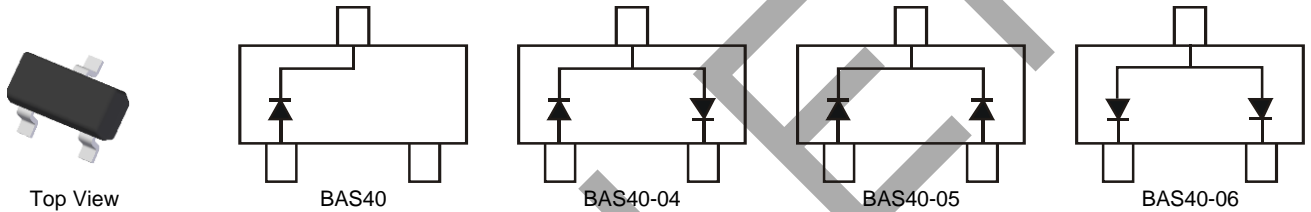


Features

- Low Forward Voltage Drop
- 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)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208③
- Polarity: See Diagrams Below
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.008 grams (approximate)



Maximum Ratings @TA = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|-----------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 40 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| Forward Continuous Current (Note 4) | I_{FM} | 200 | mA |
| Forward Surge Current (Note 4) @ $t < 1.0s$ | I_{FSM} | 600 | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|------|
| Power Dissipation (Note 4) | P_D | 350 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 4) | $R_{\theta JA}$ | 357 | °C/W |
| Operating Temperature Range | T_J | -55 to +125 | °C |
| Storage Temperature Range | T_{STG} | -65 to +150 | °C |

Electrical Characteristics @TA = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|-------------|-----|-----|-------------|------|---|
| Reverse Breakdown Voltage (Note 5) | $V_{(BR)R}$ | 40 | — | — | V | $I_R = 10\mu A$ |
| Forward Voltage | V_F | — | — | 380 1000 | mV | $t_p < 300\mu s, I_F = 1.0mA$ $t_p < 300\mu s, I_F = 40mA$ |
| Reverse Leakage Current (Note 5) | I_R | — | 20 | 200 | nA | $t_p < 300\mu s, V_R = 30V$ |
| Total Capacitance | C_T | — | 4.0 | 5.0 | pF | $V_R = 0V, f = 1.0MHz$ |
| Reverse Recovery Time | t_{rr} | — | — | 5.0 | ns | $I_F = I_R = 10mA$ to $I_R = 1.0mA$, $R_L = 100\Omega$ |

