**HALOGEN** 

FREE



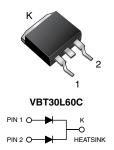
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## Vishay General Semiconductor

# Dual TMBS® (Trench MOS Barrier Schottky) Rectifier

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

### D<sup>2</sup>PAK (TO-263AB)



### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2 x 15 A			
V <sub>RRM</sub>	60 V			
I <sub>FSM</sub>	200 A			
V <sub>F</sub> at I <sub>F</sub> = 15 A	0.45 V			
T <sub>J</sub> max.	150 °C			
Package	D <sup>2</sup> 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



### 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: D<sup>2</sup>PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

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

E3 and M3 suffix meet JESD 201 class 2 whisker test

Polarity: as marked

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	VBT30L60C	UNIT		
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	60	V		
Maximum average forward rectified current (fig. 1)	per device		30	^		
	per diode	I <sub>F(AV)</sub>	15	A		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	200	А		
Voltage rate of change (rated V <sub>R</sub> )		dV/dt	10 000	V/µs		
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-40 to +150	°C		

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CO	NDITIONS	SYMBOL	TYP.	MIN.	UNIT	
Instantaneous forward voltage per diode	I <sub>F</sub> = 5.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.43	-	V	
	I <sub>F</sub> = 7.5 A			0.46	-		
	I <sub>F</sub> = 15 A			0.51	0.60		
	I <sub>F</sub> = 5.0 A	T <sub>A</sub> = 125 °C		0.32	-		
	I <sub>F</sub> = 7.5 A			0.36	-		
	I <sub>F</sub> = 15 A			0.45	0.57		
Reverse current per diode	V <sub>R</sub> = 60 V	T <sub>A</sub> = 25 °C	In \ <sup>2</sup> /	-	4.0	mA	
	v <sub>R</sub> = 60 v	T <sub>A</sub> = 125 °C		27	110		

#### Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms



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THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	VBT30L60C	UNIT	
Typical thermal resistance	per diode	- R <sub>θJC</sub>	1.8	°C/W	
	per device		0.8	C/VV	

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-263AB	VBT30L60C-E3/4W	1.39	4W	50/tube	Tube		
TO-263AB	VBT30L60C-E3/8W	1.39	8W	800/reel	Tape and reel		
TO-263AB	VBT30L60C-M3/I	1.39	1	800/reel	Tape and reel		

## RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

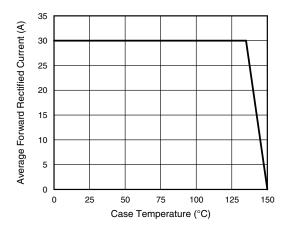


Fig. 1 - Maximum Forward Current Derating Curve

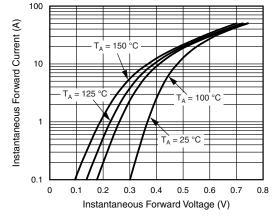


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

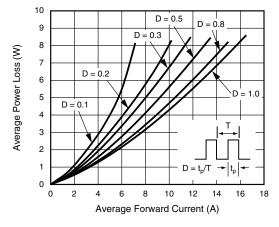


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

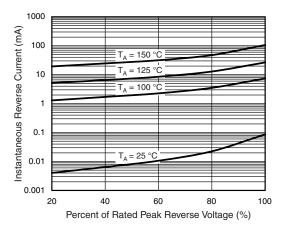


Fig. 4 - Typical Reverse Characteristics Per Diode



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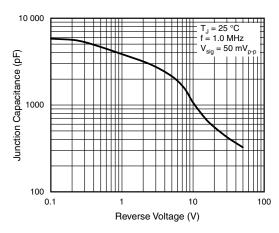


Fig. 5 - Typical Junction Capacitance Per Diode

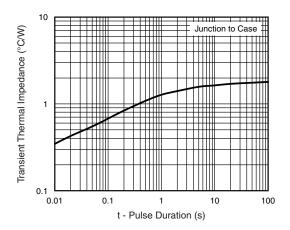
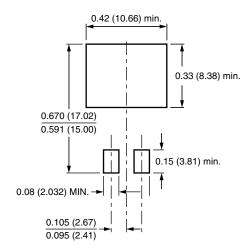


Fig. 6 - Typical Transient Thermal Impedance Per Diode

### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

#### D<sup>2</sup>PAK (TO-263AB) 0.411 (10.45) 0.190 (4.83) 0.380 (9.65) 0.160 (4.06) 0.055 (1.40) 0.245 (6.22) 0.045 (1.14) MIN. 0.055 (1.40) 0.360 (9.14) 0.047 (1.19) 0.320 (8.13) 0.624 (15.85) 0.591 (15.00) K -0 to 0.01 (0 to 0.254) <u>7</u> <u>0.11</u>0 (2.79) **▼** 0.090 (2.29) 0.037 (0.940) 0.021 (0.53) 0.027 (0.686) 0.014 (0.36) 0.105 (2.67) 0.140 (3.56) 0.095 (2.41) 0.205 (5.20) 0.110 (2.79) 0.195 (4.95)

### **Mounting Pad Layout**





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