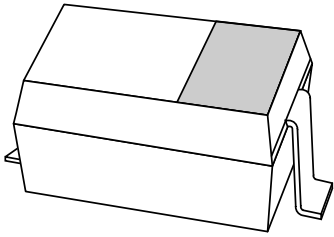


DATA SHEET



BAS316 High-speed diode

Product data sheet
Supersedes data of 1998 Mar 26

2004 Feb 04

High-speed diode

BAS316

FEATURES

- Very small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 100 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

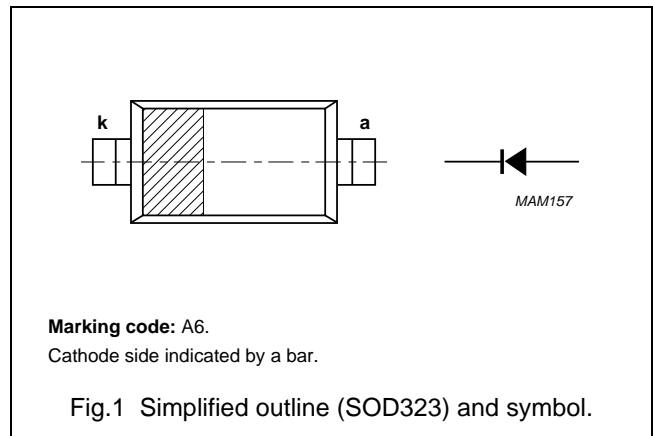
- High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

The BAS316 is a high-speed switching diode fabricated in planar technology, and encapsulated in the SOD323 SMD plastic package.

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | cathode |
| 2 | anode |



ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| BAS316 | - | plastic surface mounted package; 2 leads | SOD323 |

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 | | - | 100 | V |
| I_F | continuous forward current | $T_s = 90\text{ °C}$; note 1; see Fig.2 | - | 250 | 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 $t = 1\ \mu\text{s}$ $t = 1\ \text{ms}$ $t = 1\ \text{s}$ | - | 4 1 0.5 | A A A |
| P_{tot} | total power dissipation | $T_s = 90\text{ °C}$; note 1 | - | 400 | mW |
| T_{stg} | storage temperature | | -65 | +150 | °C |
| T_j | junction temperature | | - | 150 | °C |

Note

1. T_s is the temperature at the soldering point of the cathode tab.

High-speed diode

BAS316

CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|----------|--------------------------|---|-------------------------|---|
| V_F | forward voltage | see Fig.3 $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 150\text{ mA}$ | 715 855 1 1.25 | mV mV V V |
| I_R | reverse current | see Fig.5 $V_R = 25\text{ V}$ $V_R = 75\text{ V}$ $V_R = 25\text{ V}; T_j = 150\text{ °C}$ $V_R = 75\text{ V}; T_j = 150\text{ °C}$ | 30 1 30 50 | nA μA μA μA |
| C_d | diode capacitance | $f = 1\text{ MHz}; V_R = 0$; 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 $I_R = 1\text{ mA}$; see Fig.7 | 4 | ns |
| V_{fr} | forward recovery voltage | when switched from $I_F = 10\text{ mA}$; $t_r = 20\text{ ns}$; see Fig.8 | 1.75 | V |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th(j-s)}$ | thermal resistance from junction to soldering point | note 1 | 150 | K/W |

