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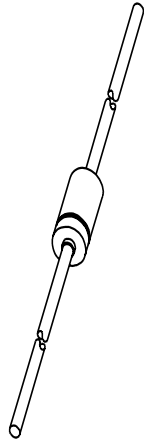
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via **[salesaddresses@nexperia.com](mailto:salesaddresses@nexperia.com)**). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# DATA SHEET



## **BAS45A** Low-leakage diode

Product data sheet  
Supersedes data of June 1994

1996 Mar 13

Low-leakage diode

BAS45A

FEATURES

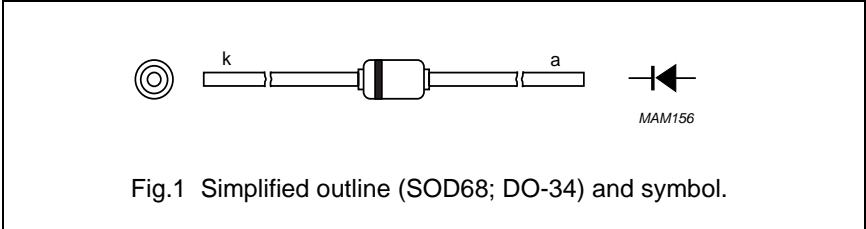
- Continuous reverse voltage:  
max. 125 V
- Repetitive peak forward current:  
max. 625 mA
- Low reverse current: max. 1 nA
- Switching time: typ. 1.5 μs.

APPLICATION

- Low leakage current applications.

DESCRIPTION

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



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>RRM</sub>	repetitive peak reverse voltage		–	125	V
V <sub>R</sub>	continuous reverse voltage		–	125	V
I <sub>F</sub>	continuous forward current	see Fig.2; note 1	–	250	mA
I <sub>FRM</sub>	repetitive peak forward current		–	625	mA
I <sub>FSM</sub>	non-repetitive peak forward current	square wave; T <sub>j</sub> = 25 °C prior to surge; see Fig.4 t <sub>p</sub> = 1 μs t <sub>p</sub> = 1 ms t <sub>p</sub> = 1 s	– – –	4 1 0.5	A A A
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> = 25 °C	–	300	mW
T <sub>stg</sub>	storage temperature		–65	+175	°C
T <sub>j</sub>	junction temperature		–	175	°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 $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 100\text{ mA}$	— — —	780 860 1000	mV mV mV
$I_R$	reverse current	see Fig.5 $V_R = 125\text{ V}$ ; $E_{\text{max}} = 100\text{ lx}$ $V_R = 30\text{ V}$ ; $T_j = 125\text{ }^{\circ}\text{C}$ ; $E_{\text{max}} = 100\text{ lx}$ $V_R = 125\text{ V}$ ; $T_j = 125\text{ }^{\circ}\text{C}$ ; $E_{\text{max}} = 100\text{ lx}$ $V_R = 125\text{ V}$ ; $T_j = 150\text{ }^{\circ}\text{C}$ ; $E_{\text{max}} = 100\text{ lx}$	— — — —	1 300 500 2	nA nA nA $\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; $V_R = 0$ ; 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

