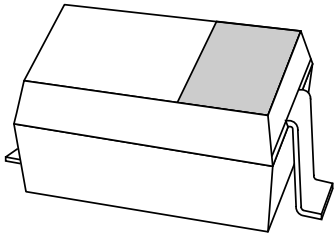


DATA SHEET



BAS316 High-speed diode

Product specification
Supersedes data of 1998 Mar 26

2004 Feb 04

High-speed diode

BAS316

FEATURES

- Very small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 100 V
- Repetitive peak reverse voltage: max. 100 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

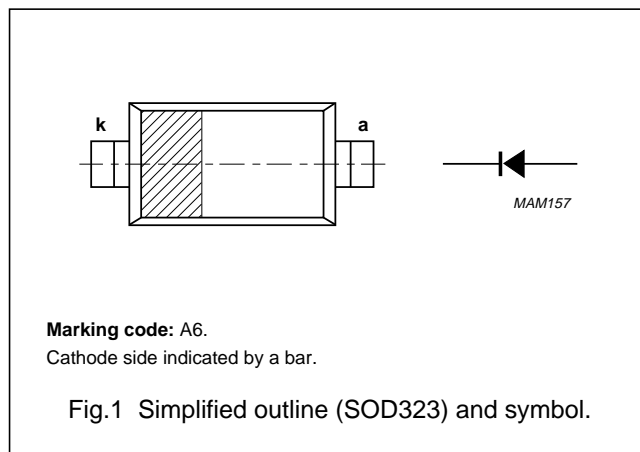
- High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

The BAS316 is a high-speed switching diode fabricated in planar technology, and encapsulated in the SOD323 SMD plastic package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BAS316	-	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		-	100	V
V_R	continuous reverse voltage		-	100	V
I_F	continuous forward current	$T_s = 90\text{ }^\circ\text{C}$; note 1; see Fig.2	-	250	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 $t = 1\text{ }\mu\text{s}$ $t = 1\text{ ms}$ $t = 1\text{ s}$	-	4 1 0.5	A A A
P_{tot}	total power dissipation	$T_s = 90\text{ }^\circ\text{C}$; note 1	-	400	mW
T_{stg}	storage temperature		-65	+150	$^\circ\text{C}$
T_j	junction temperature		-	150	$^\circ\text{C}$

Note

1. T_s is the temperature at the soldering point of the cathode tab.

High-speed diode

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CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	see Fig.3		
		$I_F = 1\text{ mA}$	715	mV
		$I_F = 10\text{ mA}$	855	mV
		$I_F = 50\text{ mA}$	1	V
		$I_F = 150\text{ mA}$	1.25	V
I_R	reverse current	see Fig.5		
		$V_R = 25\text{ V}$	30	nA
		$V_R = 75\text{ V}$	1	μA
		$V_R = 25\text{ V}; T_j = 150\text{ °C}$	30	μA
		$V_R = 75\text{ V}; T_j = 150\text{ °C}$	50	μA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.6	1.5	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 $I_F = 10\text{ mA}$; $t_r = 20\text{ ns}$; see Fig.8	1.75	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-s)}$	thermal resistance from junction to soldering point	note 1	150	K/W

