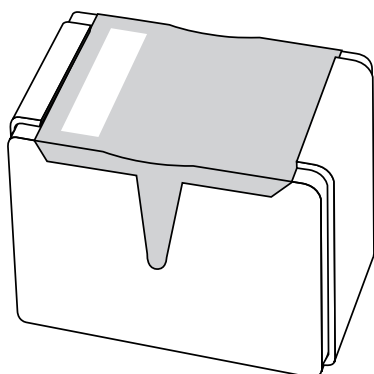


DATA SHEET



BAS216

High-speed switching diode

Product specification
Supersedes data of 1999 Apr 22

2002 May 28

High-speed switching diode

BAS216

FEATURES

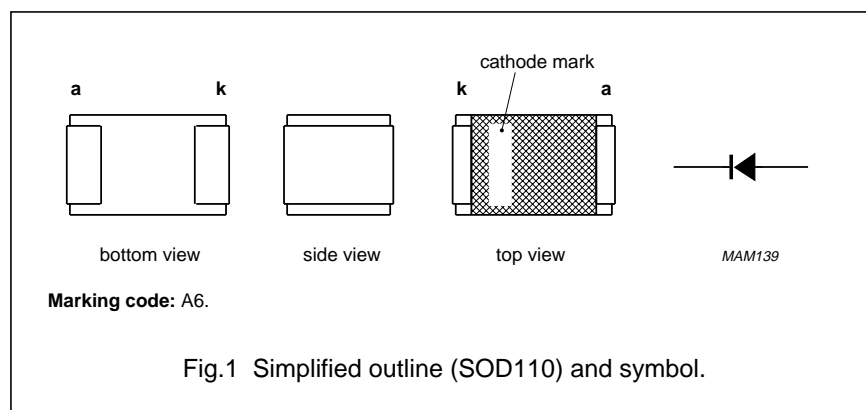
- Small ceramic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

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

DESCRIPTION

The BAS216 is a high-speed switching diode fabricated in planar technology, and encapsulated in the SOD110 very small rectangular ceramic SMD package.



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	note 1	–	250	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 $t = 1\text{ }\mu\text{s}$ $t = 1\text{ ms}$ $t = 1\text{ s}$	– – –	4 1 0.5	A A A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; see Fig.2; note 1	–	400	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

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

High-speed switching diode

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	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
		$V_R = 25\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	–	30	μA
		$V_R = 75\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	–	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 $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; 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
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		200	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	315	K/W

