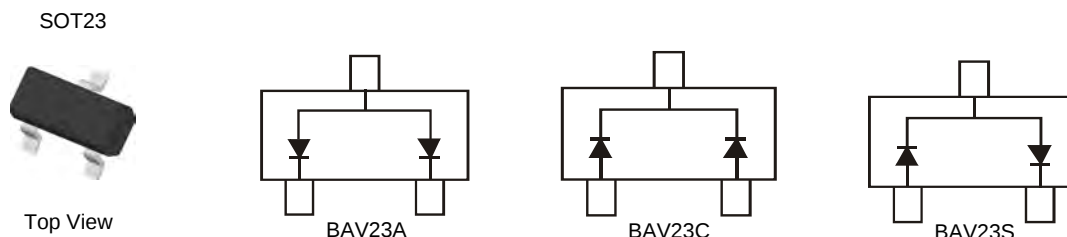


**SURFACE MOUNT HIGH VOLTAGE DUAL SWITCHING DIODE**
**Features**

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- High Reverse Breakdown Voltage
- Low Leakage Current
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 1 and 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

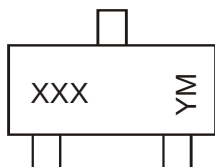
**Mechanical Data**

- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagrams Below
- Weight: 0.008 grams (approximate)


**Ordering Information** (Note 3)

| Part Number  | Qualification | Case  | Packaging          |
|--------------|---------------|-------|--------------------|
| BAV23A-7-F   | Commercial    | SOT23 | 3,000/Tape & Reel  |
| BAV23A-13-F  | Commercial    | SOT23 | 10,000/Tape & Reel |
| BAV23AQ-7-F  | Automotive    | SOT23 | 3,000/Tape & Reel  |
| BAV23AQ-13-F | Automotive    | SOT23 | 10,000/Tape & Reel |
| BAV23C-7-F   | Commercial    | SOT23 | 3,000/Tape & Reel  |
| BAV23C-13-F  | Commercial    | SOT23 | 10,000/Tape & Reel |
| BAV23CQ-7-F  | Automotive    | SOT23 | 3,000/Tape & Reel  |
| BAV23CQ-13-F | Automotive    | SOT23 | 10,000/Tape & Reel |
| BAV23S-7-F   | Commercial    | SOT23 | 3,000/Tape & Reel  |
| BAV23S-13-F  | Commercial    | SOT23 | 10,000/Tape & Reel |
| BAV23SQ-13-F | Automotive    | SOT23 | 10,000/Tape & Reel |

- Notes:
1. No purposefully added lead. Halogen and Antimony Free.
  2. Product manufactured with Date Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.
  3. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**


XXX = Product Type Marking Code  
 ex. KT7 = BAV23A  
 KT6 = BAV23C  
 KL31 = BAV23S  
 YM = Date Code Marking  
 Y = Year (ex: Y = 2011)  
 M = Month (ex: 9 = September)

**Date Code Key**

| Year | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | P    | R    | S    | T    | U    | V    | W    | X    | Y    | Z    | A    | B    | C    | D    | E    |

