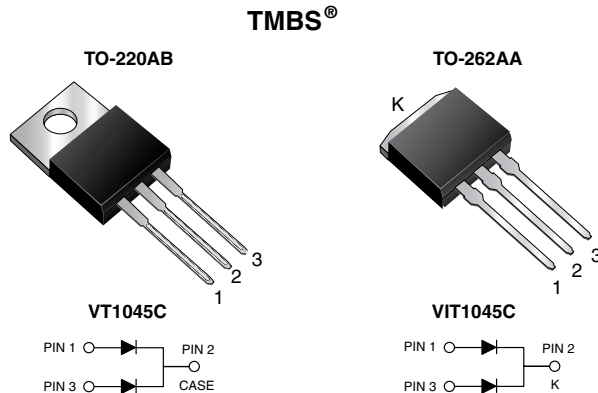




## Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.34$  V at  $I_F = 2.5$  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
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**



**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.

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 5.0 A
$V_{RRM}$	45 V
$I_{FSM}$	100 A
$V_F$ at $I_F = 5.0$ A	0.41 V
$T_J$ max.	150 °C

### 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

Base P/NHM3 - halogen-free, RoHS compliant, and AEC-Q101 qualified

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

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** As marked

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

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

PARAMETER	SYMBOL	VT1045C	VIT1045C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	45		V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	10	A
		per diode	5.0	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	100		A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150		°C

# VT1045C, VIT1045C

Vishay General Semiconductor



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> = 2.5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.44	-	V
	I <sub>F</sub> = 5.0 A			0.49	0.58	
	I <sub>F</sub> = 2.5 A	T <sub>A</sub> = 125 °C		0.34	-	
	I <sub>F</sub> = 5.0 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>	-	500	μA
		T <sub>A</sub> = 125 °C		5	15	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	VT1045C	VIT1045C	UNIT
Typical thermal resistance	per diode	R <sub>θJC</sub>	3.5		°C/W
	per device		2.5		

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT1045C-M3/4W	1.87	4W	50/tube	Tube
TO-262AA	VIT1045C-M3/4W	1.45	4W	50/tube	Tube
TO-220AB	VT1045CHM3/4W <sup>(1)</sup>	1.87	4W	50/tube	Tube
TO-262AA	VIT1045CHM3/4W <sup>(1)</sup>	1.45	4W	50/tube	Tube

