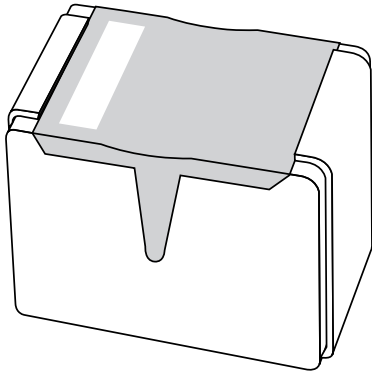


# DATA SHEET



**BAS216**

High-speed switching diode

Product specification  
Supersedes data of 1996 Apr 03

1999 Apr 22

# High-speed switching diode

# BAS216

## FEATURES

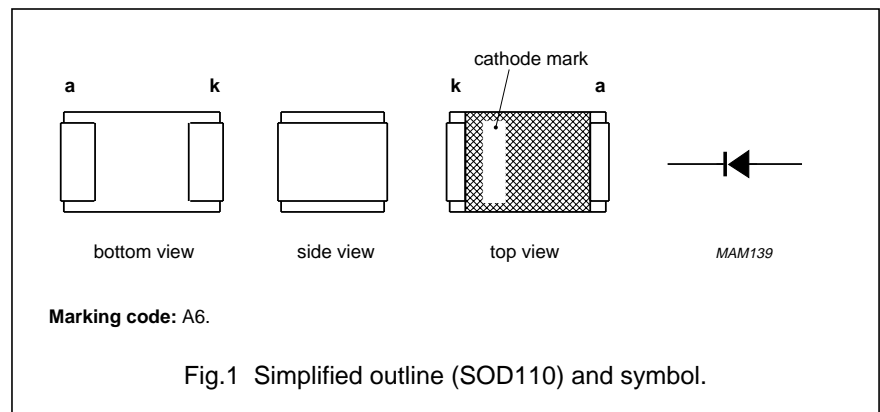
- Small ceramic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

## 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 small rectangular ceramic SMD SOD110 package.



## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

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 $t = 1\ \mu\text{s}$ $t = 1\ \text{ms}$ $t = 1\ \text{s}$	–	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

## BAS216

**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
$I_R$	reverse current	$I_F = 150\text{ mA}$	–	1.25	V
		see Fig.5			
		$V_R = 25\text{ V}$	–	30	nA
		$V_R = 75\text{ V}$	–	1	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 25\text{ V}; T_j = 150\text{ }^\circ\text{C}$	–	30	$\mu\text{A}$
		$V_R = 75\text{ V}; T_j = 150\text{ }^\circ\text{C}$	–	50	$\mu\text{A}$
$t_{rr}$	reverse recovery time	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	–	1.5	pF
$V_{fr}$	forward recovery voltage	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
		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

