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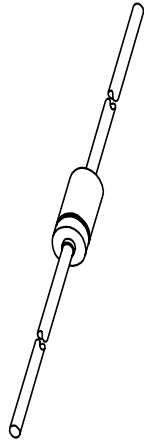
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Kind regards,

Team Nexperia

# DATA SHEET



## **BAS45A** Low-leakage diode

Product data sheet  
Supersedes data of June 1994

1996 Mar 13

## Low-leakage diode

## BAS45A

## FEATURES

- Continuous reverse voltage: max. 125 V
- Repetitive peak forward current: max. 625 mA
- Low reverse current: max. 1 nA
- Switching time: typ. 1.5  $\mu$ s.

## DESCRIPTION

Epitaxial medium-speed switching diode with a low leakage current in a hermetically-sealed glass SOD68 (DO-34) package.

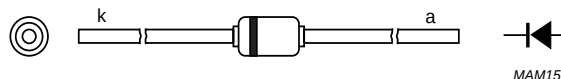


Fig.1 Simplified outline (SOD68; DO-34) and symbol.

## APPLICATION

- Low leakage current applications.

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL    | PARAMETER                           | CONDITIONS                                                                | MIN. | MAX. | UNIT               |
|-----------|-------------------------------------|---------------------------------------------------------------------------|------|------|--------------------|
| $V_{RRM}$ | repetitive peak reverse voltage     |                                                                           | –    | 125  | V                  |
| $V_R$     | continuous reverse voltage          |                                                                           | –    | 125  | V                  |
| $I_F$     | continuous forward current          | see Fig.2; note 1                                                         | –    | 250  | mA                 |
| $I_{FRM}$ | repetitive peak forward current     |                                                                           | –    | 625  | mA                 |
| $I_{FSM}$ | non-repetitive peak forward current | square wave; $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge; see Fig.4 |      |      |                    |
|           |                                     | $t_p = 1\text{ }\mu\text{s}$                                              | –    | 4    | A                  |
|           |                                     | $t_p = 1\text{ ms}$                                                       | –    | 1    | A                  |
|           |                                     | $t_p = 1\text{ s}$                                                        | –    | 0.5  | A                  |
| $P_{tot}$ | total power dissipation             | $T_{amb} = 25\text{ }^{\circ}\text{C}$                                    | –    | 300  | mW                 |
| $T_{stg}$ | storage temperature                 |                                                                           | –65  | +175 | $^{\circ}\text{C}$ |
| $T_j$     | junction temperature                |                                                                           | –    | 175  | $^{\circ}\text{C}$ |

## Note

1. Device mounted on a printed-circuit board without metallization pad.

## Low-leakage diode

## BAS45A

**ELECTRICAL CHARACTERISTICS**

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

| SYMBOL   | PARAMETER             | CONDITIONS                                                                                                                                | TYP. | MAX. | UNIT          |
|----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------|------|---------------|
| $V_F$    | forward voltage       | see Fig.3                                                                                                                                 |      |      |               |
|          |                       | $I_F = 1\text{ mA}$                                                                                                                       | –    | 780  | mV            |
|          |                       | $I_F = 10\text{ mA}$                                                                                                                      | –    | 860  | mV            |
|          |                       | $I_F = 100\text{ mA}$                                                                                                                     | –    | 1000 | mV            |
| $I_R$    | reverse current       | see Fig.5                                                                                                                                 |      |      |               |
|          |                       | $V_R = 125\text{ V}$ ; $E_{\max} = 100\text{ lx}$                                                                                         | –    | 1    | nA            |
|          |                       | $V_R = 30\text{ V}$ ; $T_j = 125\text{ }^{\circ}\text{C}$ ; $E_{\max} = 100\text{ lx}$                                                    | –    | 300  | nA            |
|          |                       | $V_R = 125\text{ V}$ ; $T_j = 125\text{ }^{\circ}\text{C}$ ; $E_{\max} = 100\text{ lx}$                                                   | –    | 500  | nA            |
| $C_d$    | diode capacitance     | $f = 1\text{ MHz}$ ; $V_R = 0$ ; see Fig.6                                                                                                | –    | 4    | pF            |
|          |                       | $f = 1\text{ MHz}$ ; $V_R = 0$ ; see Fig.6                                                                                                | –    | 4    | pF            |
| $t_{rr}$ | reverse recovery time | when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; measured at $I_R = 1\text{ mA}$ ; see Fig.7 | 1.5  | –    | $\mu\text{s}$ |

**THERMAL CHARACTERISTICS**

| SYMBOL         | PARAMETER                                     | CONDITIONS                | VALUE | UNIT |
|----------------|-----------------------------------------------|---------------------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | 8 mm from the body        | 300   | K/W  |
| $R_{th\ j-a}$  | thermal resistance from junction to ambient   | lead length 10 mm; note 1 | 500   | K/W  |

