

DATA SHEET



BAS16L High-speed diode

Product specification

2003 Jun 23

High-speed diode

BAS16L

FEATURES

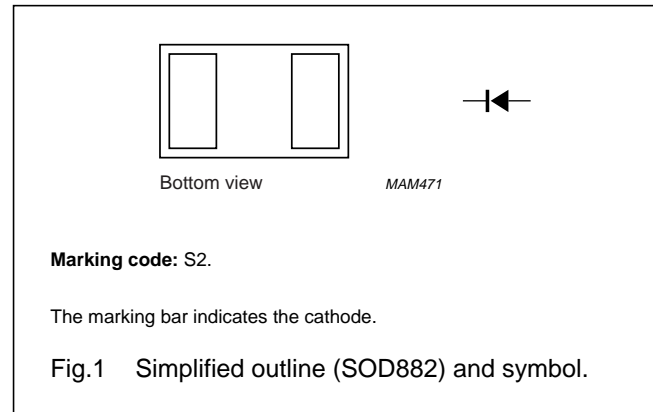
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 500 mA
- Leadless ultra small plastic package (1 mm × 0.6 mm × 0.5 mm)
- Board space 1.17 mm² (approx. 10% of SOT23)
- Power dissipation comparable to SOT23.

APPLICATIONS

- General purpose switching in surface mounted circuits
- Mobile communication, digital (still) cameras, PDA and PCMCIA cards.

DESCRIPTION

The BAS16L is a high-speed switching diode fabricated in planar technology and encapsulated in a SOD882 leadless ultra small plastic package.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|---|------|------|------|
| V_{RRM} | repetitive peak reverse voltage | | – | 100 | V |
| V_R | continuous reverse voltage | | – | 75 | V |
| I_F | continuous forward current | see Fig.2; note 1 | – | 215 | mA |
| I_{FRM} | repetitive peak forward current | | – | 500 | mA |
| I_{FSM} | non-repetitive peak forward current | square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4 | | | |
| | | $t = 1\ \mu\text{s}$ | – | 4 | A |
| | | $t = 1\ \text{ms}$ | – | 1 | A |
| | | $t = 1\ \text{s}$ | – | 0.5 | A |
| P_{tot} | total power dissipation | $T_{amb} = 25\text{ °C}$; note 1 | – | 250 | mW |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |

Note

1. Refer to SOD882 standard mounting conditions (footprint), FR4 printed-circuit board with 60 μm copper strip line.

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ELECTRICAL CHARACTERISTICS

$T_{amb} = 25\text{ °C}$ unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|----------|--------------------------|--|------|---------------|
| V_F | forward voltage | see Fig.3 | | |
| | | $I_F = 1\text{ mA}$ | 715 | mV |
| | | $I_F = 10\text{ mA}$ | 855 | mV |
| | | $I_F = 50\text{ mA}$ | 1 | V |
| I_R | reverse current | see Fig.5 | | |
| | | $V_R = 25\text{ V}$ | 30 | nA |
| | | $V_R = 75\text{ V}$ | 1 | μA |
| | | $V_R = 25\text{ V}; T_j = 150\text{ °C}$ | 30 | μA |
| | | $V_R = 75\text{ V}; T_j = 150\text{ °C}$ | 50 | μA |
| C_d | diode capacitance | $V_R = 0\text{ V}; f = 1\text{ MHz};$ see Fig.6 | 1.5 | pF |
| t_{rr} | reverse recovery time | when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}; R_L = 100\ \Omega;$ measured at $I_R = 1\text{ mA};$ | 4 | ns |
| V_{fr} | forward recovery voltage | when switched from $I_F = 10\text{ mA};$ $t_r = 20\text{ ns}$ | 1.75 | V |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 500 | K/W |

