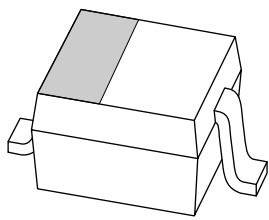


# DATA SHEET



## **BAS416** Low-leakage diode

Product specification  
Supersedes data of 2002 Nov 19

2004 Jan 26

# Low-leakage diode

# BAS416

## FEATURES

- Plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8 μs
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

## APPLICATIONS

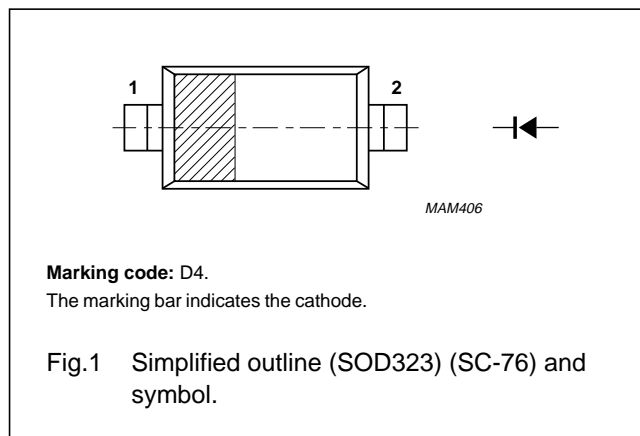
- Low-leakage current applications in surface mounted circuits.

## DESCRIPTION

Epitaxial, medium-speed switching diode with a low leakage current encapsulated in a small SOD323 SMD plastic package.

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode



## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BAS416	-	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		-	85	V
$V_R$	continuous reverse voltage		-	75	V
$I_F$	continuous forward current	see Fig.2	-	200	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	$T_{amb} = 25\text{ °C}$ ; note 1	-	250	mW
$T_{stg}$	storage temperature		-65	+150	°C
$T_j$	junction temperature		-	150	°C

## Note

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

## Low-leakage diode

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**CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	forward voltage	see Fig.3			
		$I_F = 1\text{ mA}$	–	0.9	V
		$I_F = 10\text{ mA}$	–	1	V
		$I_F = 50\text{ mA}$	–	1.1	V
		$I_F = 150\text{ mA}$	–	1.25	V
$I_R$	reverse current	see Fig.5			
		$V_R = 75\text{ V}$	0.003	5	nA
		$V_R = 75\text{ V}; T_j = 150\text{ °C}$	3	80	nA
$C_d$	diode capacitance	$V_R = 0; f = 1\text{ MHz};$ see Fig.6	2	–	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}; R_L = 100\text{ }\Omega;$ measured at $I_R = 1\text{ mA};$ see Fig.7	0.8	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

