

Features

- Low-Forward Voltage Drop
- Fast Switching Time
- Surface-Mount Package Ideally Suited for Automated Insertion
- **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](mailto:contact@diodes.com) 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: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123



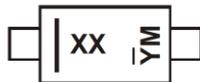
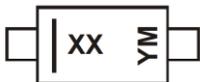
Top View

Ordering Information (Note 4)

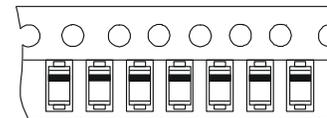
Orderable Part Number	Package	Packing	
		Qty.	Carrier
BAT42W-7-F	SOD123	3000	Tape & Reel
BAT43W-7-F	SOD123	3000	Tape & Reel

- 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



xx = Product Type Marking Code
 S7 = BAT42W
 S8 = BAT43W
 YM & YM = Date Code Marking
 Y & Y = Year (ex: M = 2025)
 M = Month (ex: 9 = September)



Date Code Key

Year	2005	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	S	-	M	N	P	R	S	T	U	V	W	X

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	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	30	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	21	V
Forward Continuous Current (Note 5)	I _{FM}	200	mA
Repetitive Peak Forward Current (Note 5)	I _{FRM}	500	mA
Non-Repetitive Peak Forward Surge Current	I _{FSM}	4.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	200	mW
Thermal Resistance Junction to Ambient Air (Note 5)	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +125	°C

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V _{(BR)R}	30	—	V	I _R = 100μA
Forward Voltage Drop	V _{FM}	—	1.0	V	I _F = 200mA
All Types		—	0.40		I _F = 10mA
BAT42W		—	0.65		I _F = 50mA
BAT43W		0.26	0.33		I _F = 2.0mA
BAT43W		—	0.45		I _F = 15mA
Peak Reverse Current (Note 6)	I _{RM}	—	500	nA	V _R = 25V
		—	100	μA	V _R = 25V, T _J = +100°C
Total Capacitance	C _T	—	10	pF	V _R = 1.0V, f = 1.0MHz
Reverse-Recovery Time	t _{rr}	—	5.0	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 pulse test used to minimize self-heating effect.

