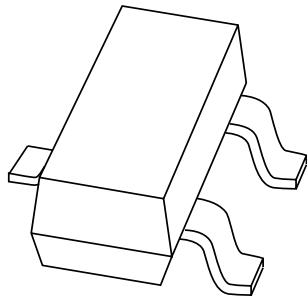


# DATA SHEET



## **BAS116** Low-leakage diode

Product data sheet  
Supersedes data of 1999 May 26

2003 Dec 12

# Low-leakage diode

# BAS116

## FEATURES

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

## APPLICATION

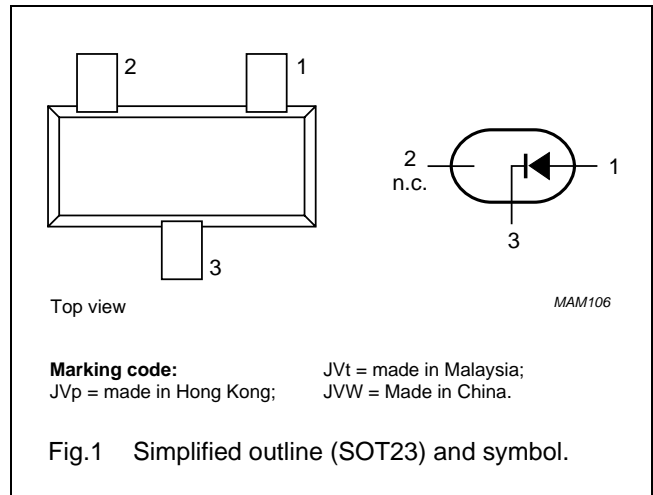
- Low leakage current applications in surface mounted circuits.

## DESCRIPTION

Epitaxial medium-speed switching diode with a low leakage current in a small SOT23 plastic SMD package.

## PINNING

PIN	DESCRIPTION
1	anode
2	not connected
3	cathode



## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BAS116	–	plastic surface mounted package; 3 leads	SOT23

## 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	–	215	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 $t_p = 1\text{ }\mu\text{s}$ $t_p = 1\text{ ms}$ $t_p = 1\text{ s}$	–	4 1 0.5	A A 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 an FR4 printed-circuit board.

## Low-leakage diode

## BAS116

**ELECTRICAL CHARACTERISTICS**

$T_j = 25\text{ °C}$  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	$f = 1\text{ MHz}; V_R = 0$ ; 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 $I_R = 1\text{ mA}$ ; see Fig.7	0.8	3	$\mu\text{s}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-tp)}$	thermal resistance from junction to tie-point		330	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	500	K/W

