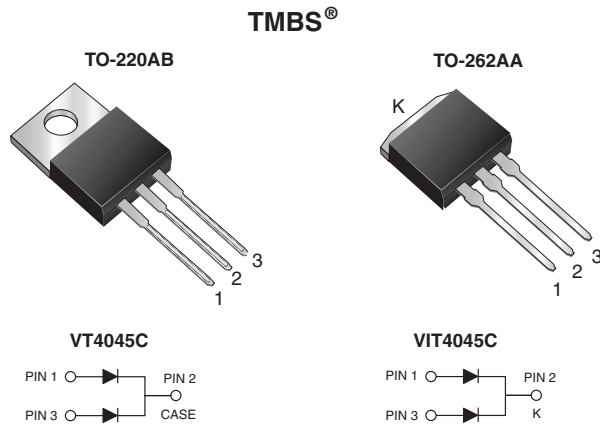


# Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low  $V_F = 0.28\text{ V}$  at  $I_F = 5.0\text{ A}$ 


## 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)


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

## 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

$I_{F(AV)}$	2 x 20 A
$V_{RRM}$	45 V
$I_{FSM}$	240 A
$V_F$ at $I_F = 20\text{ A}$	0.41 V
$T_J$ max.	150 °C
Package	TO-220AB, TO-262AA
Diode variations	Common cathode

## MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	VT4045C	VIT4045C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	45		V
Maximum average forward rectified current (fig. 1)		per device	40	A
		per diode	20	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	240		A
Operating junction and storage temperature range	$T_J, T_{STG}$	-40 to +150		°C



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>	0.41	-	V
	I <sub>F</sub> = 10 A			0.44	-	
	I <sub>F</sub> = 20 A			0.50	0.58	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.28	-	
	I <sub>F</sub> = 10 A			0.33	-	
	I <sub>F</sub> = 20 A			0.41	0.50	
Reverse current per diode	V <sub>R</sub> = 45 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	3000	μA
		T <sub>A</sub> = 125 °C		18	50	mA

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	VT4045C	VIT4045C	UNIT
Typical thermal resistance	per diode	R <sub>θJC</sub>	1.5		°C/W
	per device		0.8		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT4045C-M3/4W	1.89	4W	50/tube	Tube
TO-262AA	VIT4045C-M3/4W	1.46	4W	50/tube	Tube