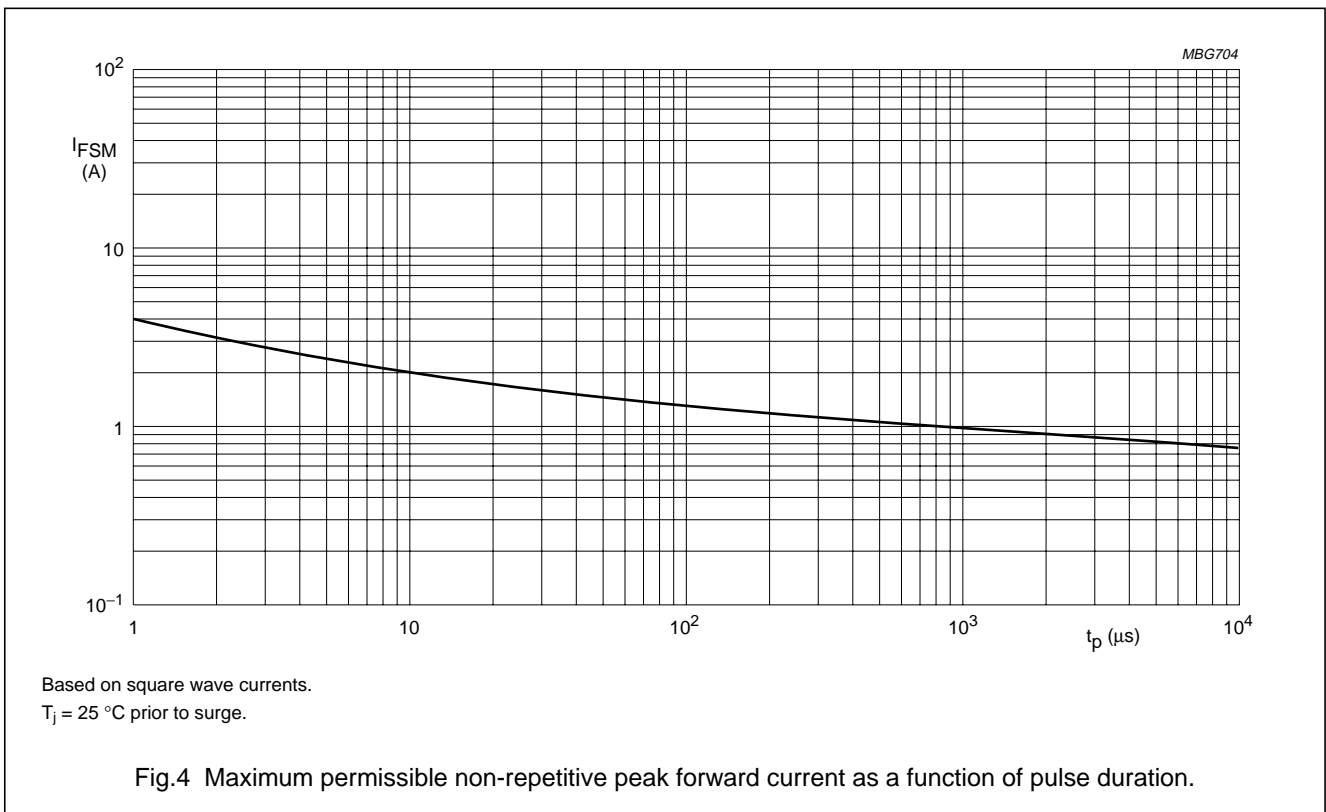
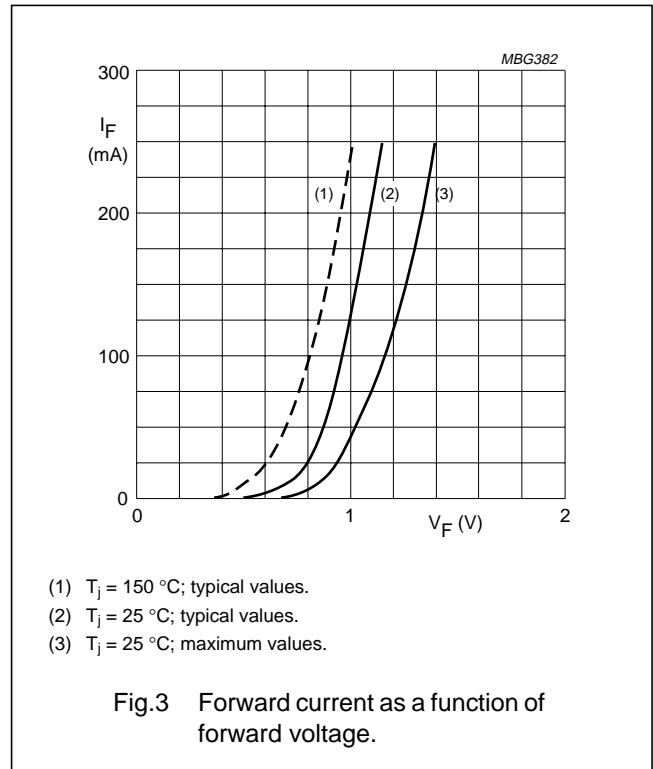
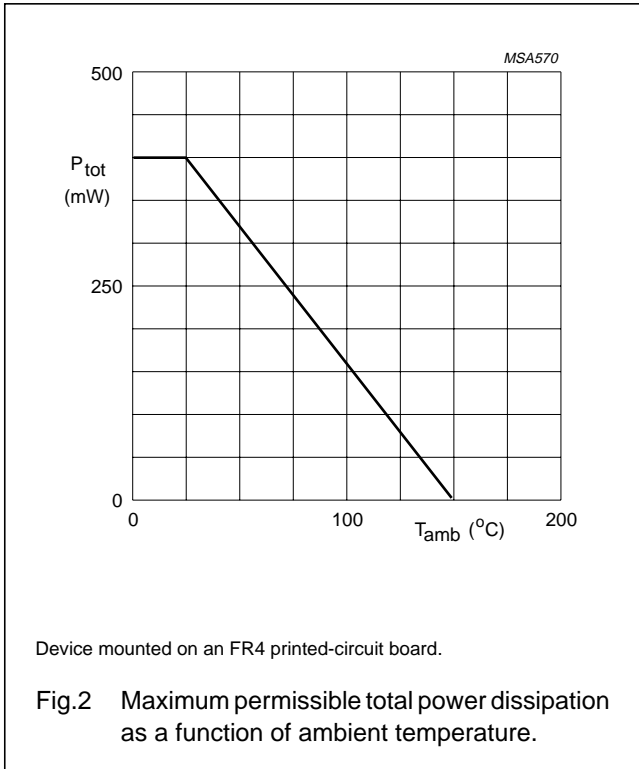
**Note**