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

OBSOLETE - PART DISCONTINUED

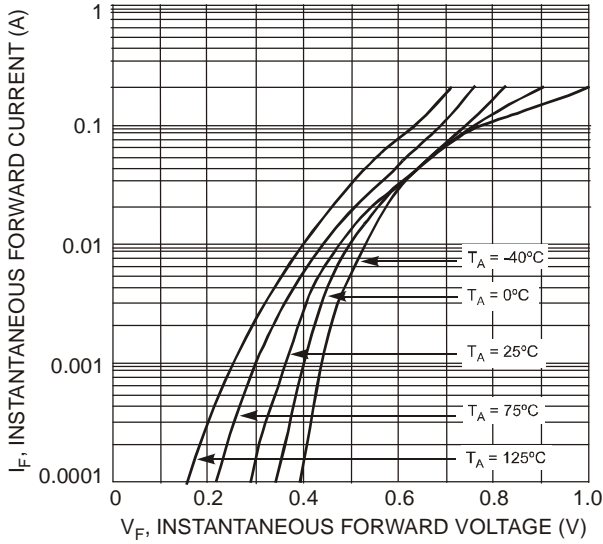


Fig. 1 Typical Forward Characteristics

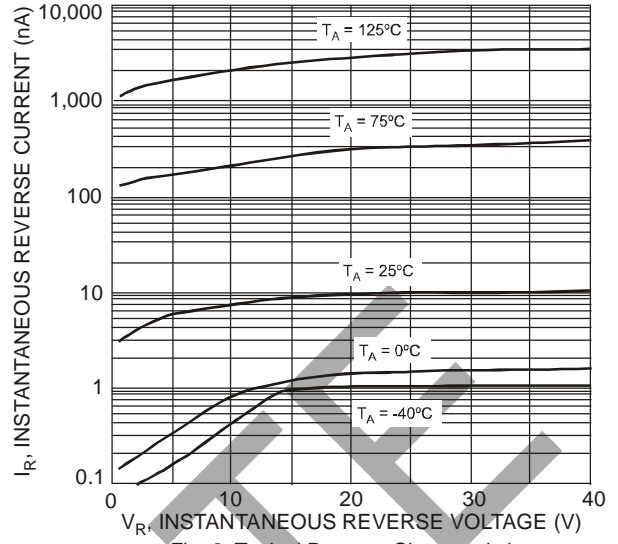


Fig. 2 Typical Reverse Characteristics

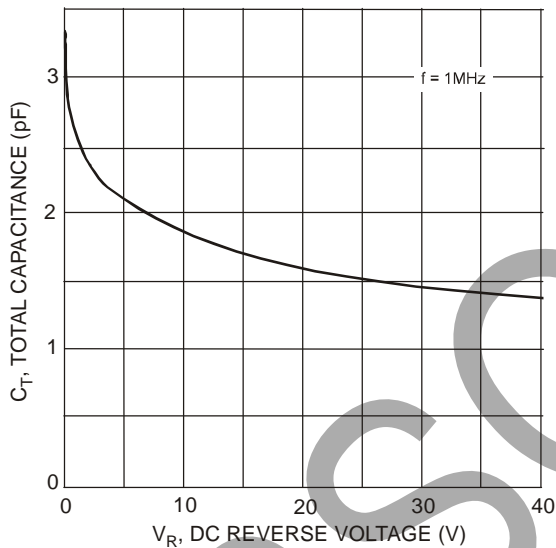


Fig. 3 Total Capacitance vs. Reverse Voltage

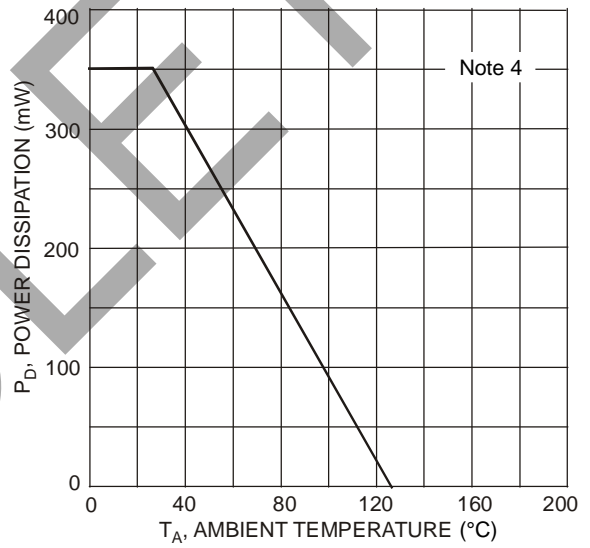


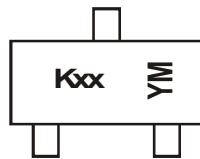
Fig. 4 Power Derating Curve, Total Package

Ordering Information (Note 6)

| Part Number | Case | Packaging |
|--------------|--------|------------------|
| BAS40-7-G | SOT-23 | 3000/Tape & Reel |
| BAS40-04-7-G | SOT-23 | 3000/Tape & Reel |
| BAS40-05-7-G | SOT-23 | 3000/Tape & Reel |
| BAS40-06-7-G | SOT-23 | 3000/Tape & Reel |

Note: 6. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



Kxx = Product Type Marking Code:

K43 = BAS40

K44 = BAS40-04

K45 = BAS40-05

K46 = BAS40-06

YM = Date Code Marking

Y = Year (ex: I = 2021)

M = Month (ex: 9 = September)

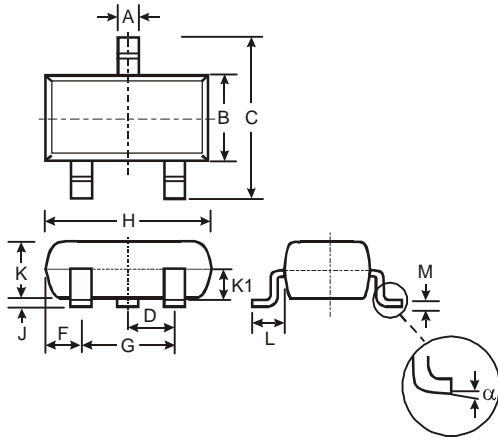
Date Code Key

| Year | 2010 | ... | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|------|------|-----|------|------|------|------|------|------|------|------|------|------|
| Code | X | ... | I | J | K | L | M | N | O | P | R | S |

| 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 |

Package Outline Dimensions

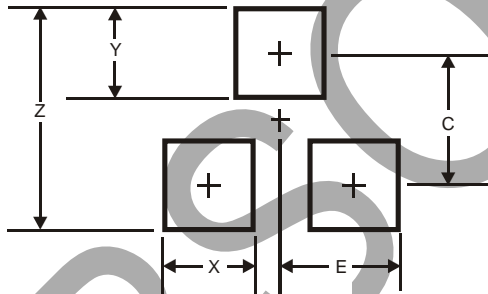
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| SOT-23 | | | |
|----------------------|-------|------|-------|
| 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

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



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

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