VT2045C, VIT2045C

Vishay General Semiconductor

Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.33$ V at $I_F = 5.0$ A



- 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
 FREE
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER		SYMBOL	VT2045C VIT2045C		UNIT		
Maximum repetitive peak reverse voltage		V _{RRM}	45		V		
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	20		А		
Maximum average forward rectined current (lig. 1)	per diode		10				
Peak forward surge current 8.3 ms single half sine-was superimposed on rated load per diode	ave	I _{FSM}	16	160			
Operating junction and storage temperature range		T _J , T _{STG}	-40 to	+150	°C		

TMBS®TO-220ABTO-262AAImage: colspan="2">KImage: colspan="2">KImage: colspan="2">VT2045CImage: colspan="2">Image: colspan="2"

PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 10 A			
V _{RRM}	45 V			
I _{FSM}	160 A			
V_F at $I_F = 10$ A	0.41 V			
T _J max.	150 °C			
Package	TO-220AB, TO-262AA			
Diode variations	Common cathode			

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ROHS COMPLIANT





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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I _F = 5 A	T₄ = 25 °C	- V _F ⁽¹⁾	0.44	-	v	
	I _F = 10 A			0.49	0.58		
	I _F = 5 A	– T _A = 125 °C		0.33	-		
	I _F = 10 A			0.41	0.52		
Reverse current per diode	V _ 45 V	T _A = 25 °C	I _R ⁽²⁾	-	2000	μA	
	V _R = 45 V	T _A = 125 °C		10	30	mA	

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER		SYMBOL	VT2045C	VIT2045C	UNIT	
	per diode	$R_{ ext{ heta}JC}$	3.0		°C/W	
Typical thermal resistance	per device		2.0			

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	VT2045C-M3/4W	1.88	4W	50/tube	Tube		
TO-262AA	VIT2045C-M3/4W	1.45	4W	50/tube	Tube		



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RATINGS AND CHARACTERISTICS CURVES ($T_A = 25$ °C unless otherwise noted)

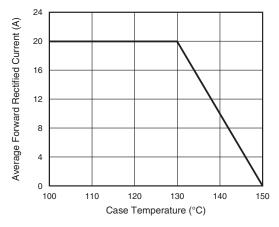


Fig. 1 - Maximum Forward Current Derating Curve

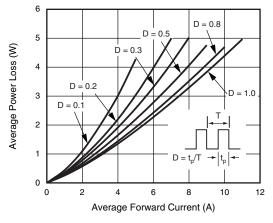


Fig. 2 - Forward Power Loss Characteristics Per Diode

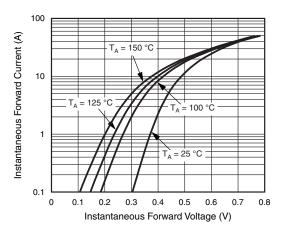


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

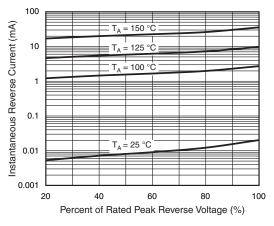


Fig. 4 - Typical Reverse Characteristics Per Diode

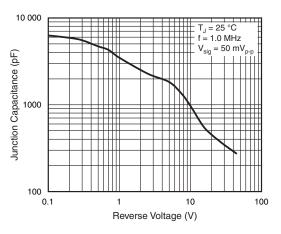


Fig. 5 - Typical Junction Capacitance Per Diode

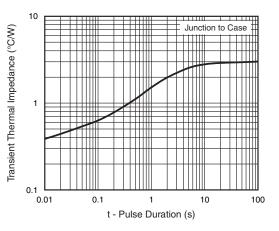


Fig. 6 - Typical Transient Thermal Impedance Per Diode

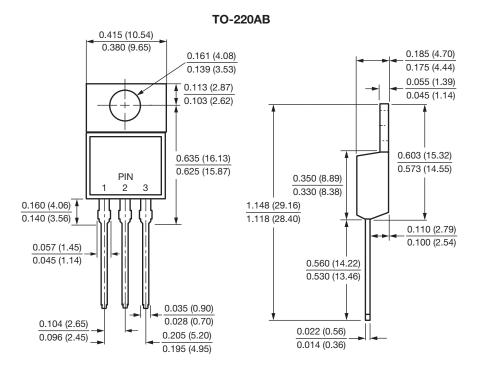
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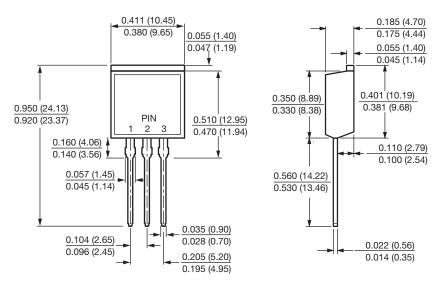




PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



TO-262AA





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