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

High-speed switching diode

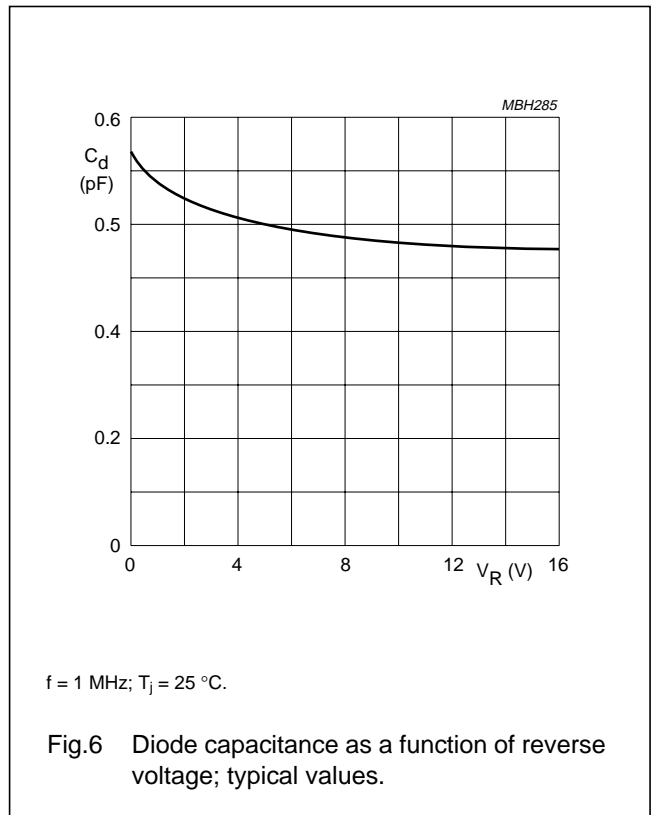
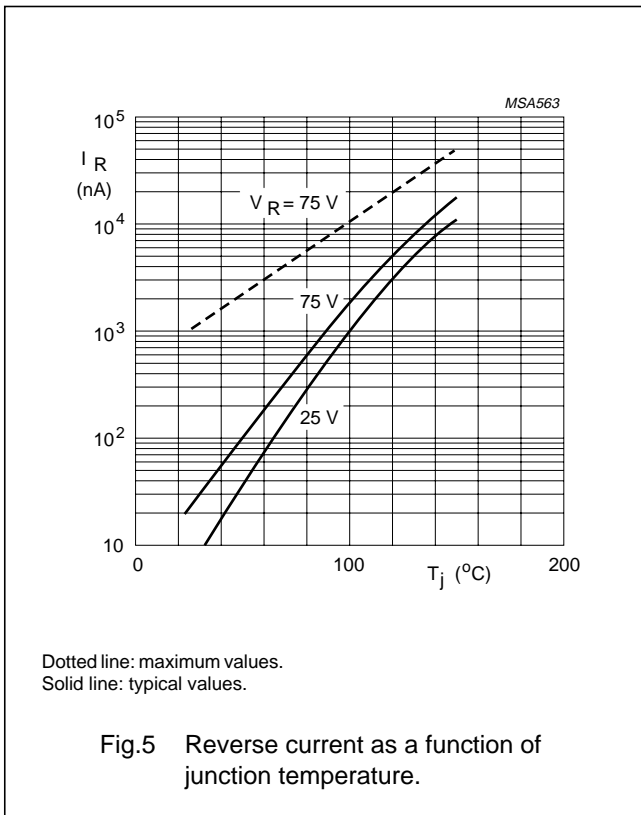
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GRAPHICAL DATA



