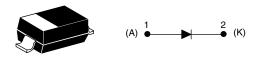
Vishay High Power Products

Schottky Diode, 0.5 A



SOD-123

PRODUCT SUMMARY				
I _{F(AV)} 0.5 A				
V _R	30 V			
V _F at 0.5 A at 25 °C 0.430 V				

FEATURES

- Surface mountable
- Very low forward voltage drop
- Extremely fast switching
- Negligible switching losses
- Guard ring for enhanced ruggedness and long term reliability
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level

DESCRIPTION

This Schottky diode is ideally suited for low voltage, high frequency operations, as freewheeling and polarity protection. Small size of the package allows proper use in application where compact size is critical, fitting also the GSM and PCMCIA requirement.

MAJOR RATINGS AND CHARACTERISTICS					
SYMBOL	CHARACTERISTICS	VALUES	UNITS		
I _{F(AV)}	DC	0.5	A		
V _{RRM}		30	V		
I _{FSM}	t _p = 10 ms sine	10	A		
V _F	0.5 Apk, T _J = 100 °C	0.35	V		
TJ	Range	- 65 to 150	°C		

VOLTAGE RATINGS					
PARAMETER	SYMBOL	MBR0530PbF	UNITS		
Maximum DC reverse voltage	V _R	30	V		
Maximum working peak reverse voltage	V _{RWM}	30	v		

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDI	TIONS	VALUES	UNITS
Forward current	١ _F	DC, T _L = 126 °C		0.5	
Maximum peak one cycle non-repetitive surge current		5 μs sine or 3 μs rect. pulse	Following any rated load condition and with	75	А
at $T_J = 25 \text{ °C}$	IFSM	10 ms sine or 6 ms rect. pulse	rated V_{RRM} applied	10	



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ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V _{FM} ⁽¹⁾	0.1 A	T _J = 25 °C	0.375	V
		0.5 A		0.430	
		0.1 A	T _J = 125 °C	0.250	
		0.5 A		0.350	
Maximum reverse leakage current	I _{RM} ⁽¹⁾	V _R = 15 V	T _J = 25 °C	20	
		V _R = 30 V		130	μA
Maximum junction capacitance	CT	V_{R} = 5 V_{DC} (test signal range 100 kHz to 1 MHz) T_{J} = 25 $^{\circ}C$		90	pF
Maximum voltage rate of change	dV/dt	Rated V _R		10 000	V/µs

Note

 $^{(1)}\,$ Pulse width < 300 $\mu s,$ duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS VALUES		UNITS
Maximum junction and storage temperature range	T _J ⁽¹⁾ , T _{Stg}		- 65 to 150	°C
Maximum thermal resistance, junction to lead	R _{thJL}	Mounted on PC board FR4 with minimum pad size 150		°C/W
Maximum thermal resistance, junction to ambient	R _{thJA}	1" square pad size (1 x 0.5" for each lead) on FR4 board 200		°C/W
Approximate weight			0.012	g
Marking device		Case style SOD-123 BYWLC		VLC

Note

(1) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}}$ thermal runaway condition for a diode on its own heatsink



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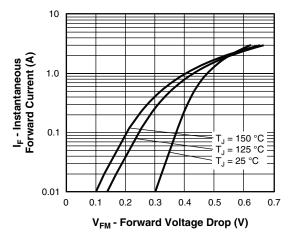


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

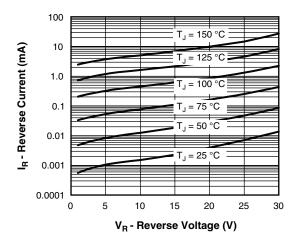
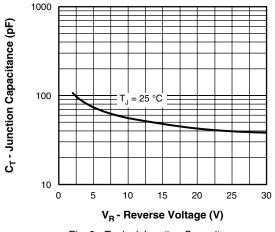
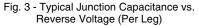


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)





Note

⁽¹⁾ Formula used: $T_C = T_J - Pd \times R_{thJC}$; Pd = Forward power loss = $I_{F(AV)} \times V_{FM}$ at ($I_{F(AV)}/D$) (see fig. 4)

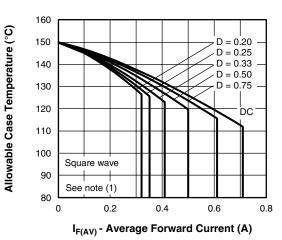


Fig. 4 - Maximum Allowable Case Temperature vs. Average Forward Current

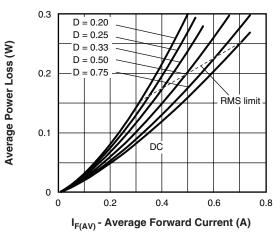


Fig. 5 - Forward Power Loss Characteristics

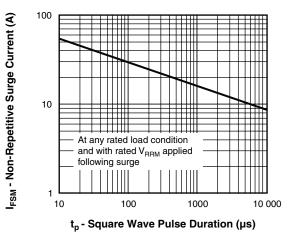


Fig. 6 - Maximum Non-Repetitive Surge Current

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MBR0530PbF

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ORDERING INFORMATION TABLE				
DEVICE	PACKAGE	MARKING	BASE QUANTITY	DELIVERY MODE
MBR0530	SOD-123	B <u>Y</u> WLC	3000	Tape and reel

LINKS TO RELATED DOCUMENTS			
Dimensions www.vishay.com/doc?95053			
Part marking information	www.vishay.com/doc?95338		
Packaging information	www.vishay.com/doc?95061		



Vishay

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