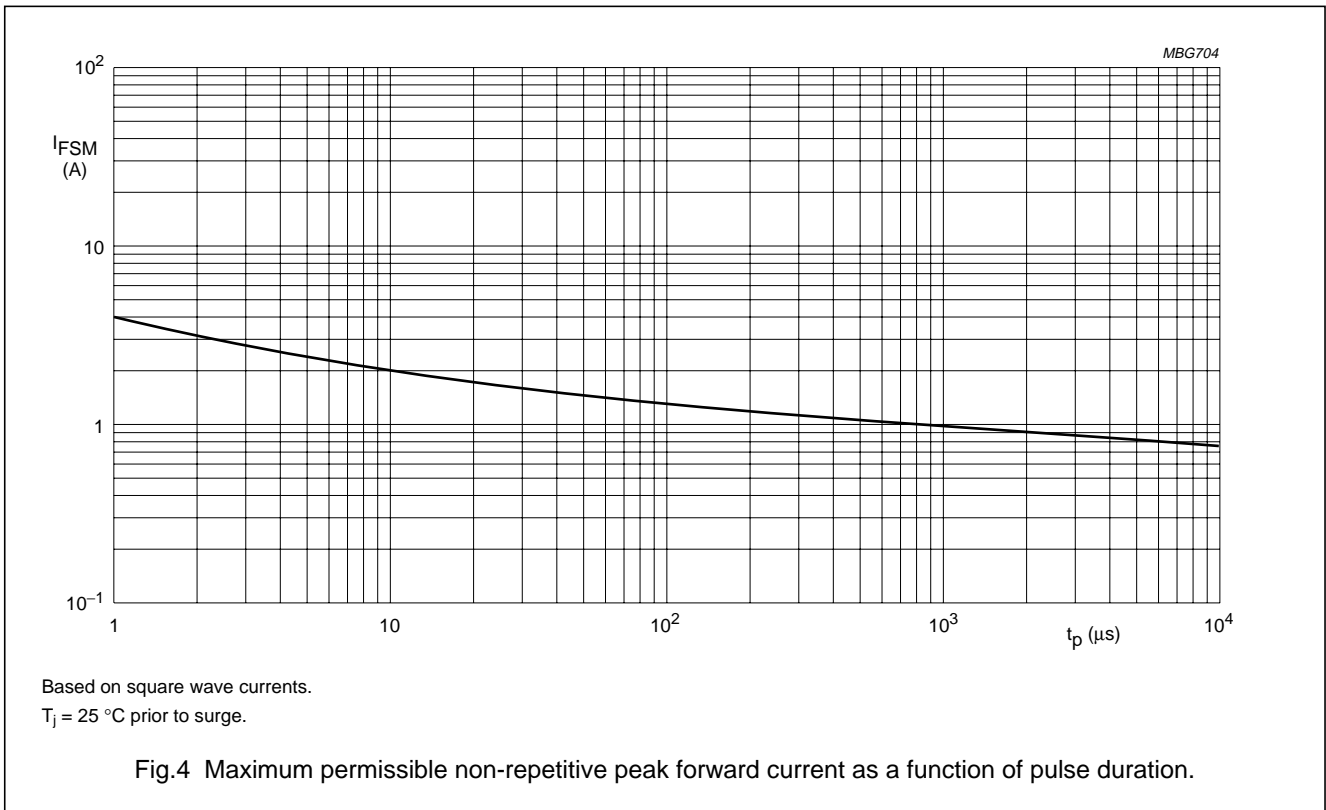
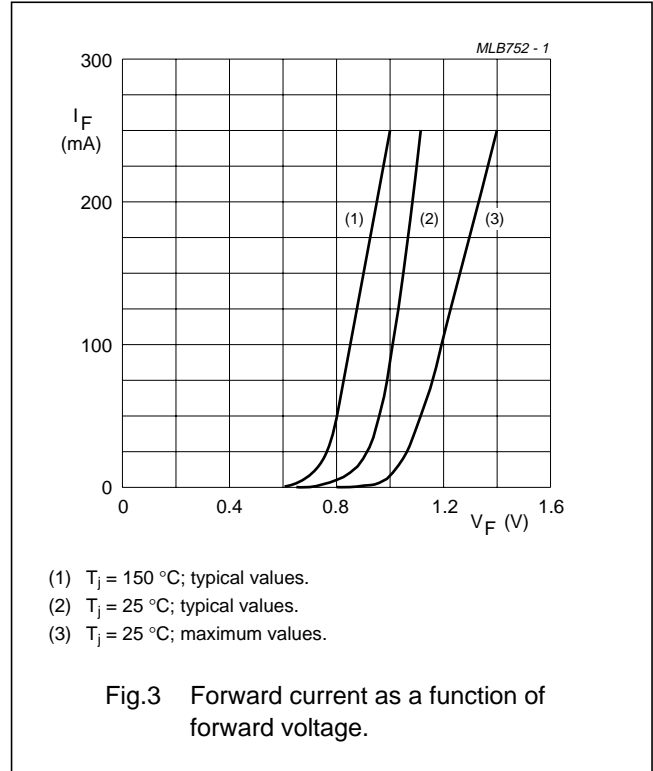
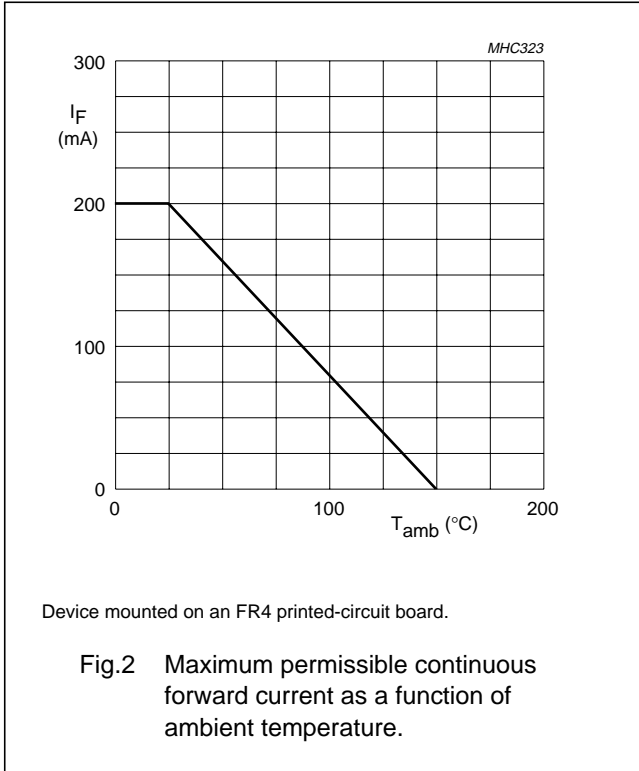
**Note**