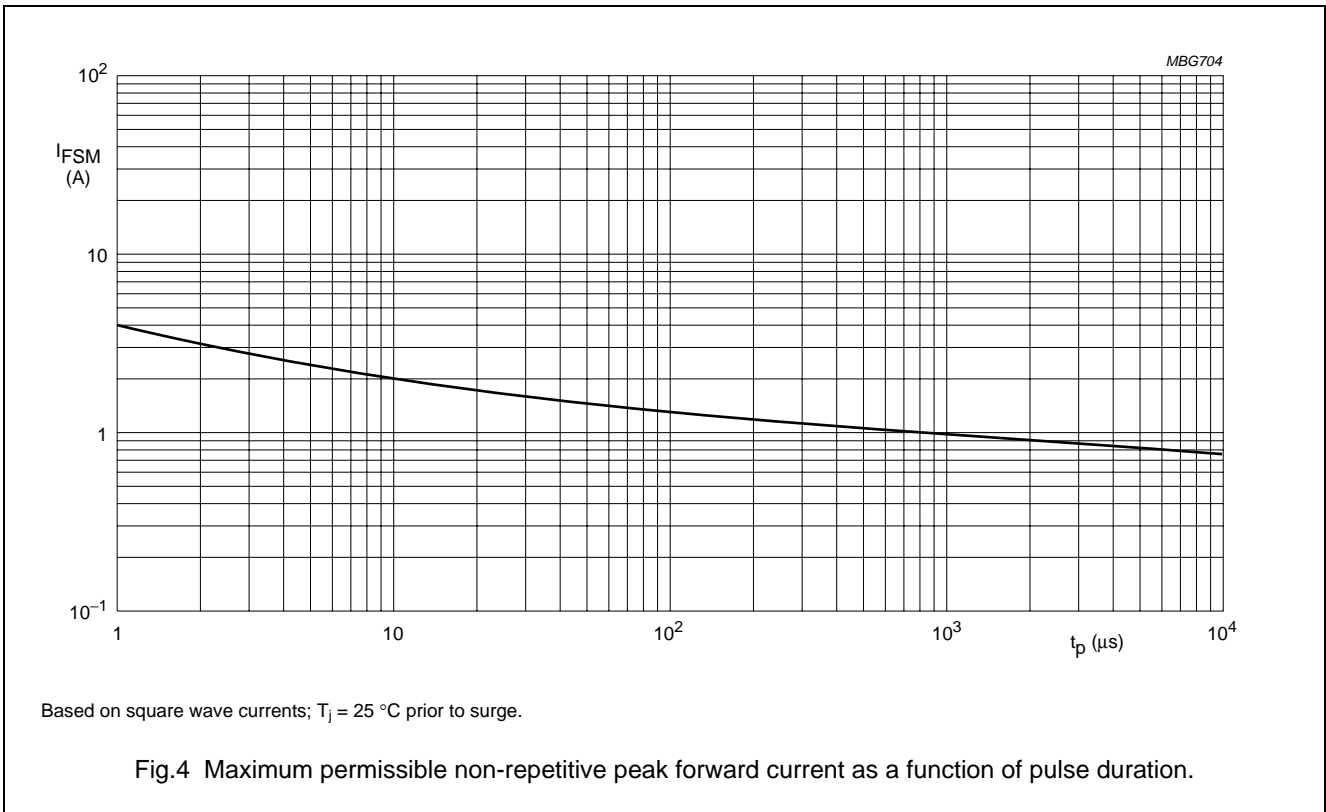
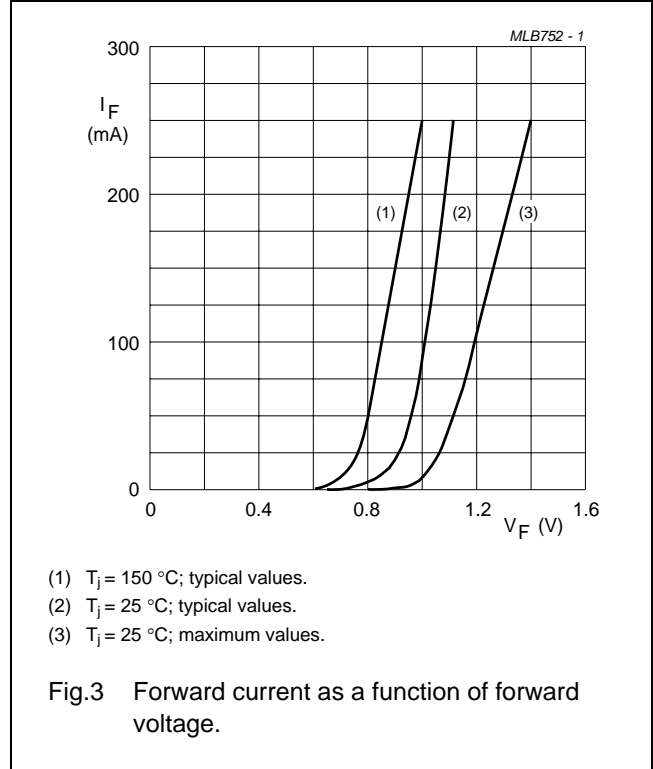
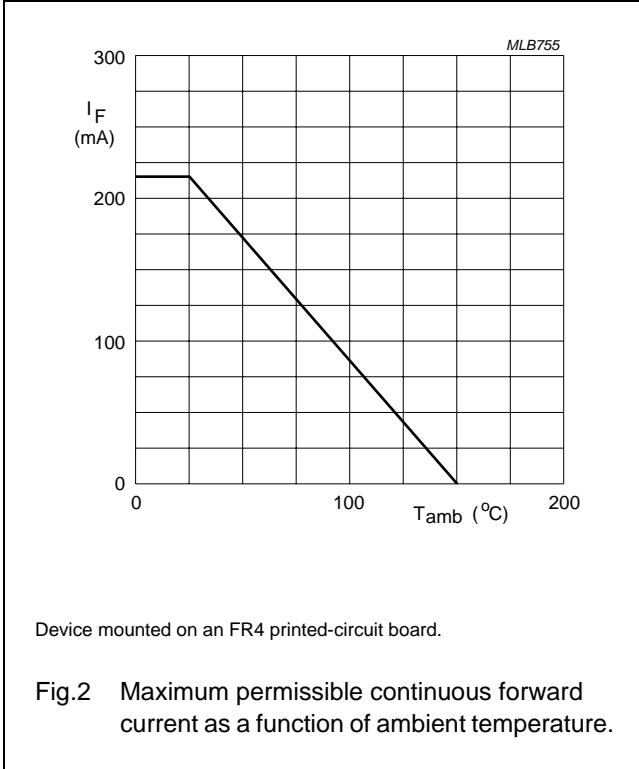
**Note**

