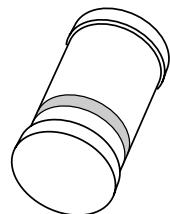


DATA SHEET



BAS32L High-speed diode

Product specification
Supersedes data of 1996 Sep 10

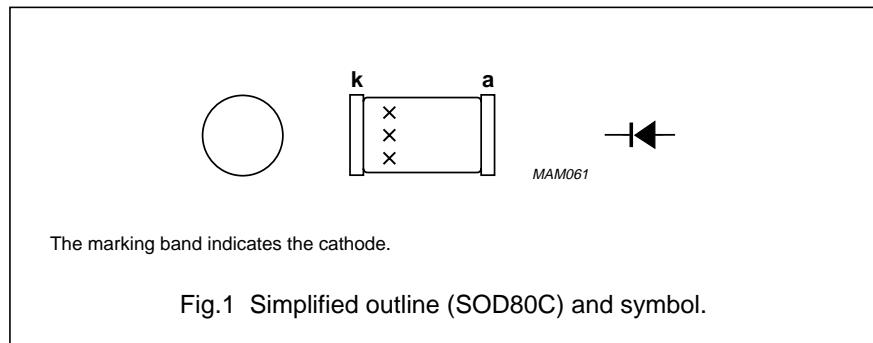
2002 Jan 23

High-speed diode**BAS32L****FEATURES**

- Small hermetically sealed glass SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 450 mA.

DESCRIPTION

The BAS32L is a high-speed switching diode fabricated in planar technology, and encapsulated in the small hermetically sealed glass SOD80C SMD package.

**APPLICATIONS**

- High-speed switching
- Fast logic applications.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		—	100	V
V_R	continuous reverse voltage		—	75	V
I_F	continuous forward current	see Fig.2; note 1	—	200	mA
I_{FRM}	repetitive peak forward current		—	450	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25^\circ\text{C}$ 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	$T_{\text{amb}} = 25^\circ\text{C}$; note 1	—	500	mW
T_{stg}	storage temperature		—65	+200	°C
T_j	junction temperature		—	200	°C

Note

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

High-speed diode

BAS32L

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage	see Fig.3 $I_F = 5 \text{ mA}$ $I_F = 100 \text{ mA}$ $I_F = 100 \text{ mA}; T_j = 100^\circ\text{C}$	620 – –	750 1000 930	mV mV mV
I_R	reverse current	see Fig.5 $V_R = 20 \text{ V}$ $V_R = 75 \text{ V}$ $V_R = 20 \text{ V}; T_j = 150^\circ\text{C}$ $V_R = 75 \text{ V}; T_j = 150^\circ\text{C}$	– – – –	25 5 50 100	nA μA μA μA
$V_{(BR)R}$	reverse breakdown voltage	$I_R = 100 \mu\text{A}$	100	–	V
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	–	4	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 50 \text{ mA}$; $t_r = 20 \text{ ns}$; see Fig.8	–	2.5	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th j\text{-tp}}$	thermal resistance from junction to tie-point	–	300	K/W
$R_{th j\text{-a}}$	thermal resistance from junction to ambient	note 1	350	K/W

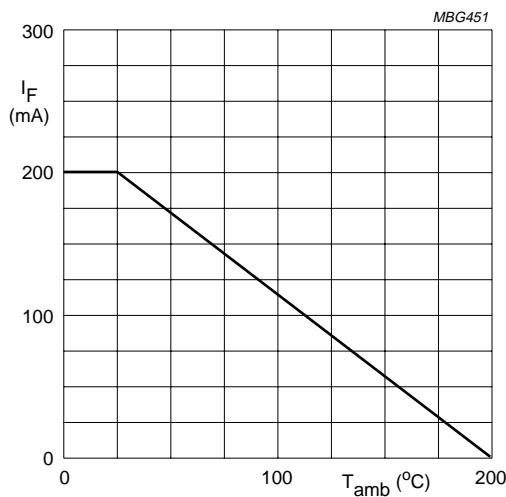
Note

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

High-speed diode

BAS32L

GRAPHICAL DATA



Device mounted on an FR4 printed-circuit board.

