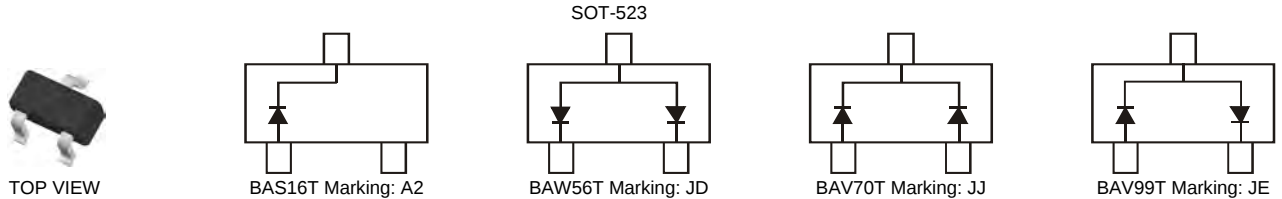


## Features

- Ultra-Small Surface Mount Package
- Fast Switching Speed
- For General Purpose Switching Applications
- High Conductance
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 3 and 4)**

## Mechanical Data

- Case: SOT-523
- Case Material - Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish)
- Polarity: See Diagrams Below
- Marking Information: See Diagrams Below & Page 2
- Ordering Information: See Page 2
- Weight: 0.002 grams (approximate)



## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                            | Symbol              | Value | Unit |
|-------------------------------------------|---------------------|-------|------|
| Peak Repetitive Reverse Voltage           | V <sub>RRM</sub>    | 85    | V    |
| Working Peak Reverse Voltage              | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage                       | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage                       | V <sub>R(RMS)</sub> | 60    | V    |
| Forward Continuous Current (Note 2)       | I <sub>FM</sub>     | 155   | mA   |
|                                           |                     | 75    |      |
| Repetitive Peak Forward Current           | I <sub>FRM</sub>    | 500   | mA   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub>    | 4.0   | A    |
|                                           |                     | 1.0   |      |
|                                           |                     | 0.5   |      |

## Thermal Characteristics

| Characteristic                                  | Symbol                            | Value       | Unit |
|-------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 2)                      | P <sub>D</sub>                    | 150         | mW   |
| Thermal Resistance Junction to Ambient (Note 2) | R <sub>θJA</sub>                  | 833         | °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 | Typ | Max                           | Unit                 | Test Condition                                                                                                                               |
|------------------------------------|--------------------|-----|-----|-------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 5) | V <sub>(BR)R</sub> | 85  | —   | —                             | V                    | I <sub>R</sub> = 100μA                                                                                                                       |
| 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                                           |
| Leakage Current (Note 5)           | I <sub>R</sub>     | —   | —   | 2.0<br>100<br>60<br>30        | 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> = 25V |
| Total Capacitance                  | C <sub>T</sub>     | —   | 1.5 | —                             | 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>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω                                    |

- Notes:
1. No purposefully added lead.
  2. Device mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  4. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.
  5. Short duration pulse test used to minimize self-heating effect.