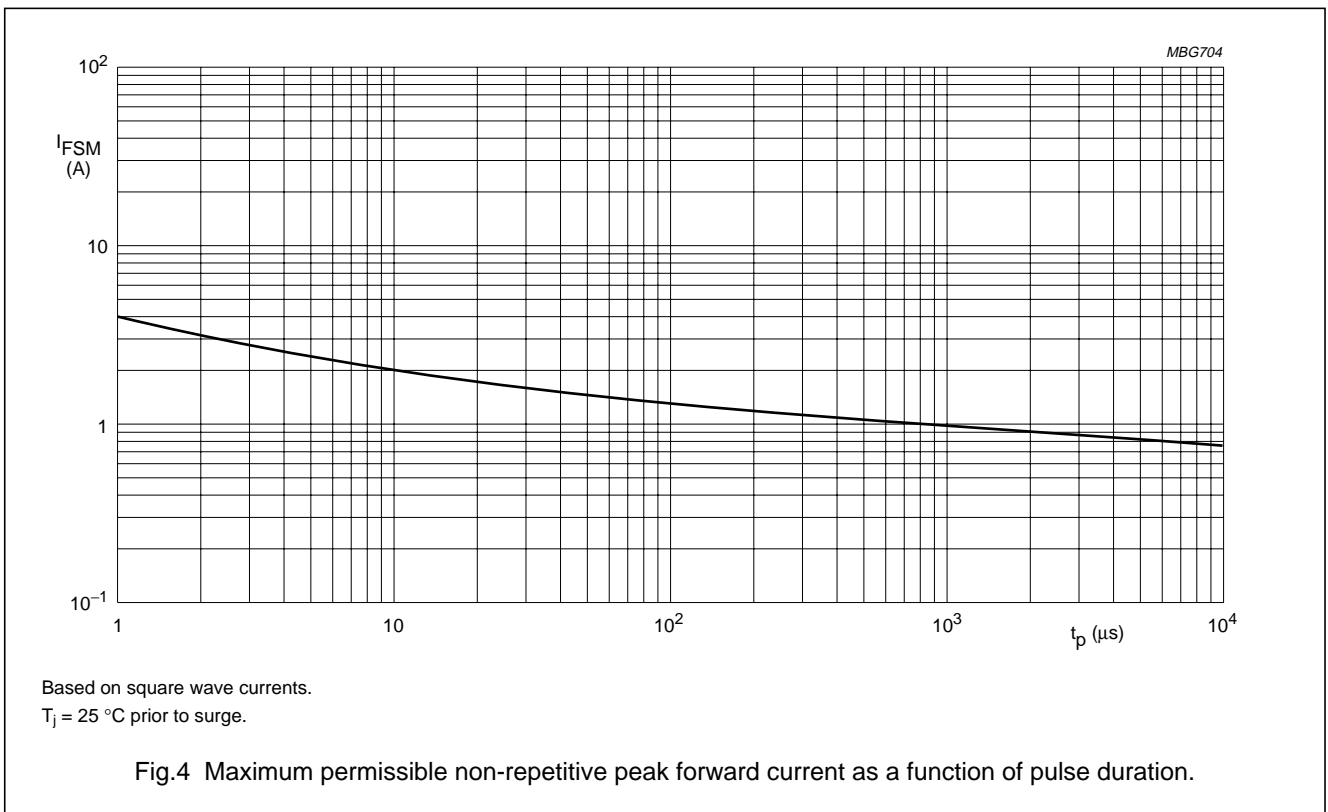
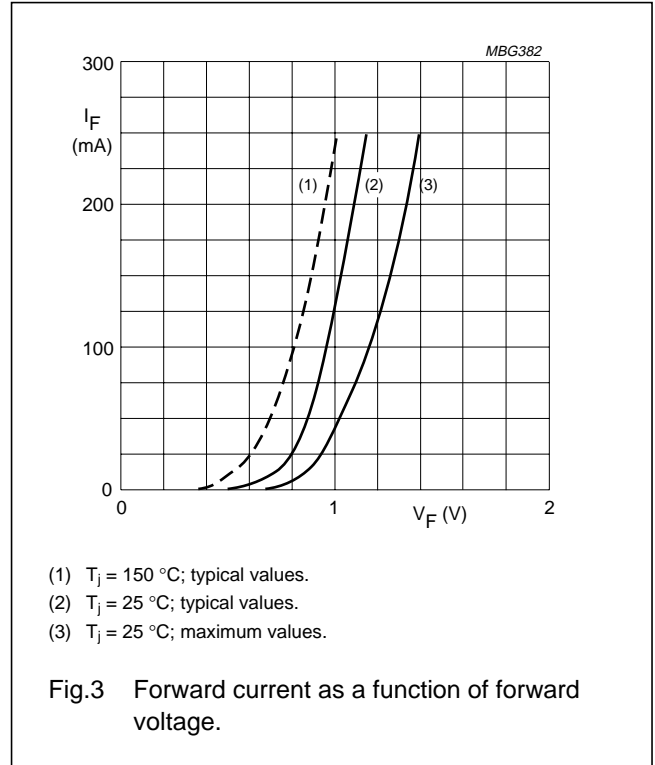
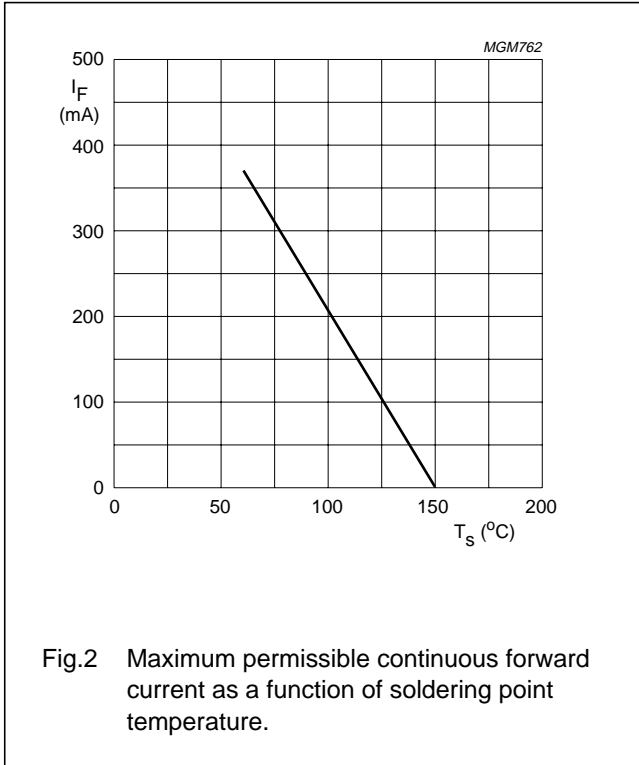
Note

