



THE DATASHEET OF HCPL-7840



Product Summary (@T_A = +25°C)

Name	V _{RRM} (V)	I _o (A)	V _F Max (V)	I _R Max (μA)
SD103AW	40	0.2	0.60	5.0μA@30V
SD103BW	30	0.2	0.60	5.0μA@20V
SD103CW	20	0.2	0.60	5.0μA@10V

Description

These are 0.2A, 20V/30V/40V Schottky rectifiers packaged in SOD123 package.

Applications

Providing low V_F and low reverse leakage, these devices are ideal for use in general rectification applications such as:

- Low voltage rectifications
- High-efficiency DC-DC conversions
- Switch mode power supplies
- Inverse polarity protections

Features and Benefits

- Low-Forward Voltage Drop (V_F)
- Better Efficiency and Cooler Operation
- Guard Ring 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/>

Mechanical Data

- Package: SOD123
- Package Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 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	Package	Packing	
		Qty.	Carrier
SD103AW-7-F	SOD123	3000	Tape and Reel
SD103BW-7-F	SOD123	3000	Tape and Reel
SD103CW-7-F	SOD123	3000	Tape and Reel
SD103CW-13-F	SOD123	10,000	Tape and 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/>.

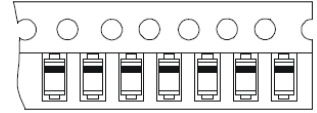
Marking Information



Bar Denotes Cathode Pin

XX = Product Type Marking Code
 S4 = SD103AW
 S5 or S4 = SD103BW
 S6 or S5 or S4 = SD103CW

YM & $\bar{Y}M$ = Date Code Marking
 Y & \bar{Y} = Year (ex: L = 2024)
 M = Month (ex: 9 = September)



Date Code Key

Year	2003	...	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	P	...	L	M	N	P	R	S	T	U	V	W

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.)

Characteristic	Symbol	SD103AW	SD103BW	SD103CW	Unit
Peak Repetitive Reverse Voltage	V _{RRM}				V
Working Peak Reverse Voltage	V _{RWM}	40	30	20	V
DC Blocking Voltage	V _R				V
RMS Reverse Voltage	V _{R(RMS)}	28	21	14	V
Forward Continuous Current (Note 5)	I _{FM}	350			mA
Non-Repetitive Peak Forward Surge Current @ t ≤ 1.0s	I _{FSM}	1.5			A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	367	mW
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	340	°C/W
Operating and Storage Temperature Range	T _J , 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 (Note 6)	V _{(BR)R}	40 30 20	—	—	V	I _R = 100μA
Forward Voltage Drop	V _{FM}	—	—	0.37 0.60	V	I _F = 20mA I _F = 200mA
Peak Reverse Current (Note 6)	I _{RM}	—	—	5.0	μA	V _R = 30V V _R = 20V V _R = 10V
Total Capacitance	C _T	—	28	—	pF	V _R = 0V, f = 1.0MHz
Reverse Recovery Time	t _{RR}	—	6	—	ns	I _F = I _R = 10mA, I _{RR} = 0.1 x I _R , R _L = 100Ω

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 6. Short duration test pulse used to minimize self-heating effect.