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

Low-leakage diode

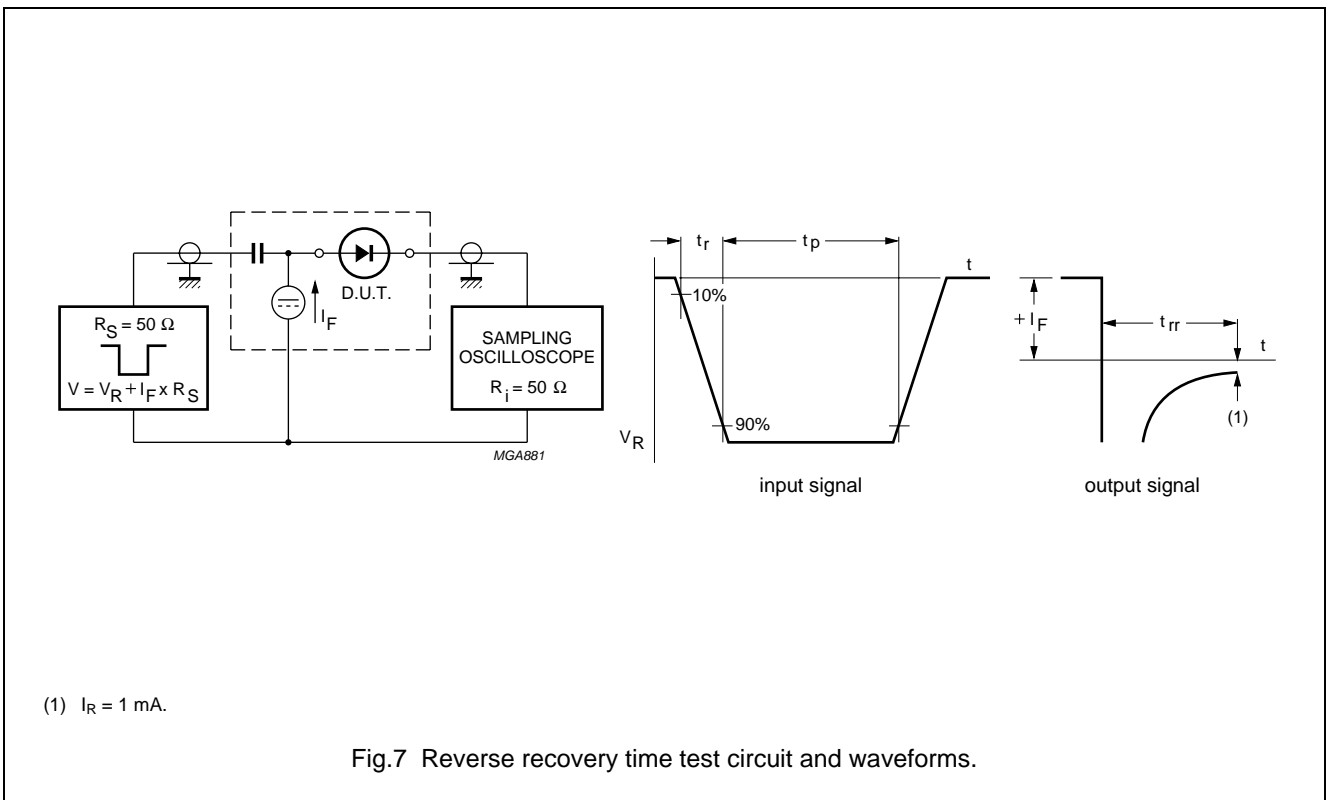