Note

1. Refer to SOD882 standard mounting conditions (footprint), FR4 printed-circuit board with 60 μm copper strip line.

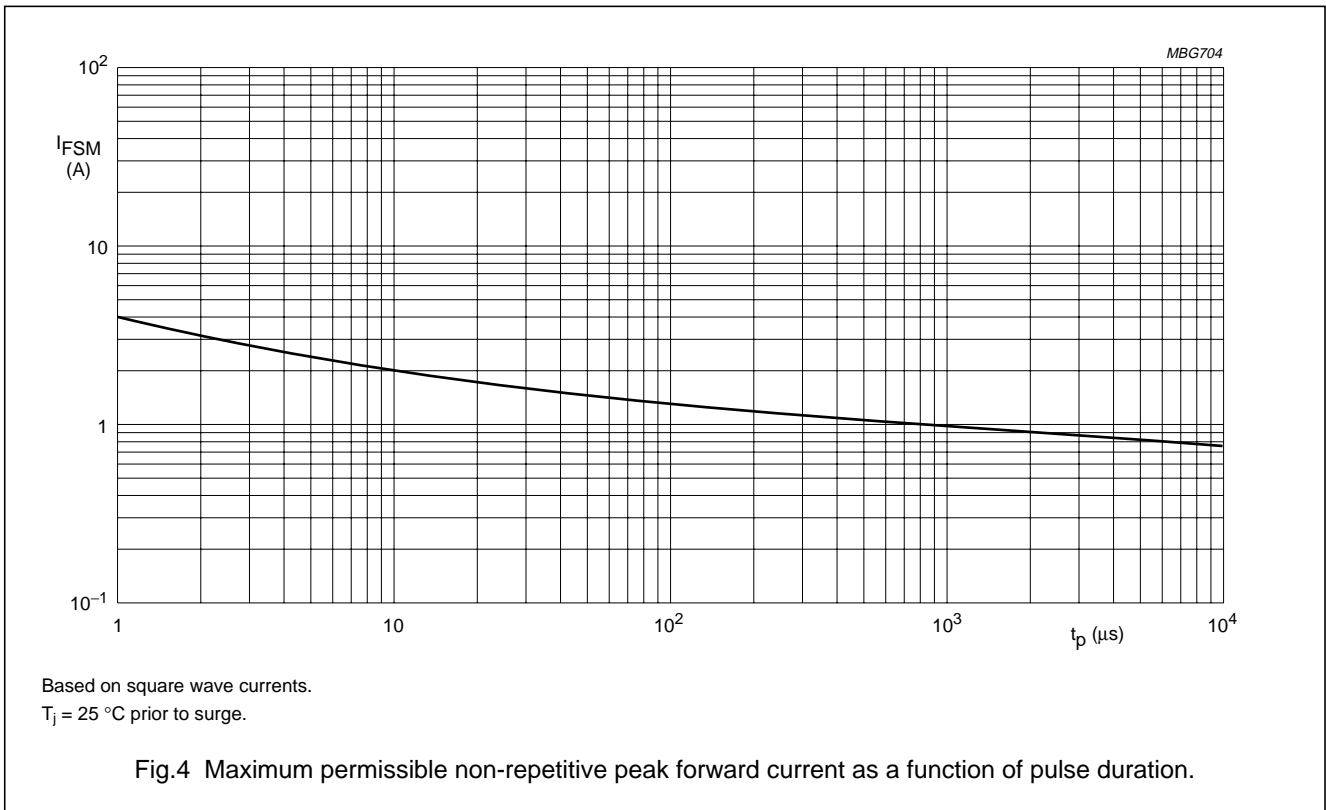
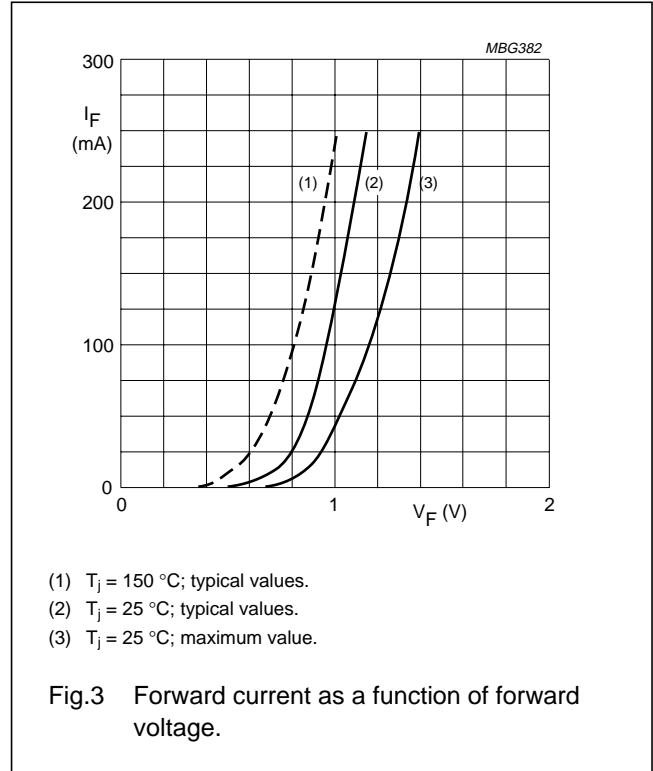
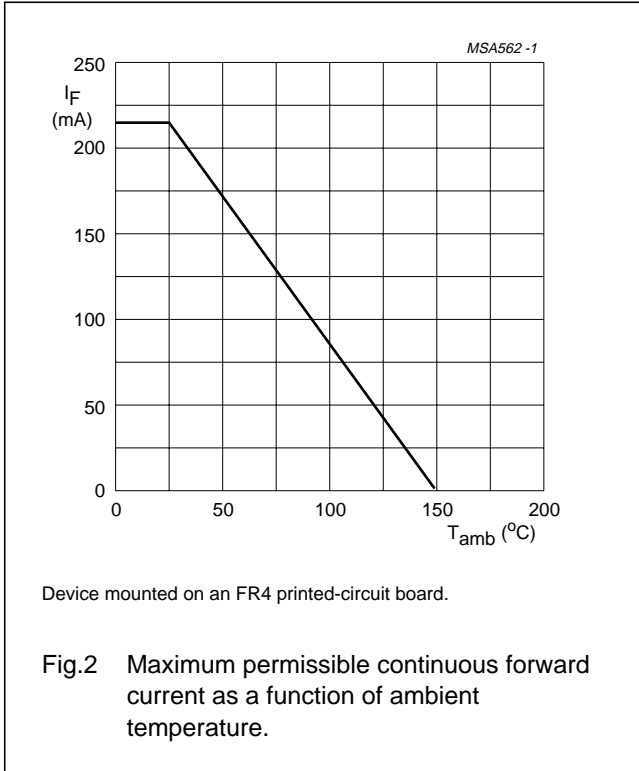
Soldering

