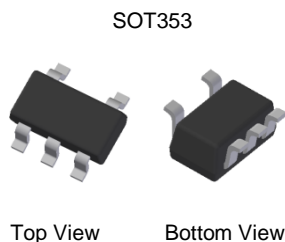


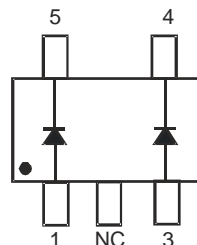
## Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- High Reverse Breakdown Voltage Rating
- ESD: MM ≤ 400V and HBM ≤ 4kV
- **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: SOT353
- Case Material: Molded Plastic, "Green" Molding Compound. 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<sup>③</sup>
- Polarity: See Diagram
- Weight: 0.006 grams (Approximate)

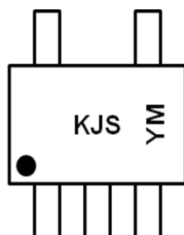


## Ordering Information (Note 5)

| Part Number | Compliance | Case   | Packaging         |
|-------------|------------|--------|-------------------|
| BAS21DWA-7  | AEC-Q101   | SOT353 | 3,000/Tape & Reel |
| BAS21DWAQ-7 | Automotive | SOT353 | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



KJS = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: B= 2014)  
 M = Month (ex: 9 = September)

### Date Code Key

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | B    | C    | D    | E    | F    | G    | H    | J    | K    | L    | M    | N    |

| 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<br>DC Blocking Voltage   | V <sub>RWM</sub><br>V <sub>R</sub> | 250   | V    |
| RMS Reverse Voltage                                   | V <sub>R(RMS)</sub>                | 175   | V    |
| Forward Continuous Current (Note 6)                   | I <sub>F</sub>                     | 200   | mA   |
| Peak Repetitive Forward Current (Note 6)              | I <sub>FRM</sub>                   | 625   | mA   |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0μs | I <sub>FSM</sub>                   | 4.0   | A    |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 6)                          | P <sub>D</sub>                    | 285         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 6) | R <sub>θJA</sub>                  | 435         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min | Typ      | Max                 | Unit     | Test Condition  |
|------------------------------------|--------------------|-----|----------|---------------------|----------|---|
| Reverse Breakdown Voltage (Note 7) | V <sub>(BR)R</sub> | 250 | —        | —                   | V        | I <sub>R</sub> = 100μA  |
| Forward Voltage                    | V <sub>F</sub>     | —   | —        | 0.90<br>1.05<br>1.3 | V        | I <sub>F</sub> = 20mA<br>I <sub>F</sub> = 100mA<br>I <sub>F</sub> = 200mA                 |
| Reverse Current (Note 7)           | I <sub>R</sub>     | —   | 30<br>35 | 100<br>100          | nA<br>μA | V <sub>R</sub> = 200V<br>V <sub>R</sub> = 200V, T <sub>J</sub> = +150°C                   |
| Total Capacitance                  | C <sub>T</sub>     | —   | 0.7      | 5.0                 | pF       | V <sub>R</sub> = 0V, 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> = 3.0mA, R <sub>L</sub> = 100Ω |

Notes: 6. Part mounted on FR-4 substrate with pad dimensions 1 inch x 1 inch, 2oz, copper, single-sided, PC board.  
7. Short duration pulse test used to minimize self-heating effect.