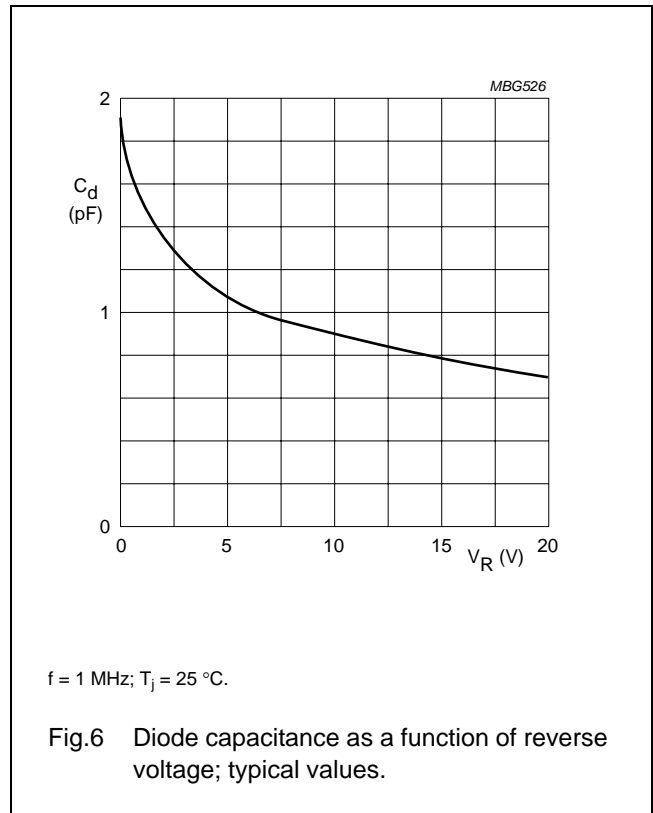
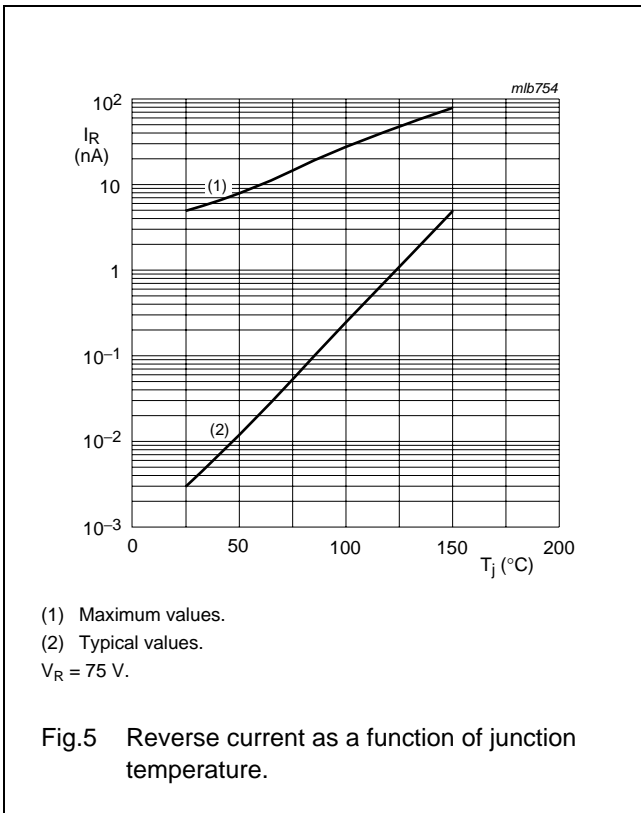
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GRAPHICAL DATA