Reflow soldering is the only recommended soldering method.

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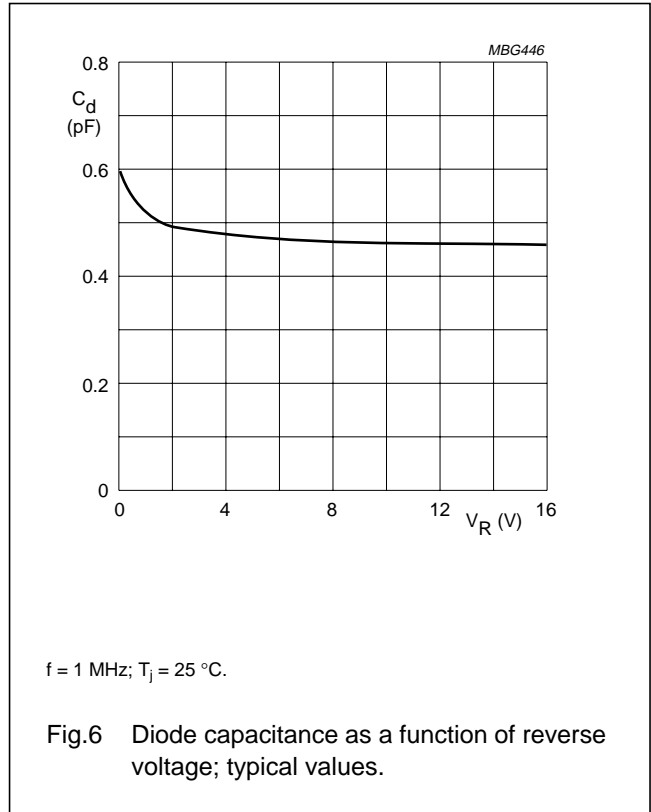
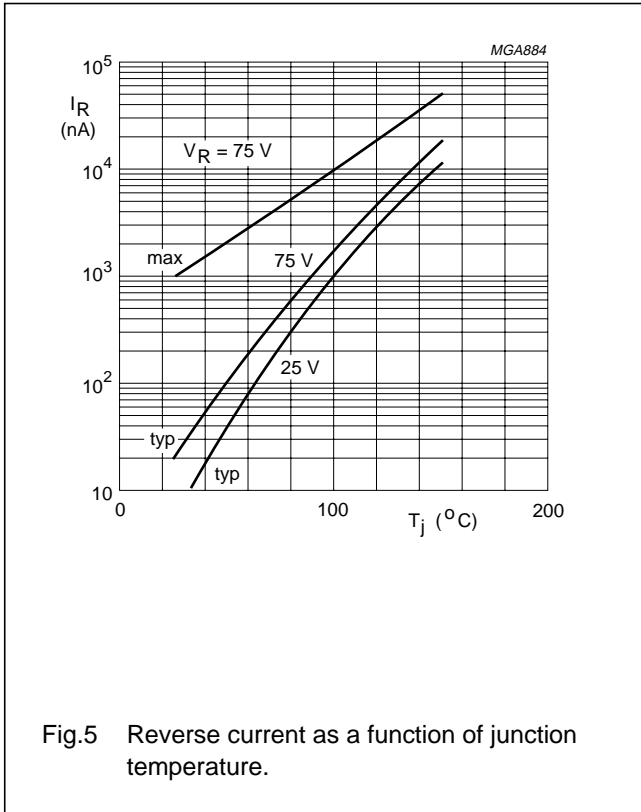
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GRAPHICAL DATA



