



## DESCRIPTION

The BAS16L is available in SOT-23 Package

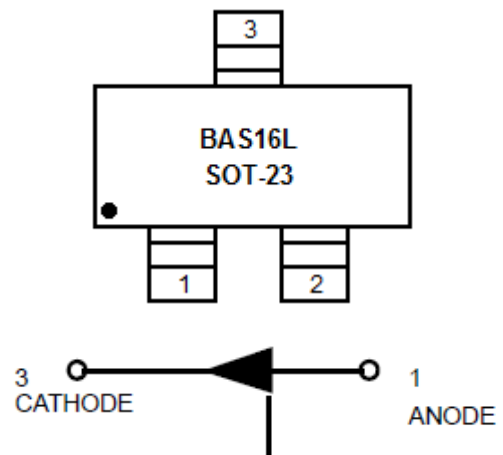
## FEATURES

- Available in SOT-23 Package

## ORDERING INFORMATION

| Package Type                             | Part Number  |
|--|--------------|
| SOT-23                                   | BAS16L       |
| Note                                     | 3000pcs/Reel |
| AiT provides all RoHS Compliant Products |              |

## PIN DESCRIPTION





## ABSOLUTE MAXIMUM RATINGS

|  |         |
|--|---------|
| $V_R$ , Continuous Reverse Voltage           | 75Vdc   |
| $I_F$ , Peak Forward Current                 | 200mAdc |
| $I_{FM(surge)}$ , Peak Forward Surge Current | 500mAdc |

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## THERMAL CHARACTERISTICS

| Parameter   | Symbol          | Max         | Unit                 |
|---|-----------------|-------------|----------------------|
| Total Device Dissipation FR- 5 Board <sup>Note1</sup><br>$T_A = 25\text{ }^\circ\text{C}$<br>Derate above $25\text{ }^\circ\text{C}$        | $P_D$           | 225         | mW                   |
| Thermal Resistance, Junction to Ambient   |                 | 1.8         | mW/ $^\circ\text{C}$ |
|   | $R_{\theta JA}$ | 556         | $^\circ\text{C/W}$   |
| Total Device Dissipation<br>Alumina Substrate, <sup>Note2</sup> $T_A = 25\text{ }^\circ\text{C}$<br>Derate above $25\text{ }^\circ\text{C}$ | $P_D$           | 300         | mW                   |
| Thermal Resistance, Junction to Ambient   |                 | 2.4         | mW/ $^\circ\text{C}$ |
|   | $R_{\theta JA}$ | 417         | $^\circ\text{C/W}$   |
| Junction and Storage Temperature  | $T_J, T_{STG}$  | -55 to +150 | $^\circ\text{C}$     |