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

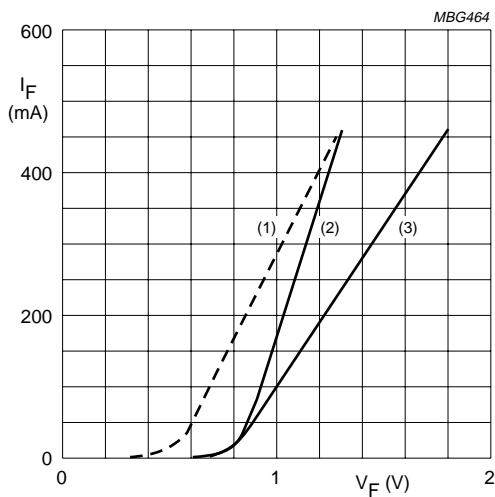
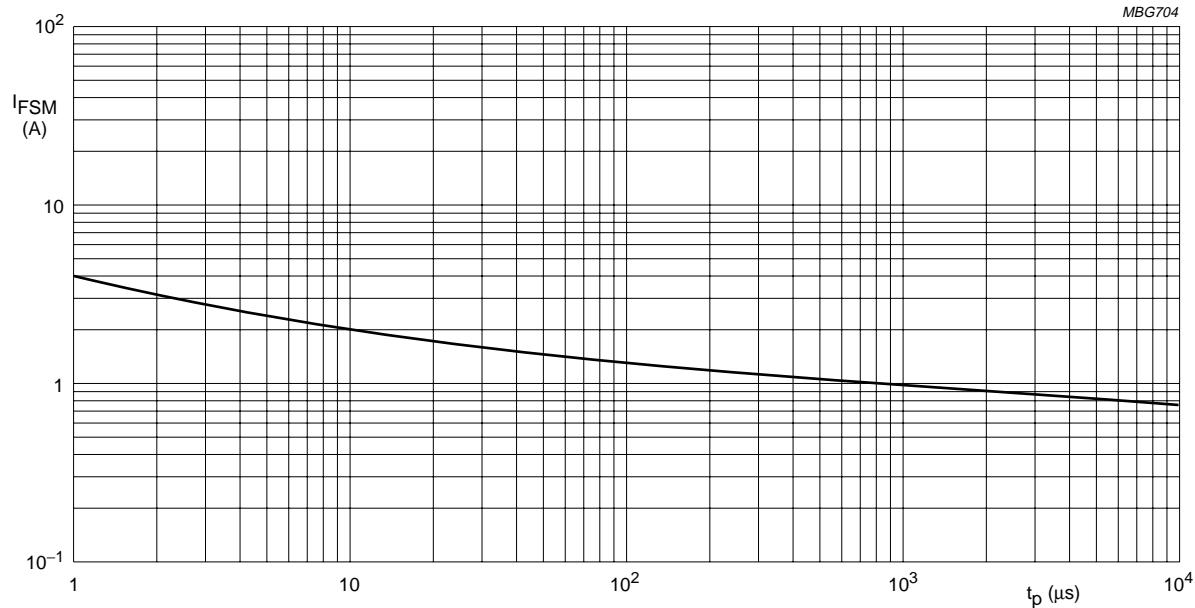


Fig.3 Forward current as a function of forward voltage.



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.

High-speed diode

BAS32L

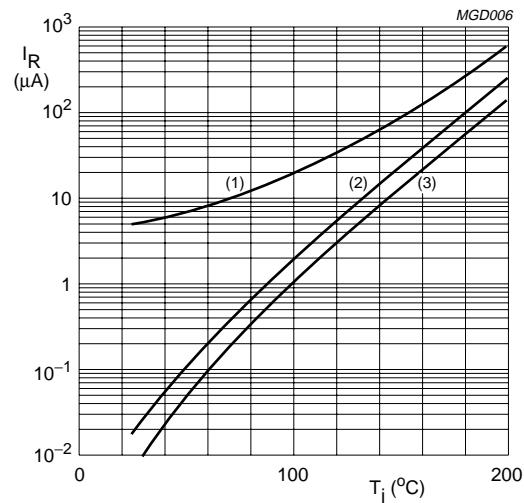


Fig.5 Reverse current as a function of junction temperature.

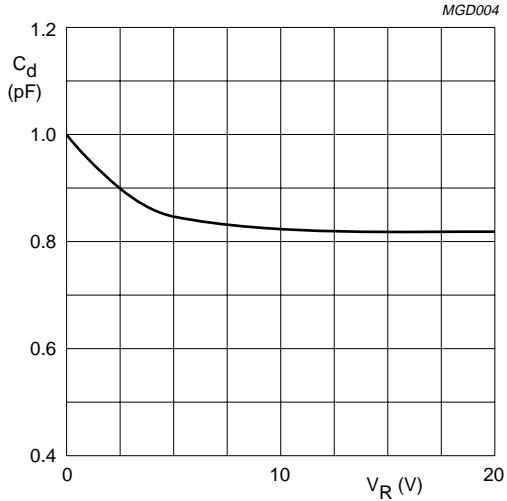


Fig.6 Diode capacitance as a function of reverse voltage; typical values.