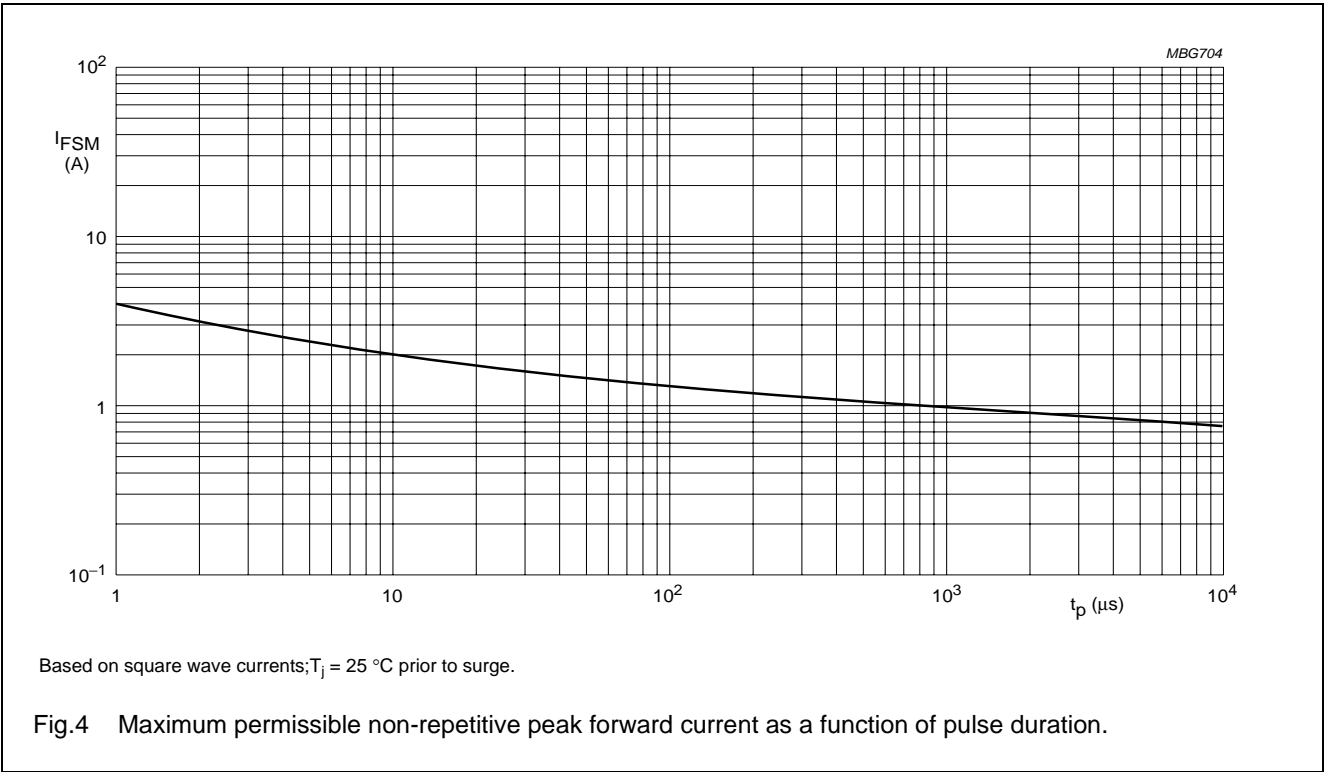
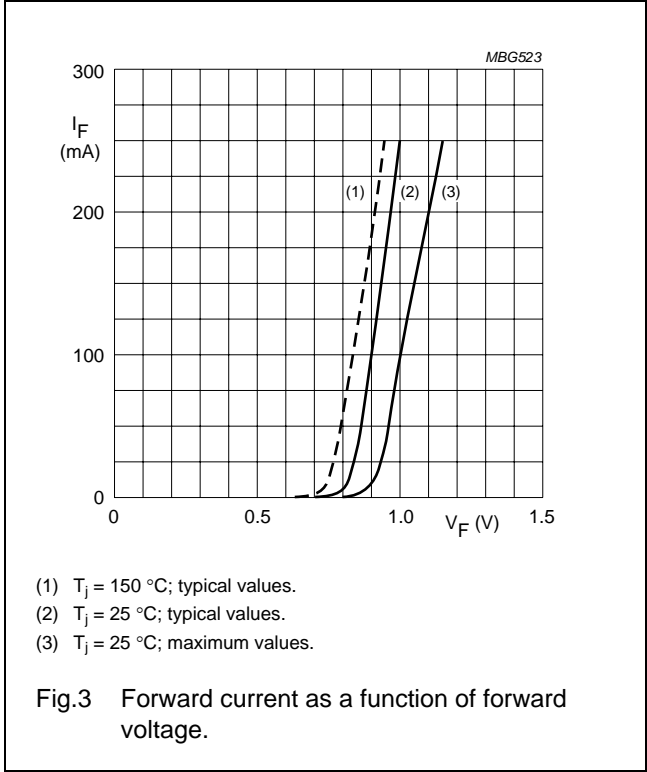
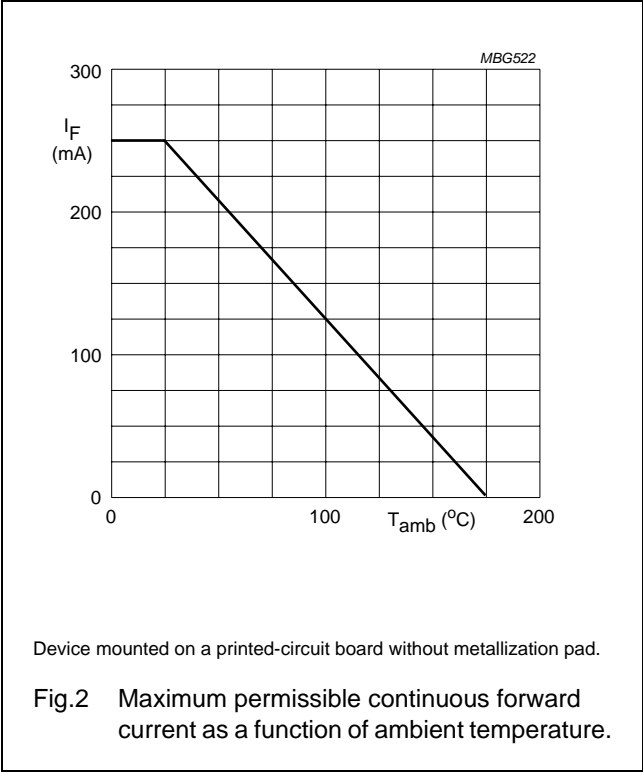
**Note**