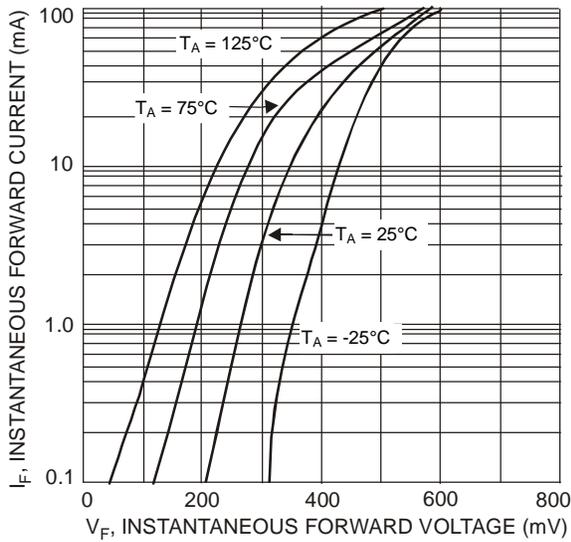


Fig. 1 Typical Forward Characteristics

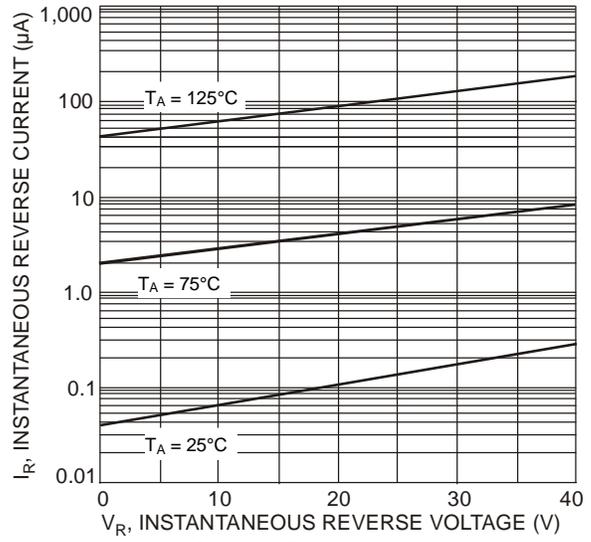


Fig. 2 Typical Reverse Characteristics

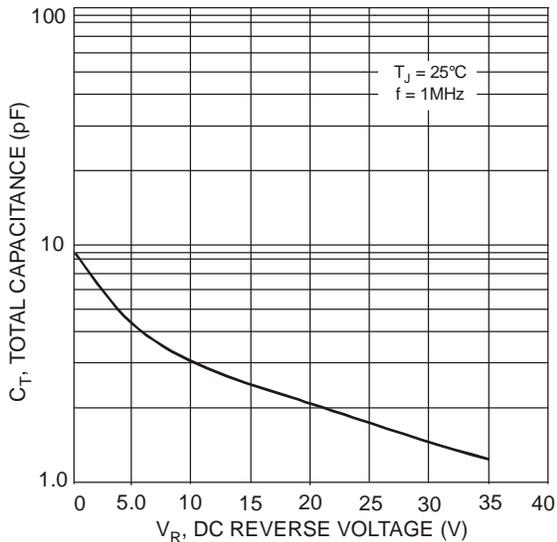


Fig. 3 Total Capacitance vs. Reverse Voltage

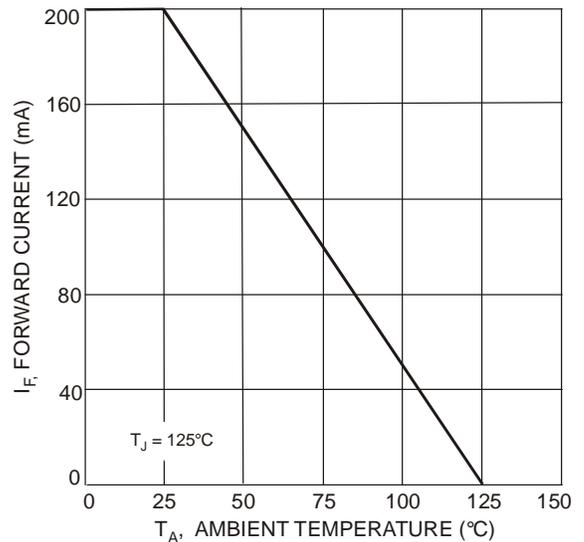
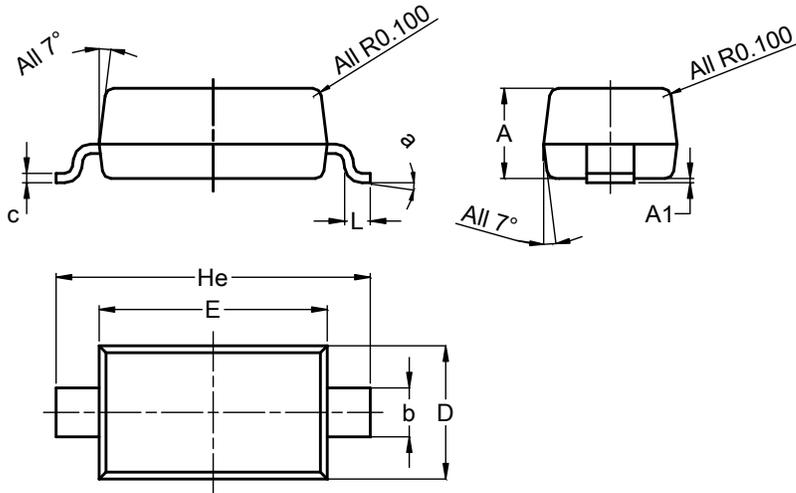


Fig. 4 Forward Current Derating Curve

Package Outline Dimensions

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

SOD123

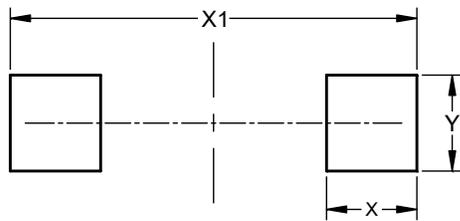


SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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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