

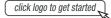
Vishay General Semiconductor

Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.33 \text{ V}$ at $I_F = 5.0 \text{ A}$



DESIGN SUPPORT TOOLS





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	D ² PAK (TO-263AB)			
Circuit configuration	Common cathode			

FEATURES

Trench MOS Schottky technology



· Low forward voltage drop, low power losses

• High efficiency operation

(e3)

 Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C

RoHS COMPLIANT

 Material categorization: for definitions of compliance please see www.vishav.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: D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 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	VBT2045C	UNIT	
Maximum repetitive peak reverse voltage		V _{RRM}	45	V	
Maximum average forward rectified current (fig. 1)	per device	I=	20	^	
	per diode	I _{F(AV)}	10	A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	160	А	
Operating junction and storage temperature range		T _J , T _{STG}	-40 to +150	°C	



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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⁾	0.44	-	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 _R = 45 V	T _A = 25 °C T _A = 125 °C	I _R ⁽²⁾	-	2000	μA
	V _R = 45 V T _A = 125 °C	IR (=)	10	30	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	VBT2045C	UNIT	
Typical thermal resistance	per diode	$R_{ heta JC}$	3.0	°C/W	
	per device		2.0	- C/VV	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-263AB	VBT2045C-E3/4W	1.38	4W	50/tube	Tube	
TO-263AB	VBT2045C-E3/8W	1.38	8W	800/reel	Tape and reel	

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

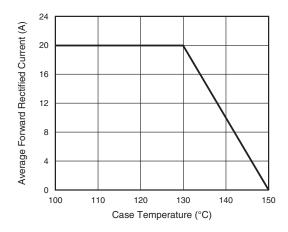


Fig. 1 - Maximum Forward Current Derating Curve

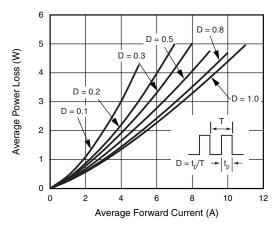


Fig. 2 - Forward Power Loss Characteristics Per Diode



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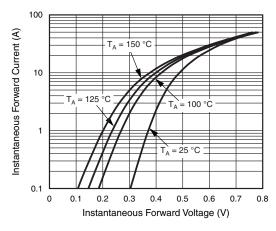


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

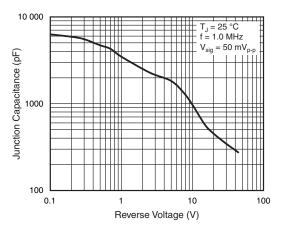


Fig. 5 - Typical Junction Capacitance Per Diode

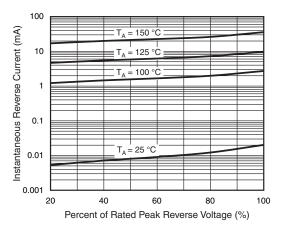


Fig. 4 - Typical Reverse Characteristics Per Diode

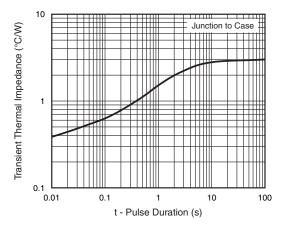
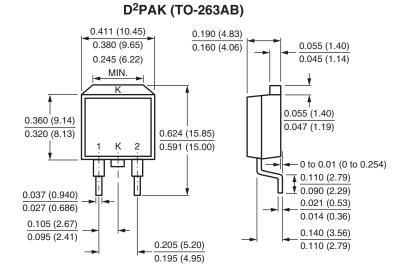
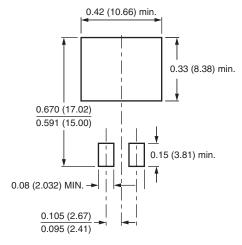


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Mounting Pad Layout





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