



SURFACE MOUNT HIGH VOLTAGE DUAL SWITCHING DIODE

Features

- · Fast Switching Speed
- Ideal for Battery-Powered, Portable Applications
- High Reverse Breakdown Voltage
- Low Leakage Current
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- An Automotive-Compliant Part is Available Under Separate Datasheet (BAV23AQ/CQ/SQ)

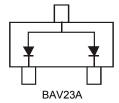
Mechanical Data

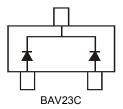
- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish—Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe). Solderable per MIL-STD-202, Method 208 (3)
- Polarity: See Diagrams Below
- Weight: 0.008 grams (Approximate)

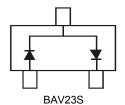


SOT23









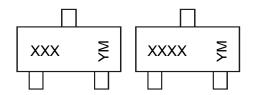
Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|-------------|------------|-------|--------------------|
| BAV23A-7-F | Standard | SOT23 | 3000/Tape & Reel |
| BAV23A-13-F | Standard | SOT23 | 10,000/Tape & Reel |
| BAV23C-7-F | Standard | SOT23 | 3000/Tape & Reel |
| BAV23C-13-F | Standard | SOT23 | 10,000/Tape & Reel |
| BAV23S-7-F | Standard | SOT23 | 3000/Tape & Reel |
| BAV23S-13-F | Standard | SOT23 | 10,000/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



XXX or XXXX = Product Type Marking Code
ex: KT7 = BAV23A
 KT6 = BAV23C
 KL31 = BAV23S
YM = Date Code Marking
Y = Year (ex: G = 2019)

M = Month (ex: 9 = September)

Date Code Key

| Year | 2003 | 2004 | 2005 | 2006 | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|-------|------|------|------|------|----|------|------|------|------|------|------|------|------|
| Code | Р | R | S | Т | | F | G | Н | I | J | K | L | M |
| Month | Jan | Feb | Mar | Apr | Ma | y Ju | ın , | Jul | Aug | Sep | Oct | Nov | Dec |
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 0 | N | D |



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

| Characteristic | | Symbol | Value | Unit |
|---|--|---------------------|-------------------|------|
| Repetitive Peak Reverse Voltage | | V_{RRM} | 250 | V |
| Working Peak Reverse Voltage DC Blocking Voltage | | V_{RWM} V_{R} | 200 | V |
| RMS Reverse Voltage | | V _{R(RMS)} | 141 | V |
| Forward Continuous Current (Notes 5, 7) | | I _{FM} | 400 | mA |
| Non-Repetitive Peak Forward Surge Current | @ t = 1.0µs @ t = 100µs @ t = 10ms | I _{FSM} | 9.0 3.0 1.7 | А |
| Repetitive Peak Forward Surge Current (Note 5) | | I _{FRM} | 625 | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) | P_{D} | 350 | mW |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{	hetaJA}$ | 357 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

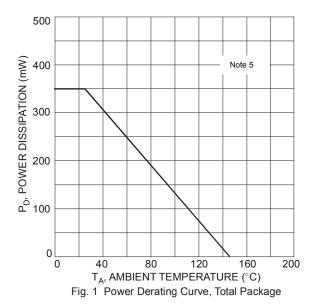
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

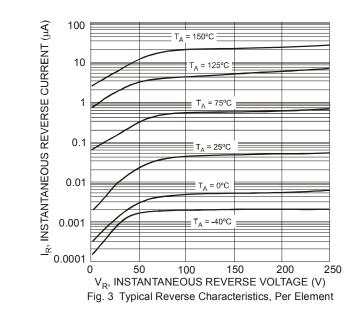
| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|------------------------------------|-----------------|------|------|------|--|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 250 | _ | V | I _R = 100μA |
| Forward Voltage | \/- | _ | 1.0 | V | I _F = 100mA |
| orward Voltage | VF | _ | 1.25 | | I _F = 200mA |
| Reverse Current (Note 6) | | _ | 100 | nA | $V_R = 200V, T_J = +25^{\circ}C$ |
| Neverse Current (Note 0) | IR | _ | 100 | μA | V _R = 200V, T _J = +150°C |
| Total Capacitance | C _T | _ | 5.0 | pF | $V_R = 0$, $f = 1.0MHz$ |
| Reverse Recovery Time | t | | 50 | ns | $I_F = I_R = 30 \text{mA},$ |
| Neverse Necovery Time | t _{RR} | _ 30 | | 113 | $I_{RR} = 0.1 \text{ x } I_{R}, R_{L} = 100\Omega$ |

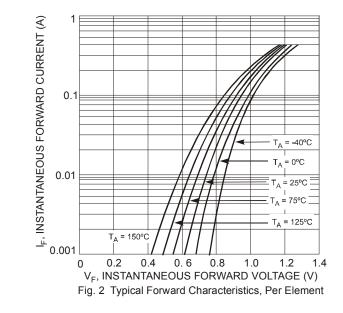
Notes:

- 5. Part mounted on FR-4 substrate with pad dimensions 1 inch × 1 inch, 2oz, copper, single-sided, PC board.
- 6. Short duration pulse test used to minimize self-heating effect.
 7. Double Diode Loaded in Parallel. For Single Diode or Double Diode Loaded in Series, the continuous forward current should be reduced by half.









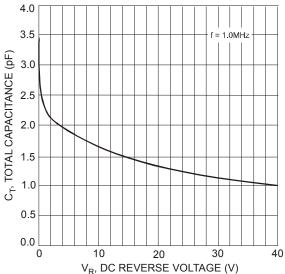
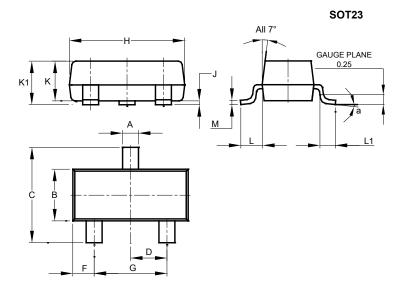


Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element



Package Outline Dimensions

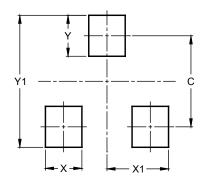
Please see http://www.diodes.com/package-outlines.html for the latest version.



| SOT23 | | | | | | |
|----------------------|-------|-------|-------|--|--|--|
| Dim | Min | Max | Тур | | | |
| Α | 0.37 | 0.51 | 0.40 | | | |
| В | 1.20 | 1.40 | 1.30 | | | |
| С | 2.30 | 2.50 | 2.40 | | | |
| D | 0.89 | 1.03 | 0.915 | | | |
| F | 0.45 | 0.60 | 0.535 | | | |
| G | 1.78 | 2.05 | 1.83 | | | |
| Н | 2.80 | 3.00 | 2.90 | | | |
| 7 | 0.013 | 0.10 | 0.05 | | | |
| K | 0.890 | 1.00 | 0.975 | | | |
| K1 | 0.903 | 1.10 | 1.025 | | | |
| L | 0.45 | 0.61 | 0.55 | | | |
| L1 | 0.25 | 0.55 | 0.40 | | | |
| M | 0.085 | 0.150 | 0.110 | | | |
| а | 0° | 8° | | | | |
| All Dimensions in mm | | | | | | |

Suggested Pad Layout

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



SOT23

| Dimensions | Value (in mm) |
|------------|---------------|
| С | 2.0 |
| Х | 0.8 |
| X1 | 1.35 |
| Υ | 0.9 |
| Y1 | 2.9 |



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