

## Features

- Surface Mount Package Ideally Suited for Automated Insertion
- Very Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The BAV116WQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**  
<https://www.diodes.com/quality/product-definitions/>

## 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 Alloy 42 Leadframe (Lead-Free Plating).  
Solderable per MIL-STD-202, Method 208 
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123



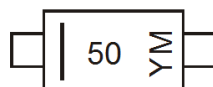
Top View

## Ordering Information (Note 4)

| Part Number  | Compliance | Case   | Packaging         |
|--------------|------------|--------|-------------------|
| BAV116WQ-7-F | Automotive | SOD123 | 3,000/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



50 = Product Type Marking Code  
YM = Date Code Marking  
Y = Year (ex: I = 2021)  
M = Month (ex: 9 = September)

### Date Code Key

| Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | H    | I    | 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** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                                                                                                     | Symbol                          | Value             | Unit |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                             | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 130               | V    |
| Forward Continuous Current                                                                                         | $I_{FM}$                        | 215               | mA   |
| Repetitive Peak Forward Current                                                                                    | $I_{FRM}$                       | 500               | mA   |
| Non-Repetitive Peak Forward Surge Current<br>@ $t = 1.0\mu\text{s}$<br>@ $t = 1.0\text{ms}$<br>@ $t = 1.0\text{s}$ | $I_{FSM}$                       | 4.0<br>1.0<br>0.5 | A    |

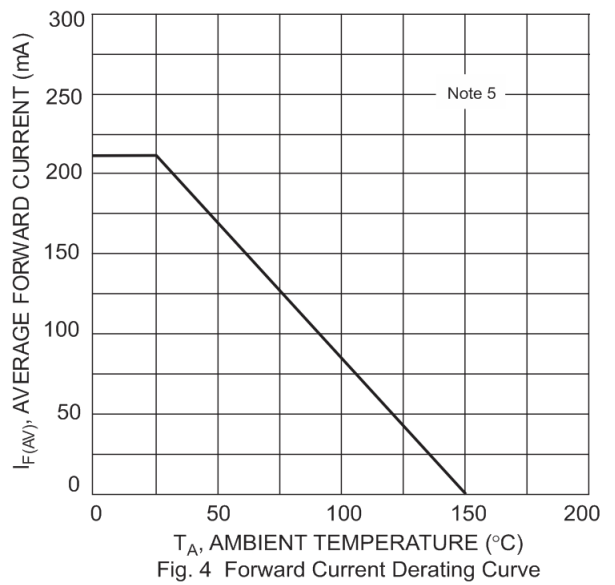
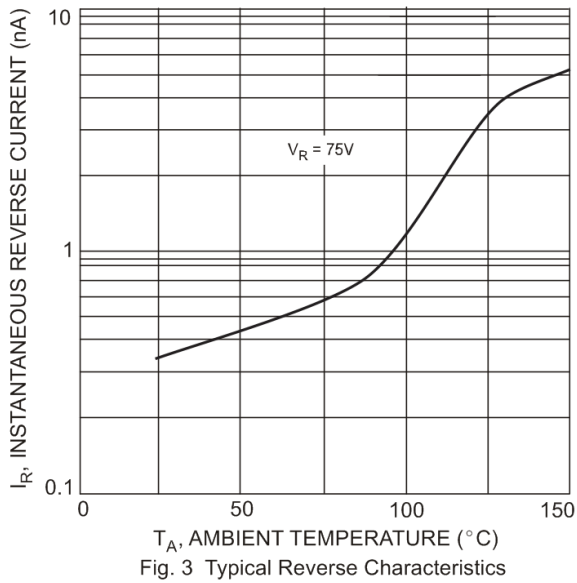
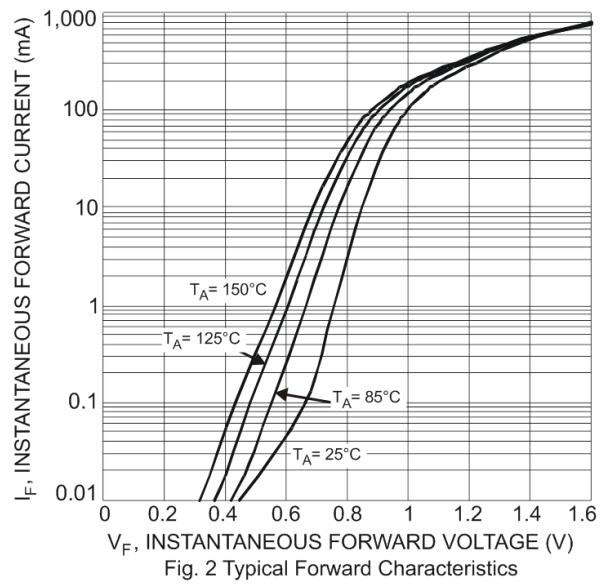
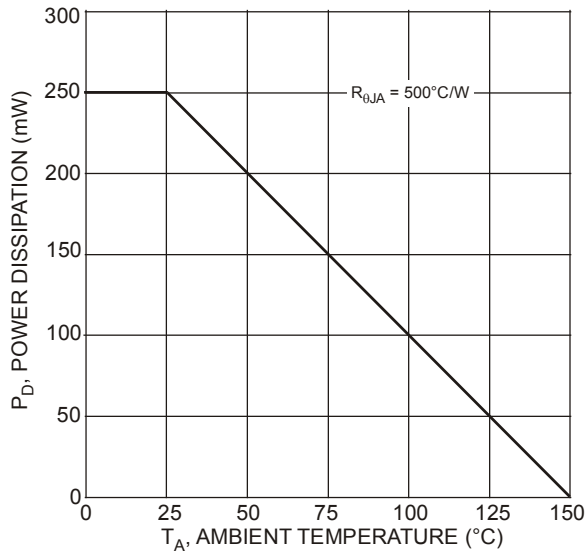
**Thermal Characteristics**

