



**THE DATASHEET OF
AT89S8253-24PU**



Product Summary

| V_R (V) | I_F (mA) | V_F MAX (V) @ +25°C | I_R MAX (μA) @ +25°C |
|-----------|------------|--------------------------|---------------------------|
| 70 | 1.0 | 0.41 | 0.1 |

Description

The 70mA surface-mount Schottky Barrier Diode in SOT23 package, offers low-forward voltage drop and fast switching capability, designed with PN Junction Guard Ring for Transient and ESD Protection.

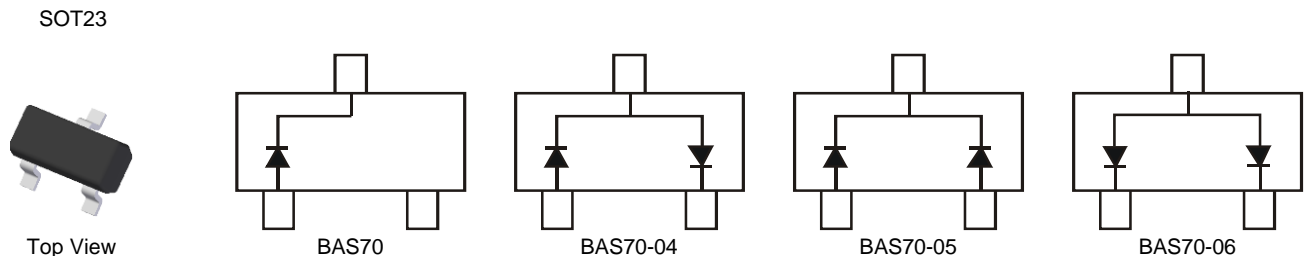
Features and Benefits

- Low Turn-On Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The BAS70-04Q 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

- Package: SOT23
- Package Material: Molded Plastic. 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 Diagrams Below
- Weight: 0.008 grams (Approximate)

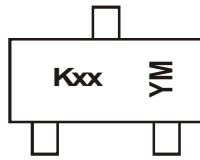
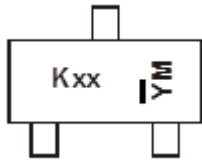


Ordering Information (Notes 4 & 5)

| Part Number | Package | Packing | |
|----------------|---------|---------|-------------|
| | | Qty. | Carrier |
| BAS70-7-F | SOT23 | 3000 | Tape & Reel |
| BAS70-04-7-F | SOT23 | 3000 | Tape & Reel |
| BAS70-04Q-7-F | SOT23 | 3000 | Tape & Reel |
| BAS70-04Q-13-F | SOT23 | 10000 | Tape & Reel |
| BAS70-05-7-F | SOT23 | 3000 | Tape & Reel |
| BAS70-06-7-F | SOT23 | 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 5. Product manufactured with Data 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 Sb₂O₃ Fire Retardants.

Marking Information



Kxx = Product Type Marking Code:

K7C = BAS70

K7D = BAS70-04&BAS70-04Q

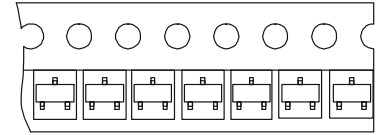
K7E = BAS70-05

K7F = BAS70-06

YM & YM̄ = Date Code Marking

Y = Year (ex: K = 2023)

M = Month (ex: 2 = Feb)



Date Code Key

| Year | 2007 | ... | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|------|------|-----|------|------|------|------|------|------|------|------|------|------|
| Code | U | ... | K | L | M | N | P | R | S | T | U | V |

| 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 |
|--|---------------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 70 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 49 | V |
| Maximum Forward Continuous Current (Note 6) | I _{FM} | 70 | mA |
| Non-Repetitive Peak Forward Surge Current @ t ≤ 1.0s | I _{FSM} | 100 | mA |

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 Junction Temperature Range | T _J | -55 to +125 | °C |
| Storage Temperature Range | 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} | 70 | — | V | I _R = 10μA |
| Forward Voltage | V _F | — | 410 1000 | mV | t _P < 300μs, I _F = 1.0mA t _P < 300μs, I _F = 15mA |
| Reverse Current (Note 7) | I _R | — | 100 | nA | t _P < 300μs, V _R = 50V |
| Total Capacitance | C _T | — | 2.0 | pF | V _R = 0V, f = 1.0MHz |
| Reverse Recovery Time | t _{RR} | — | 5.0 | ns | I _F = I _R = 10mA to I _R = 1.0mA, R _L = 100Ω |
| Reverse Recovery Time (For BAS70-04 Only) | t _{RR} | — | 2.0 | ns | I _F = I _R = 10mA to I _R = 1.0mA, R _L = 100Ω |

Notes: 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.

