Bulletin PD-21119 rev. A 08/06

International
IOR Rectifier

MBR0530PbF

SCHOTTKY DIODE

0.5 Amp

$I_{F(AV)}$ = 0.5Amp
V_R = 30V

Major Ratings and Characteristics

Characteristics	Value	Units
$I_{F(AV)}$ (DC)	0.5	A
V_{RRM}	30	V
I_{FSM} @ t_p = 10 ms sine	10	A
V_F @0.5Apk, T_J = 100°C	0.35	V
T_J range	- 65 to 150	°C

Description/ Features

This Schottky diode is ideally suited for low voltage, high frequency operation, 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.

- Surface mountable
- Very low forward voltage drop
- Extremely fast switching
- Negligible switching losses
- Guard ring for enhanced ruggedness and long term reliability
- Lead-Free ("PbF" suffix)

Case Styles

SOD123

Voltage Ratings

	Part number	Value
V_R	Max. DC Reverse Voltage (V)	30
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	Value	Units	Conditions	
I_F	Forward Current	0.5	A	DC, T_L = 126°C	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	75	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current, @ T_J = 25°C	10	A	10ms Sine or 6ms Rect. pulse	

Electrical Specifications

	Parameters		Value	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	(1)	0.375	V	@ 0.1A	T_J = 25°C
			0.430	V	@ 0.5A	
V_{FM}	Max. Forward Voltage Drop	(1)	0.250	V	@ 0.1A	T_J = 125 °C
			0.350	V	@ 0.5A	
I_{RM}	Max. Reverse Leakage	(1)	20	µA	V_R = 15V	T_J = 25°C
	Current		130	µA	V_R = 30V	
C_T	Max. Junction Capacitance		90	pF	$V_R = 5V_{DC}$ (test signal range 100KHz to 1Mhz), T_J = 25°C	
dv/dt	Max. Voltage Rate of Change (Rated V_R)		10000	V/µs		

(1) Pulse Width < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

	Parameters	Value	Units	Conditions
T_J	Max. Junction Temperature Range (*)	-65 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-65 to 150	°C	
R_{thJL}	Max. Thermal Resistance Junction to Lead	150	°C/W	Mounted on PC board FR4 with minimum pad size
$R_{th(j-a)}$	Max. Thermal Resistance Junction to Ambient	200	°C/W	1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board
Wt	Approximate Weight	0.012	gr	
	Case Style	SOD123		
	Device Marking	BYWLC		

$(*)\frac{dPtot}{dTj} < \frac{1}{Rth(j\text{-}a)}$ thermal runaway condition for a diode on its own heatsink

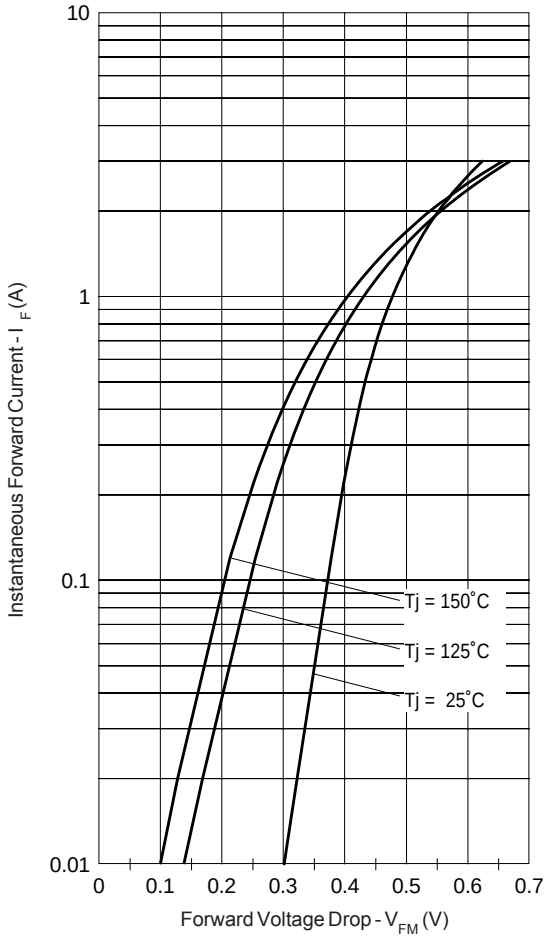


Fig. 1 - Max. Forward Voltage Drop Characteristics
(Per Leg)

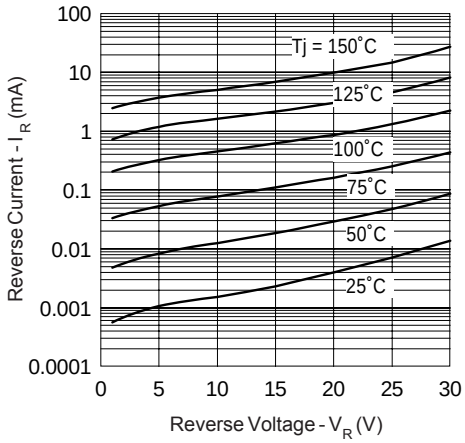


Fig. 2 - Typical Values Of Reverse Current
Vs. Reverse Voltage (Per Leg)