1. Soldering point of the cathode tab.

High-speed diode

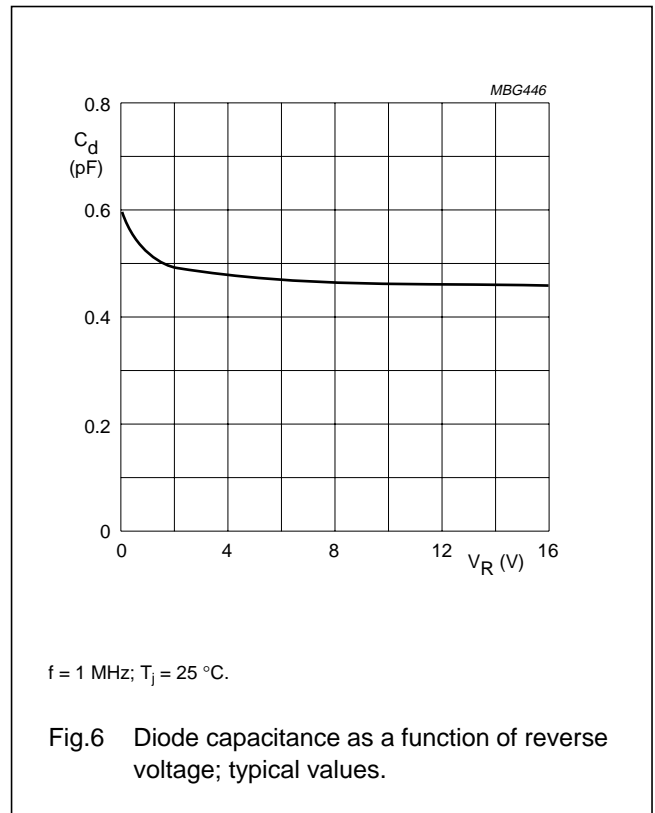
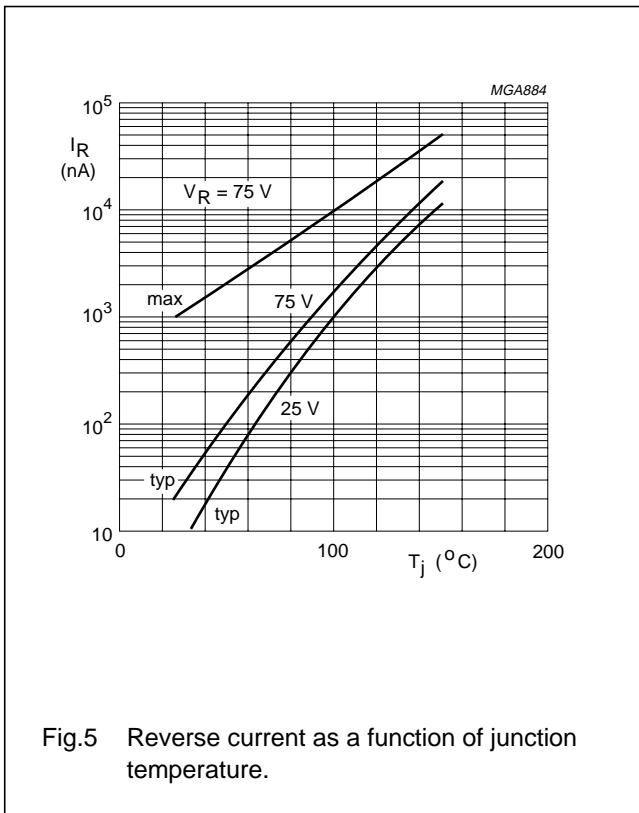
BAS316

