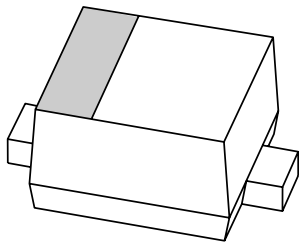


# DATA SHEET



## **BAS521** High voltage switching diode

Product specification

2003 Aug 12

# High voltage switching diode

# BAS521

## FEATURES

- High switching speed: max. 50 ns
- High continuous reverse voltage: 300 V
- Repetitive peak forward current: 625 mA
- Ultra small plastic SMD package.

## APPLICATIONS

- High speed switching
- High voltage switching.

## DESCRIPTION

The BAS521 is a high-voltage switching diode fabricated in planar technology and encapsulated in an ultra small SOD523 (SC-79) plastic SMD package.

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode

Top view

MAM408

**Marking code:** L4.  
The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD523; SC-79), and symbol.

## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	300	V
$V_{RRM}$	repetitive peak reverse voltage		–	300	V
$I_F$	continuous forward current	$T_s \leq 90\text{ }^\circ\text{C}$ ; note 1	–	250	mA
$I_{FRM}$	repetitive peak forward current	$t_p = 1\text{ ms}$ ; $\delta = 0.25$	–	1	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 1\text{ }\mu\text{s}$ ; square wave; $T_j = 25\text{ }^\circ\text{C}$ prior to surge	–	4.5	A
$P_{tot}$	total power dissipation	$T_s \leq 90\text{ }^\circ\text{C}$ ; note 1	–	500	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$
$T_{amb}$	operating ambient temperature		–65	+150	$^\circ\text{C}$

## Note

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

## High voltage switching diode

## BAS521

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{BR}$	breakdown voltage	$I_R = 100\ \mu\text{A}$	300	340	–	V
$V_F$	forward voltage	$I_F = 100\ \text{mA}$ ; note 1	–	0.95	1.1	V
$I_R$	reverse current	$V_R = 250\ \text{V}$	–	30	150	nA
		$V_R = 250\ \text{V}$ ; $T_a = 150\text{ °C}$	–	40	100	$\mu\text{A}$
$t_{rr}$	reverse recovery time	when switched from $I_F = 30\ \text{mA}$ to $I_R = 30\ \text{mA}$ ; $R_L = 100\ \Omega$ ; measured at $I_R = 3\ \text{mA}$	–	16	50	ns
$C_d$	diode capacitance	$V_R = 0\ \text{V}$ ; $f = 1\ \text{MHz}$	–	0.4	5	pF

**Note**

1. Pulse test:  $t_p = 300\ \mu\text{s}$ ;  $\delta = 0.02$ .

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to solder point	note 1	120	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 2	500	K/W

