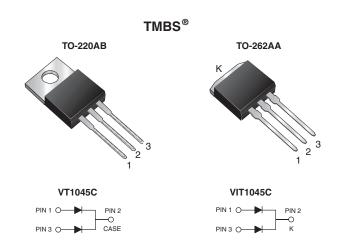


Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.34 \text{ V}$ at $I_F = 2.5 \text{ A}$



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				
Package	TO-220AB, TO-262AA				
Diode variations	Common cathode				

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses

Low forward voltage drop, low power losses
High efficiency operation
Compliant HALOGEN

• Solder dip 275 °C max. 10 s, per JESD 22-B106 FREE

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

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 °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)	per device	· I _{F(AV)}	10		А	
	per diode		5.0			
Peak forward surge current 8.3 ms single half sine-was superimposed on rated load per diode	I _{FSM}	100		А		
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +150		°C	



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage per diode	I _F = 2.5 A	—— T _Δ = 25 °C	V _F ⁽¹⁾	0.44	-	V	
	I _F = 5.0 A			0.49	0.58		
	I _F = 2.5 A	- T _A = 125 °C		0.34	-		
	I _F = 5.0 A			0.41	0.50		
Reverse current per diode	$V_R = 45 \text{ V}$ $T_A = 25 \text{ °C}$ $T_A = 125 \text{ °C}$	1 (2)	-	500	μΑ		
		T _A = 125 °C	I _R ⁽²⁾	5	15	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	VT1045C	VIT1045C	UNIT	
Typical thermal resistance	per diode	В	3.5		°C/W	
	per device	$R_{ hetaJC}$	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		

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

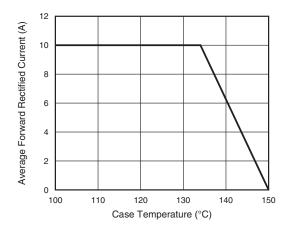
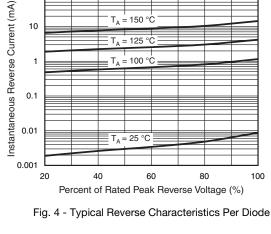


Fig. 1 - Maximum Forward Current Derating Curve



100

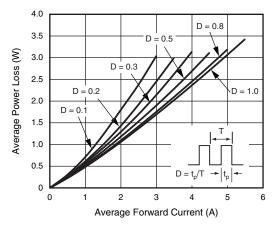


Fig. 2 - Forward Power Loss Characteristics Per Diode

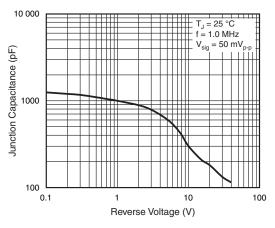


Fig. 5 - Typical Junction Capacitance Per Diode

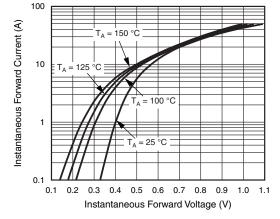


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

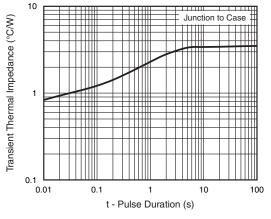


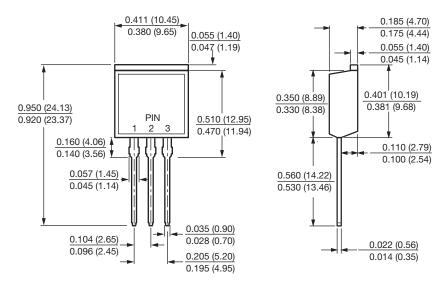
Fig. 6 - Typical Transient Thermal Impedance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB 0.415 (10.54) 0.380 (9.65) 0.185 (4.70) 0.161 (4.08) 0.139 (3.53) 0.175 (4.44) 0.055 (1.39) 0.113 (2.87) 0.045 (1.14) 0.103 (2.62) 0.603 (15.32) 0.635 (16.13) 0.573 (14.55) 0.625 (15.87) PIN 0.350 (8.89) 2 0.330 (8.38) 1.148 (29.16) 0.160 (4.06) 0.140 (3.56) 1.118 (28.40) 0.110 (2.79) 0.100 (2.54) 0.057 (1.45) 0.045 (1.14) 0.560 (14.22) 0.530 (13.46) 0.035 (0.90) 0.028 (0.70) 0.104 (2.65) 0.022 (0.56) 0.096 (2.45) 0.205 (5.20) 0.014 (0.36) 0.195 (4.95)

TO-262AA





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