GRAPHICAL DATA



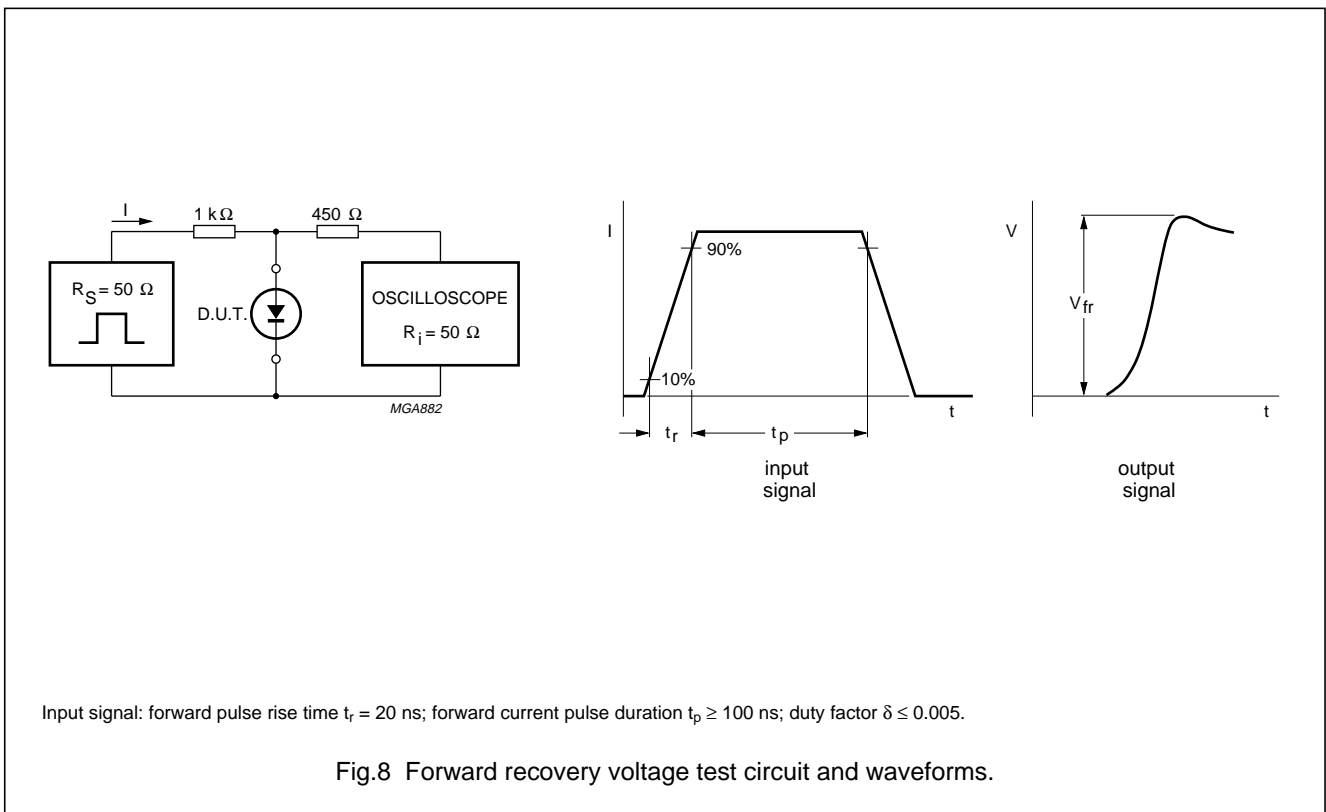