7. Short duration pulse test used to minimize self-heating effect.

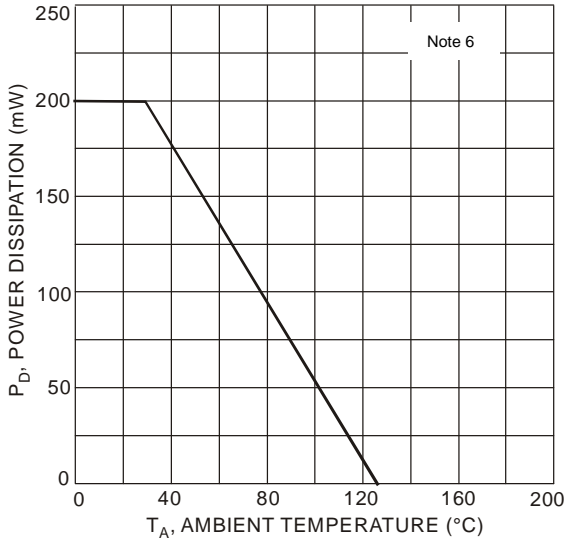


Figure 1 Power Derating Curve, Total Package

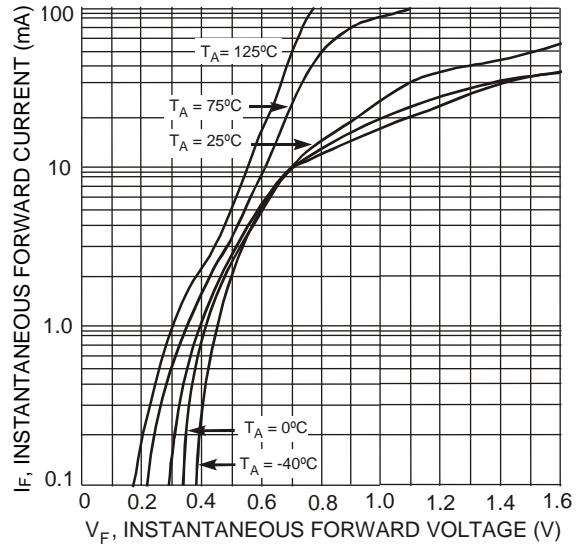


Figure 2 Typical Forward Characteristics

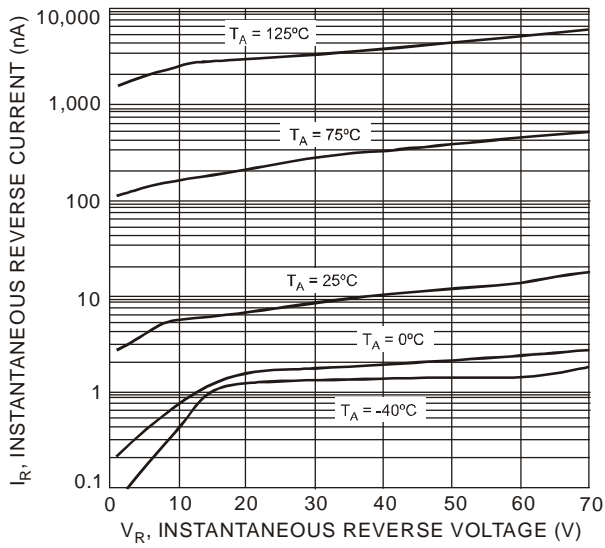


Figure 3 Typical Reverse Characteristics

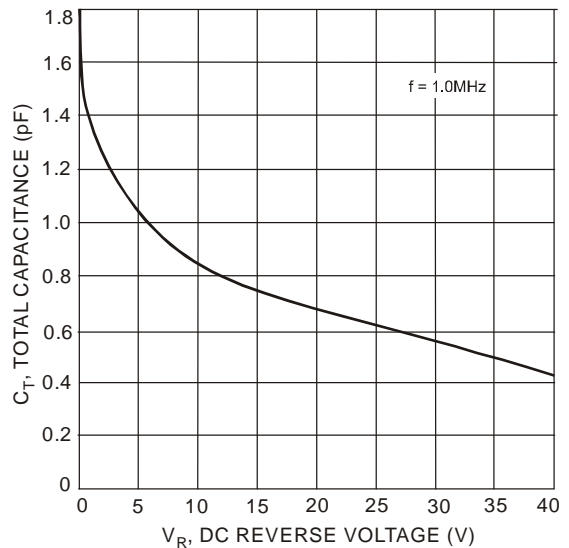
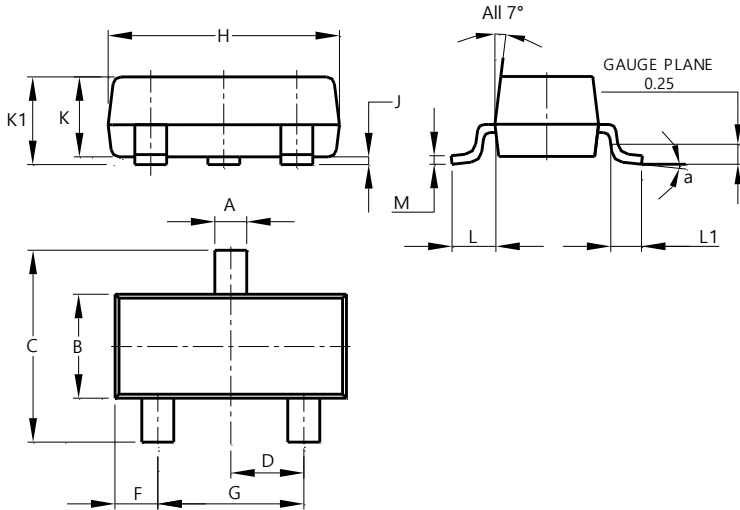


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOT23

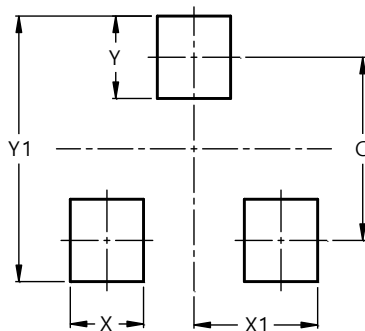


| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.890 | 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 |
| a | 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) |
|------------|---------------|
| C | 2.0 |
| X | 0.8 |
| X1 | 1.35 |
| Y | 0.9 |
| Y1 | 2.9 |

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