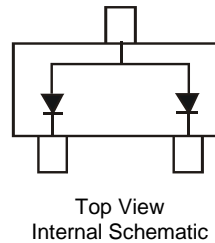


**Features**

- Fast Switching Speed
- Small Surface Mount Package
- For General Purpose Switching Applications
- **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**
- **PPAP Capable (Note 4)**

**Mechanical Data**

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, (Note 5); 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: See Diagram
- Weight: 0.006 grams (Approximate)

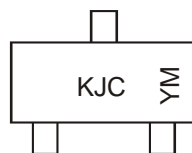


**Ordering Information** (Notes 5 & 6)

| Part Number | Qualification | Case   | Packaging        |
|-------------|---------------|--------|------------------|
| BAW56W-7-F  | Commercial    | SOT323 | 3000/Tape & Reel |
| BAW56WQ-7-F | Automotive    | SOT323 | 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/>.
  5. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
  6. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**



KJC = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: G = 2019)  
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | ... | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|
| Code | S    | T    | U    | V    | W    | X    | ... | G    | H    | I    | J    | K    | L    |

| 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 |   |
|--|---------------------|-------------|------|---|
| Non-Repetitive Peak Reverse Voltage                | V <sub>RM</sub>     | 100         | V    |   |
| Peak Repetitive Reverse Voltage                    | V <sub>R(RM)</sub>  | 75          | V    |   |
| Working Peak Reverse Voltage                       | V <sub>R(WM)</sub>  |             |      |   |
| DC Blocking Voltage                                | V <sub>R</sub>      |             |      |   |
| RMS Reverse Voltage                                | V <sub>R(RMS)</sub> | 53          | V    |   |
| Forward Continuous Current (Note 7)                | I <sub>FM</sub>     | 300         | mA   |   |
| Average Rectified Output Current (Note 7)          | I <sub>O</sub>      | 150         | mA   |   |
| Non-Repetitive Peak Forward Surge Current (Note 7) | I <sub>FSM</sub>    | @ t = 1.0μs | 2.0  | A |
|  |                     | @ t = 1.0s  | 1.0  |   |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 7)                          | P <sub>D</sub>                    | 200         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 7) | R <sub>θJA</sub>                  | 625         | °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 8) | V <sub>(BR)R</sub> | 75  | —                             | V                    | I <sub>R</sub> = 2.5μA   |
| Forward Voltage                    | V <sub>F</sub>     | —   | 0.715<br>0.855<br>1.0<br>1.25 | V                    | I <sub>F</sub> = 1.0mA<br>I <sub>F</sub> = 10mA<br>I <sub>F</sub> = 50mA<br>I <sub>F</sub> = 150mA   |
| Reverse Current (Note 8)           | I <sub>R</sub>     | —   | 2.5<br>50<br>30<br>25         | μA<br>μA<br>μA<br>nA | V <sub>R</sub> = 75V<br>V <sub>R</sub> = 75V, T <sub>J</sub> = 150°C<br>V <sub>R</sub> = 25V, T <sub>J</sub> = 150°C<br>V <sub>R</sub> = 20V |
| Total Capacitance                  | C <sub>T</sub>     | —   | 2.0                           | pF                   | V <sub>R</sub> = 0, f = 1.0MHz   |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | 4.0                           | ns                   | I <sub>F</sub> = I <sub>R</sub> = 10mA,<br>I <sub>tr</sub> = 0.1 × I <sub>R</sub> , R <sub>L</sub> = 100Ω                                    |

Notes: 7. Part mounted on FR-4, 2oz 1inch squared copper pad PC board.  
8. Short duration pulse test used to minimize self-heating effect.