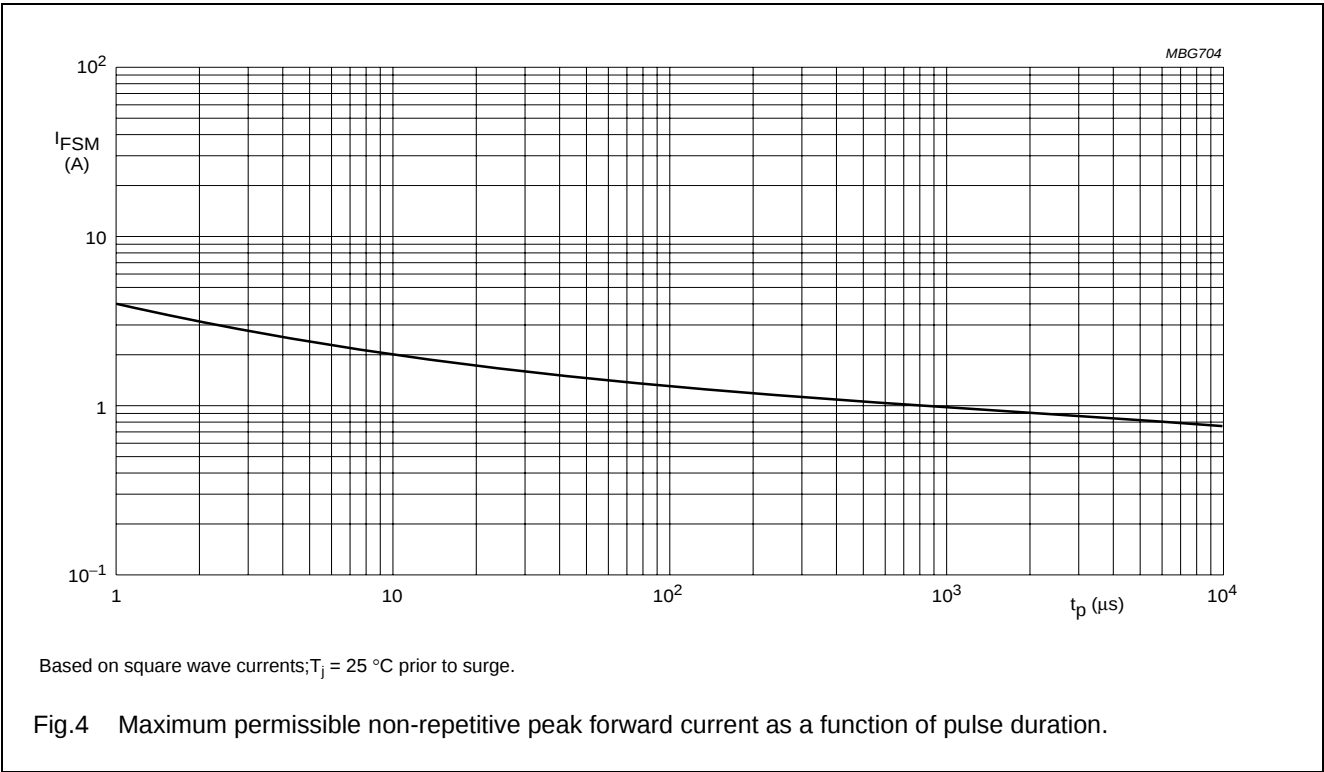
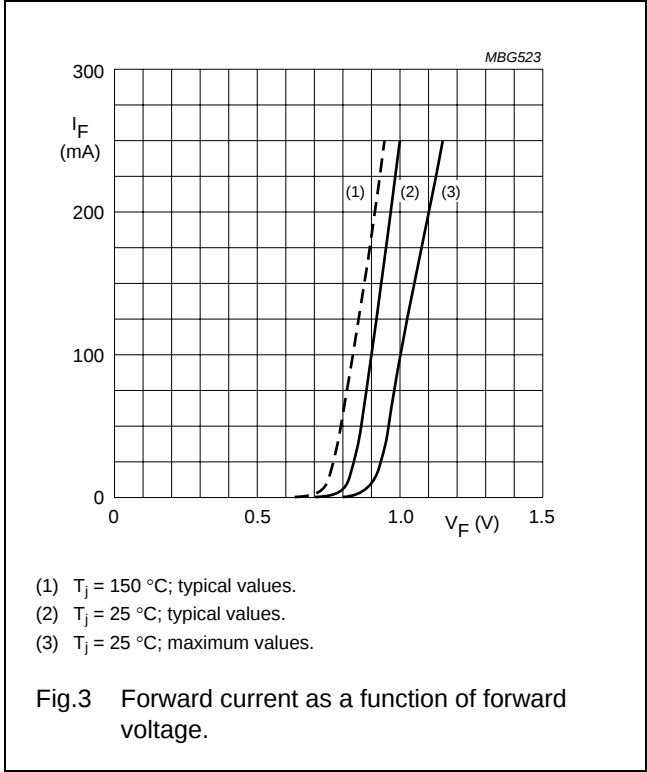
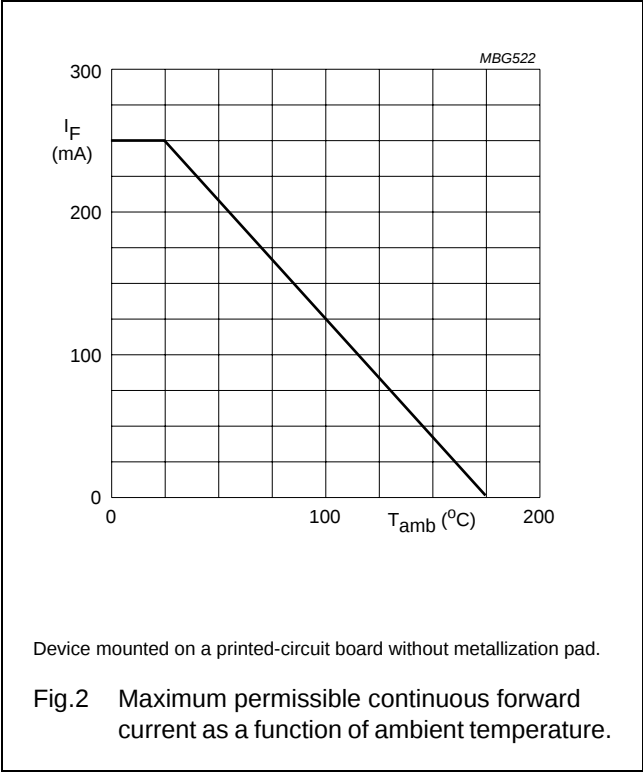
**Note**

