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Should be replaced with:

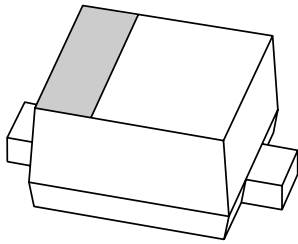
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via [salesaddresses@nexperia.com](mailto:salesaddresses@nexperia.com)). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# DATA SHEET



## **BAS716** Low-leakage diode

Product data sheet

2003 Nov 07

# Low-leakage diode

# BAS716

### FEATURES

- Plastic SMD package
- Low leakage current: typ. 0.2 nA
- Switching time: typ. 0.6  $\mu$ s
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

### APPLICATION

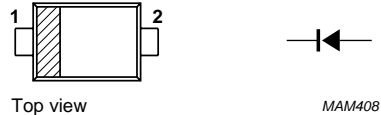
- Low leakage current applications in surface mounted circuits.

### DESCRIPTION

Epitaxial medium-speed switching diode with a low leakage current in an ultra small SOD523 (SC-79) SMD plastic package.

### PINNING

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



Top view MAM408

**Marking code:** S1.  
The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD523; SC-79) and symbol.

### ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |  |         |
|-------------|---------|--|---------|
|             | NAME    | DESCRIPTION                              | VERSION |
| BAS716      | -       | plastic surface mounted package; 2 leads | SOD523  |

### LIMITING VALUES

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

| SYMBOL    | PARAMETER                           | CONDITIONS   | MIN. | MAX.          | UNIT             |
|-----------|-------------------------------------|--|------|---------------|------------------|
| $V_{RRM}$ | repetitive peak reverse voltage     |  | -    | 85            | V                |
| $V_R$     | continuous reverse voltage          |  | -    | 75            | V                |
| $I_F$     | continuous forward current          | see Fig.2; note 1  | -    | 200           | mA               |
| $I_{FRM}$ | repetitive peak forward current     |  | -    | 500           | mA               |
| $I_{FSM}$ | non-repetitive peak forward current | square wave; $T_j = 25\text{ }^\circ\text{C}$ prior to surge; see Fig.4<br>$t_p = 1\text{ }\mu\text{s}$<br>$t_p = 1\text{ ms}$<br>$t_p = 1\text{ s}$ | -    | 4<br>1<br>0.5 | A<br>A<br>A      |
| $P_{tot}$ | total power dissipation             | $T_{amb} = 25\text{ }^\circ\text{C}$ ; note 1  | -    | 250           | mW               |
| $T_{stg}$ | storage temperature                 |  | -65  | +150          | $^\circ\text{C}$ |
| $T_j$     | junction temperature                |  | -    | 150           | $^\circ\text{C}$ |

### Note

1. Device mounted on a FR4 printed-circuit board.

## Low-leakage diode

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

| SYMBOL   | PARAMETER             | CONDITIONS  | TYP. | MAX. | UNIT          |
|----------|-----------------------|---|------|------|---------------|
| $V_F$    | forward voltage       | $I_F = 1\text{ mA}$   | 0.77 | 0.9  | V             |
|          |                       | $I_F = 10\text{ mA}$  | 0.85 | 1    | V             |
|          |                       | $I_F = 50\text{ mA}$  | 0.92 | 1.1  | V             |
|          |                       | $I_F = 150\text{ mA}$   | 1.02 | 1.25 | V             |
| $I_R$    | reverse current       | $V_R = 75\text{ V}$   | 0.2  | 5    | nA            |
|          |                       | $V_R = 75\text{ V}; T_j = 150\text{ °C}$  | 3    | 80   | nA            |
|          |                       | $V_R = 100\text{ V}$  | 0.3  | –    | nA            |
| $C_d$    | diode capacitance     | $V_R = 0\text{ V}; f = 1\text{ MHz};$ see Fig.6   | 2    | –    | 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 $I_R = 1\text{ mA}$ | 0.6  | 3    | $\mu\text{s}$ |

