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Vishay General Semiconductor

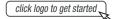
Dual Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.32 \text{ V}$ at $I_F = 5.0 \text{ A}$





DESIGN SUPPORT TOOLS





PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 20 A			
V _{RRM}	60 V			
I _{FSM}	240 A			
V _F at I _F = 20 A	0.48 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
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters, and reverse battery protection.

MECHANICAL DATA

Case: D²PAK (TO-263AB)

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 2 whisker test

Polarity: as marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER Maximum repetitive peak reverse voltage		SYMBOL	VBT4060C	UNIT V	
		V_{RRM}	60		
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	40	А	
	per diode		20		
Peak forward surge current 8.3 ms single half sine- on rated load	I _{FSM}	240	А		
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs	
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 (1)	I _F = 5.0 A	T _A = 25 °C	V _F	0.43	-	. V	
	I _F = 10 A			0.48	-		
	I _F = 20 A			0.53	0.62		
	I _F = 5.0 A	T _A = 125 °C		0.32	-		
	I _F = 10 A			0.39	-		
	I _F = 20 A			0.48	0.57		
Reverse current per diode (2)	V _R = 60 V	T _A = 25 °C		-	6.0	mA	
	v _R = 60 v	T _A = 125 °C		34	190		

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	VBT4060C	UNIT	
Typical thermal resistance	per diode	- R _{θJC}	1.5	°C/W	
	per device		0.8	J/ VV	

ORDERING INFORMATION (Example)						
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
TO-263AB	VBT4060C-M3/4W	1.39	4W	50/tube	Tube	
TO-263AB	VBT4060C-M3/8W	1.39	8W	800/reel	Tape and reel	

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

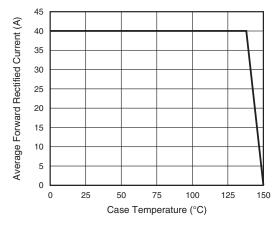


Fig. 1 - Maximum Forward Current Derating Curve

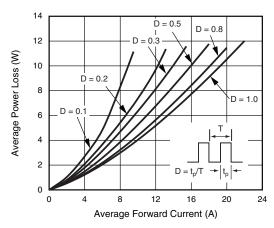


Fig. 2 - Forward Power Dissipation Characteristics Per Diode



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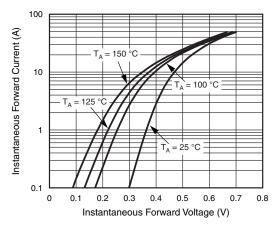


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

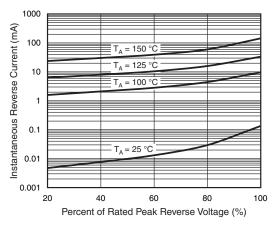


Fig. 4 - Typical Reverse Characteristics Per Diode

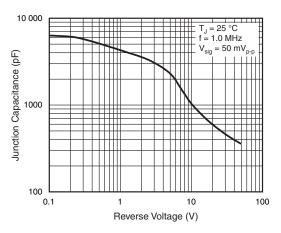


Fig. 5 - Typical Junction Capacitance Per Diode

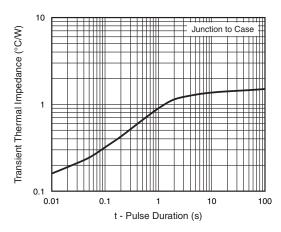
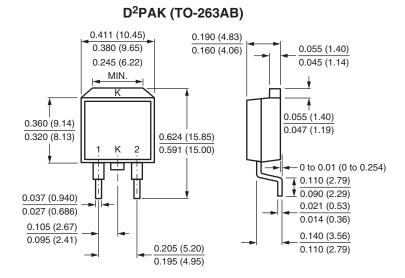
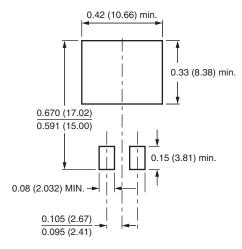


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Mounting Pad Layout





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