

Vishay General Semiconductor

Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.52 \text{ V}$ at $I_F = 5 \text{ A}$



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	10 A			
V _{RRM}	80 V			
I _{FSM}	100 A			
V _F at I _F = 10 A	0.60 V			
T _J max.	150 °C			
Package	D ² PAK (TO-263AB)			
Circuit configurations	Single			

FEATURES

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

• High efficiency operation

ROHS COMPLIANT HALOGEN

- 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 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	VBT1080S	UNIT	
Maximum repetitive peak reverse voltage	V_{RRM}	80	V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	10	Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	100	Α	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C	

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT	
Instantaneous forward voltage (1)	I _F = 5 A	T 05 °C	V _F	0.57	-	. V	
	I _F = 10 A	T _A = 25 °C		0.67	0.81		
	I _F = 5 A	T _A = 125 °C		0.52	-		
	I _F = 10 A			0.60	0.70		
Reverse current (2)	V _R = 80 V	T _A = 25 °C	- I _R	20	600	μΑ	
	v _R = 60 v	T _A = 125 °C		10	20	mA	

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 _A = 25 °C unless otherwise noted)				
PARAMETER	VBT1080S	UNIT		
Typical thermal resistance	$R_{ heta JC}$	2.2	°C/W	

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
D ² PAK (TO-263AB)	VBT1080S-M3/4W	1.36	4W	50/tube	Tube		
D ² PAK (TO-263AB)	VBT1080S-M3/8W	1.36	8W	800/reel	Tape and reel		

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

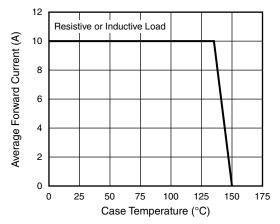


Fig. 1 - Maximum Forward Current Derating Curve

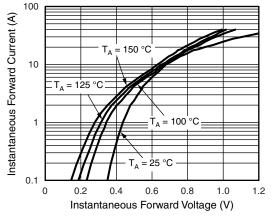


Fig. 3 - Typical Instantaneous Forward Characteristics

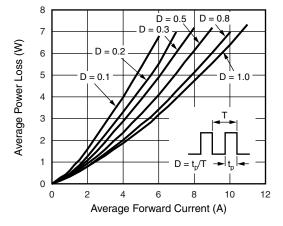


Fig. 2 - Forward Power Loss Characteristics

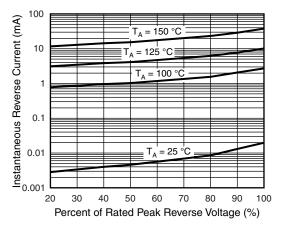


Fig. 4 - Typical Reverse Characteristics



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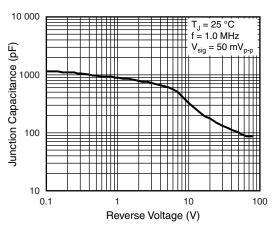


Fig. 5 - Typical Junction Capacitance

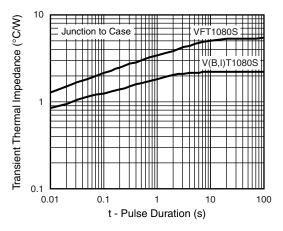
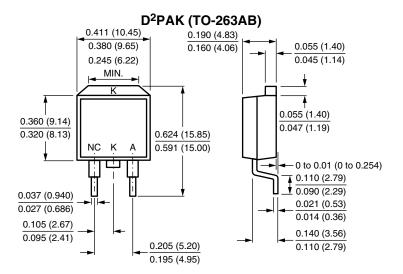
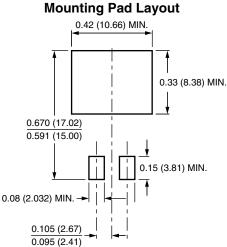


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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