

Vishay General Semiconductor

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.56 \text{ V}$ at $I_F = 5.0 \text{ A}$



DESIGN SUPPORT TOOLS





PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 x 15 A			
V_{RRM}	150 V			
I _{FSM}	140 A			
V _F at I _F = 15 A	0.71 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 www.vishay.com/doc?99912





HALOGEN FREE

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	VB30150C	UNIT	
Maximum repetitive peak reverse voltage		V_{RRM}	150	V	
Maximum average forward rectified current (fig. 1)	per device	I _{F(AV)}	30	А	
	per diode		15		
Peak forward surge current 8.3 ms single half sine-ton rated load	I _{FSM}	140	А		
Voltage rate of change (rated V _R)		dV/dt	10 000	V/µs	
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 per diode ⁽¹⁾	I _F = 5.0 A	T _A = 25 °C	V _F	0.72	-	V	
	I _F = 7.5 A			0.81	-		
	I _F = 15 A]		1.11	1.36		
	$I_F = 5.0 \text{ A}$	T _A = 125 °C		0.56	-		
	I _F = 7.5 A			0.61	-		
	I _F = 15 A			0.71	0.79		
Reverse current per diode (2)	V _R = 100 V	T _A = 25 °C	I _R	1.5	-	μΑ	
	V _R = 100 V	T _A = 125 °C		2	-	mA	
	V _R = 150 V	T _A = 25 °C		-	200	μΑ	
	v _R = 150 v	T _A = 125 °C		4	20	mA	

(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	SYMBOL	VB30150C	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	
TO-263AB	VB30150C-M3/4W	1.39	4W	50/tube	Tube	
TO-263AB	VB30150C-M3/8W	1.39	8W	800/reel	Tape and reel	

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

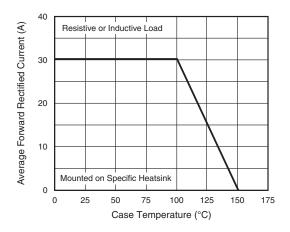


Fig. 1 - Maximum Forward Current Derating Curve

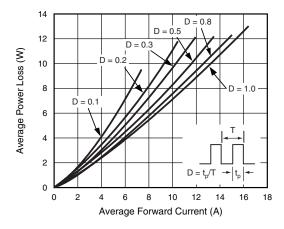


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

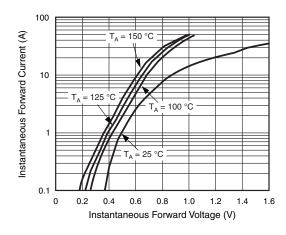


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

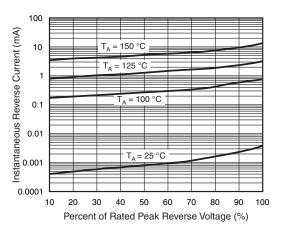


Fig. 4 - Typical Reverse Characteristics Per Diode



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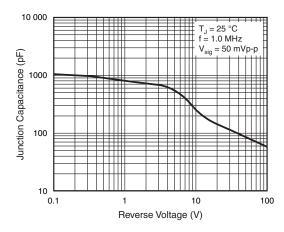


Fig. 5 - Typical Junction Capacitance Per Diode

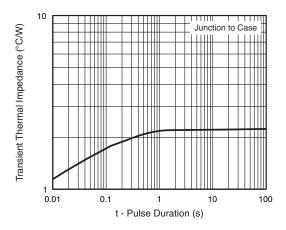
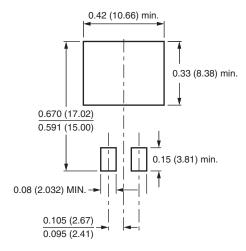


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB) 0.411 (10.45) 0.190 (4.83) 0.380 (9.65) 0.055 (1.40) 0.160 (4.06) 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) Κ 2 0.591 (15.00) 0 to 0.01 (0 to 0.254) 0.110 (2.79) 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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