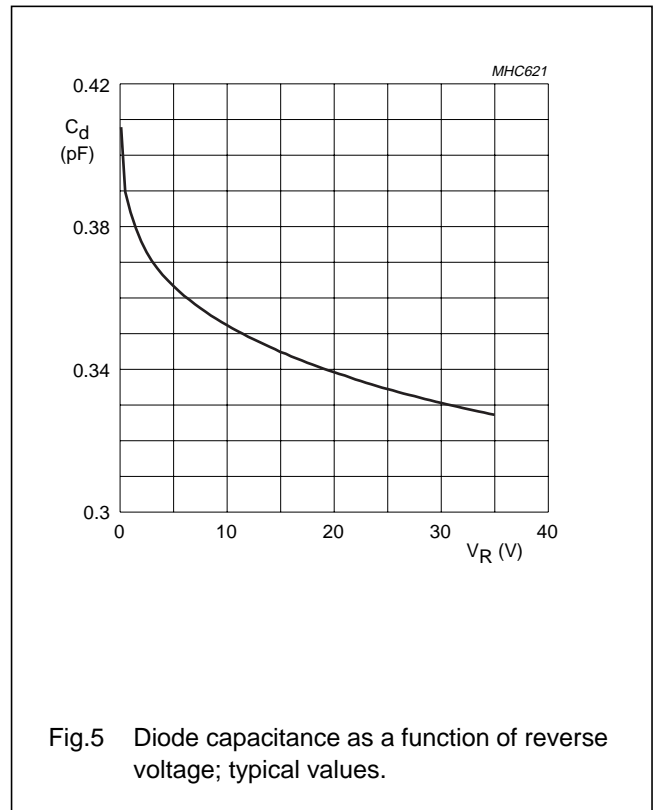
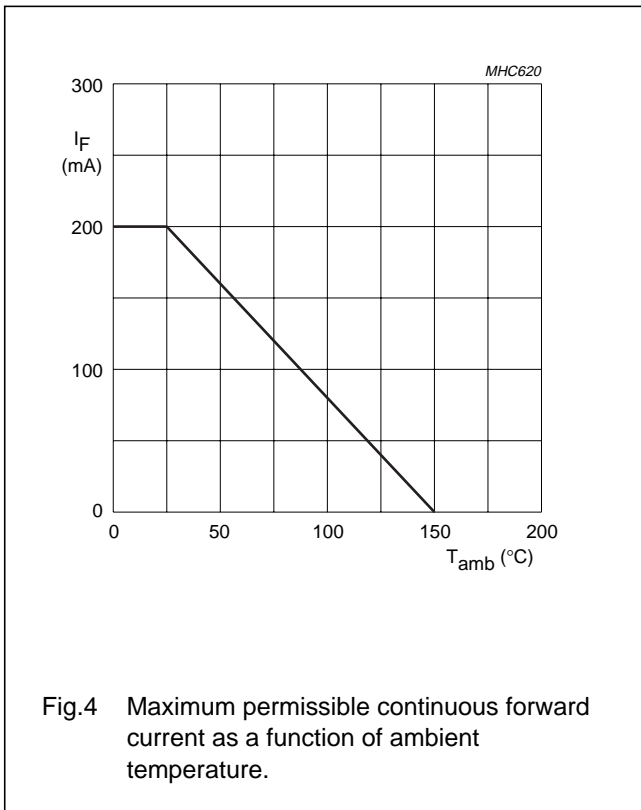
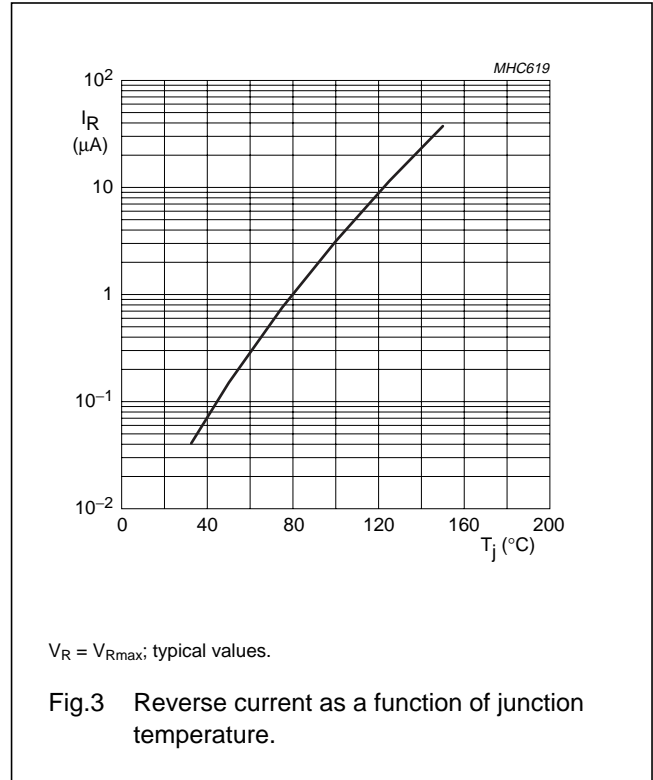
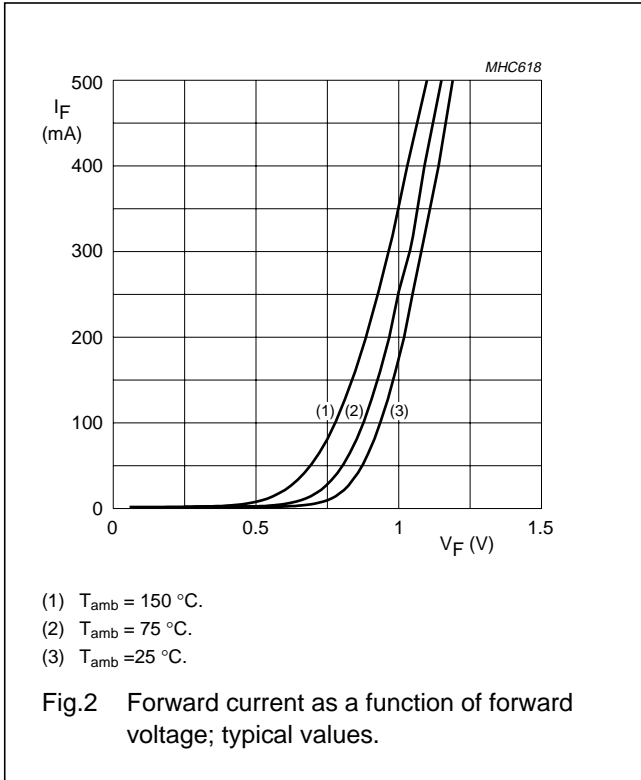
**Notes**