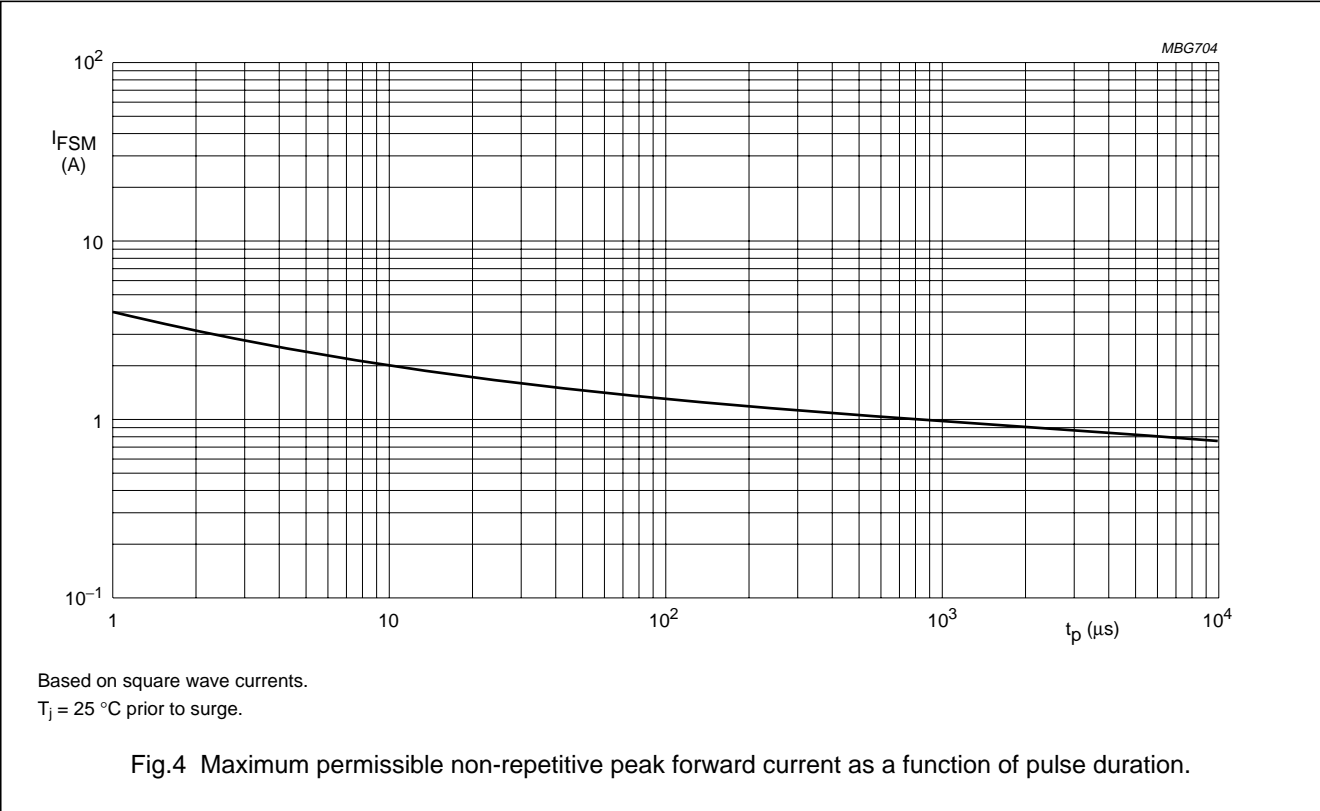
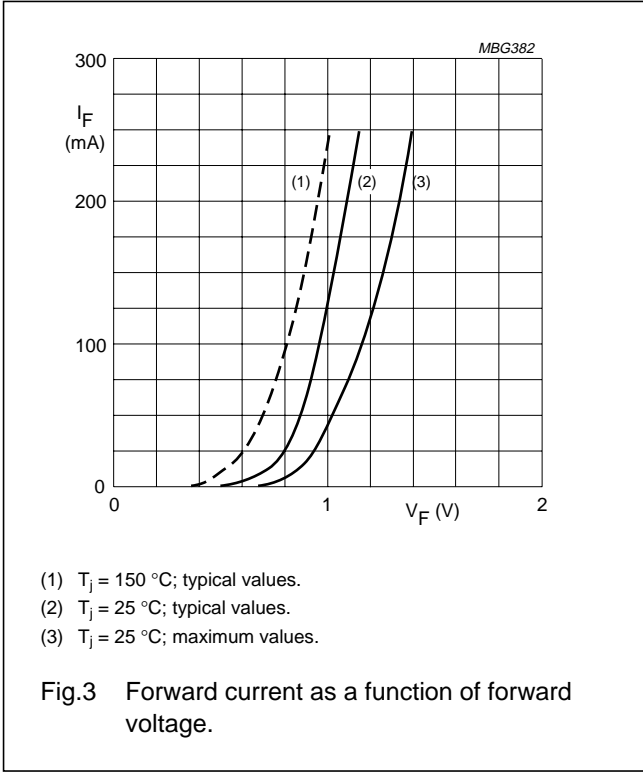
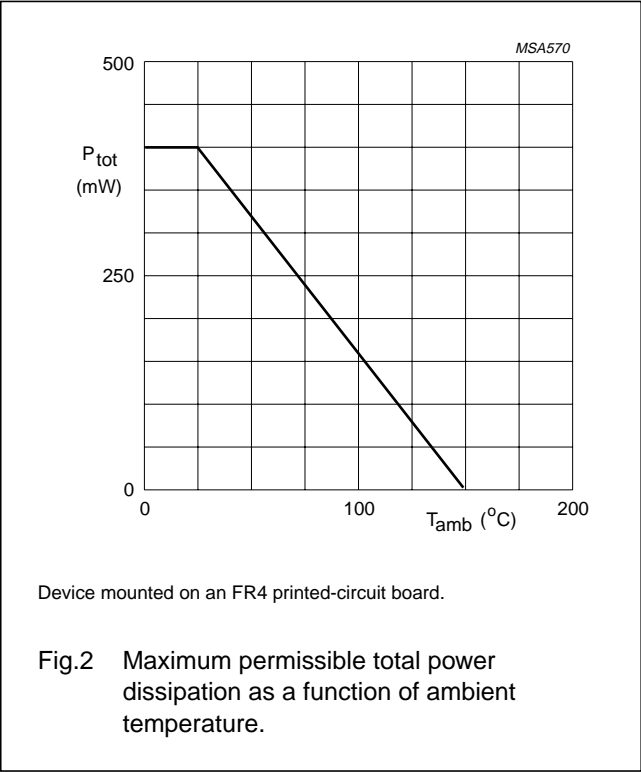
Note