| 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<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                 | Symbol              | Value | Unit |
|------------------------------------------------|---------------------|-------|------|
| Repetitive Peak Reverse Voltage                | V <sub>RRM</sub>    | 250   | V    |
| Working Peak Reverse Voltage                   | V <sub>RWM</sub>    | 200   | V    |
| DC Blocking Voltage                            | V <sub>R</sub>      |       | V    |
| RMS Reverse Voltage                            | V <sub>R(RMS)</sub> | 141   | V    |
| Forward Continuous Current (Note 4)            | I <sub>FM</sub>     | 400   | mA   |
| Non-Repetitive Peak Forward Surge Current      | I <sub>FSM</sub>    | 9.0   | A    |
|                                                |                     | 3.0   |      |
|                                                |                     | 1.7   |      |
| Repetitive Peak Forward Surge Current (Note 4) | I <sub>FRM</sub>    | 625   | mA   |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|-----------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 4)                          | P <sub>D</sub>                    | 350         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 4) | R <sub>θJA</sub>                  | 357         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                     | Symbol             | Min | Max  | Unit | Test Condition                                                                                            |
|------------------------------------|--------------------|-----|------|------|-----------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 5) | V <sub>(BR)R</sub> | 250 | —    | V    | I <sub>R</sub> = 100μA                                                                                    |
| Forward Voltage                    | V <sub>F</sub>     | —   | 1.0  | V    | I <sub>F</sub> = 100mA                                                                                    |
|                                    |                    | —   | 1.25 |      | I <sub>F</sub> = 200mA                                                                                    |
| Reverse Current (Note 5)           | I <sub>R</sub>     | —   | 100  | nA   | V <sub>R</sub> = 200V, T <sub>J</sub> = 25°C                                                              |
|                                    |                    | —   | 100  | μA   | V <sub>R</sub> = 200V, T <sub>J</sub> = 150°C                                                             |
| Total Capacitance                  | C <sub>T</sub>     | —   | 5.0  | pF   | V <sub>R</sub> = 0, f = 1.0MHz                                                                            |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | 50   | ns   | I <sub>F</sub> = I <sub>R</sub> = 30mA,<br>I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω |