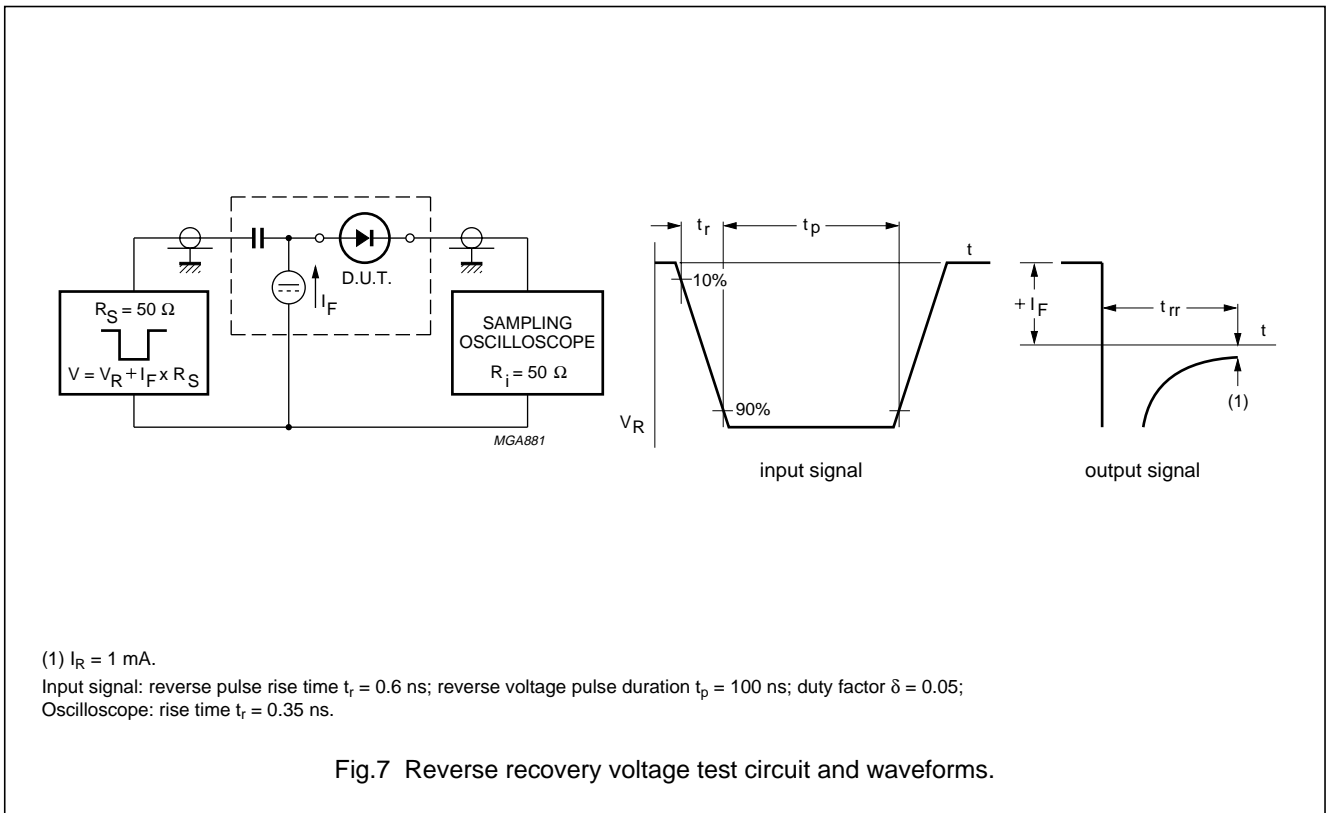
High-speed diode

