

Features

- Fast Switching Speed: Maximum of 4ns
- Low Capacitance: Maximum of 2.0pF
- Small Surface Mount Package
- For General Purpose Switching Applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

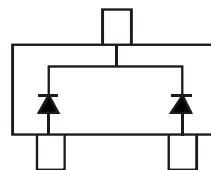
Mechanical Data

- 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: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 Leadframe) (Ⓢ)
- Polarity: See Diagram
- Weight: 0.006 grams (Approximate)

SOT323



Top View



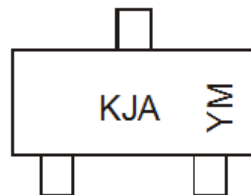
Top View
Internal Schematic

Ordering Information (Notes 4 & 5)

| Part Number | Qualification | Case | Packaging |
|-------------|---------------|--------|-------------------|
| BAV70W-7-F | Commercial | SOT323 | 3,000/Tape & Reel |
| BAV70WQ-7-F | Automotive | SOT323 | 3,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 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/>
 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.

Marking Information



KJA = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: E = 2017
 M = Month ex: 9 = September

Date Code Key

| Year | 2000 | 2001 | 2002 | 2003 | | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Code | L | M | N | P | | A | B | C | D | E | F | G | H |

| 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 |
|--|---------------------|-------------|------|
| Non-Repetitive Peak Reverse Voltage | V _{RM} | 100 | V |
| Peak Repetitive Reverse Voltage | V _{R(RM)} | 75 | V |
| Working Peak Reverse Voltage | V _{R(WM)} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 53 | V |
| Forward Continuous Current (Note 6) | I _{FM} | 300 | mA |
| Non-Repetitive Peak Forward Surge Current (Note 6) | I _{FSM} | @ t = 1.0μs | 2.0 |
| | | @ t = 1.0s | 1.0 |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 6) | P _D | 200 | mW |
| Thermal Resistance Junction to Ambient Air (Note 6) | R _{θJA} | 625 | °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 7) | V _{(BR)R} | 75 | — | V | I _R = 100μA |
| Forward Voltage | V _F | — | 0.715 | V | I _F = 1.0mA |
| | | | 0.855 | | I _F = 10mA |
| | | | 1.0 | | I _F = 50mA |
| | | | 1.25 | | I _F = 150mA |
| Reverse Current (Note 7) | I _R | — | 2.5 | μA | V _R = 75V |
| | | | 50 | μA | V _R = 75V, T _J = +150°C |
| | | | 30 | μA | V _R = 25V, T _J = +150°C |
| | | | 25 | nA | V _R = 20V |
| Total Capacitance | C _T | — | 2.0 | pF | V _R = 0, f = 1.0MHz |
| Reverse Recovery Time | t _{rr} | — | 4.0 | ns | I _F = I _R = 10mA, I _{rr} = 0.1 x I _R , R _L = 100Ω |

- Notes:
6. Device mounted on a 2" x 2" Al board.
 7. Short duration pulse test used to minimize self-heating effect.