Low-leakage diode

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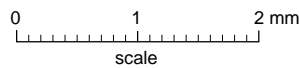
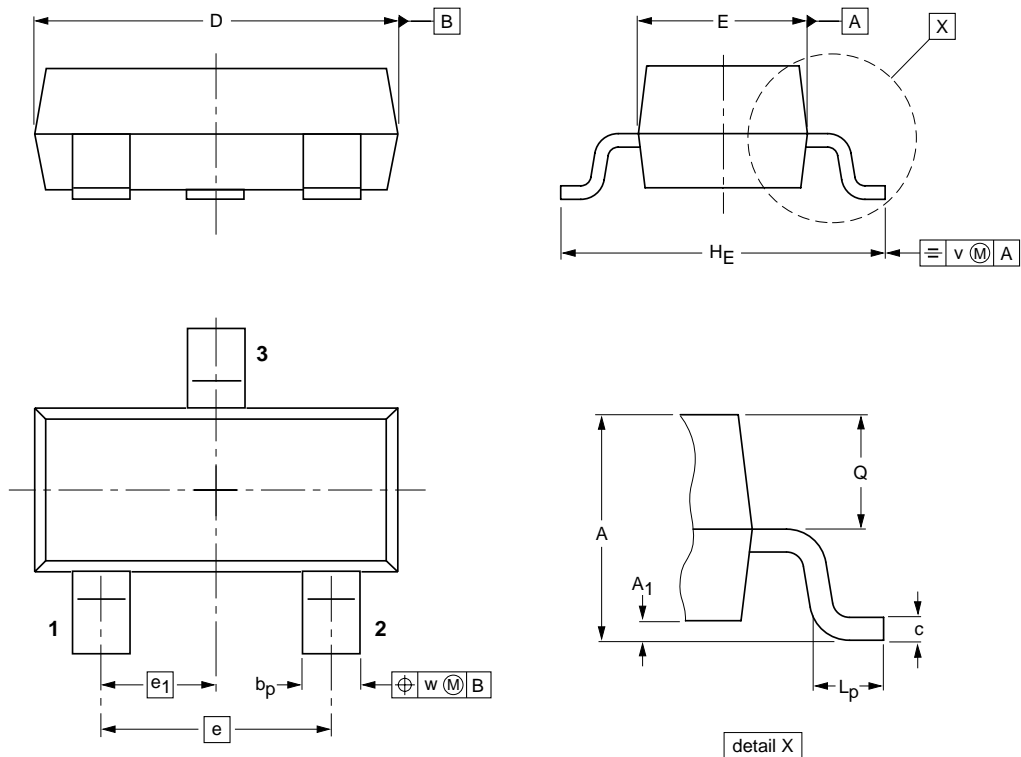
Low-leakage diode

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PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT23		TO-236AB			<del>04-11-04</del> 06-03-16

## Low-leakage diode

BAS116

## 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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## **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**

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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