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High-speed diode

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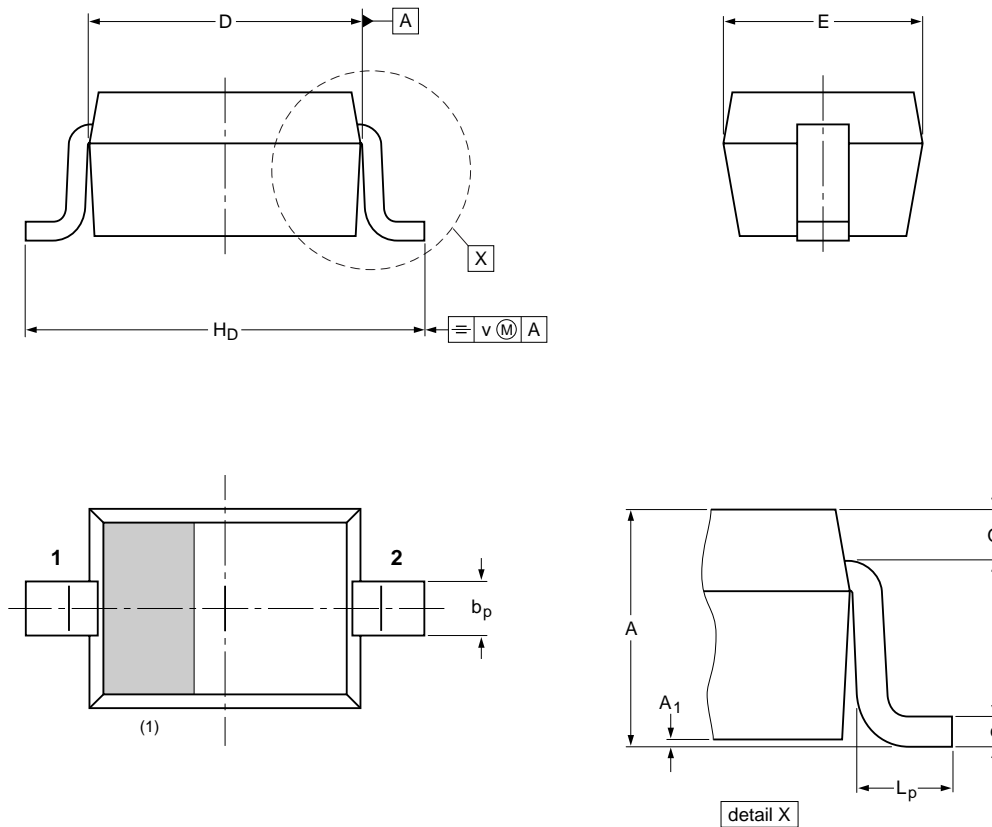
High-speed diode

BAS316

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	H _D	L _p	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

High-speed diode

BAS316

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	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.
III	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. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

1. Please consult the most recently issued data sheet before initiating or completing a design.
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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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.

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