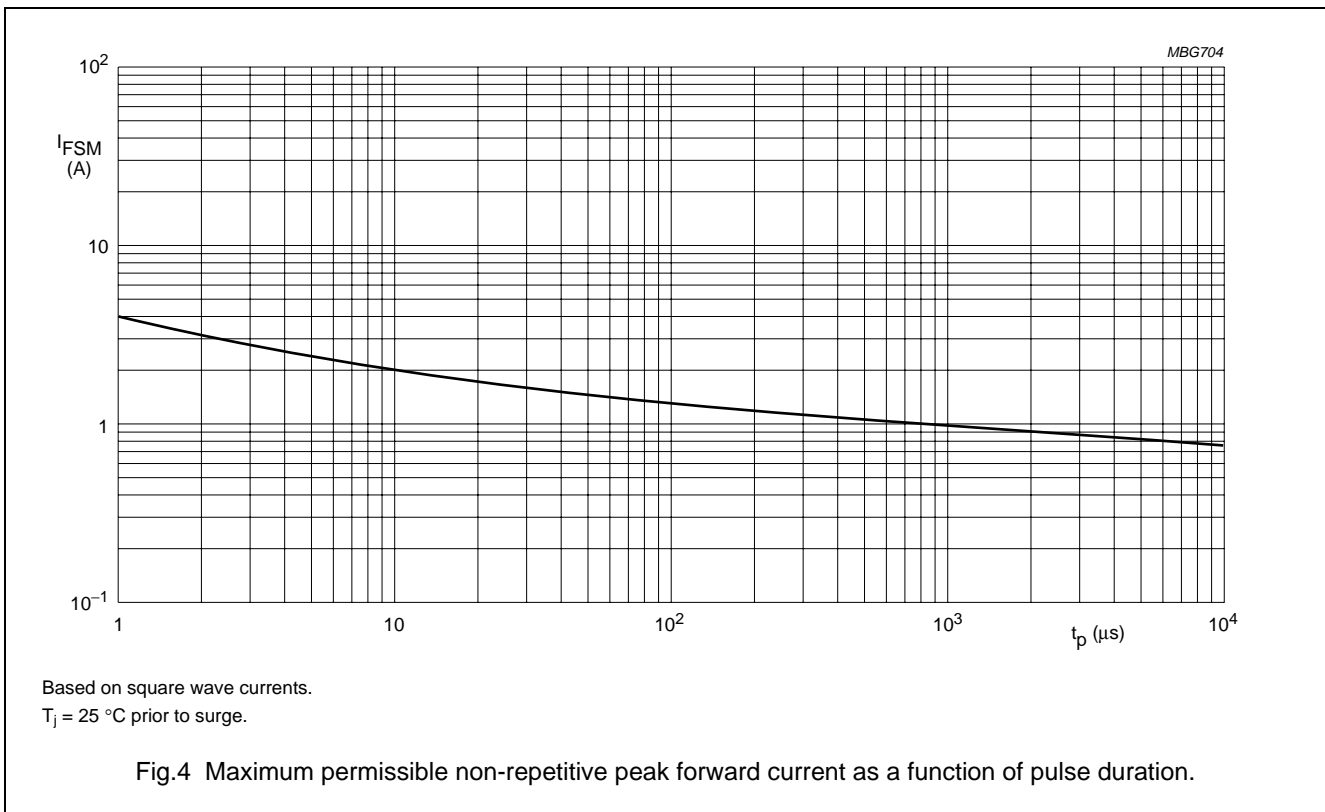
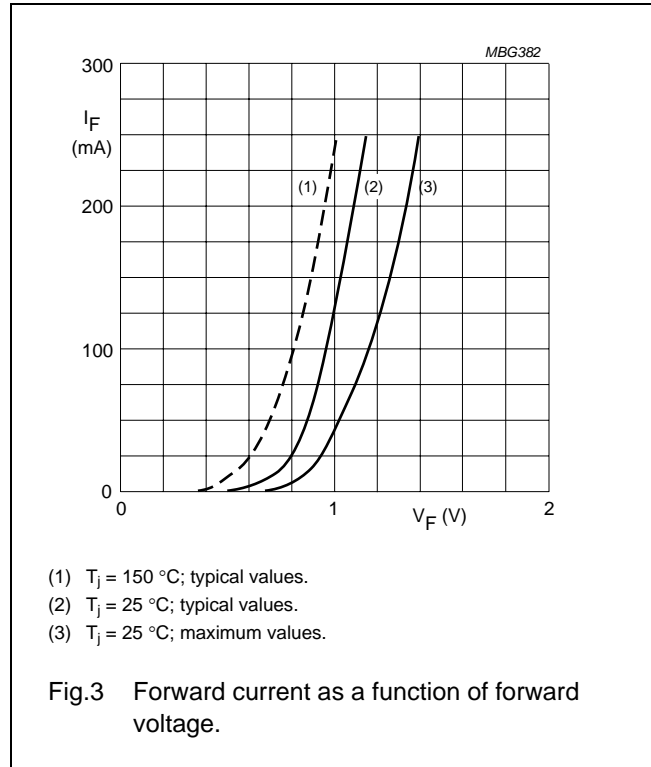
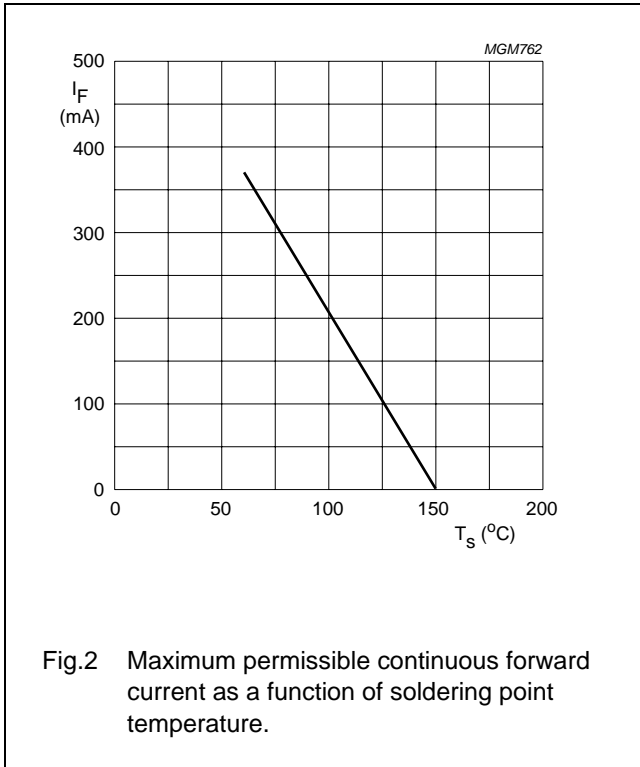
Note