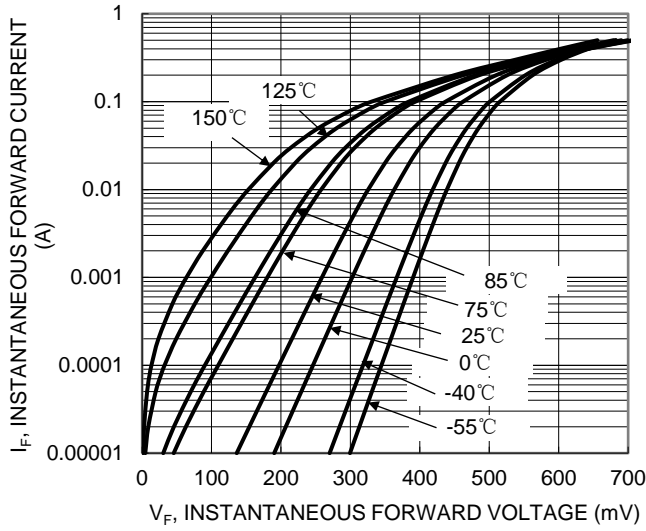


Fig. 1 Typical Forward Characteristics

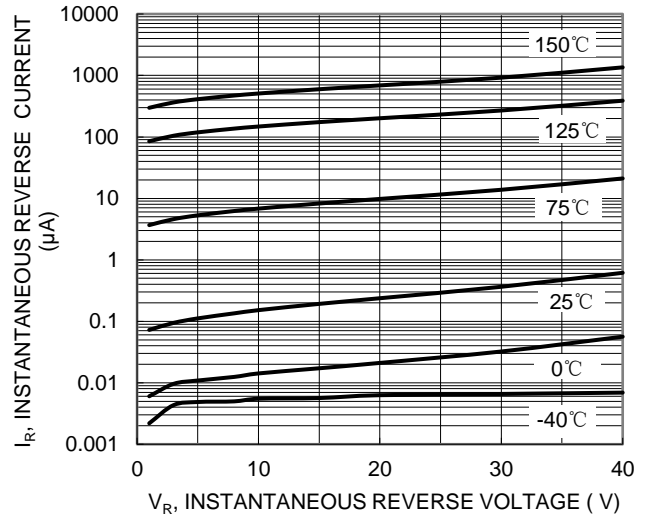


Fig. 2 Typical Reverse Characteristics

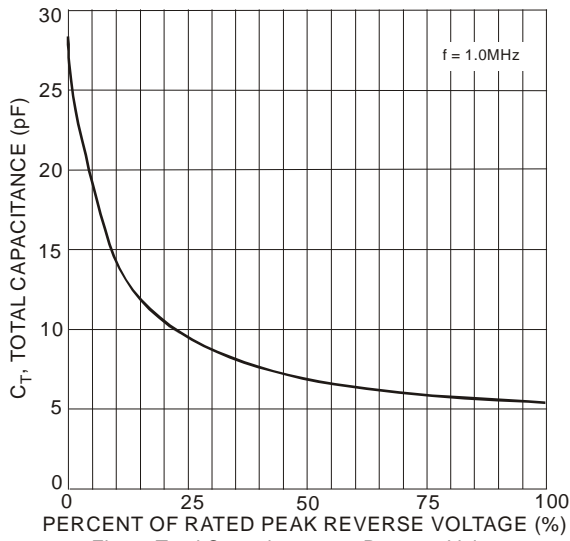


Fig. 3 Total Capacitance vs. Reverse Voltage

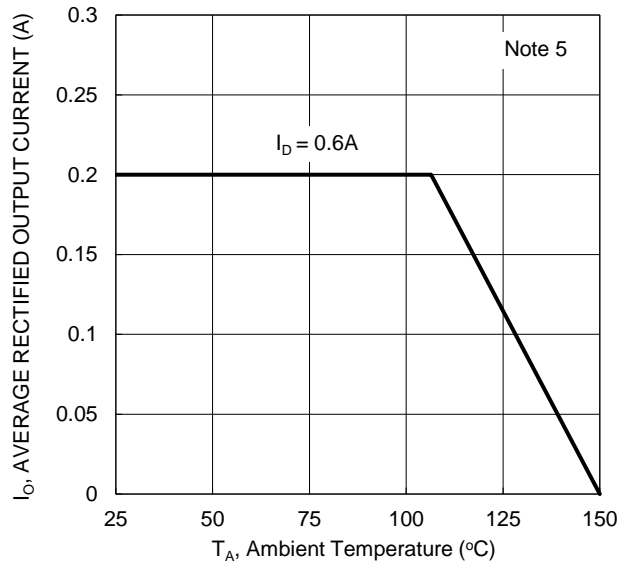
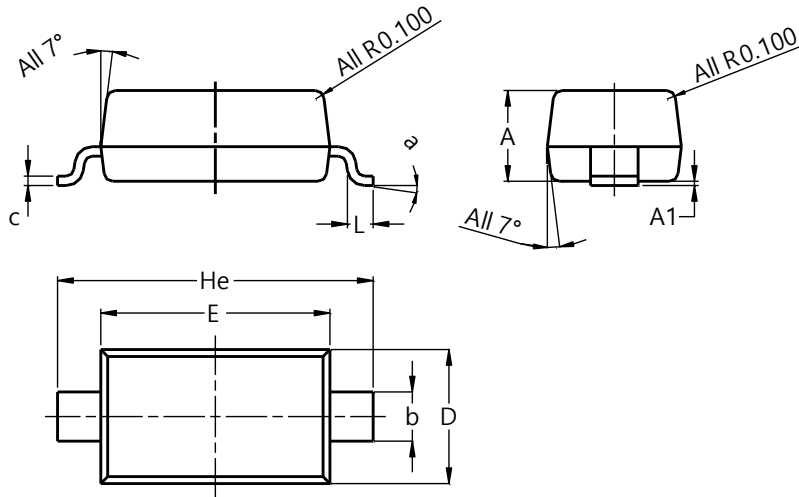


Fig. 4. DC Forward Current Derating

Package Outline Dimensions

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

SOD123

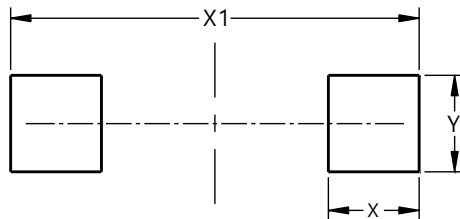


SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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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