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

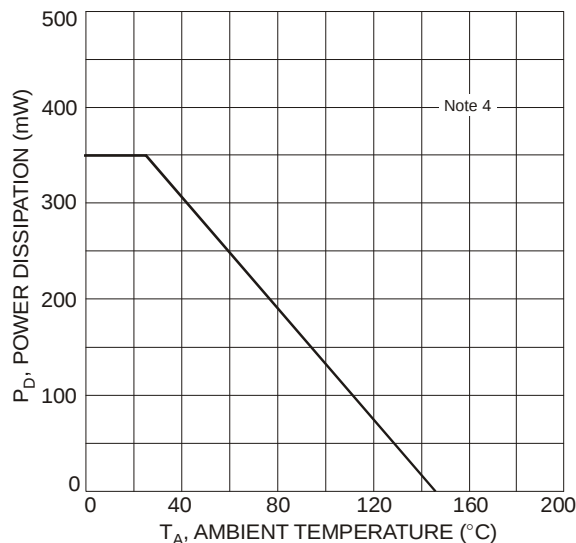


Fig. 1 Power Derating Curve, Total Package

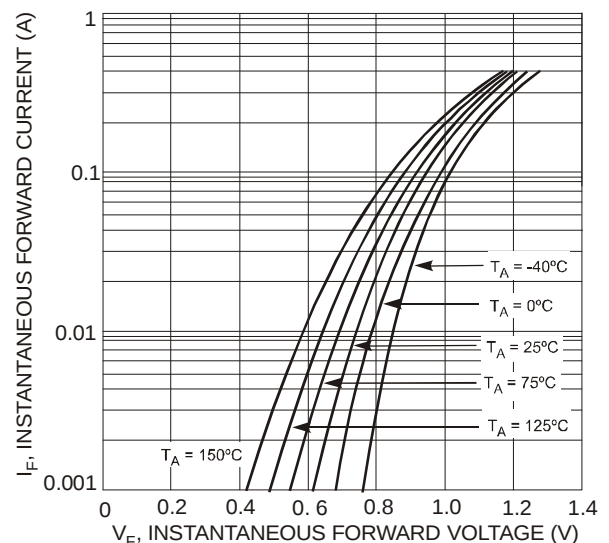


Fig. 2 Typical Forward Characteristics, Per Element

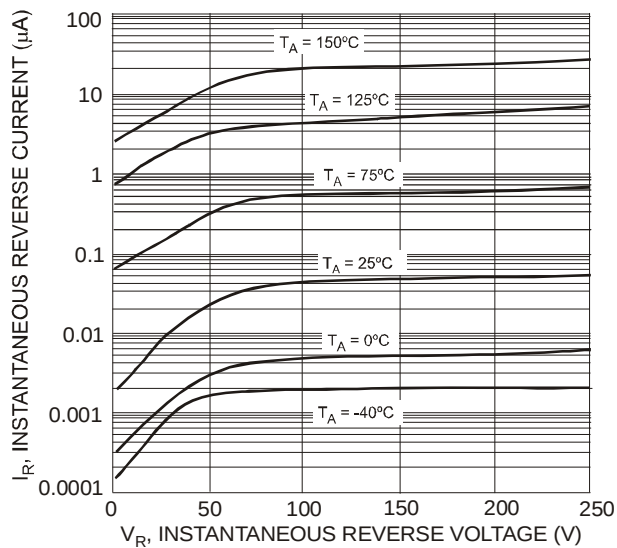


Fig. 3 Typical Reverse Characteristics, Per Element

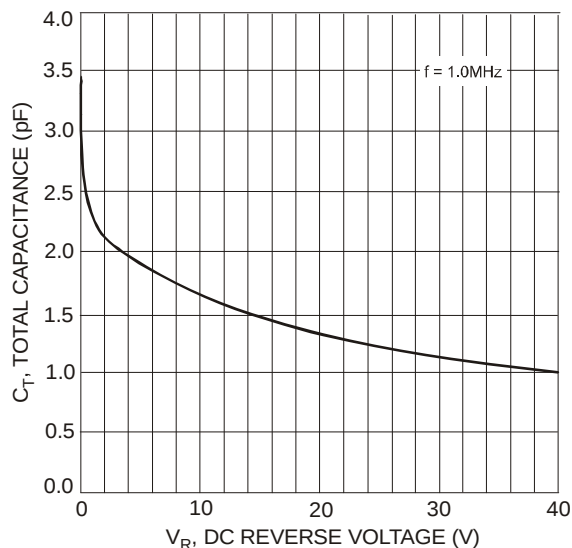
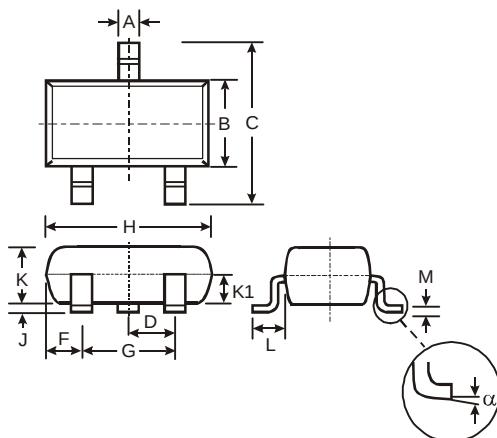


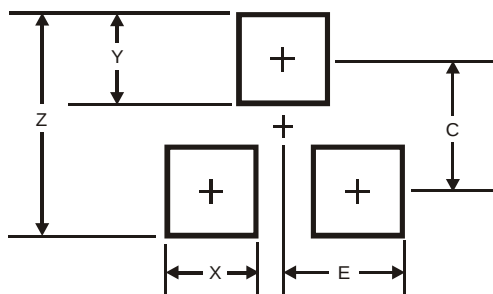
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

## Package Outline Dimensions



| SOT23                |       |      |       |
|----------------------|-------|------|-------|
| Dim                  | Min   | Max  | Typ   |
| A                    | 0.37  | 0.51 | 0.40  |
| B                    | 1.20  | 1.40 | 1.30  |
| C                    | 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  |
| H                    | 2.80  | 3.00 | 2.90  |
| J                    | 0.013 | 0.10 | 0.05  |
| K                    | 0.903 | 1.10 | 1.00  |
| K1                   | -     | -    | 0.400 |
| L                    | 0.45  | 0.61 | 0.55  |
| M                    | 0.085 | 0.18 | 0.11  |
| α                    | 0°    | 8°   | -     |
| All Dimensions in mm |       |      |       |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.9           |
| X          | 0.8           |
| Y          | 0.9           |
| C          | 2.0           |
| E          | 1.35          |

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