1. Soldering point of the cathode tab.

High-speed diode

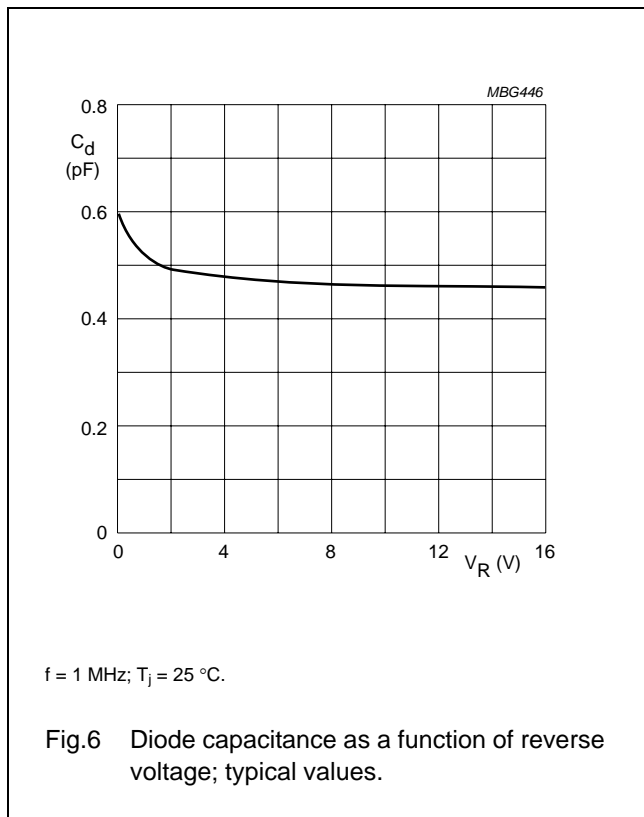
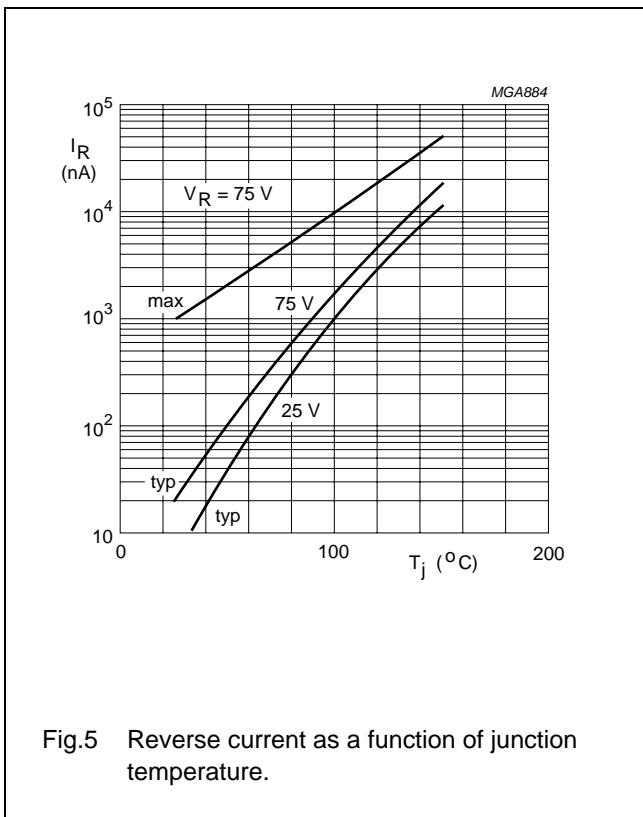
BAS316