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

High-speed switching diode

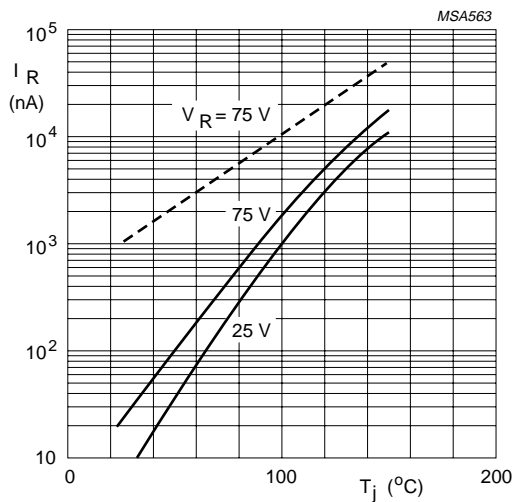
BAS216

GRAPHICAL DATA



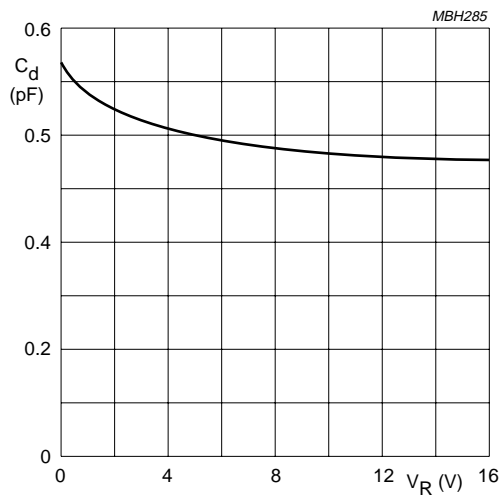
High-speed switching diode

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Dotted line: maximum values.
Solid lines: typical values.

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



$f = 1 \text{ MHz}$; $T_j = 25 \text{ °C}$.

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

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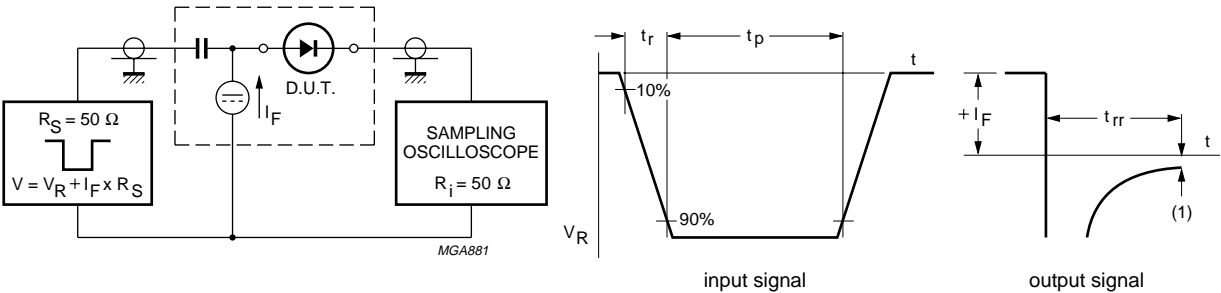


Fig.7 Reverse recovery voltage test circuit and waveforms.