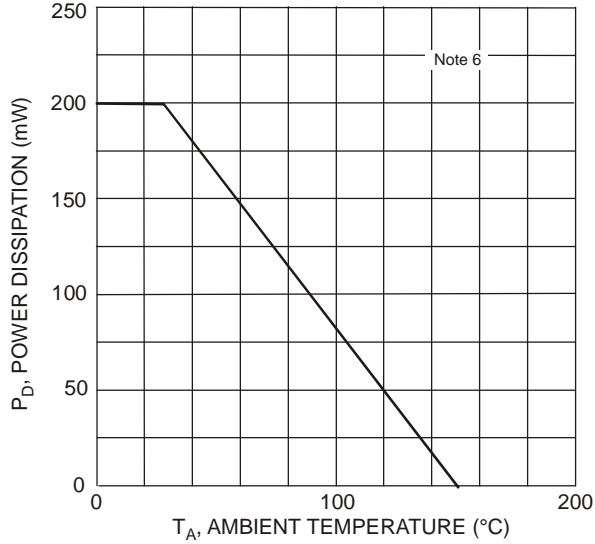


Figure 1 Power Derating Curve, Total Package

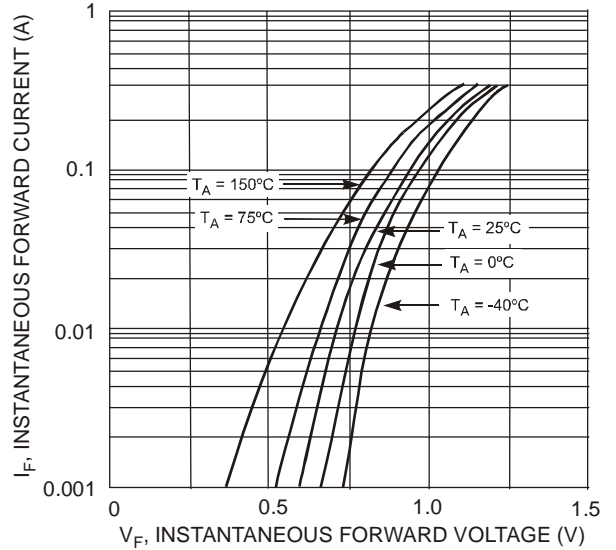


Figure 2 Typical Forward Characteristics, Per Element

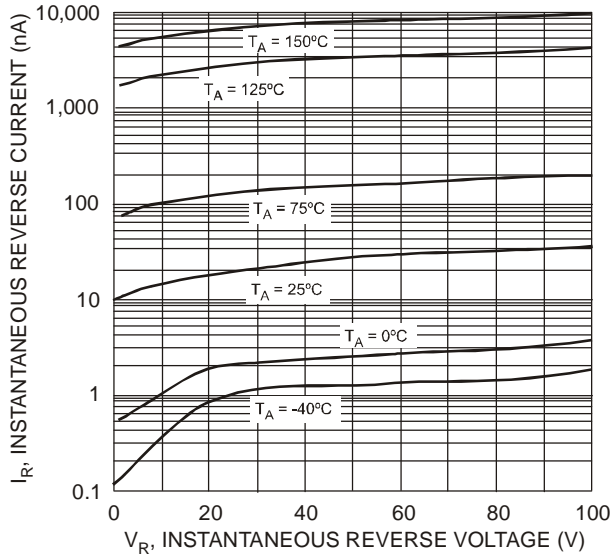


Figure 3 Typical Reverse Characteristics, Per Element

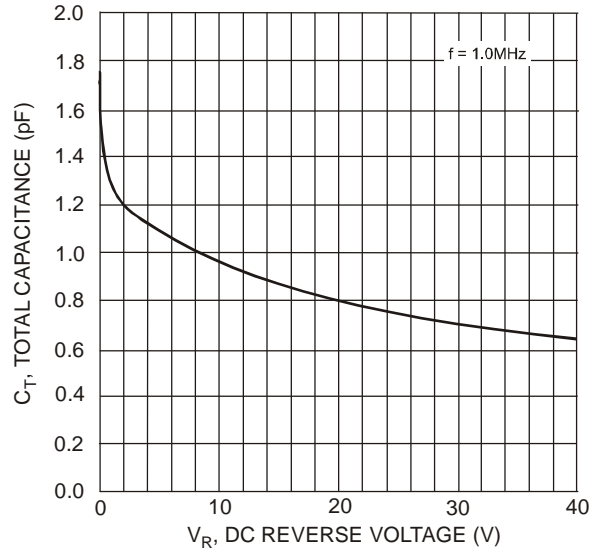


Figure 4 Total Capacitance vs. Reverse Voltage, Per Element

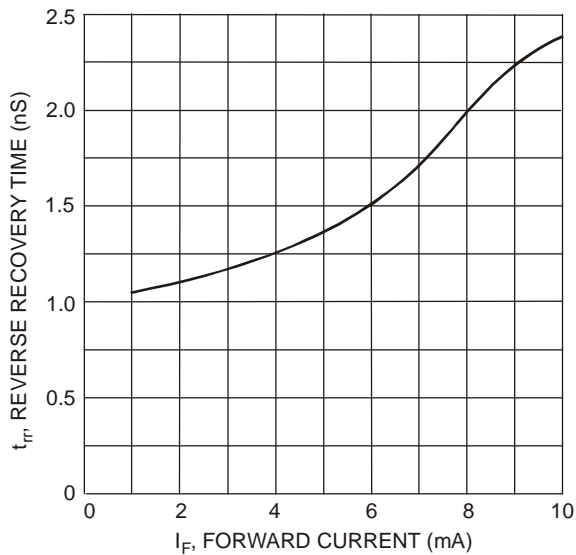
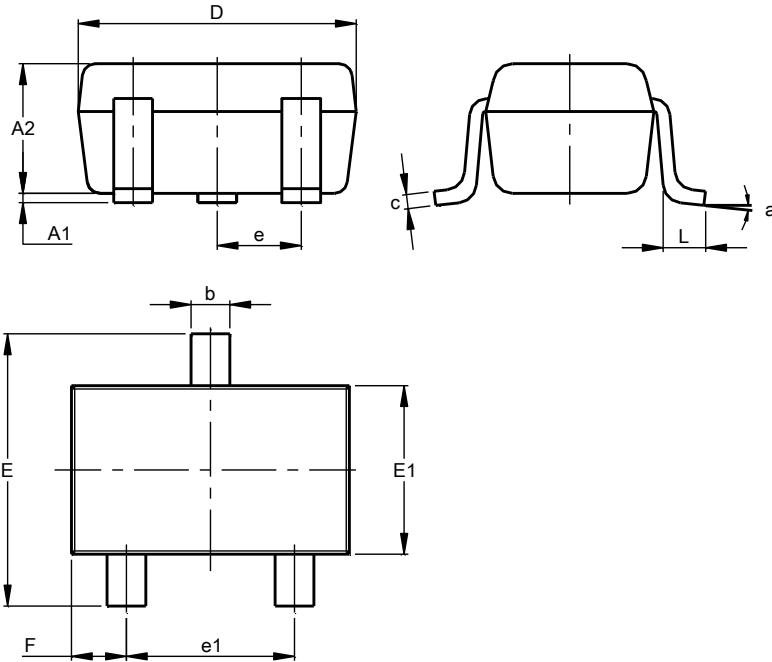


Figure 5 Reverse Recovery Time vs. Forward Current, Per Element

Package Outline Dimensions

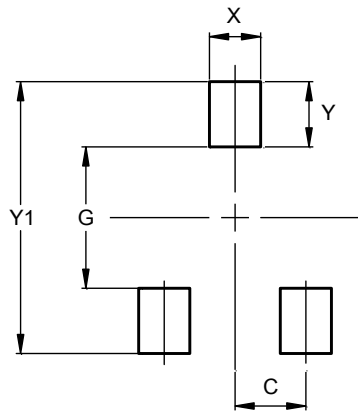
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| SOT323 | | | |
|----------------------|-----------|-------|-------|
| 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.



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

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