GRAPHICAL DATA



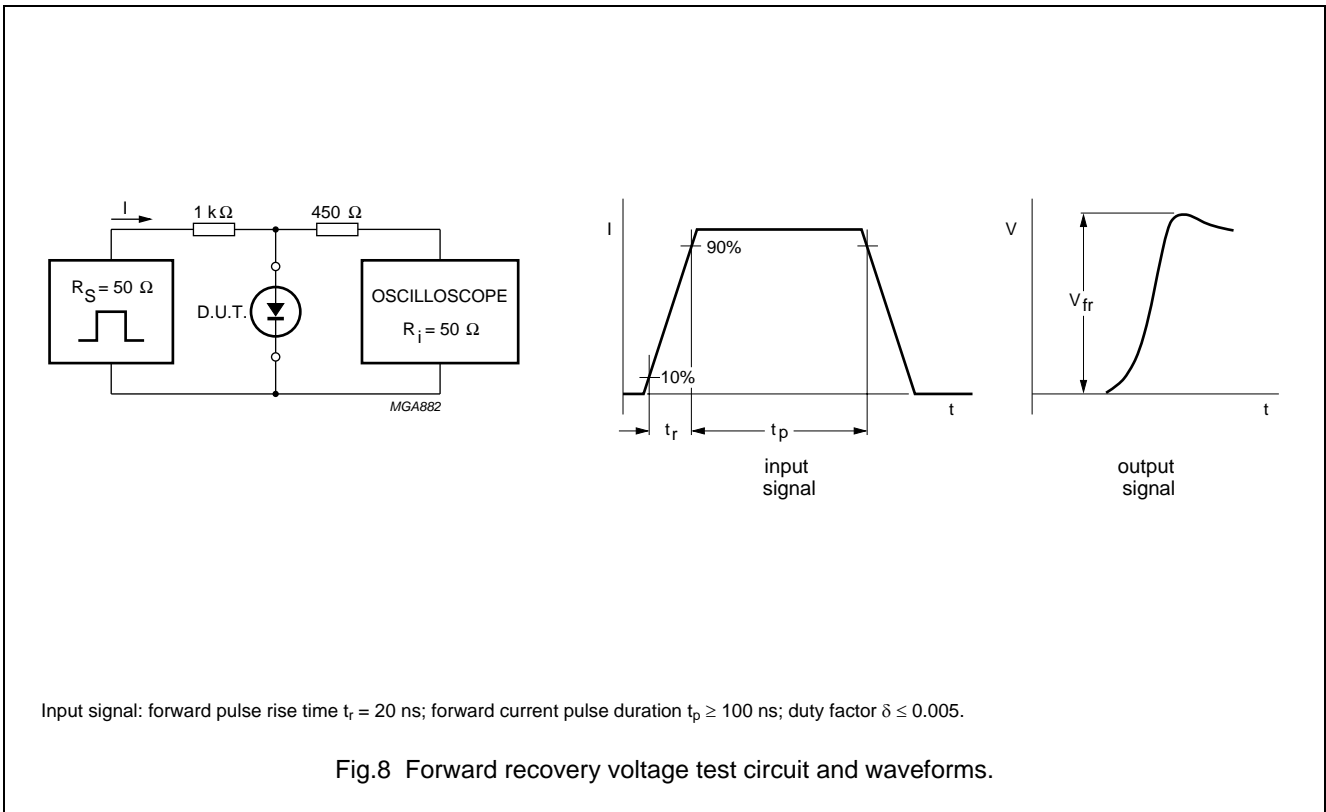