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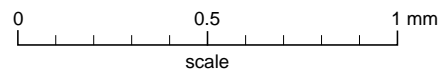
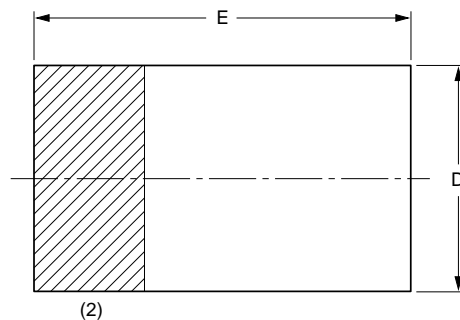
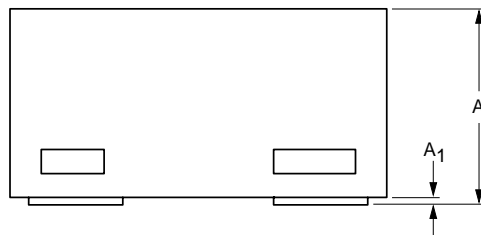
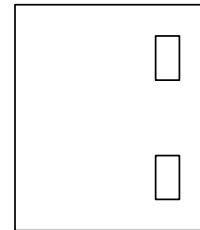
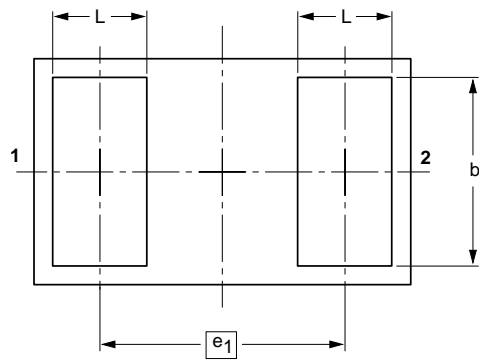
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PACKAGE OUTLINE

Leadless ultra small plastic package; 2 terminals; body 1.0 x 0.6 x 0.5 mm

SOD882



DIMENSIONS (mm are the original dimensions)

| UNIT | A ⁽¹⁾ | A ₁ max. | b | D | E | e ₁ | L |
|------|------------------|------------------------|--------------|--------------|--------------|----------------|--------------|
| mm | 0.50 0.46 | 0.03 | 0.55 0.47 | 0.62 0.55 | 1.02 0.95 | 0.65 | 0.30 0.22 |

Notes

- Including plating thickness
- The marking bar indicates the cathode

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|-------|--|---------------------|----------------------|
| | IEC | JEDEC | JEITA | | | |
| SOD882 | | | | | | 03-04-16 03-04-17 |

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DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾⁽³⁾ | DEFINITION |
|-------|----------------------------------|----------------------------------|--|
| I | Objective data | Development | This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice. |
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