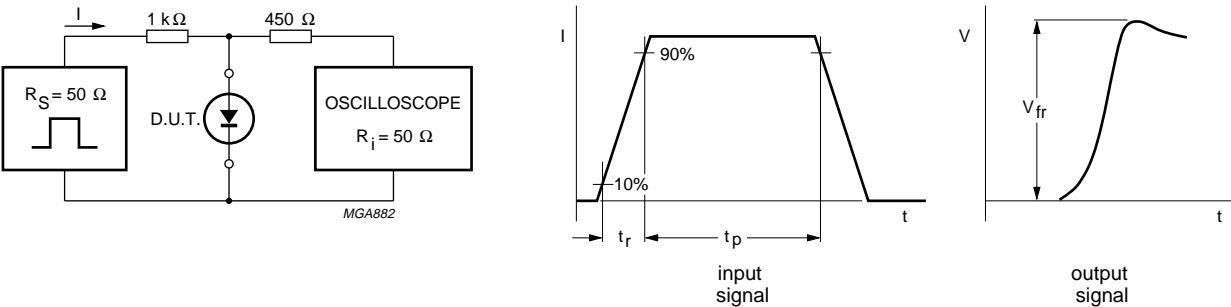


Fig.8 Forward recovery voltage test circuit and waveforms.

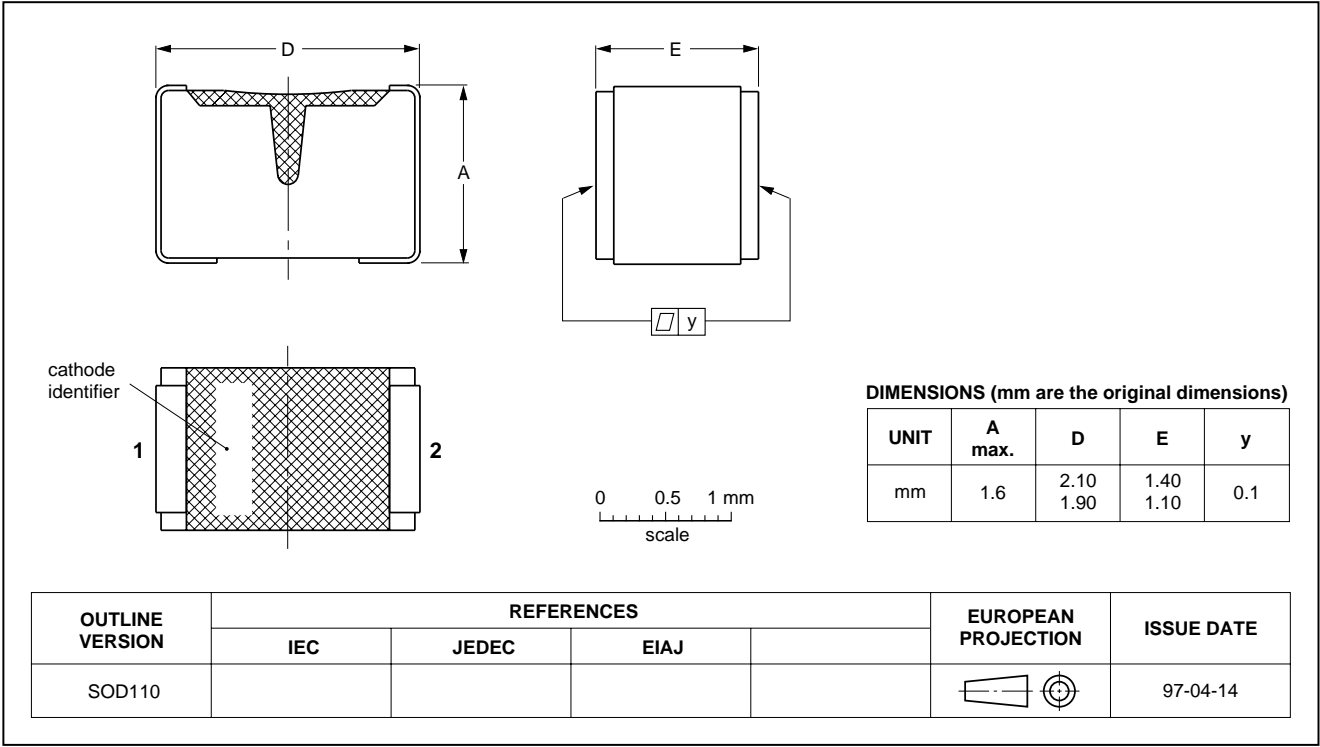
High-speed switching diode

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PACKAGE OUTLINE

Very small ceramic rectangular surface mounted package

SOD110



High-speed switching diode

BAS216

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

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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>.

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NOTES

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NOTES

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