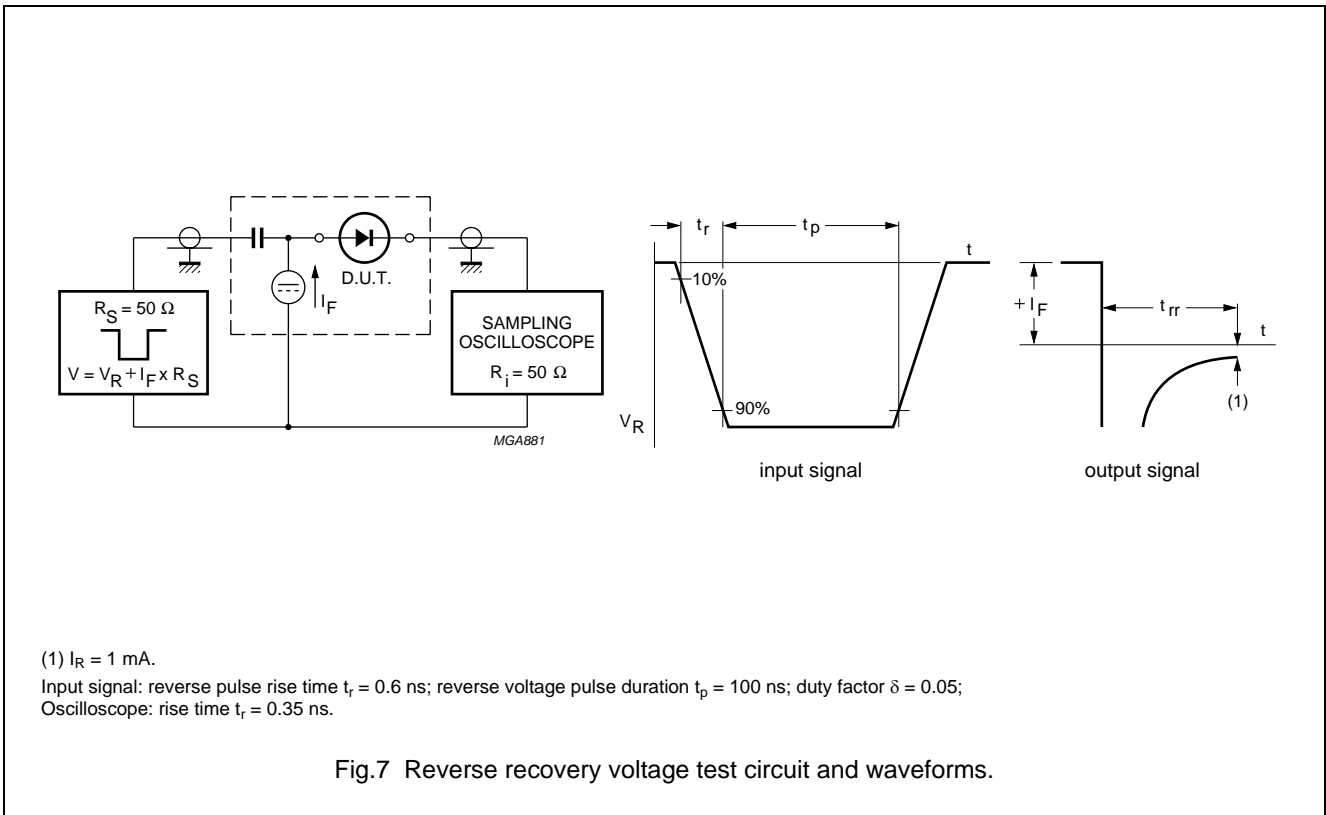
High-speed diode