1. Refer to SOD323 (SC-76) standard mounting conditions.

Low-leakage diode

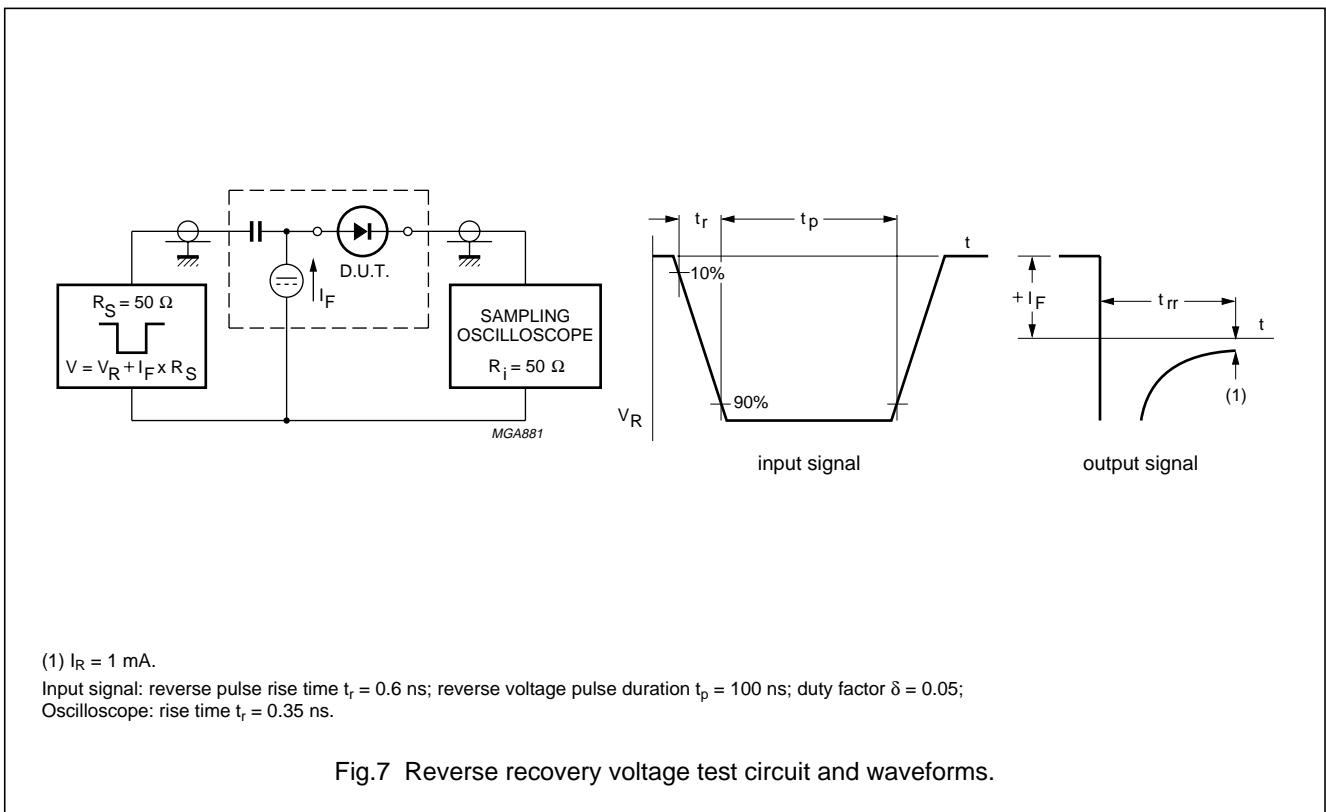