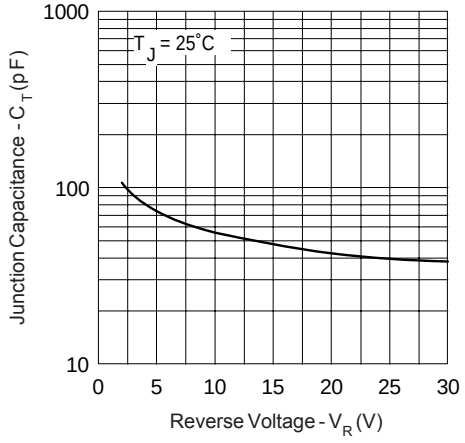


Fig. 3 - Typical Junction Capacitance
Vs. Reverse Voltage (Per Leg)

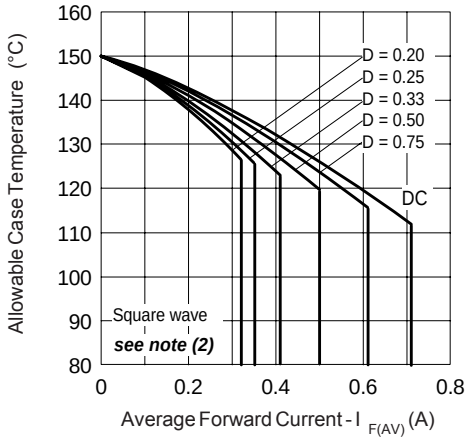


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

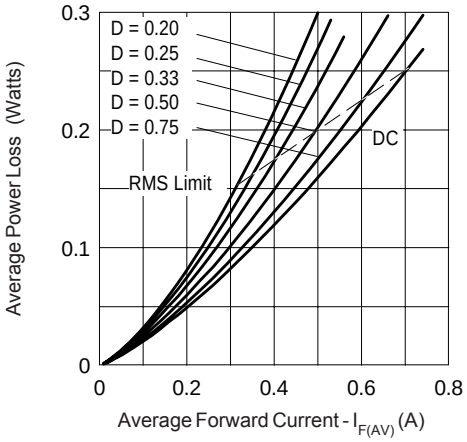


Fig. 5 - Forward Power Loss Characteristics

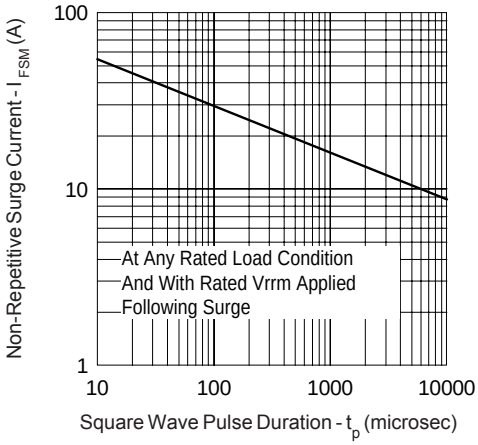
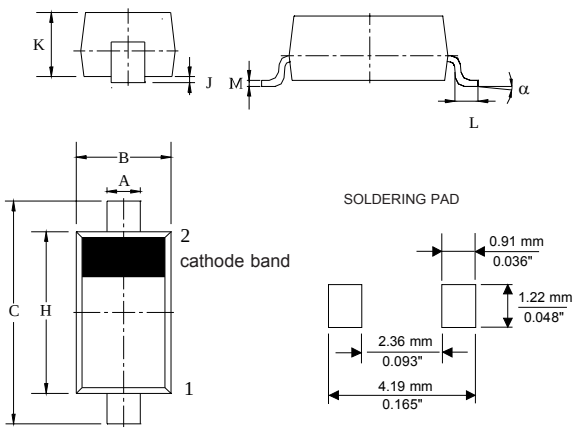


Fig. 6 - Max. Non-Repetitive Surge Current

(2) Formula used: $T_C = T_J - Pd \times R_{thJC}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 4)

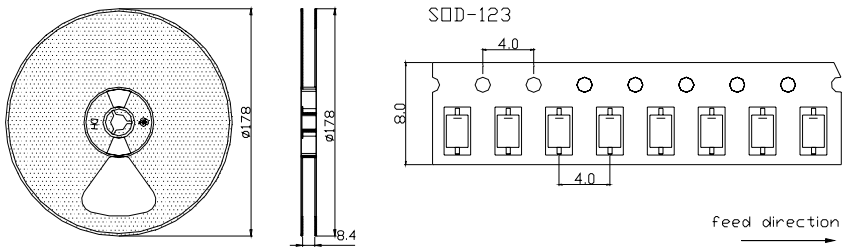
Outline Table



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.55	0.70	0.022	0.028
B	1.40	1.70	0.055	0.067
C	3.55	3.85	0.140	0.152
H	2.55	2.85	0.100	0.112
J	-	0.10	-	0.004
K	0.95	1.35	0.037	0.053
L	-	0.5	-	0.02
M	-	0.15	-	0.006
α	8°		8°	

SOD123

Tape & Reel Information



Dimensions in millimeters

Ordering Information Table

Device	Package	Marking	Base qty	Delivery mode
MBR0530	SOD-123	BY$\overline{W}$LC	3000	Tape & Reel

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.

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