**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER   | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient         | note 1     | 450   | K/W  |
| $R_{th\ j-s}$ | thermal resistance from junction to soldering point | note 2     | 120   | K/W  |

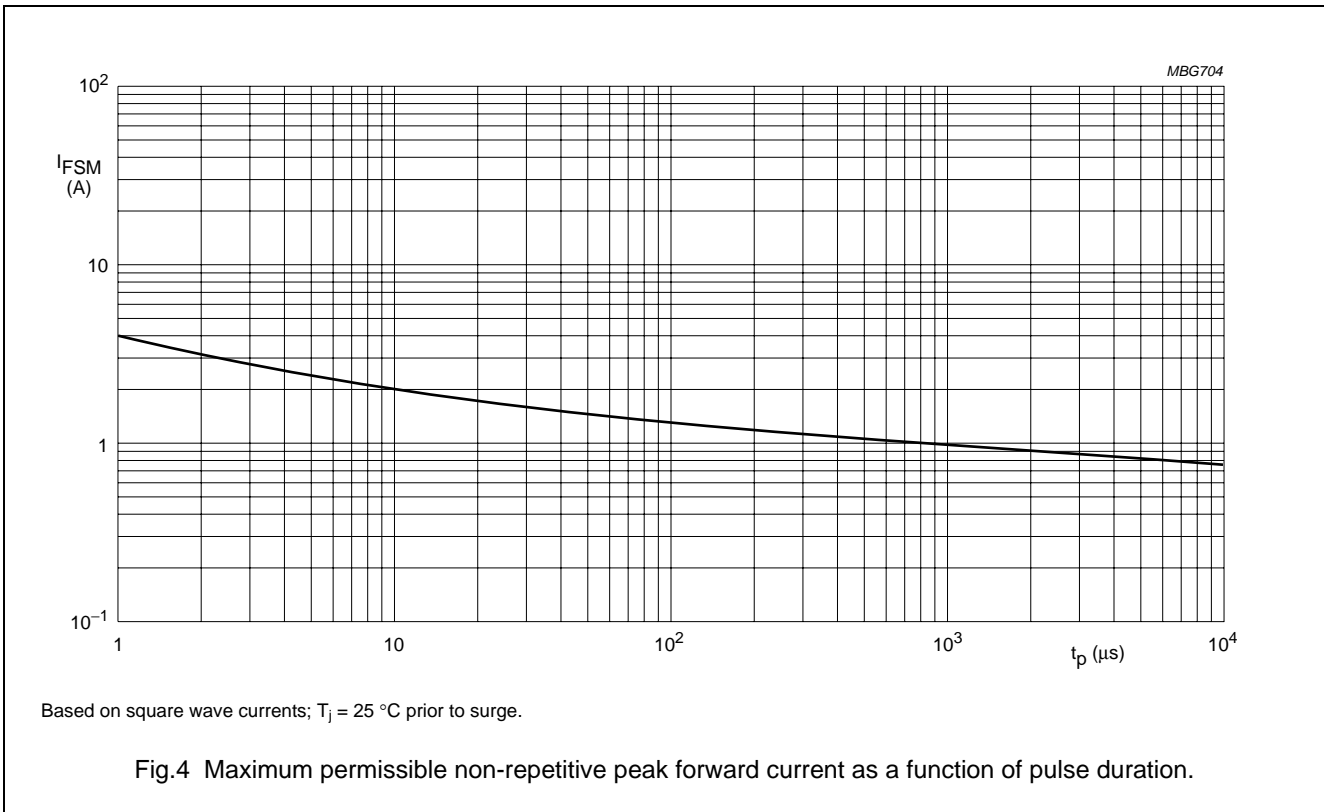
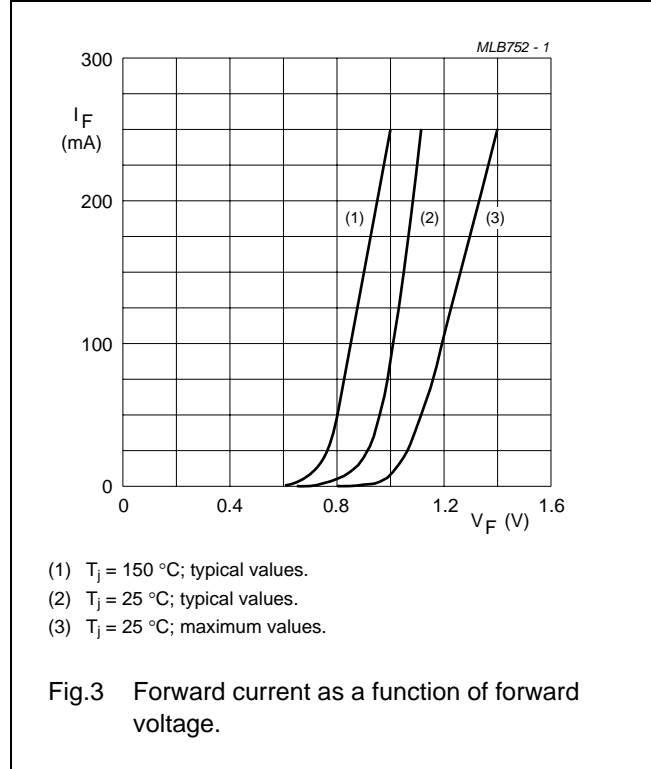
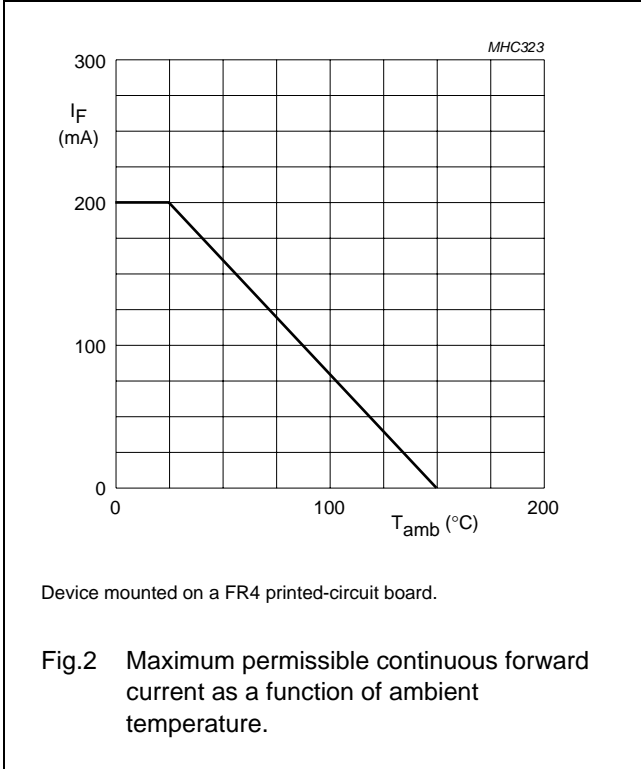
**Notes**

