



## DESCRIPTION

This device uses the Schottky Barrier principle with a large area metal-to-silicon power diode. Ideally suited for low voltage, high frequency rectification or as free wheeling and polarity protection diodes in surface mount applications where compact size and weight are critical to the system. This package also provides an easy to work with alternative to leadless 34 package style.

The MBR130 are available in SOD-123 Package.

## ORDERING INFORMATION

Package Type	Part Number
SOD-123	MBR130
Note	SPQ: 3,000pcs/ Reel
AiT provides all RoHS Compliant Products	

## FEATURES

- Guard Ring for Stress Protection
- Low Forward Voltage
- 125°C Operating Junction Temperature
- Epoxy Meets UL 94V-0 @ 0.125 in
- Package Designed for Optimal Automated Board Assembly
- ESD Ratings: Machine Model, C; Human Body Model, 3
- Available in SOD-123 Package

## APPLICATIONS

- Polarity Designator: Cathode Band
- Weight: 11.7mg (approximately)
- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant
- Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260 ° C Max. for 10Seconds



## ABSOLUTE MAXIMUM RATINGS

$V_{RRM}$ , Peak Repetitive Reverse Voltage	30V
$V_{RWM}$ , Working Peak Reverse Voltage	30V
$V_R$ , DC Blocking Voltage	30V
$I_{F(AV)}$ , Average Rectified Forward Current (Rated $V_R$ )	$T_L = 65^\circ\text{C}$ 1.0A
$I_{FSM}$ , Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half wave, Single Phase, 60Hz)	5.5A
$T_{STG}$ , Storage Temperature Range	$-65^\circ\text{C} \sim +125^\circ\text{C}$
$T_J$ , Operating Junction Temperature	$-65^\circ\text{C} \sim +125^\circ\text{C}$
$dv/dt$ , Voltage Rate of Change (Rated $V_R$ )	100V/ $\mu\text{s}$

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient <sup>NOTE1</sup>	$R_{\theta JA}$	230	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Lead <sup>NOTE1</sup>	$R_{\theta JL}$	108	$^\circ\text{C}/\text{W}$

NOTE1: FR-4 or FR-5=3.5 x 1.5 inches using a 1 inch Cu pad.

## ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage	$V_{BR}$	$I_R=500\mu\text{A}$	-	30	-	V
Maximum Instantaneous Forward Voltage <sup>NOTE2</sup>	$V_F$	$I_F=0.1\text{A}, T_J=25^\circ\text{C}$	-	-	0.35	V
		$I_F=0.7\text{A}, T_J=25^\circ\text{C}$	-	-	0.45	
		$I_F=1.0\text{A}, T_J=25^\circ\text{C}$	-	0.47	-	
Maximum Instantaneous Reverse Current <sup>NOTE2</sup>	$I_R$	Rated DC Voltage, $T_C=25^\circ\text{C}$		60	60	$\mu\text{A}$
		$V_R=5\text{V}, T_C=25^\circ\text{C}$		10	10	$\mu\text{A}$