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

Low-leakage diode

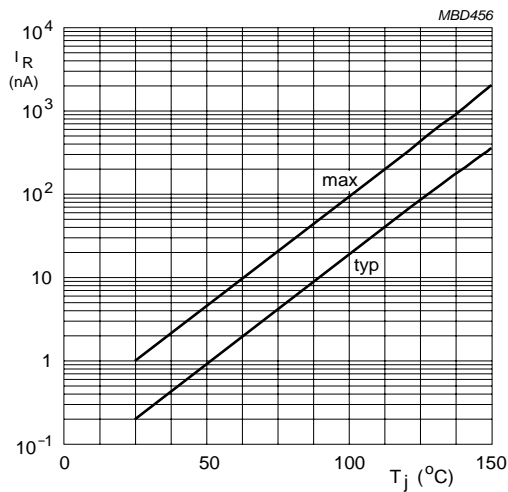
BAS45A

GRAPHICAL DATA



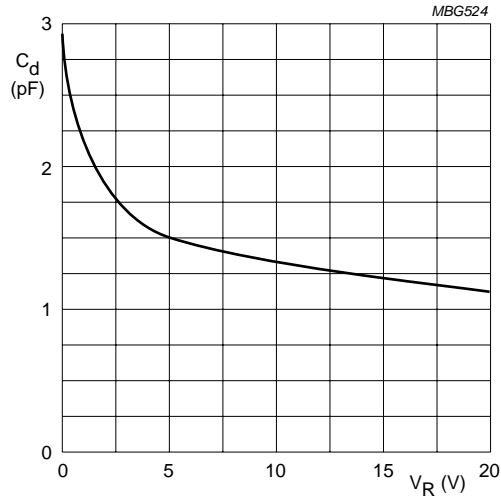
Low-leakage diode

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$V_R = 125$  V.

Fig.5 Reverse current as a function of junction temperature.



$f = 1$  MHz;  $T_j = 25$  °C.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

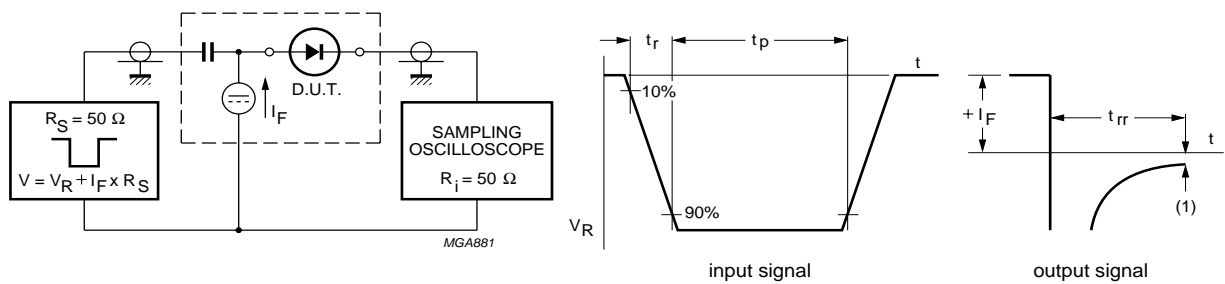
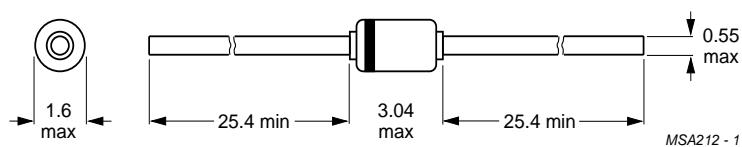


Fig.7 Reverse recovery time test circuit and waveforms.

## Low-leakage diode

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## 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.

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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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