1. Device mounted on a FR4 printed-circuit board. Refer to SOD523 (SC-79) standard mounting conditions.
2. Soldering point of the cathode tab.

Low-leakage diode

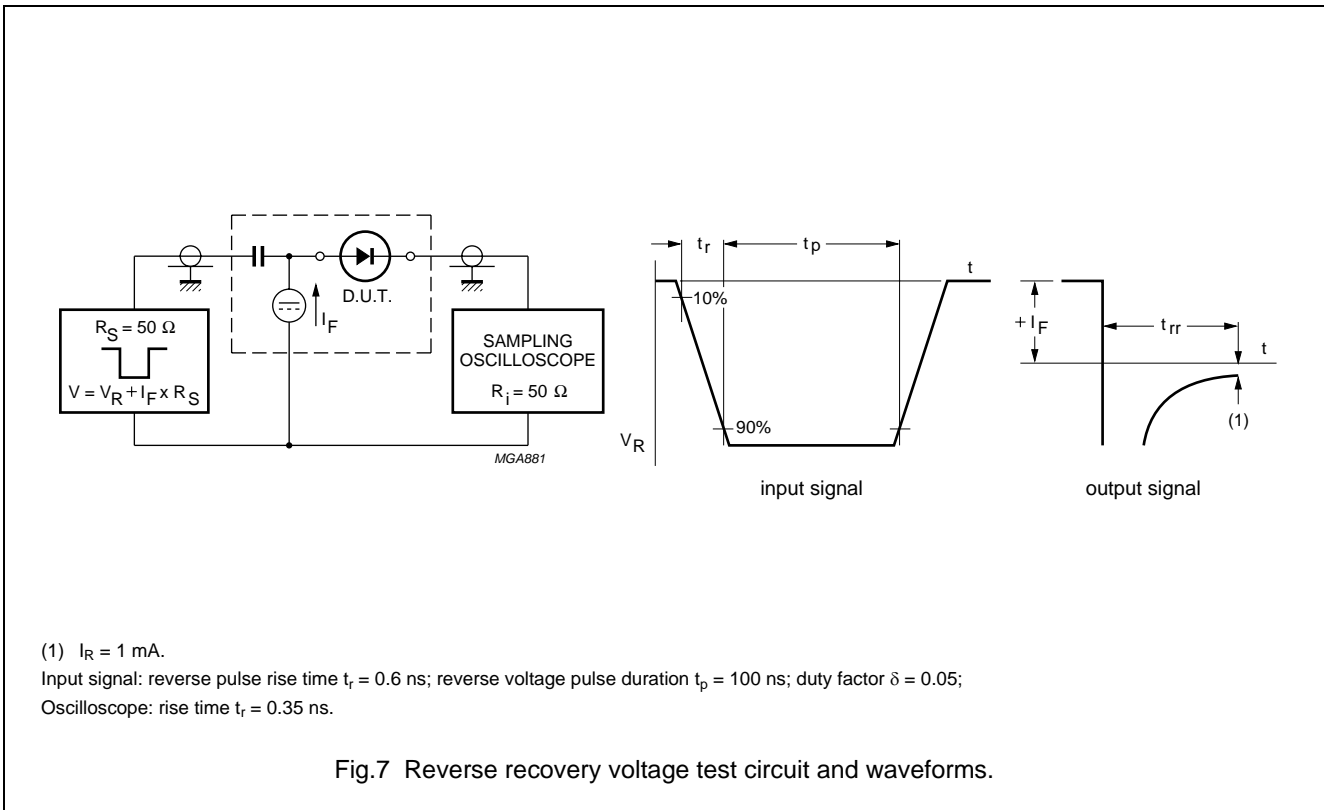
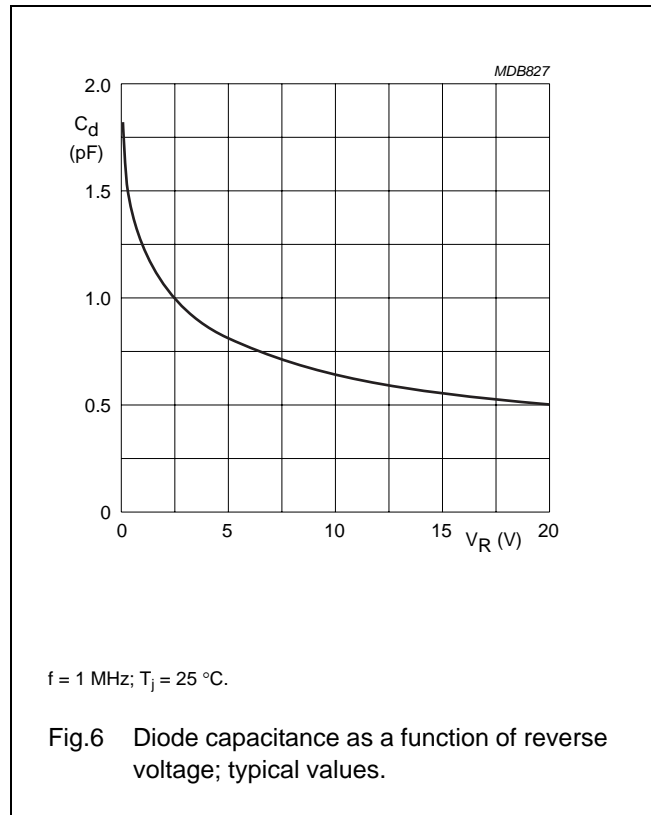
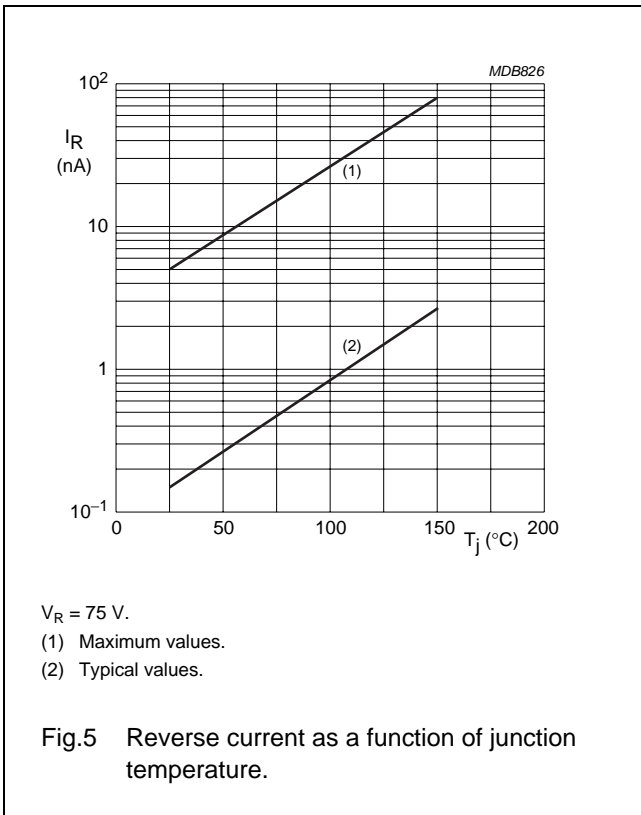
BAS716

GRAPHICAL DATA



Low-leakage diode

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# Low-leakage diode

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## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD523

**DIMENSIONS (mm are the original dimensions)**

| UNIT | A            | bp           | c            | D            | E            | HE           | v   |
|------|--------------|--------------|--------------|--------------|--------------|--------------|-----|
| mm   | 0.65<br>0.58 | 0.34<br>0.26 | 0.17<br>0.11 | 1.25<br>1.15 | 0.85<br>0.75 | 1.65<br>1.55 | 0.1 |

**Note**  
1. The marking bar indicates the cathode.

| OUTLINE VERSION | REFERENCES |       |       |  | EUROPEAN PROJECTION | ISSUE DATE                      |
|-----------------|------------|-------|-------|--|---------------------|---------------------------------|
|                 | IEC        | JEDEC | JEITA |  |                     |                                 |
| SOD523          |            |       | SC-79 |  |                     | <del>98-11-25</del><br>02-12-13 |

# Low-leakage diode

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## DATA SHEET STATUS

| DOCUMENT STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | 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.                                     |

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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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# ***NXP Semiconductors***

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## **Contact information**

For additional information please visit: **<http://www.nxp.com>**

For sales offices addresses send e-mail to: **[salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)**

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