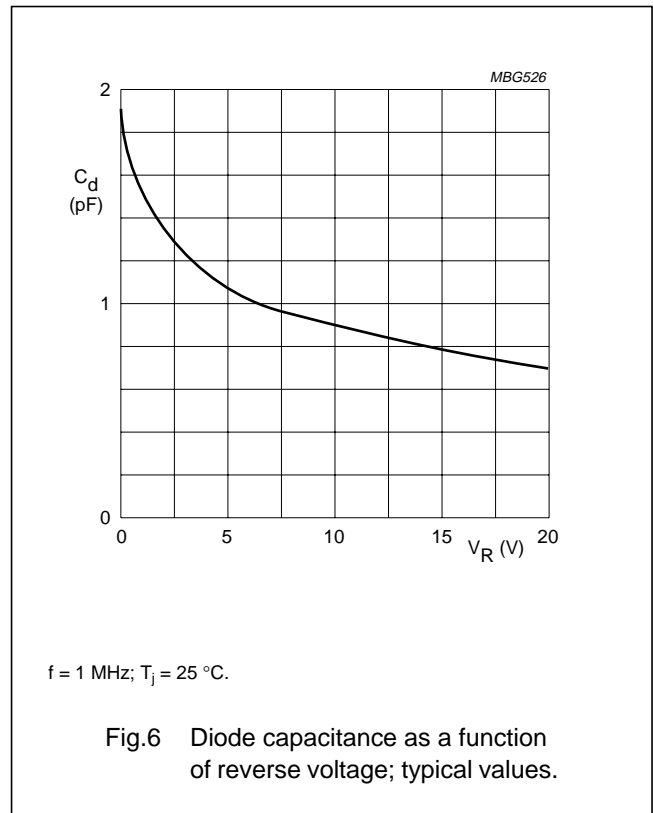
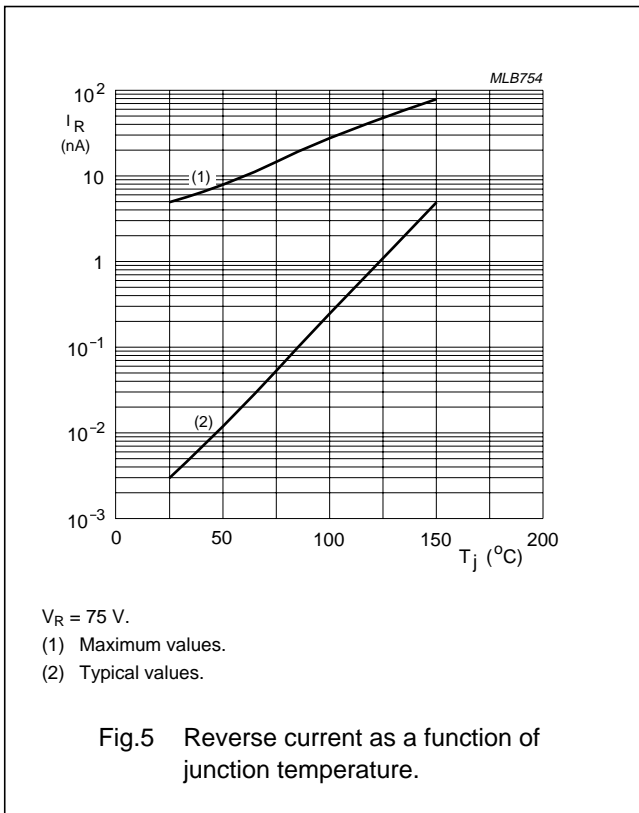
BAS416