**Note**

- (1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

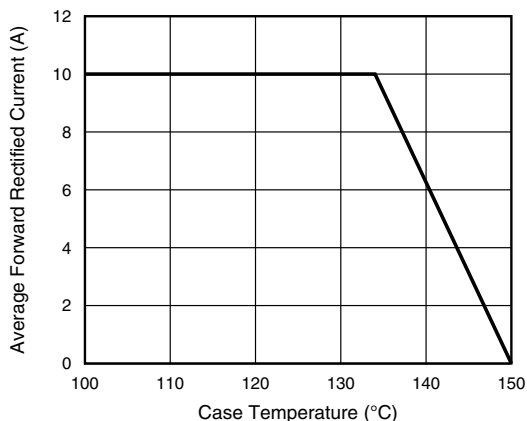


Fig. 1 - Maximum Forward Current Derating Curve

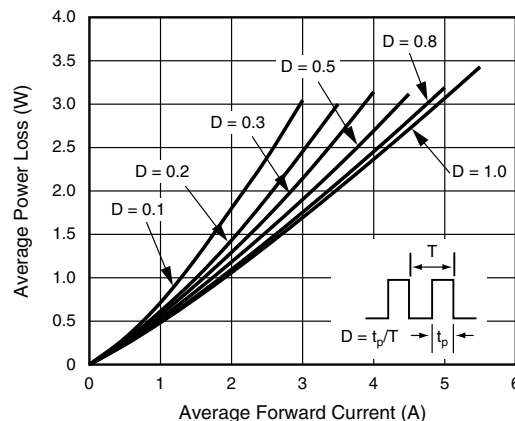


Fig. 2 - Forward Power Loss Characteristics Per Diode

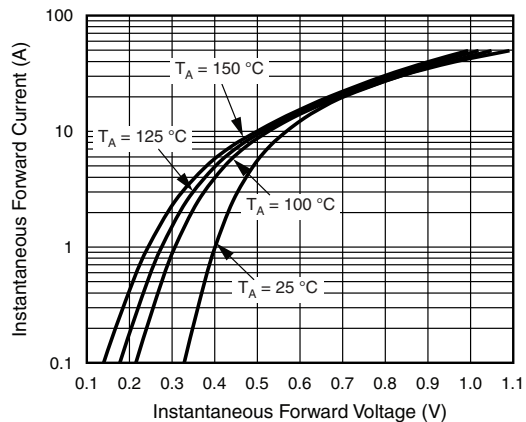


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

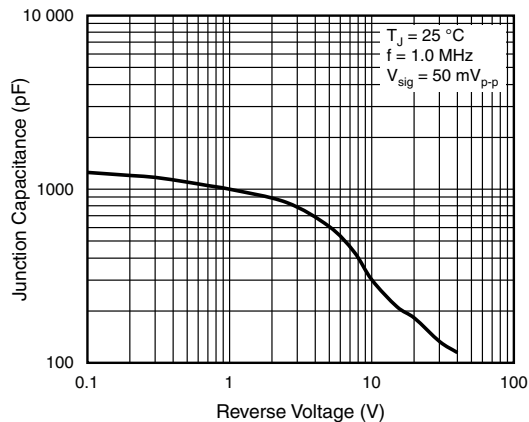


Fig. 5 - Typical Junction Capacitance Per Diode

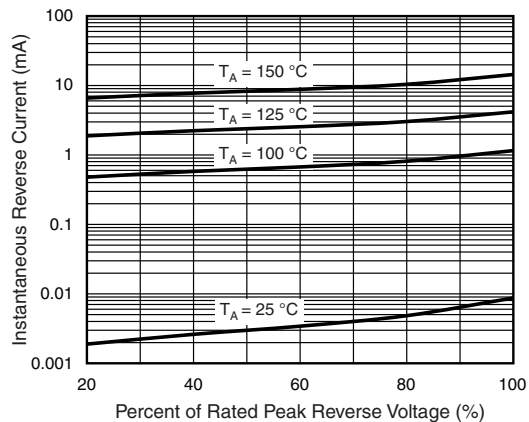


Fig. 4 - Typical Reverse Characteristics Per Diode

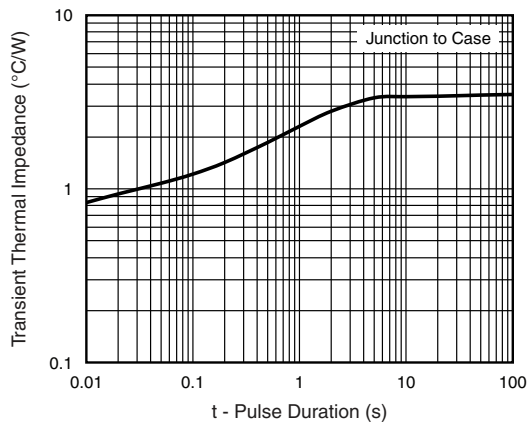


Fig. 6 - Typical Transient Thermal Impedance Per Diode

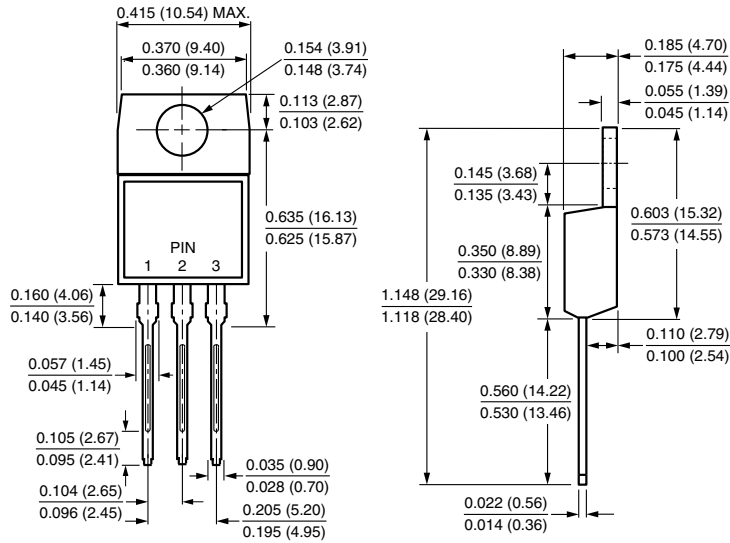
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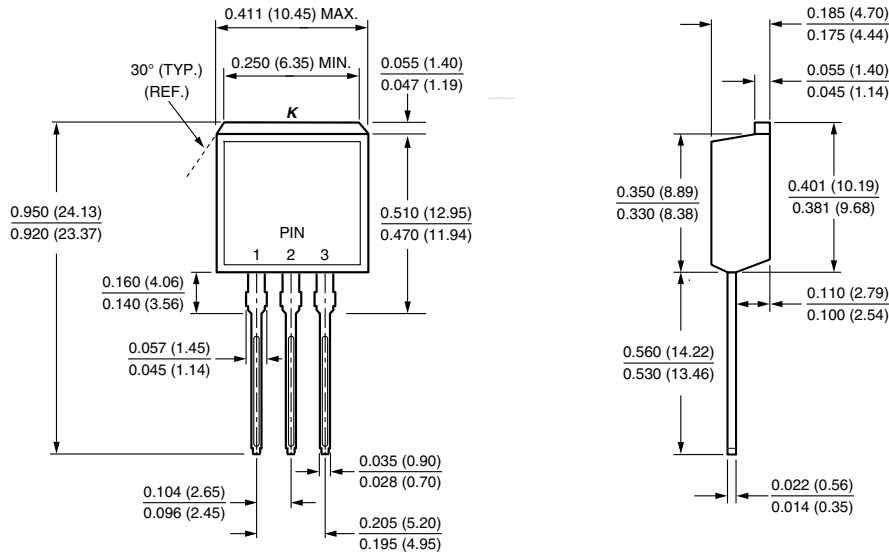


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-220AB



### TO-262AA





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