NOTE2: Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2\%$



**TYPICAL CHARACTERISTICS**

Figure 1. Maximum Forward Voltage

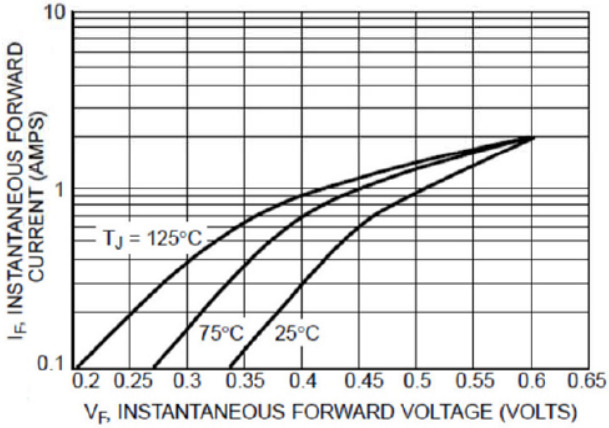


Figure 2. Typical Forward Voltage

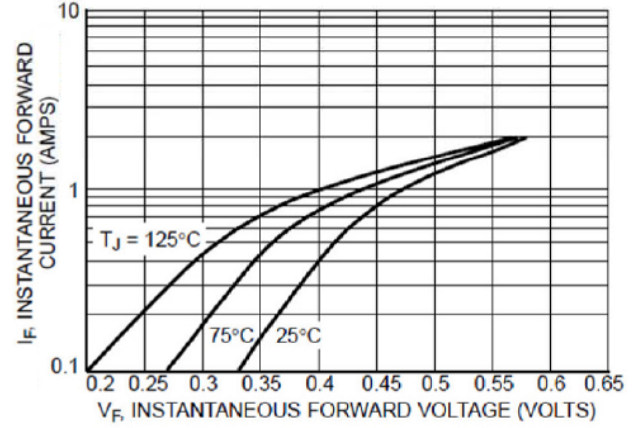


Figure 3. Typical Reverse Current

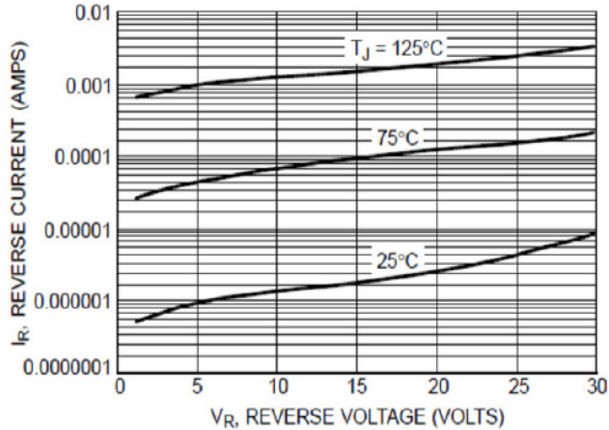


Figure 4. Typical Capacitance

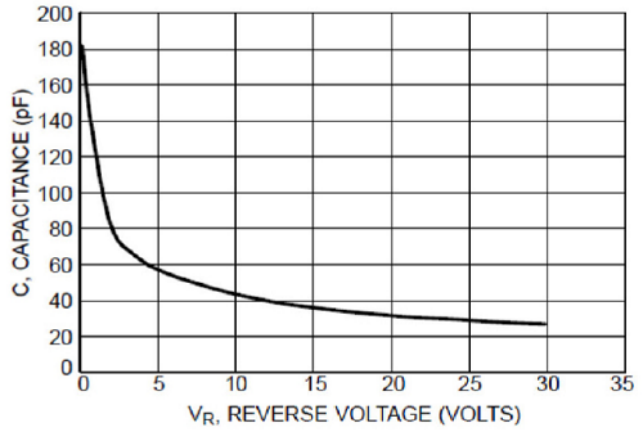


Figure 5. Current Derating, Lead,  $R_{\theta JL}=108^\circ\text{C/W}$