GRAPHICAL DATA



Low-leakage diode

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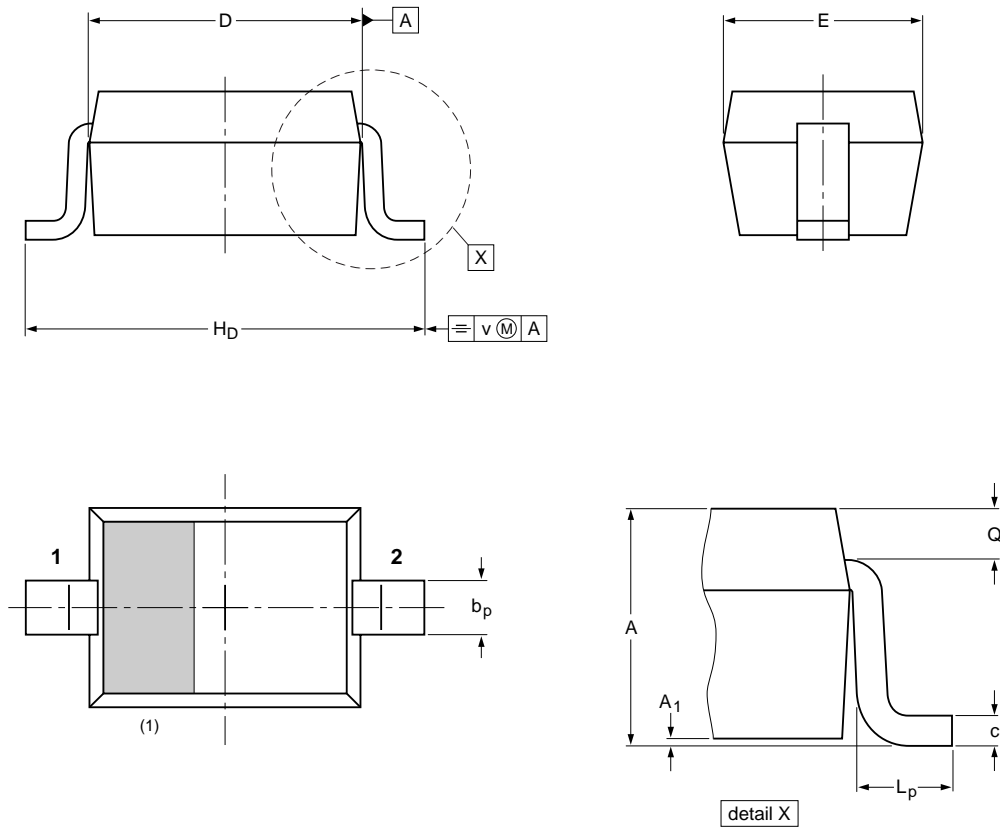
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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	H <sub>D</sub>	L <sub>p</sub>	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		-99-09-13- 03-12-17

## Low-leakage diode

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## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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