VT4045C, VIT4045C

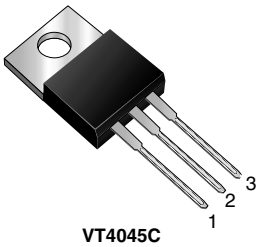
Vishay General Semiconductor

Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

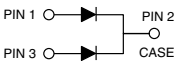
Ultra Low V_F = 0.28 V at I_F = 5.0 A

TMBS®

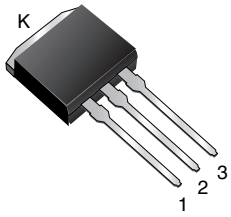
TO-220AB



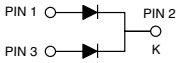
VT4045C



TO-262AA



VIT4045C



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 20 A
V_{RRM}	45 V
I_{FSM}	240 A
V_F at I_F = 20 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	VT4045C	VIT4045C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	45		V
Maximum average forward rectified current (fig. 1)	per device	$I_{F(AV)}$	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

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DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I_F = 5 A	T_A = 25 °C	V_F (1)	0.41	-	V
	I_F = 10 A			0.44	-	
	I_F = 20 A			0.50	0.58	
	I_F = 5 A	T_A = 125 °C		0.28	-	
	I_F = 10 A			0.33	-	
	I_F = 20 A			0.41	0.50	
Reverse current per diode	V_R = 45 V	T_A = 25 °C	I_R (2)	-	3000	µA
		T_A = 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_A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	VT4045C	VIT4045C	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	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
TO-220AB	VT4045CHM3/4W (1)	1.89	4W	50/tube	Tube
TO-262AA	VIT4045CHM3/4W (1)	1.46	4W	50/tube	Tube

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

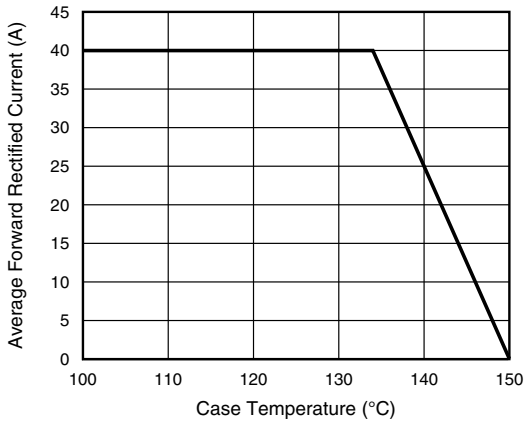

Fig. 1 - Maximum Forward Current Derating Curve

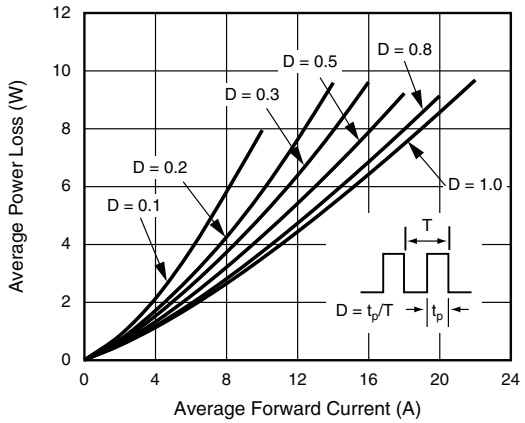

Fig. 2 - Forward Power Loss Characteristics Per Diode

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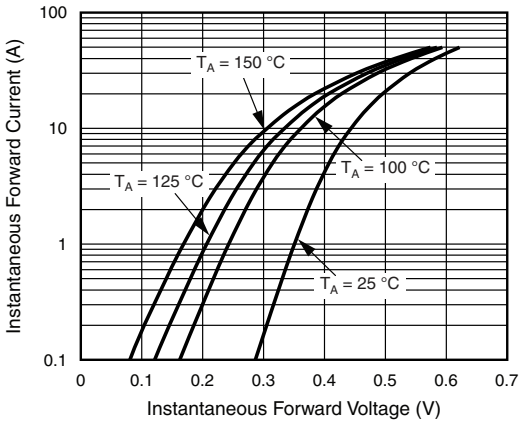

Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

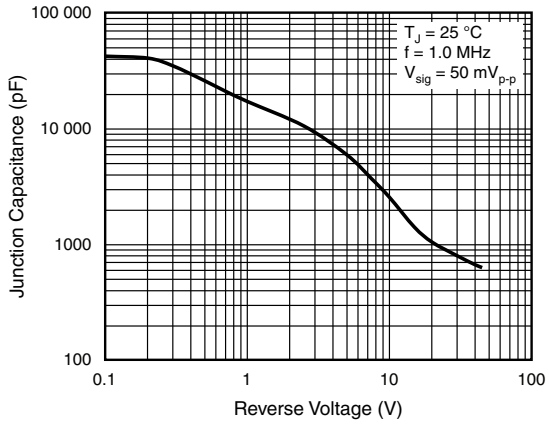

Fig. 5 - Typical Junction Capacitance Per Diode

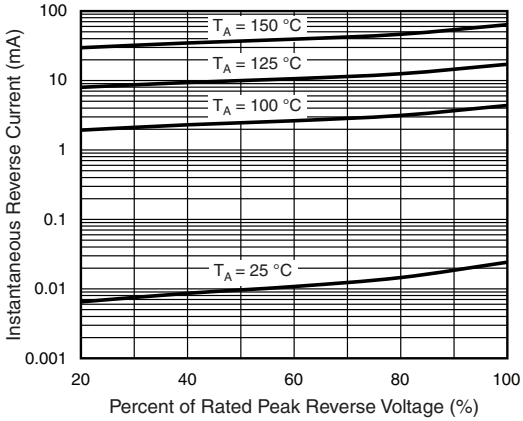

Fig. 4 - Typical Reverse Characteristics Per Diode

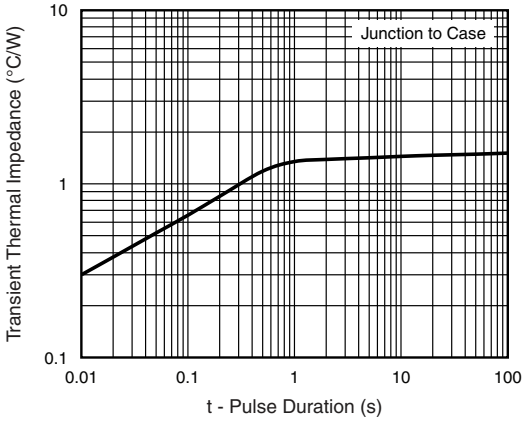

Fig. 6 - Typical Transient Thermal Impedance Per Diode

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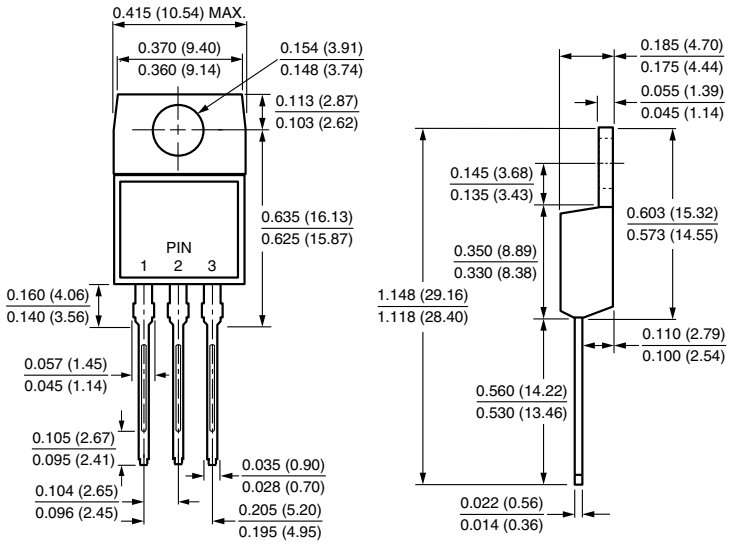
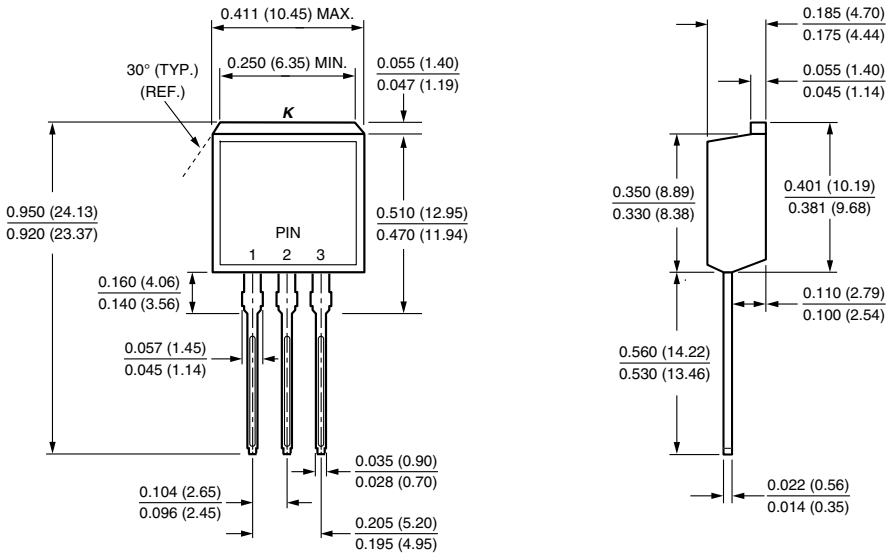
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-262AA



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