1. Device mounted on a printed-circuit board without metallization pad.

Low-leakage diode

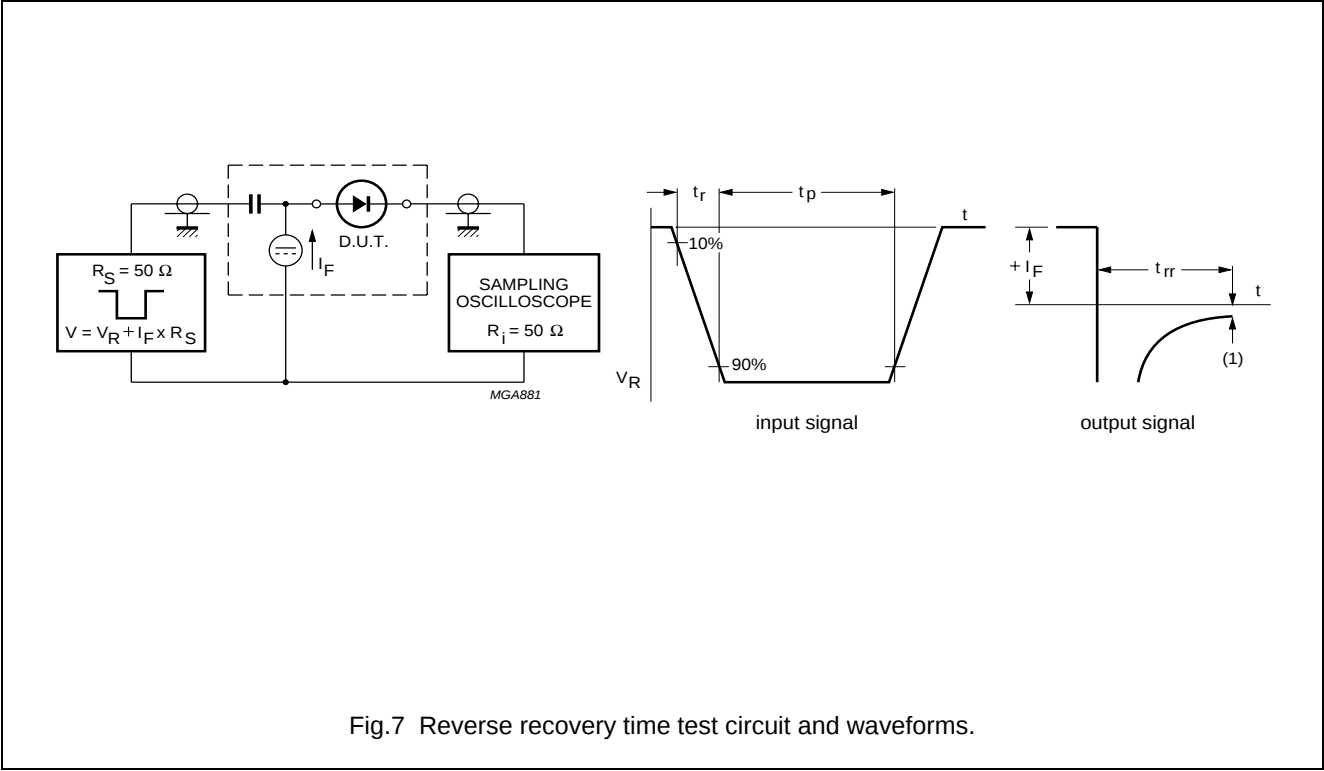
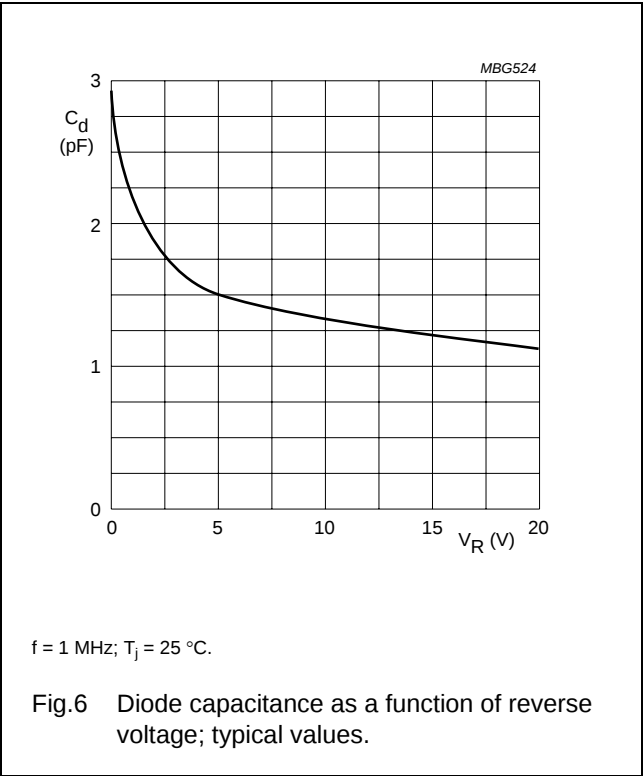
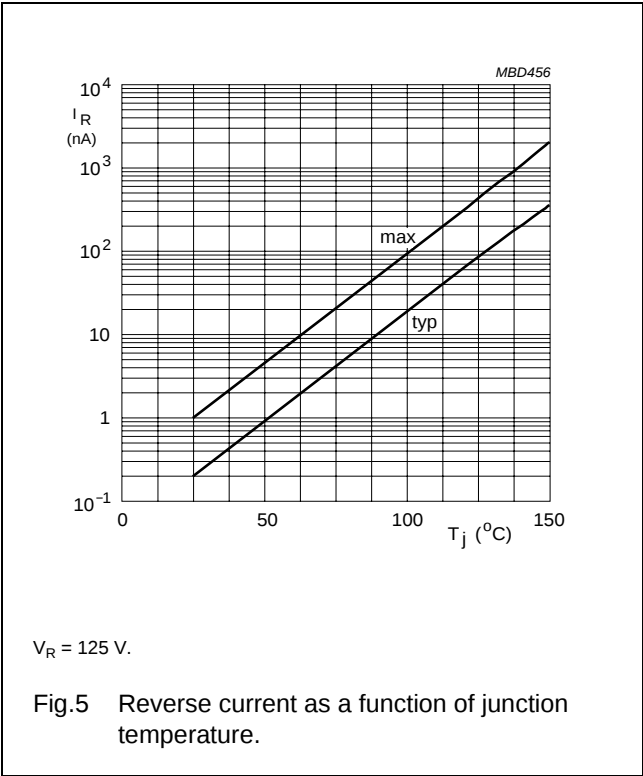
BAS45A

GRAPHICAL DATA



Low-leakage diode

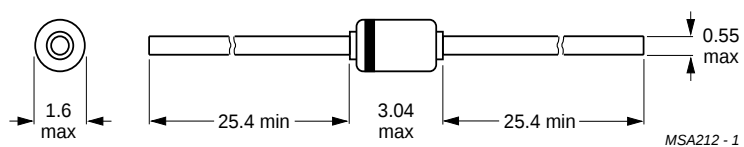
BAS45A



## Low-leakage diode

BAS45A

## PACKAGE OUTLINE



Dimensions in mm.

The black marking band indicates the cathode.

Fig.8 SOD68 (DO-34).

## Low-leakage diode

## BAS45A

## 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.                                     |

## Notes

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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***

## **Customer notification**

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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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