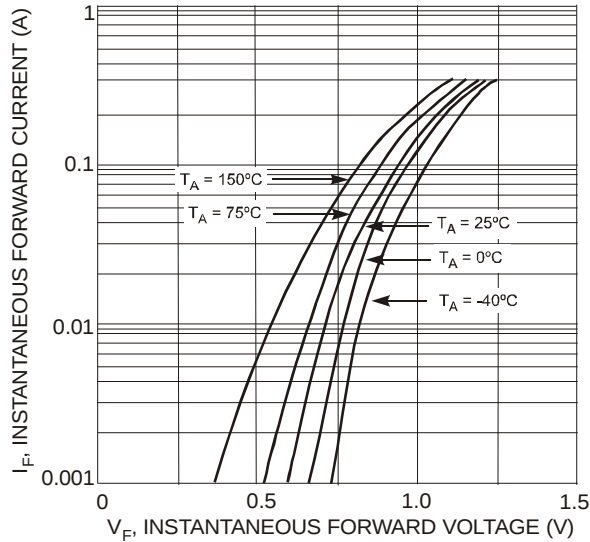


Fig. 1 Typical Forward Characteristics, Per Element

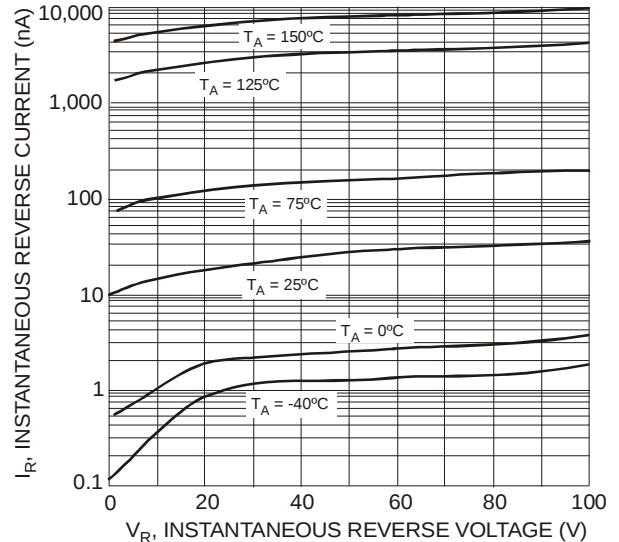


Fig. 2 Typical Reverse Characteristics, Per Element

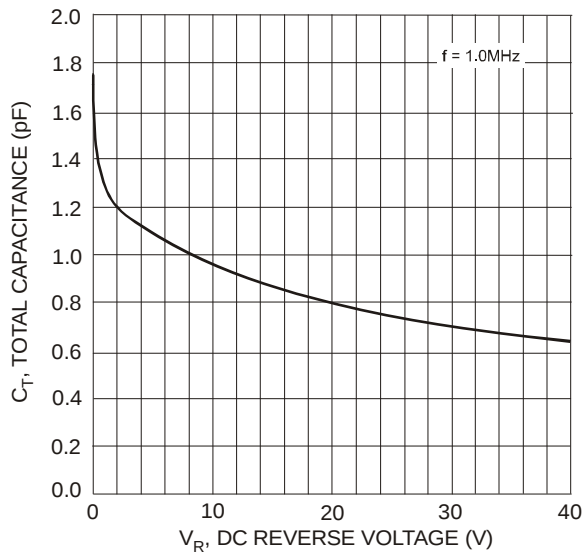


Fig. 3 Total Capacitance vs. Reverse Voltage, Per Element

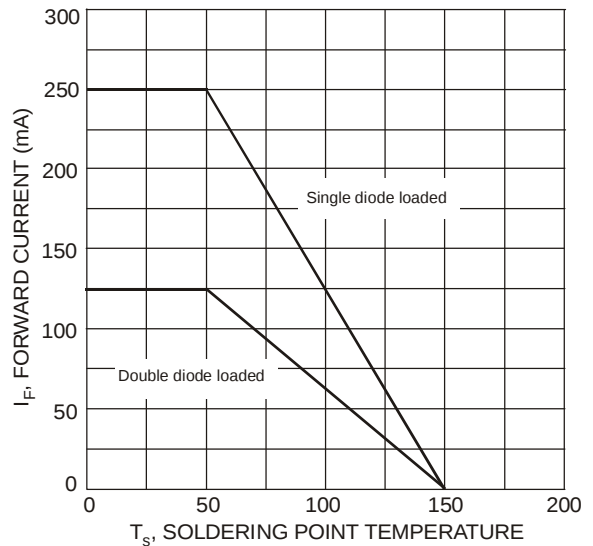


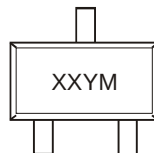
Fig. 4 Current Derating Curve, Total Package

## Ordering Information (Note 6)

| Part Number | Case    | Packaging        |
|-------------|---------|------------------|
| BAS16T-7-F  | SOT-523 | 3000/Tape & Reel |
| BAW56T-7-F  | SOT-523 | 3000/Tape & Reel |
| BAV70T-7-F  | SOT-523 | 3000/Tape & Reel |
| BAV99T-7-F  | SOT-523 | 3000/Tape & Reel |

 Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



XX = Product Type Marking Code (See Page 1, e.g. A2 = BAS16T)  
 YM = Date Code Marking  
 Y = Year (ex: N = 2002)  
 M = Month (ex: 9 = September)

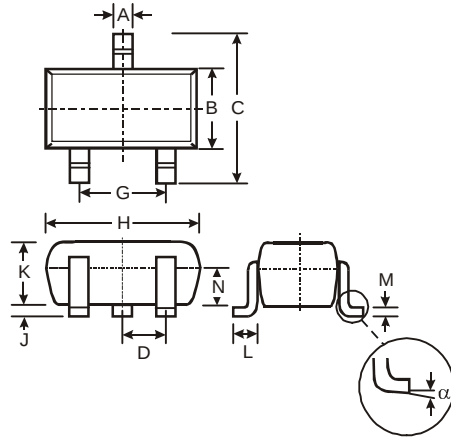
### Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | N    | P    | R    | S    | T    | U    | V    | W    | X    | Y    | Z    |

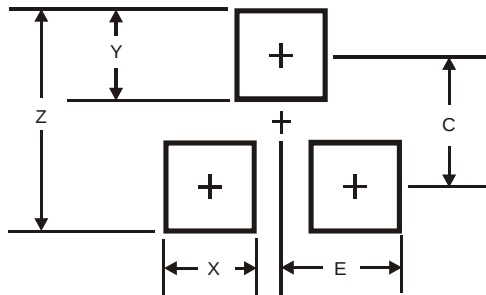
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

## Package Outline Dimensions



| SOT-523              |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.15 | 0.30 | 0.22 |
| B                    | 0.75 | 0.85 | 0.80 |
| C                    | 1.45 | 1.75 | 1.60 |
| D                    | —    | —    | 0.50 |
| G                    | 0.90 | 1.10 | 1.00 |
| H                    | 1.50 | 1.70 | 1.60 |
| J                    | 0.00 | 0.10 | 0.05 |
| K                    | 0.60 | 0.80 | 0.75 |
| L                    | 0.10 | 0.30 | 0.22 |
| M                    | 0.10 | 0.20 | 0.12 |
| N                    | 0.45 | 0.65 | 0.50 |
| α                    | 0°   | 8°   | —    |
| All Dimensions in mm |      |      |      |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 1.8           |
| X          | 0.4           |
| Y          | 0.51          |
| C          | 1.3           |
| E          | 0.7           |

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- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
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- Комплексную поставку.
- Работу по проектам и поставку образцов.
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- Тестирование поставляемой продукции.
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- Входной контроль качества.
- Наличие сертификата ISO.

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- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)