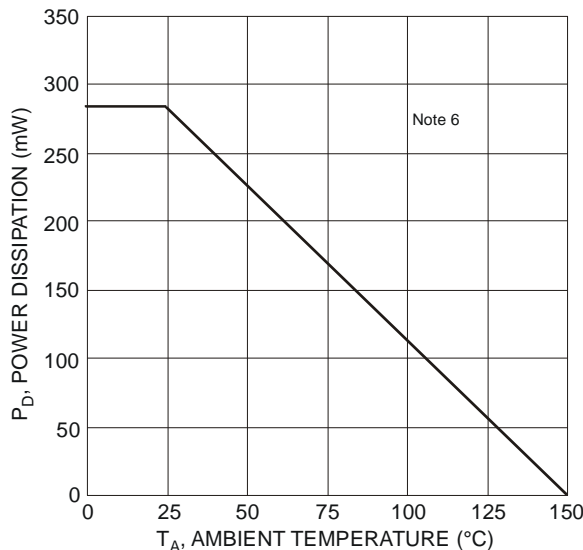


Figure 1 Power Derating Curve, Total Package

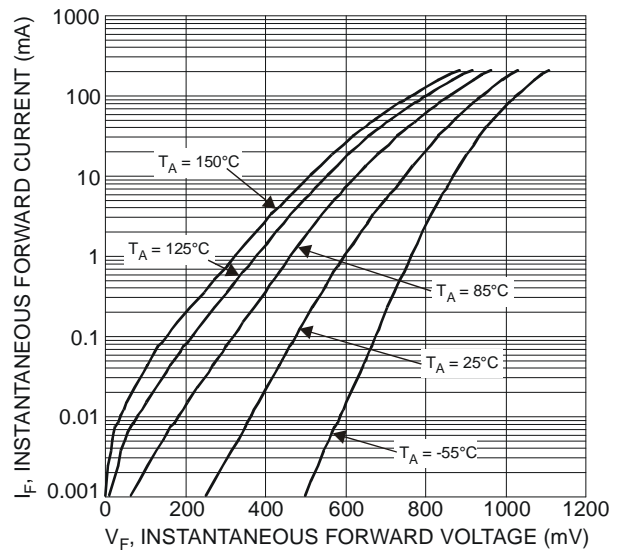


Figure 2 Typical Forward Characteristics

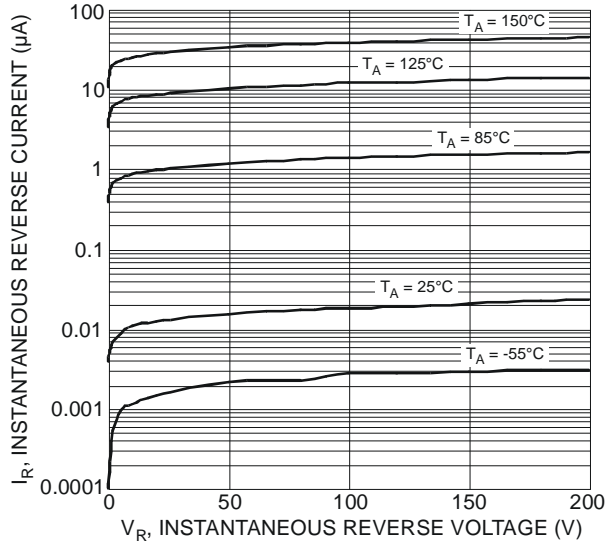


Figure 3 Typical Reverse Characteristics

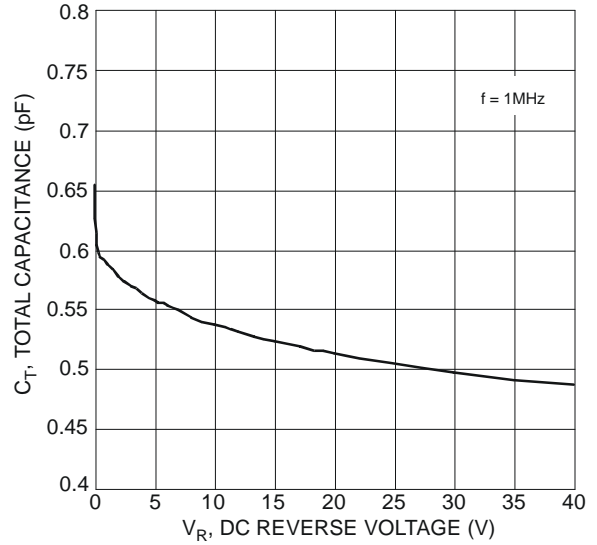
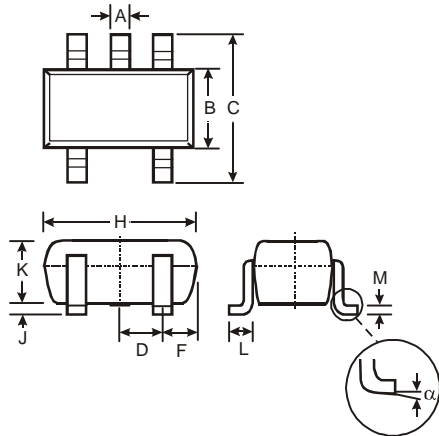


Figure 4 Total Capacitance vs. Reverse Voltage

### Package Outline Dimensions

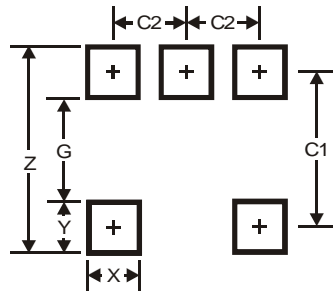
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| SOT353                      |          |      |       |
|-----------------------------|----------|------|-------|
| Dim                         | Min      | Max  | Typ   |
| A                           | 0.10     | 0.30 | 0.25  |
| B                           | 1.15     | 1.35 | 1.30  |
| C                           | 2.00     | 2.20 | 2.10  |
| D                           | 0.65 Typ |      |       |
| F                           | 0.40     | 0.45 | 0.425 |
| H                           | 1.80     | 2.20 | 2.15  |
| J                           | 0        | 0.10 | 0.05  |
| K                           | 0.90     | 1.00 | 1.00  |
| L                           | 0.25     | 0.40 | 0.30  |
| M                           | 0.10     | 0.22 | 0.11  |
| $\alpha$                    | 0°       | 8°   | -     |
| <b>All Dimensions in mm</b> |          |      |       |

### Suggested Pad Layout

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.5           |
| G          | 1.3           |
| X          | 0.42          |
| Y          | 0.6           |
| C1         | 1.9           |
| C2         | 0.65          |

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