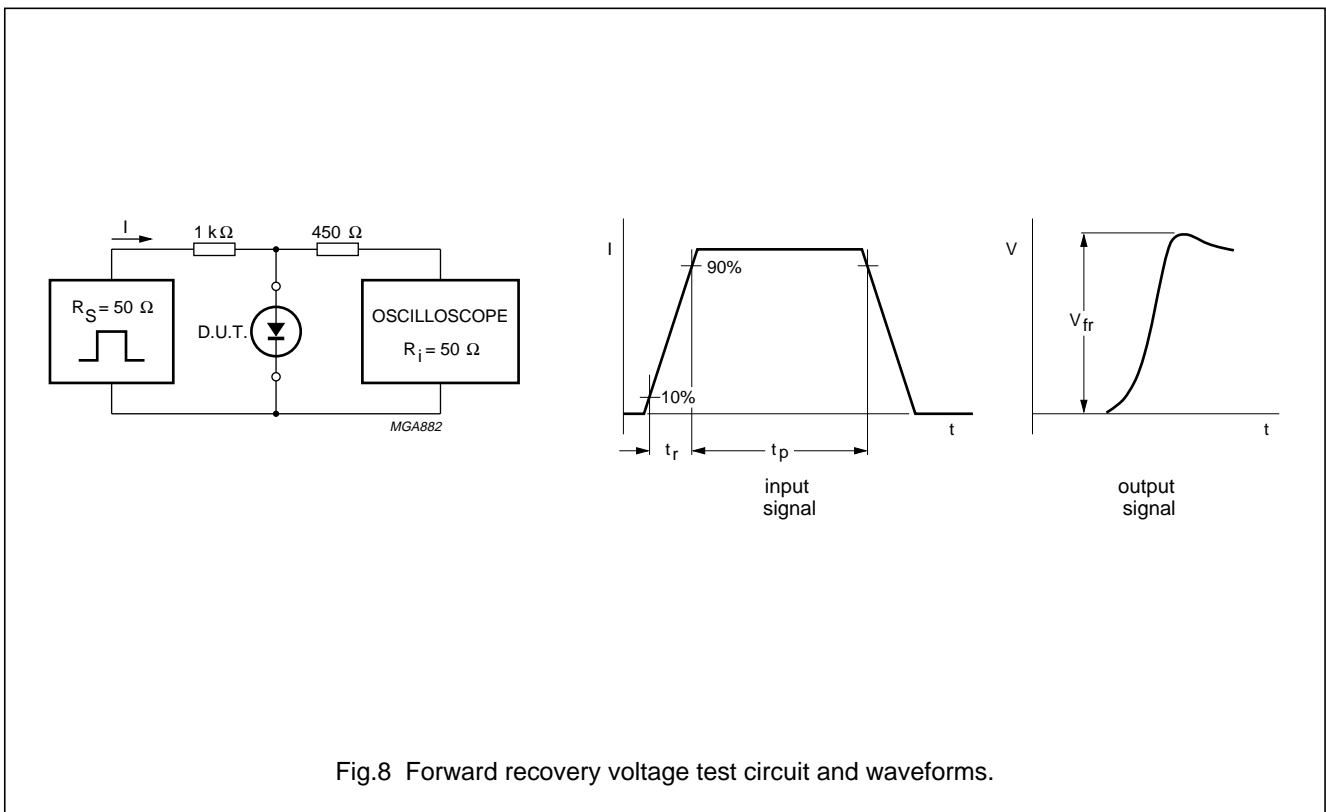