NOTE1: FR-5 = 1.0 x 0.75 x 0.062 in

NOTE2: Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina



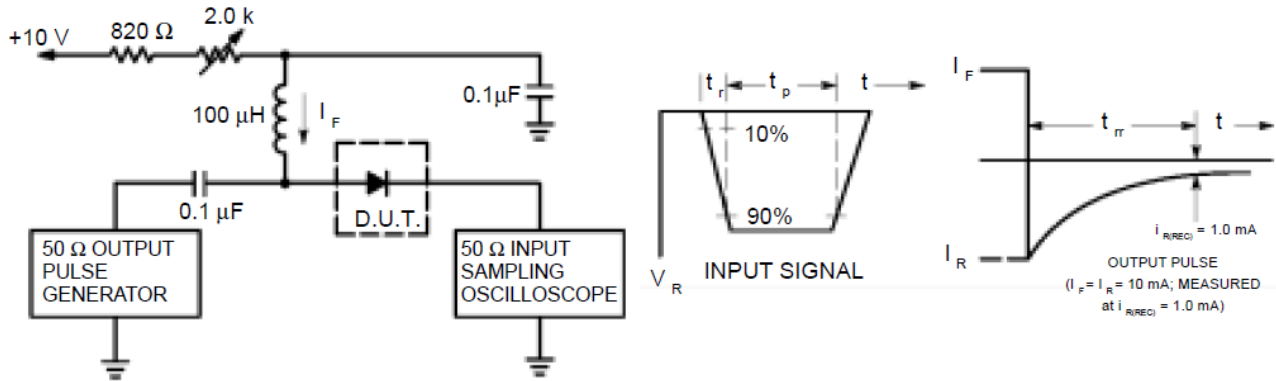
## ELECTRICAL CHARACTERISTICS

T<sub>A</sub> = 25 °C unless otherwise noted

| Parameter                       | Symbol            | Conditions   | Min. | Max. | Unit |
|---------------------------------|-------------------|--|------|------|------|
| <b>OFF CHARACTERISTICS</b>      |                   |  |      |      |      |
| Reverse Voltage Leakage Current | I <sub>R</sub>    | V <sub>R</sub> = 75Vdc   | -    | 1.0  | μAdc |
|                                 |                   | V <sub>R</sub> = 75Vdc, T <sub>J</sub> = 150°C                               |      | 50   |      |
|                                 |                   | V <sub>R</sub> = 25Vdc, T <sub>J</sub> = 150°C                               |      | 30   |      |
| Reverse Breakdown Voltage       | V <sub>(BR)</sub> | I <sub>BR</sub> = 100μAdc  | 75   | -    | Vdc  |
| Forward Voltage                 | V <sub>F</sub>    | I <sub>F</sub> = 1.0mAdc   | -    | 715  | mV   |
|                                 |                   | I <sub>F</sub> = 10mAdc  |      | 855  |      |
|                                 |                   | I <sub>F</sub> = 50mAdc  |      | 1000 |      |
|                                 |                   | I <sub>F</sub> = 150mAdc   |      | 1250 |      |
| Diode Capacitance               | C <sub>D</sub>    | V <sub>R</sub> = 0, f = 1.0 MHz  | -    | 2.0  | pF   |
| Forward Recovery Voltage        | V <sub>FR</sub>   | I <sub>F</sub> = 10mAdc, t <sub>r</sub> = 20ns                               | -    | 1.75 | Vdc  |
| Reverse Recovery Time           | t <sub>rr</sub>   | I <sub>F</sub> = I <sub>R</sub> = 10mAdc, R <sub>L</sub> = 50Ω               | -    | 6.0  | ns   |
| Stored Charge                   | Q <sub>S</sub>    | I <sub>F</sub> = 10mAdc to V <sub>R</sub> = 5.0Vdc,<br>R <sub>L</sub> = 500Ω | -    | 45   | pC   |

**TYPICAL CHARACTERISTICS**

Figure 1. Recovery Time Equivalent Test Circuit



Note1: A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.

Note2: Input pulse is adjusted so  $I_{R(peak)}$  is equal to 10 mA.