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High-speed diode

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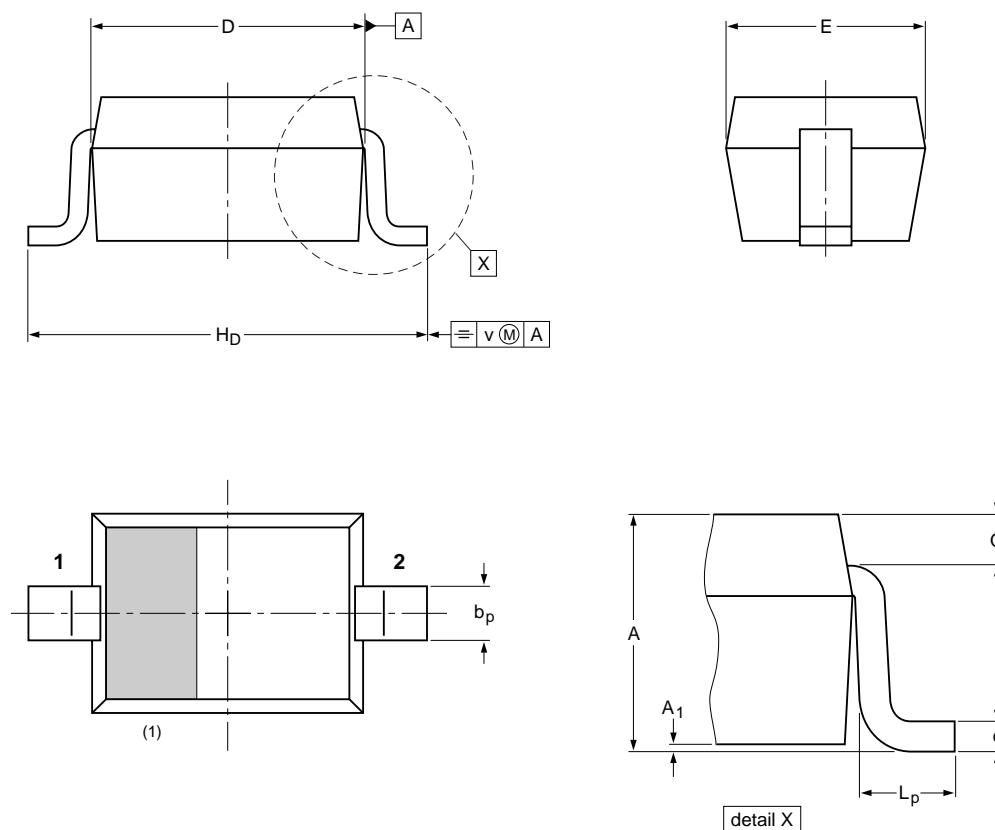
High-speed diode

BAS316

PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | c | D | E | H _D | L _p | Q | v |
|------|------------|-----------------------|----------------|--------------|------------|--------------|----------------|----------------|--------------|-----|
| mm | 1.1 0.8 | 0.05 | 0.40 0.25 | 0.25 0.10 | 1.8 1.6 | 1.35 1.15 | 2.7 2.3 | 0.45 0.15 | 0.25 0.15 | 0.2 |

Note

1. The marking bar indicates the cathode

| OUTLINE VERSION | REFERENCES | | | EUROPEAN PROJECTION | ISSUE DATE |
|--------------------|------------|-------|-------|------------------------|---------------------------------|
| | IEC | JEDEC | JEITA | | |
| SOD323 | | | SC-76 | | 03-12-17 06-03-16 |

High-speed diode

BAS316

DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITION |
|--------------------------------|-------------------------------|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

Notes

1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

Contact information

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