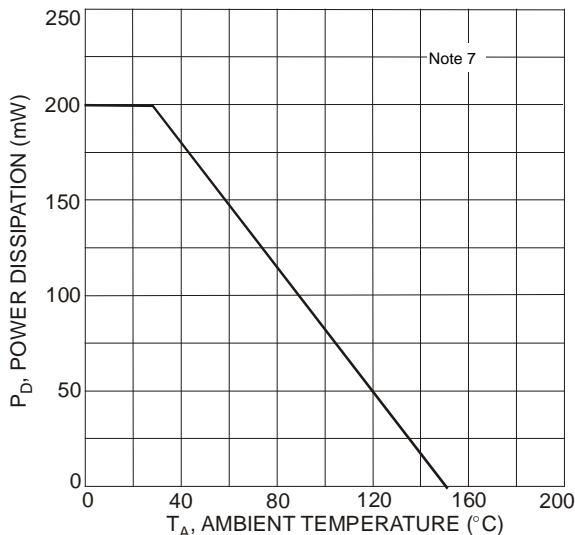


Fig. 1 Power Derating Curve, Total Package

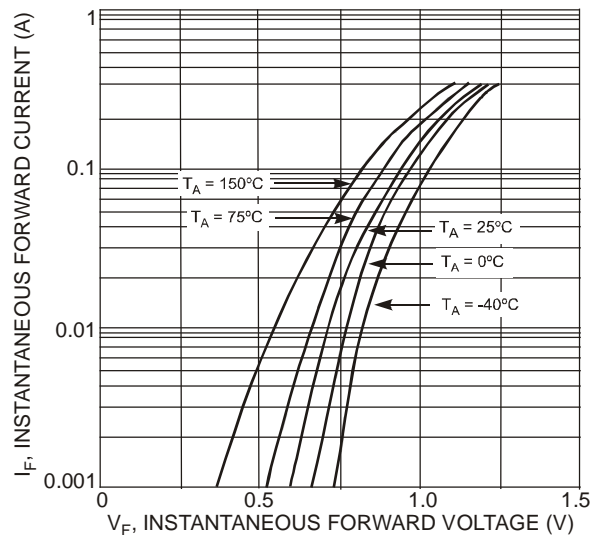


Fig. 2 Typical Forward Characteristics, Per Element

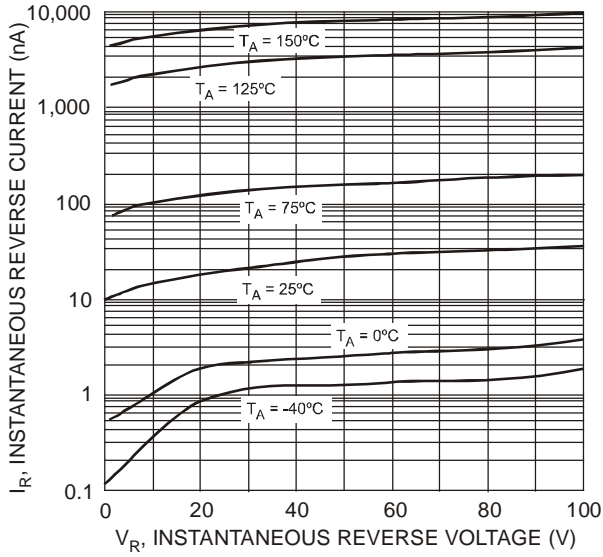


Fig. 3 Typical Reverse Characteristics, Per Element

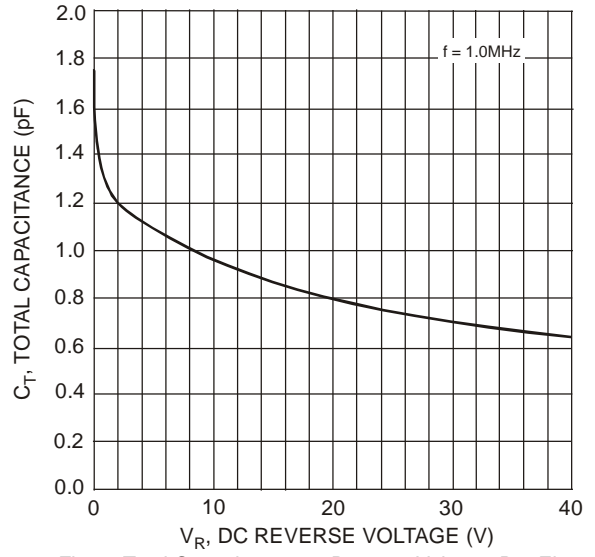


Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

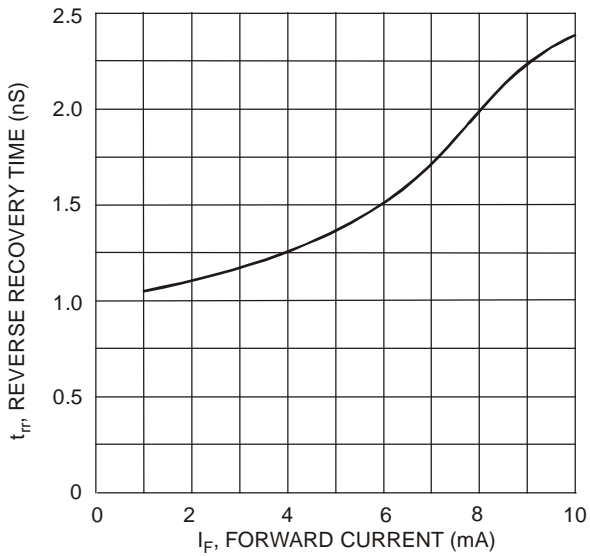
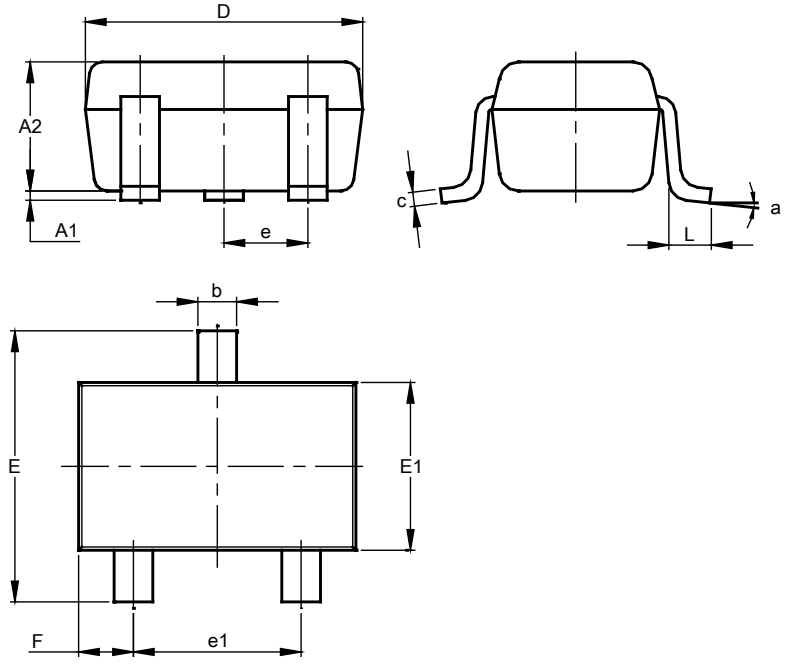


Fig. 5 Reverse Recovery Time vs. Forward Current, Per Element

**Package Outline Dimensions**

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

**SOT323**

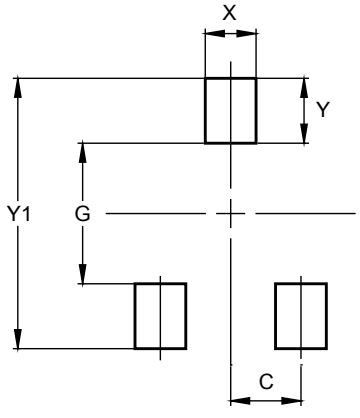


| SOT323               |           |       |       |
|----------------------|-----------|-------|-------|
| Dim                  | Min       | Max   | Typ   |
| A1                   | 0.00      | 0.10  | 0.05  |
| A2                   | 0.90      | 1.00  | 0.95  |
| b                    | 0.25      | 0.40  | 0.30  |
| c                    | 0.10      | 0.18  | 0.11  |
| D                    | 1.80      | 2.20  | 2.15  |
| E                    | 2.00      | 2.20  | 2.10  |
| E1                   | 1.15      | 1.35  | 1.30  |
| e                    | 0.650 BSC |       |       |
| e1                   | 1.20      | 1.40  | 1.30  |
| F                    | 0.375     | 0.475 | 0.425 |
| 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.

**SOT323**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.650         |
| G          | 1.300         |
| X          | 0.470         |
| Y          | 0.600         |
| Y1         | 2.500         |

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