| Characteristic                                      | Symbol          | Value       | Unit               |
|-----------------------------------------------------|-----------------|-------------|--------------------|
| Power Dissipation (Note 5)                          | $P_D$           | 250         | mW                 |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 500         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range             | $T_J, T_{STG}$  | -55 to +150 | $^\circ\text{C}$   |

**Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                     | Symbol      | Min | Typ | Max                        | Unit          | Test Condition                                                                              |
|------------------------------------|-------------|-----|-----|----------------------------|---------------|---------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 130 | —   | —                          | V             | $I_R = 100\mu\text{A}$                                                                      |
| Forward Voltage                    | $V_F$       | —   | —   | 0.90<br>1.0<br>1.1<br>1.25 | V             | $I_F = 1.0\text{mA}$<br>$I_F = 10\text{mA}$<br>$I_F = 50\text{mA}$<br>$I_F = 150\text{mA}$  |
| Leakage Current (Note 6)           | $I_R$       | —   | —   | 5.0<br>80                  | nA<br>nA      | $V_R = 75\text{V}, T_J = +25^\circ\text{C}$<br>$V_R = 75\text{V}, T_J = +125^\circ\text{C}$ |
| Total Capacitance                  | $C_T$       | —   | 2.4 | 5                          | pF            | $V_R = 0, f = 1.0\text{MHz}$                                                                |
| Reverse Recovery Time              | $t_{RR}$    | —   | —   | 3.0                        | $\mu\text{s}$ | $I_F = I_R = 10\text{mA}$ ,<br>$I_{RR} = 0.1 \times I_R, R_L = 100\Omega$                   |

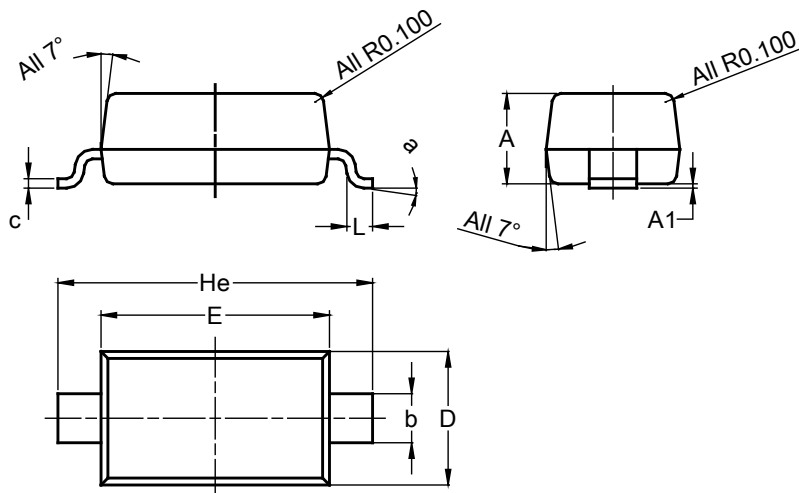
Notes: 5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.  
6. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

### SOD123

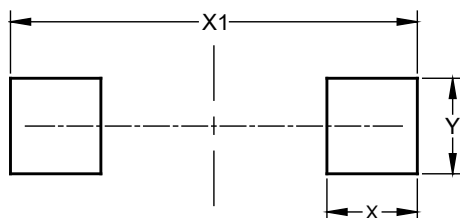


| SOD123               |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 1.00 | 1.35 | 1.05 |
| A1                   | 0.00 | 0.10 | 0.05 |
| b                    | 0.52 | 0.62 | 0.57 |
| c                    | 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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