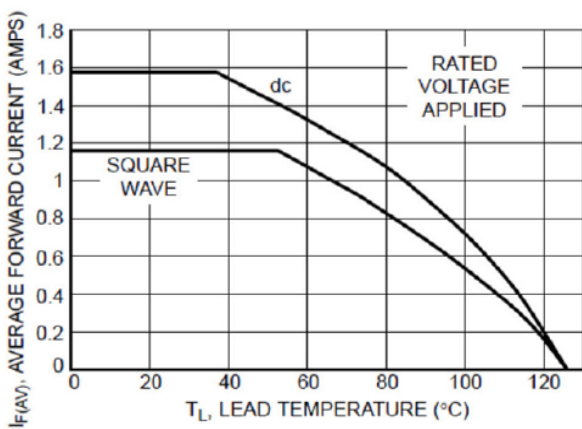
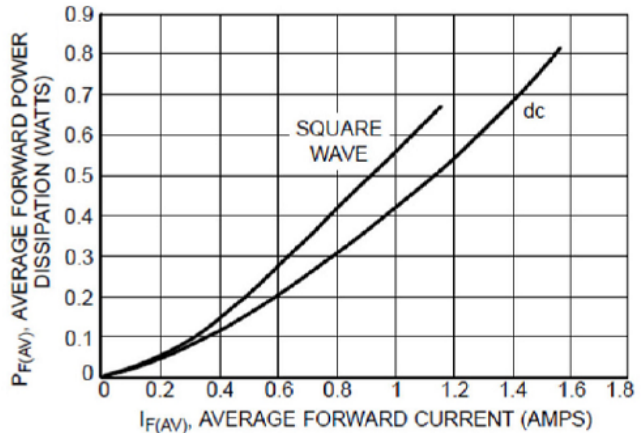


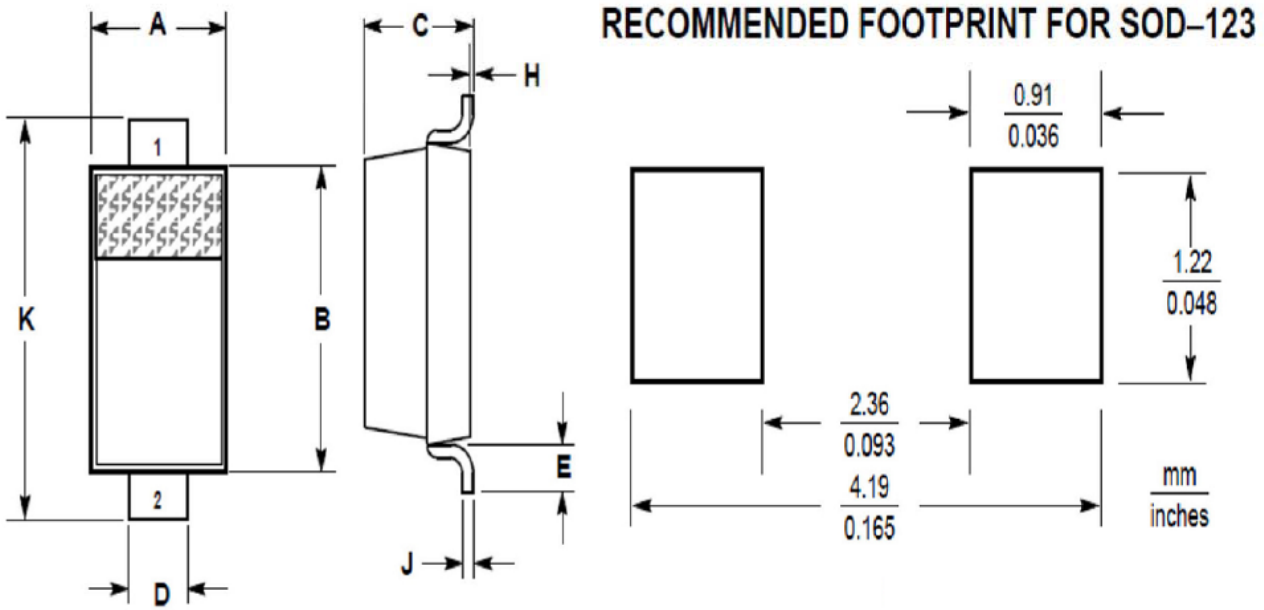
Figure 6. Forward Power Dissipation





**PACKAGE INFORMATION**

Dimension in SOD-123 Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.40	1.80	0.055	0.071
B	2.55	2.85	0.100	0.112
C	0.95	1.35	0.037	0.053
D	0.50	0.70	0.020	0.028
E	0.25	-	0.004	-
H	0.00	0.10	0.000	0.004
J	-	0.15	-	0.006
K	3.55	3.85	0.140	0.152



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