1A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (µA) @ +25°C
80	1	0.80	5

Features and Benefits

- Low Forward Voltage (V_F) Minimizes Conduction Losses and Improving Efficiency
- Very Low Leakage at High Temperature
- Guard Ring Die Construction for Transient Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

This DIODES™ MBR180S1 is a single rectifier packaged in SOD123. 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. Typical applications are AC-DC and DC-DC converters, reverse battery protections, and "O-ring" of multiple supply voltages and any other applications where performance and size are critical.

Mechanical Data

- Package: SOD123
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123

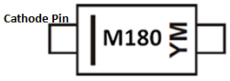
Top View

Ordering Information (Note 4)

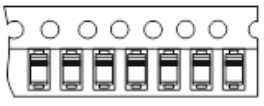
Part Number	Package	Packing	
		Qty.	Carrier
MBR180S1-7	SOD123	3000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



M180 = Product Type Marking Code
YM & $\overline{Y}$M = Date Code Marking
Y & $\overline{Y}$= Year (ex: J = 2022)
M = Month (ex: 9 = September)
Bar Denotes Cathode Pin



Date Code Key

Year	2015	…	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	C	…	J	K	L	M	N	O	P	R	S	T

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	80	V
RMS Reverse Voltage	$V_{R(RMS)}$	56	V
Average Rectified Output Current	I_O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	24	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	275	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	95	°C/W
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)}$	80	—	—	V	I_R = 1.0mA
Forward Voltage Drop	V_F	— —	0.74 0.59	0.80 —	V	I_F = 1.0A, T_A = +25°C I_F = 1.0A, T_A = +125°C
Leakage Current (Note 6)	I_R	— —	0.6 400	5 —	µA	V_R = 80V, T_A = +25°C V_R = 80V, T_A = +125°C
Total Capacitance	C_T	—	20	—	pF	V_R = 5V, f = 1.0MHz

Notes: 5. Device mounted on FR-4 substrate, 2 oz. copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

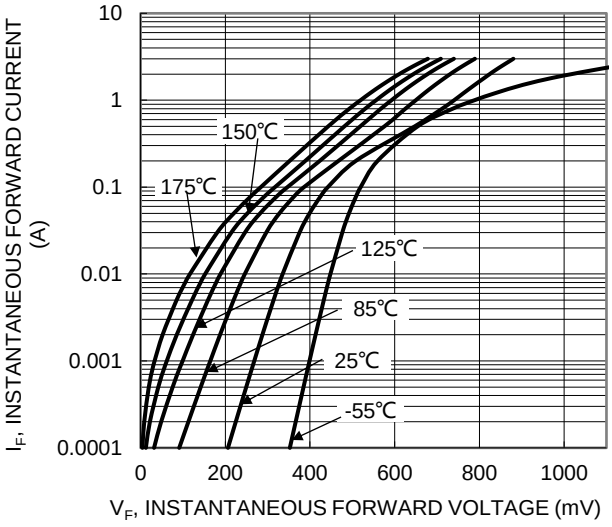


Figure 1. Typical Forward Characteristics

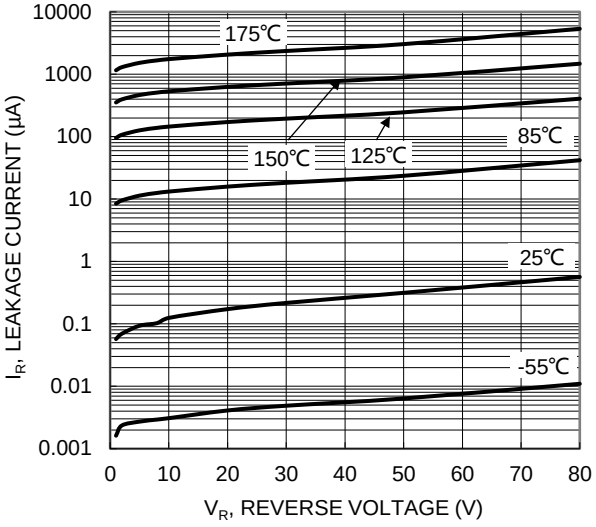


Figure 2. Typical Reverse Characteristics

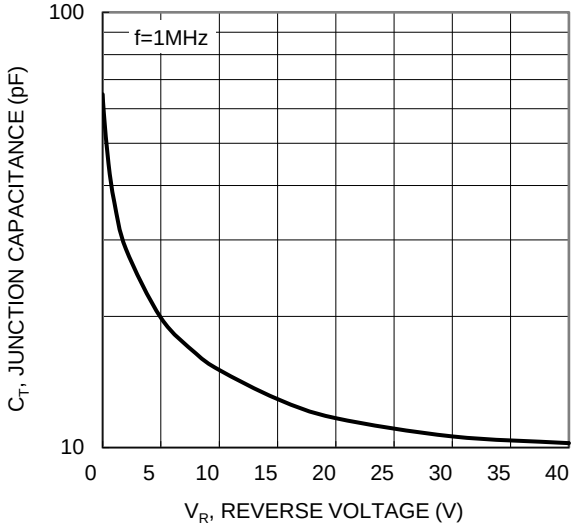
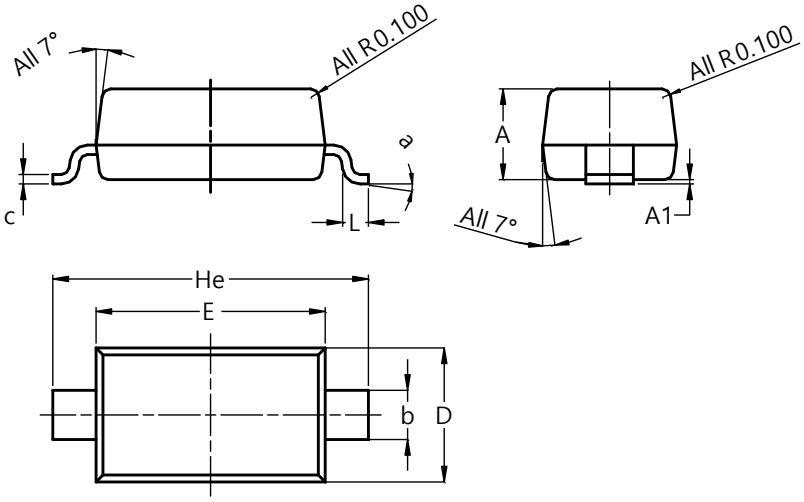


Figure 3. Typical Junction Capacitance

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD123

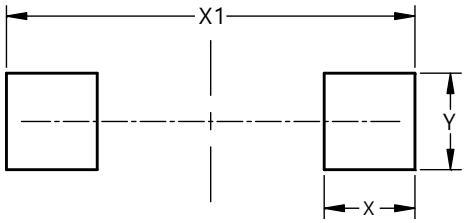


SOD123			
Dim	**Min**	**Max**	**Typ**
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD123



Dimensions	Value (in mm)
X	0.900
X1	4.050
Y	0.950

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