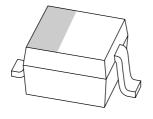
DISCRETE SEMICONDUCTORS

DATA SHEET



BAS416 Low-leakage diode

Product data sheet 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

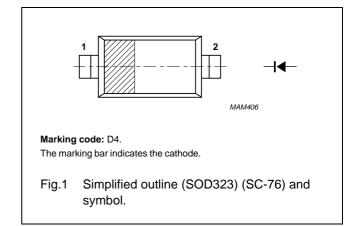
Low-leakage current applications in surface mounted circuits.

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		PACKAGE	
NUMBER	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 °C prior to surge; see Fig.4			
		t = 1 μs	_	4	Α
		t = 1 ms	_	1	Α
		t = 1 s	_	0.5	Α
P _{tot}	total power dissipation	T _{amb} = 25 °C; note 1	_	250	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		_	150	°C

Note

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

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CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V _F	forward voltage	see Fig.3			
		I _F = 1 mA	_	0.9	V
		$I_F = 10 \text{ mA}$	_	1	V
		$I_F = 50 \text{ mA}$	_	1.1	V
		I _F = 150 mA	_	1.25	V
I _R	reverse current	see Fig.5			
		V _R = 75 V	0.003	5	nA
		V _R = 75 V; T _j = 150 °C	3	80	nA
C _d	diode capacitance	V _R = 0; f = 1 MHz; see Fig.6	2	_	pF
t _{rr}	reverse recovery time	when switched from I_F = 10 mA to I_R = 10 mA; R_L = 100 Ω ; measured at I_R = 1 mA; see Fig.7	0.8	3	μs

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th(j-a)}	thermal resistance from junction to ambient	note 1	450	K/W

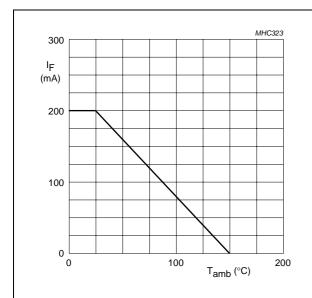
Note

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

Low-leakage diode

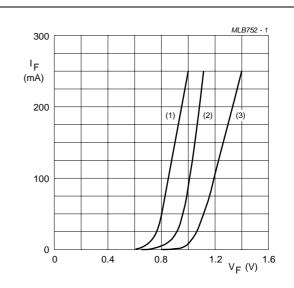
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GRAPHICAL DATA



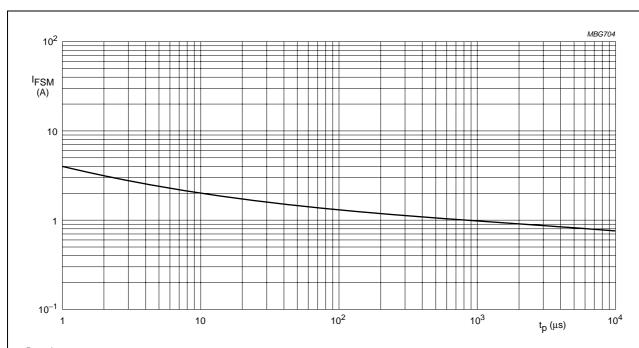
Device mounted on an FR4 printed-circuit board.

Fig.2 Maximum permissible continuous forward current as a function of ambient temperature.



- (1) $T_i = 150$ °C; typical values.
- (2) T_i = 25 °C; typical values.
- (3) $T_j = 25$ °C; maximum values.

Fig.3 Forward current as a function of forward voltage.



Based on square wave currents.

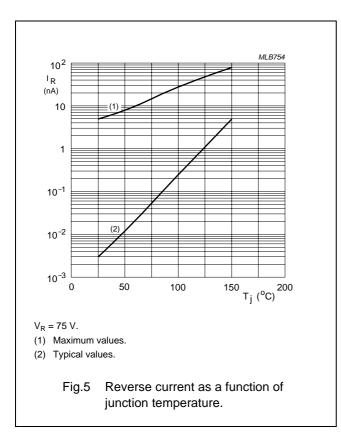
 T_j = 25 °C prior to surge.

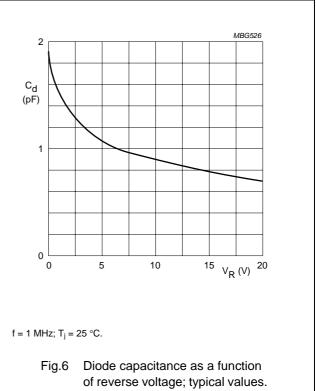
Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

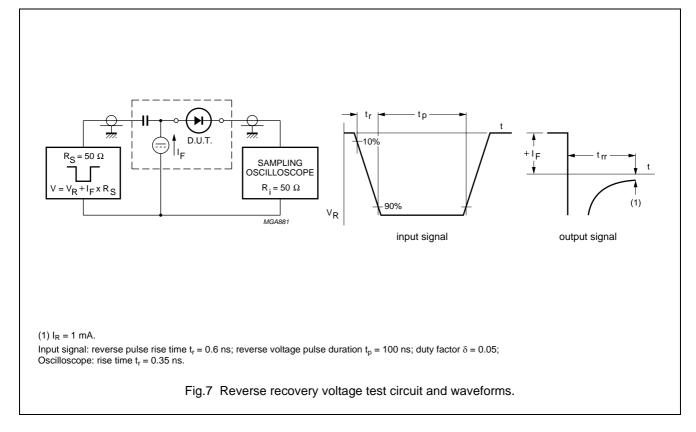
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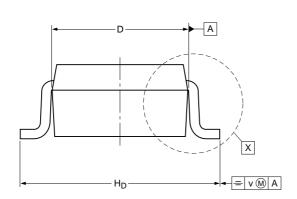
Low-leakage diode

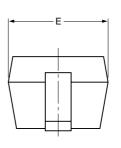
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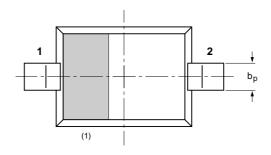
PACKAGE OUTLINE

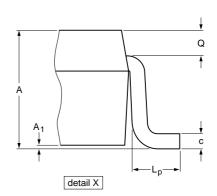
Plastic surface-mounted package; 2 leads

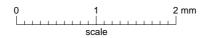
SOD323











DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	bp	С	D	E	H _D	Lp	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		0.25 0.15	0.2

Note

1. The marking bar indicates the cathode

OUTLINE		REFER	ENCES	EUROPEAN	ISSUE DATE	
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
SOD323			SC-76			03-12-17 06-03-16

Low-leakage diode

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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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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

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