High-speed diode

BAS32L

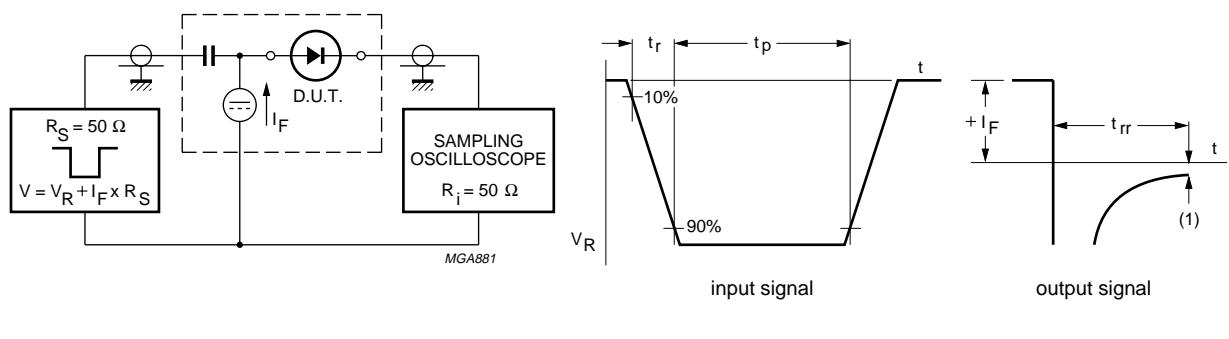


Fig.7 Reverse recovery voltage test circuit and waveforms.

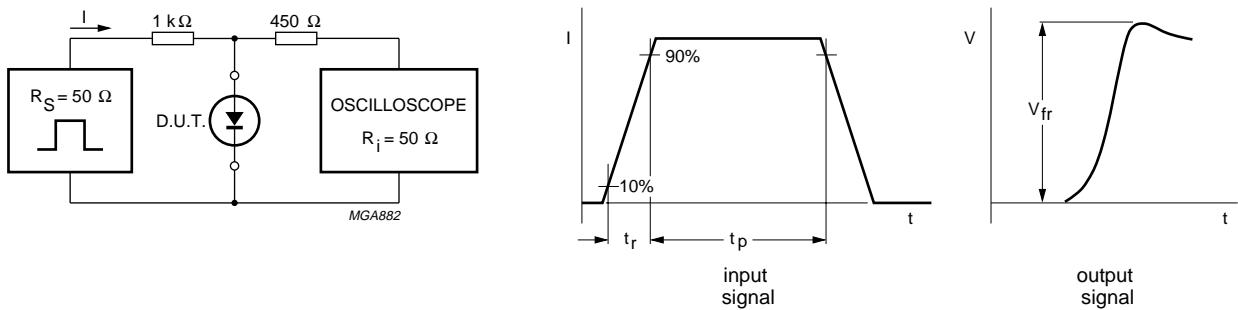


Fig.8 Forward recovery voltage test circuit and waveforms.

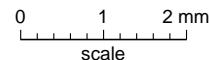
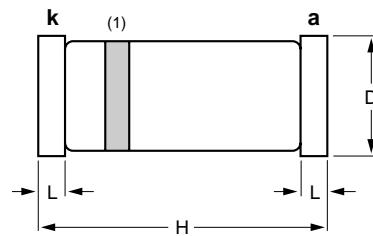
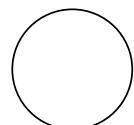
High-speed diode

BAS32L

PACKAGE OUTLINE

Hermetically sealed glass surface mounted package; 2 connectors

SOD80C



DIMENSIONS (mm are the original dimensions)

UNIT	D	H	L
mm	1.60	3.7	0.3
	1.45	3.3	

Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD80C	100H01				97-06-20

High-speed diode

BAS32L

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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.
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.
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A.

Notes

1. Please consult the most recently issued data sheet before initiating or completing a design.
2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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.

Application information — Applications that are described herein for any of these products are for illustrative purposes only. Philips Semiconductors make no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

DISCLAIMERS

Life support applications — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips Semiconductors customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips Semiconductors for any damages resulting from such application.

Right to make changes — Philips Semiconductors reserves the right to make changes, without notice, in the products, including circuits, standard cells, and/or software, described or contained herein in order to improve design and/or performance. Philips Semiconductors assumes no responsibility or liability for the use of any of these products, conveys no licence or title under any patent, copyright, or mask work right to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

High-speed diode

BAS32L

NOTES

High-speed diode

BAS32L

NOTES

High-speed diode

BAS32L

NOTES

Philips Semiconductors – a worldwide company

Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: +31 40 27 24825
For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

© Koninklijke Philips Electronics N.V. 2002

SCA74

All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.

The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Printed in The Netherlands

613514/03/0012

Date of release: 2002 Jan 23

Document order number: 9397 750 09264

Let's make things better.

**Philips
Semiconductors**



PHILIPS