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

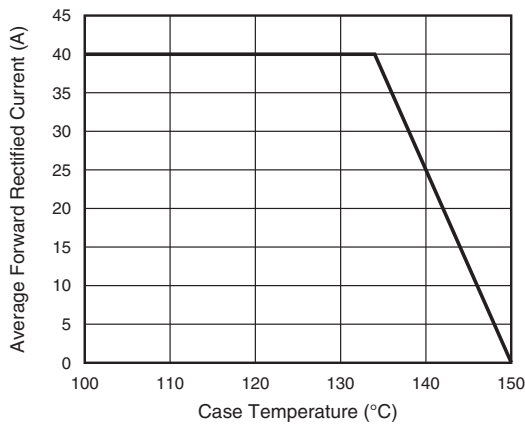


Fig. 1 - Maximum Forward Current Derating Curve

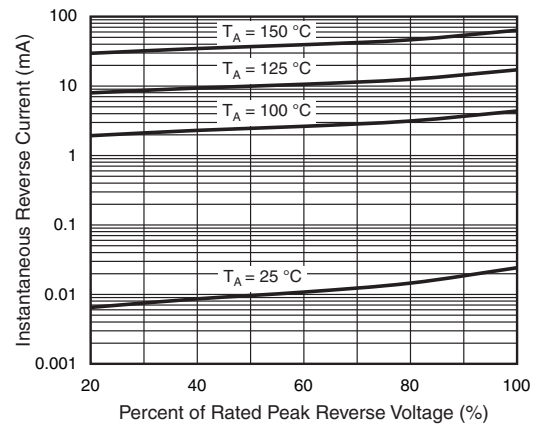


Fig. 4 - Typical Reverse Characteristics Per Diode

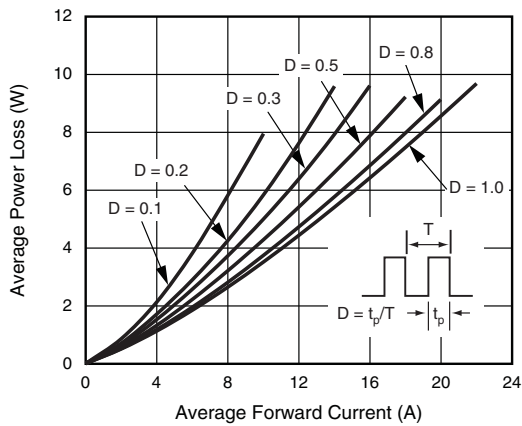


Fig. 2 - Forward Power Loss Characteristics Per Diode

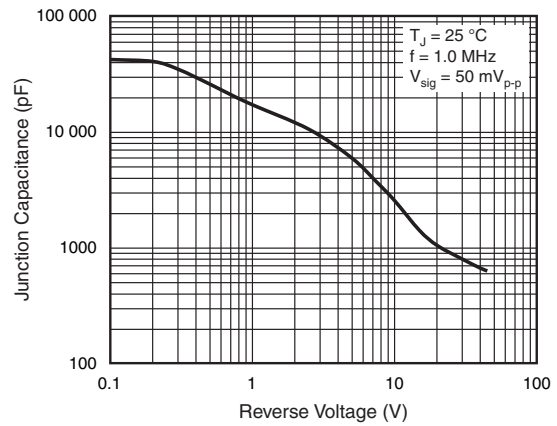


Fig. 5 - Typical Junction Capacitance Per Diode

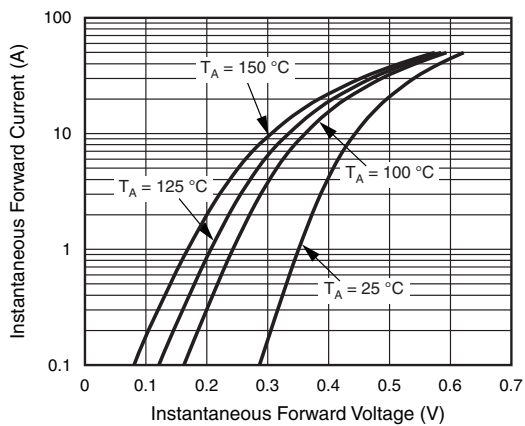


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

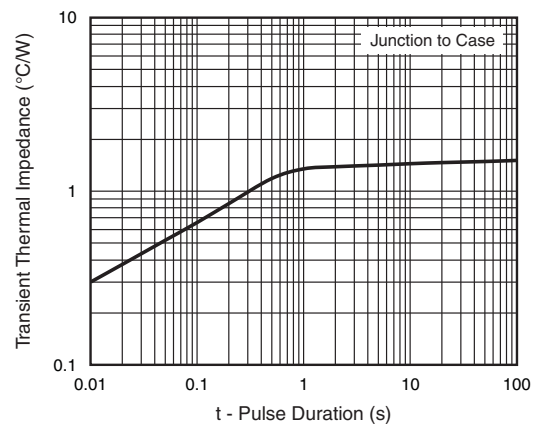
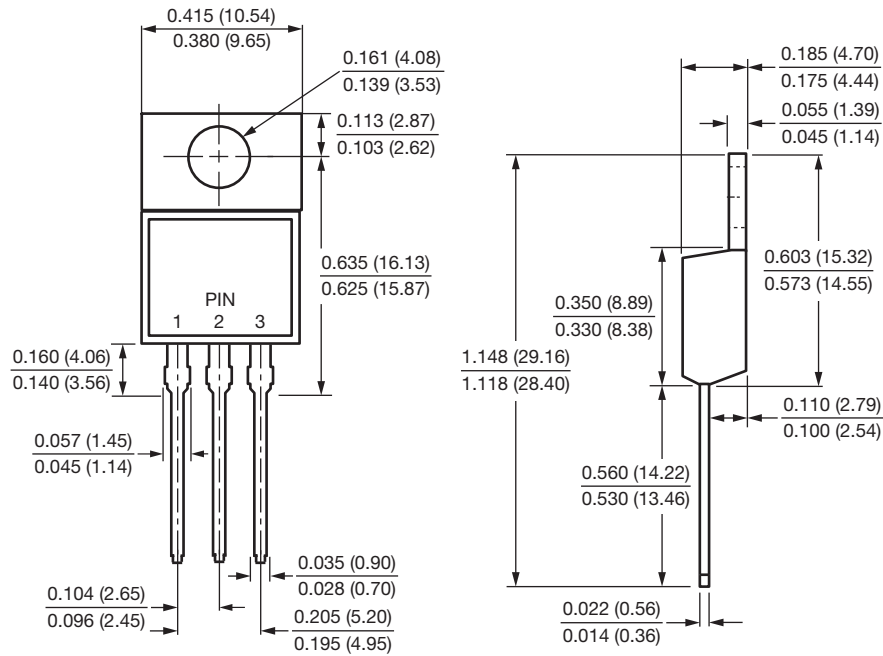


Fig. 6 - Typical Transient Thermal Impedance Per Diode

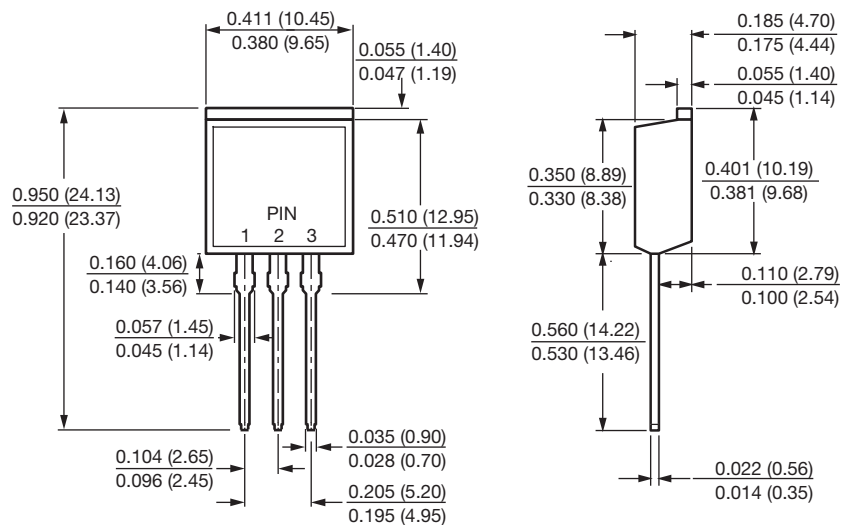


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### TO-220AB



#### TO-262AA





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