Note3:  $t_p \gg t_{rr}$

Figure 2. Forward Voltage

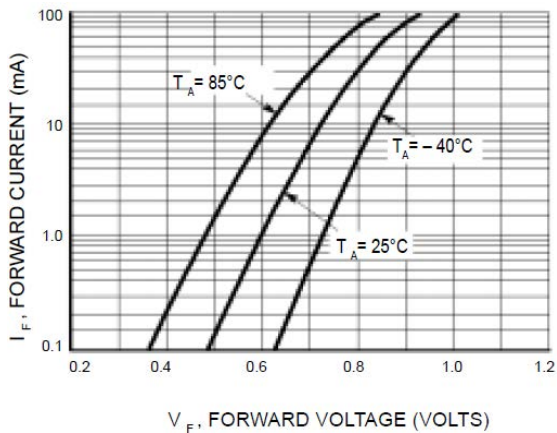


Figure 3. Leakage Current

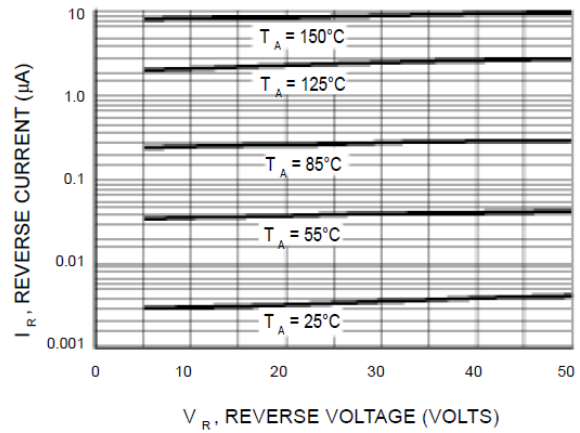
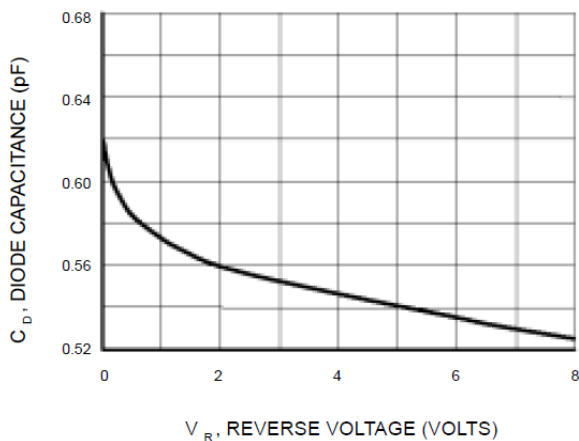


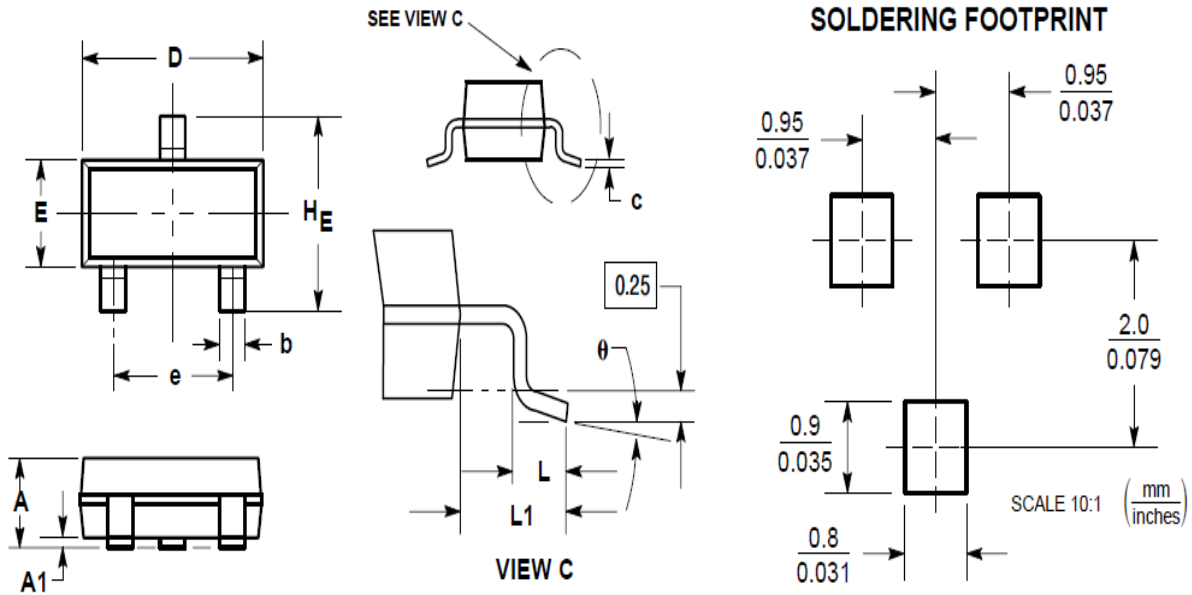
Figure 4. Capacitance





**PACKAGE INFORMATION**

Dimension in SOT-23 Package (Unit: mm)



| DIM | INCHES |       | MILLIMETERS |      |
|-----|--------|-------|-------------|------|
|     | MIN    | MAX   | MIN         | MAX  |
| A   | 0.035  | 0.044 | 0.89        | 1.11 |
| A1  | 0.001  | 0.004 | 0.01        | 0.10 |
| b   | 0.015  | 0.020 | 0.37        | 0.50 |
| c   | 0.003  | 0.007 | 0.09        | 0.18 |
| D   | 0.110  | 0.120 | 2.80        | 3.04 |
| E   | 0.047  | 0.055 | 1.20        | 1.40 |
| e   | 0.070  | 0.081 | 1.78        | 2.04 |
| L   | 0.004  | 0.012 | 0.10        | 0.30 |
| L1  | 0.014  | 0.029 | 0.35        | 0.69 |
| HE  | 0.083  | 0.104 | 2.10        | 2.64 |



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