



MBR0580S1

0.5A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (μΑ) @ +25°C	
80	0.5	0.80	5	

Description and Applications

This MBR0580S1 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 protection, and "O-ring" of multiple supply voltages and any other application where performance and size are critical.

Features and Benefits

- Low Forward Voltage (V_F) Minimizes Conduction Losses and Improves Efficiency
- Guard Ring Die Construction for Transient Protection
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: SOD123
- Case 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 ⁽³⁾
- · Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123



Top View

Ordering Information (Note 4)

Part Number	Case	Packaging
MBR0580S1-7	SOD123	3,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com/quality/lead_free.html 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 http://www.diodes.com/products/packages.html.

Marking Information



M5X = Product Type Marking Code YM = Date Code Marking Y = Year (ex.: E = 2017) M = Month (ex: 9 = September)

Date Code Key

Code B C D E F G H I	Year	2014	2015	2016	2017	2018	2019	2020	2021
	Code	В	С	D	E	F	G	Н	I

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	Ν	D



Maximum Ratings (@TA = +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	>
RMS Reverse Voltage	V _{R(RMS)}	56	V
Average Rectified Output Current	lo	0.5	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	14	А

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	354	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	200	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	80	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	70	°C/W
Operating Temperature Range	TJ	-55 to +175	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

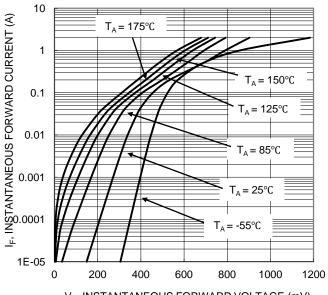
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)}$	80	_	_	V	$I_R = 1.0 \text{mA}$
Forward Voltage Drop	V _F		0.69 0.56	0.80	V	I _F = 0.5A, T _A = +25°C I _F = 0.5A, T _A = +125°C
Leakage Current (Note 7)	I _R		0.5 280	5 —	μΑ	V _R = 80V, T _A = +25°C V _R = 80V, T _A = +125°C
Total Capacitance	Ст	_	15	-	pF	V _R = 5V, f = 1.0MHz

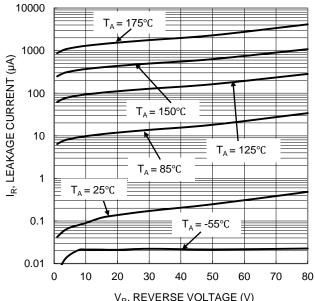
Notes:

- 5. Device mounted on FR-4 substrate, 2 oz. copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
- Device mounted on FR-4 substrate, 2 oz. copper, 1inch square Cu pad.
 Short duration pulse test used to minimize self-heating effect.









 V_R , REVERSE VOLTAGE (V) Figure 2. Typical Reverse Characteristics

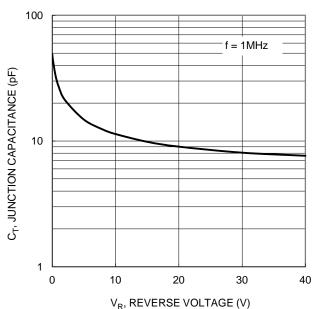


Figure 3. Typical Junction Capacitance

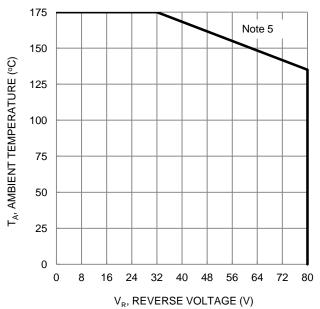


Figure 4. Operating Temperature Derating



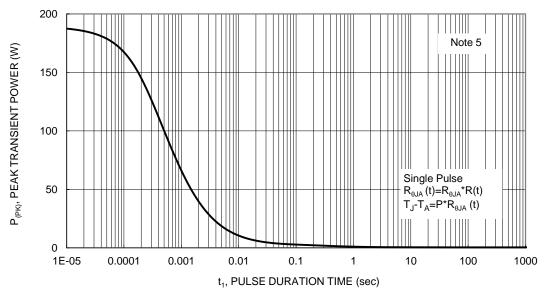


Figure 5. Single Pulse Maximum Power Dissipation

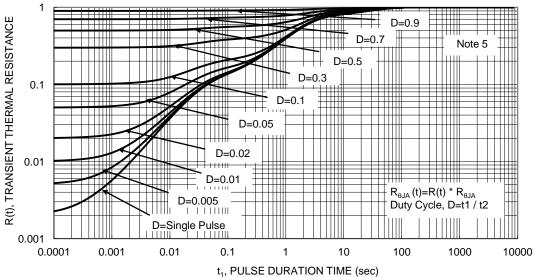


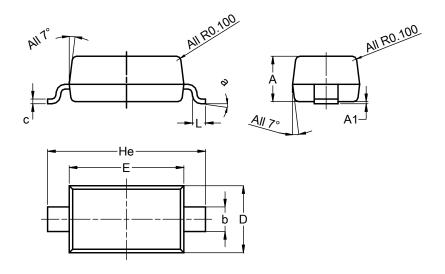
Figure 6. Transient Thermal Resistance



Package Outline Dimensions

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

SOD123

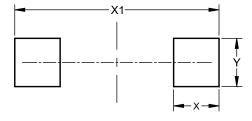


SOD123							
Dim	Min	Max	Тур				
Α	1.00	1.35	1.05				
A1	0.00	0.10	0.05				
b	0.52	0.62	0.57				
С	0.10	0.15	0.11				
D	1.40	1.70	1.55				
Е	2.55	2.85	2.65				
He	3.55	3.85	3.65				
L	0.25	0.40	0.30				
а	00	8°					
All [All Dimensions in mm						

Suggested Pad Layout

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

SOD123



Dimensions	Value (in mm)
Х	0.900
X1	4.050
Υ	0.950



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