 1MHz		C <sub>J</sub>	1300	-	pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 5\text{ ms}$ 

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	V30120CI	UNIT
Typical thermal resistance per device	$R_{\theta JC}$	1.8	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V30120CI-M3/P	1.88	P	50/tube	Tube

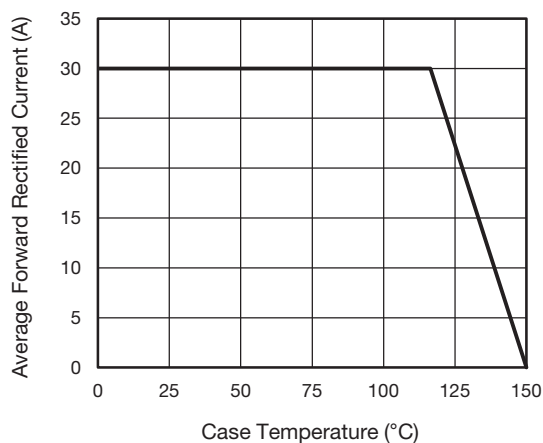
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

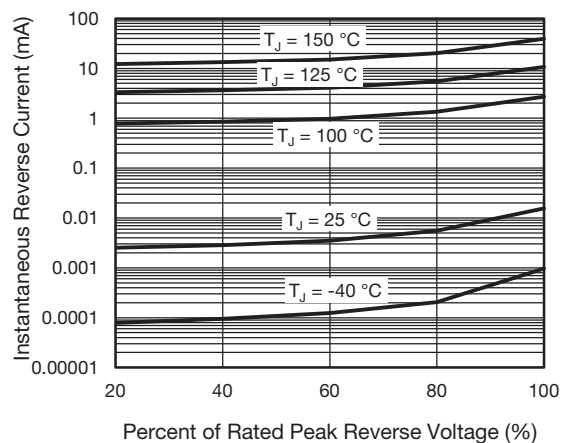


Fig. 4 - Typical Reverse Characteristics Per Diode

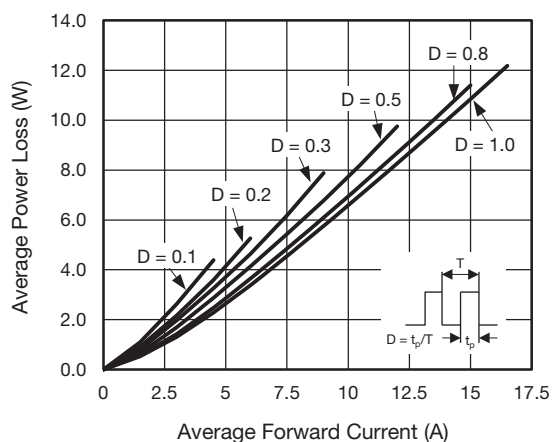


Fig. 2 - Forward Power Loss Characteristics Per Diode

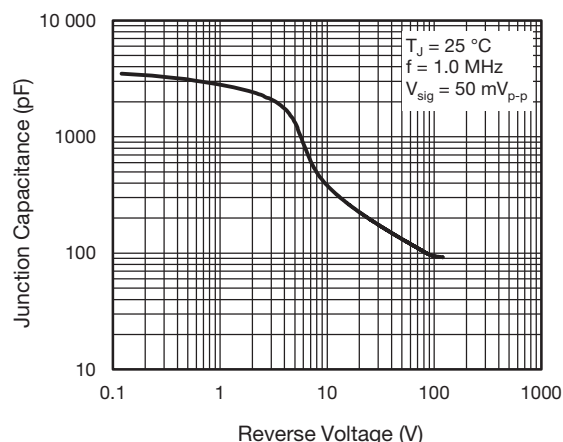


Fig. 5 - Typical Junction Capacitance

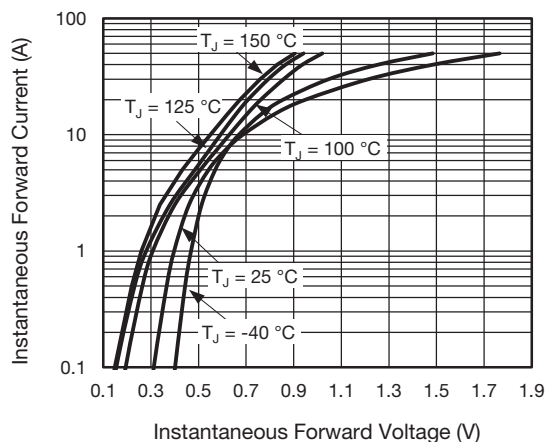


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

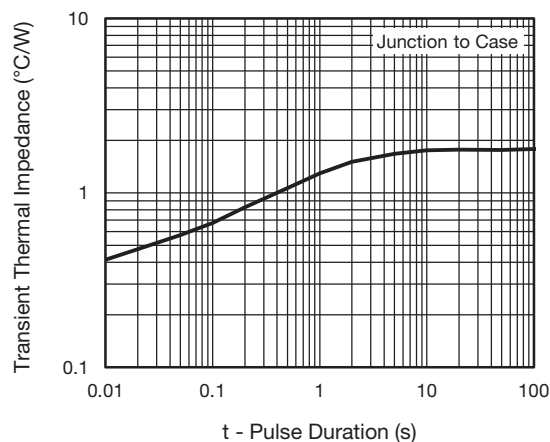
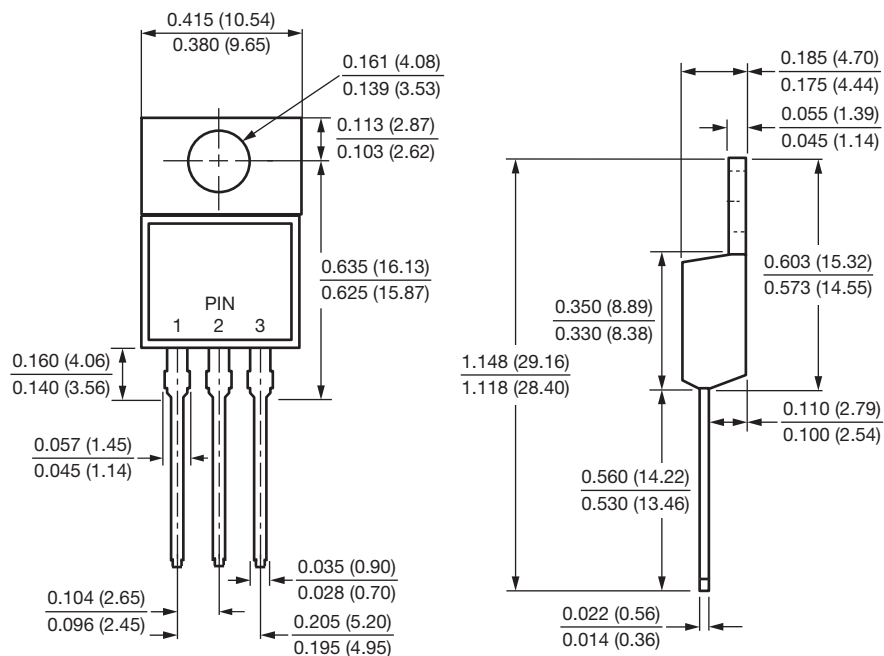


Fig. 6 - Typical Transient Thermal Impedance Per Device

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

**TO-220AB**




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