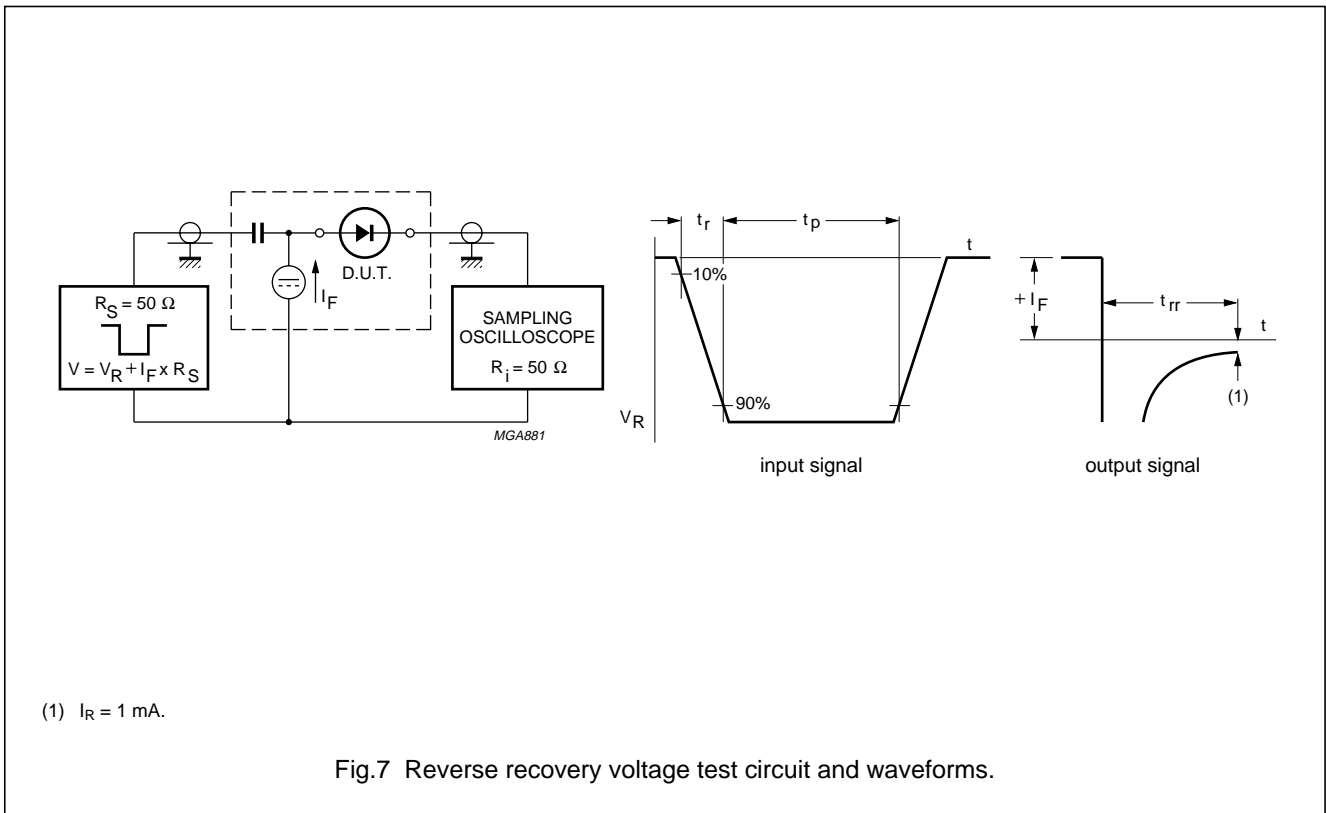
High-speed switching diode