1. Soldering point of the cathode tab.
2. Refer to SOD523 (SC-79) standard mounting conditions.

High voltage switching diode

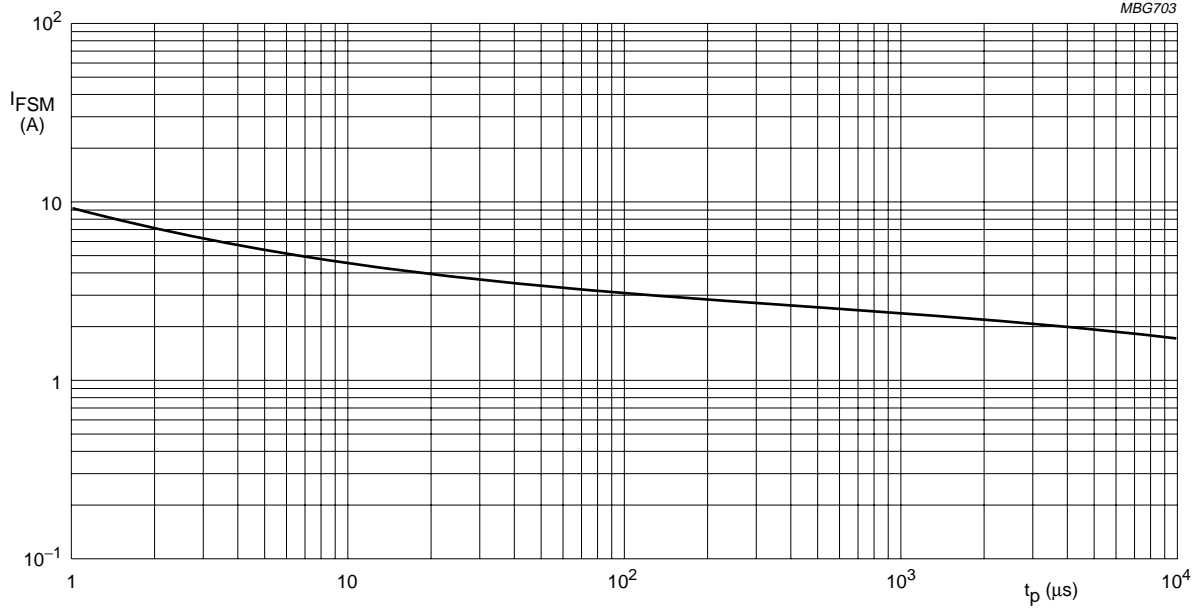
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GRAPHICAL DATA



High voltage switching diode

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Based on square wave currents.  
 $T_j = 25^\circ C$  prior to surge.

Fig.6 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

# High voltage switching diode

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## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD523

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

UNIT	A	bp	c	D	E	HE	v
mm	0.65	0.34	0.17	1.25	0.85	1.65	0.1
	0.58	0.26	0.11	1.15	0.75	1.55	

**Note**  
1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD523			SC-79			-98-11-25- 02-12-13

## High voltage switching diode

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## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	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.
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