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High-speed switching diode

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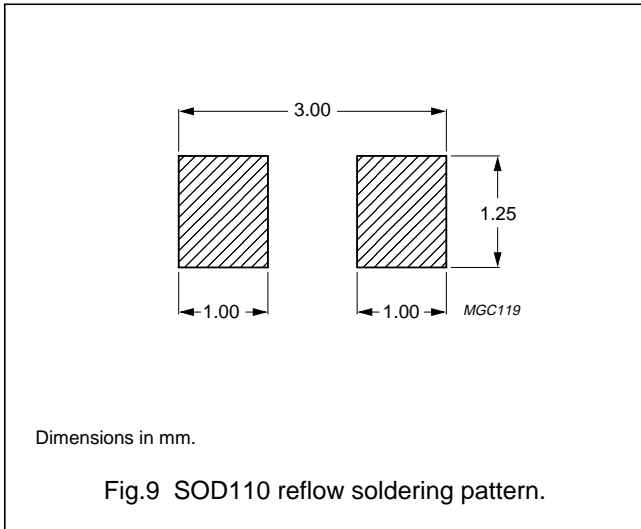
# High-speed switching diode

# BAS216

## MOUNTING

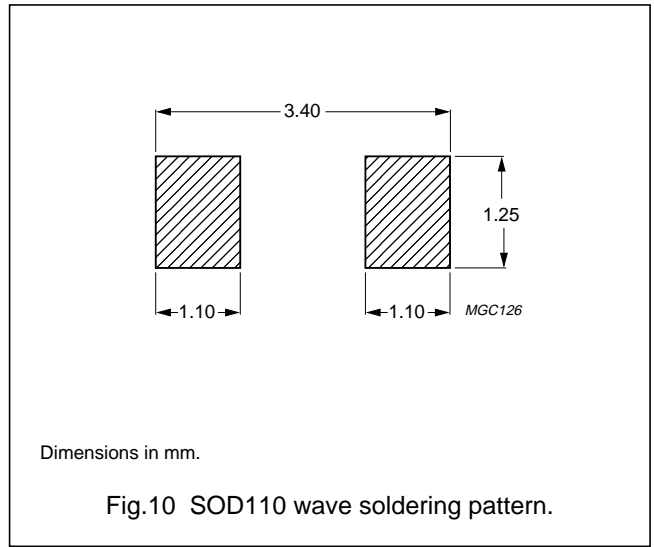
### Reflow soldering

Follow standard reflow soldering techniques to ensure correct application of solder paste and placement of the SOD110 package (see Fig.9).



### Wave soldering

Before wave soldering, attach SOD110 packages to the printed-circuit boards using a small dot of thermo-setting epoxy or UV-curing adhesive centred between the soldering lands (see Fig.10).



# High-speed switching diode

# BAS216

## PACKAGE OUTLINE

Very small ceramic rectangular surface mounted package

SOD110

**DIMENSIONS (mm are the original dimensions)**

UNIT	A max.	D	E	y
mm	1.6	2.10 1.90	1.40 1.10	0.1

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD110					97-04-14

## DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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	
Where application information is given, it is advisory and does not form part of the specification.	

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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 customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.



High-speed switching diode

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**NOTES**

High-speed switching diode

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**NOTES**

High-speed switching diode

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**NOTES**

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