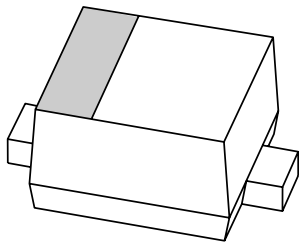


DATA SHEET



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

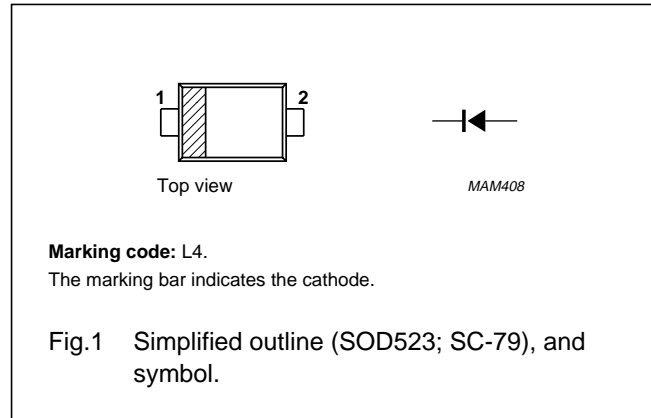
- High speed switching
- High voltage switching.

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



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

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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	μA
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

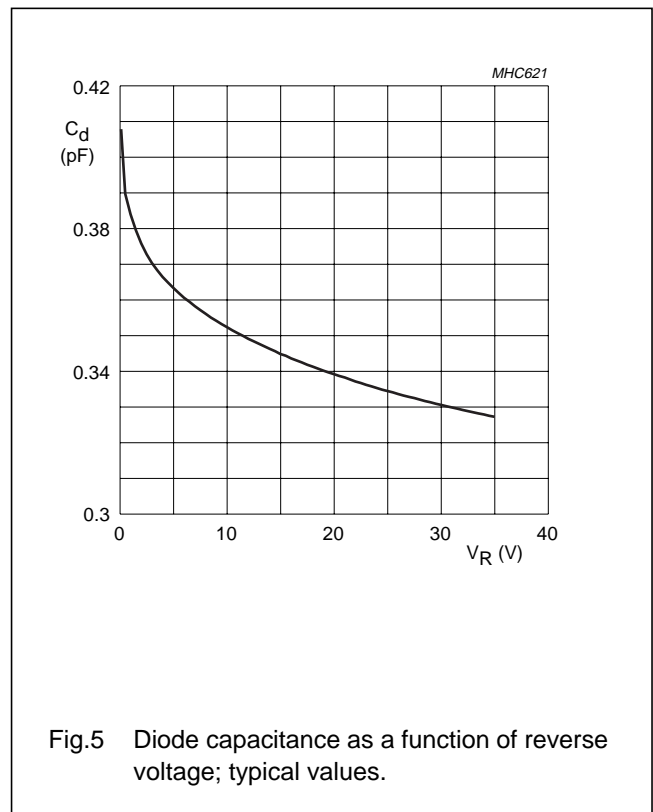
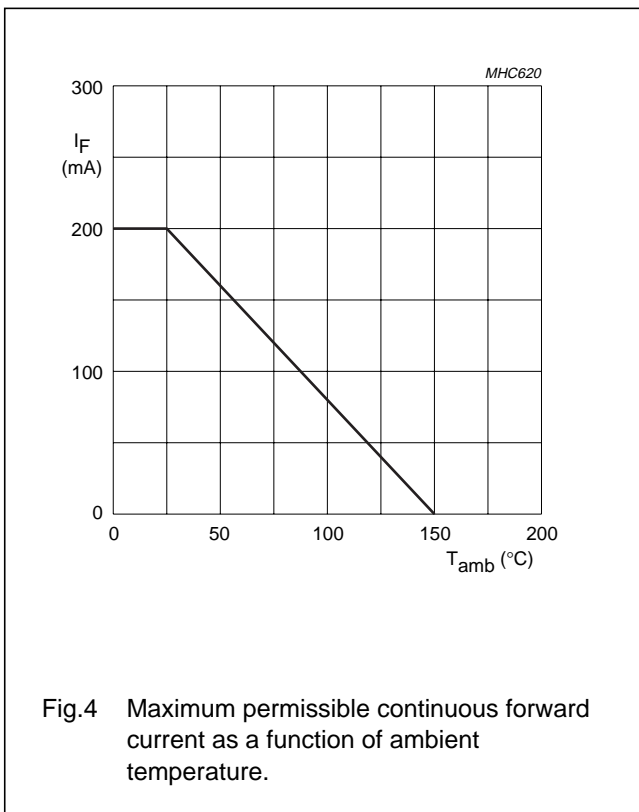
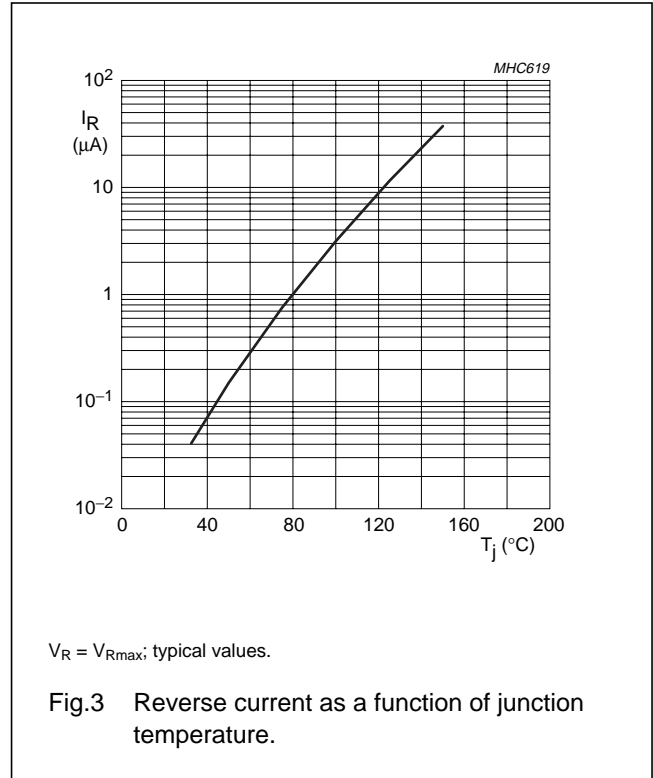
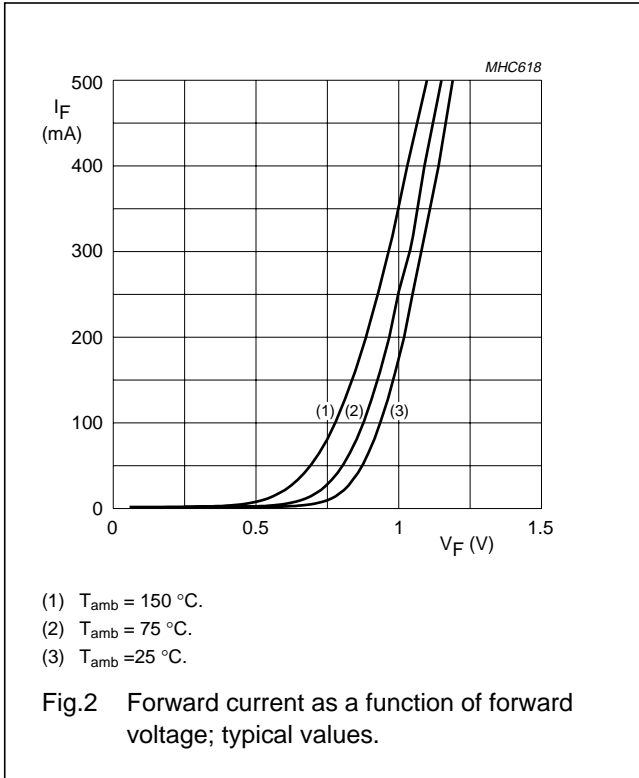
Notes

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

High voltage switching diode

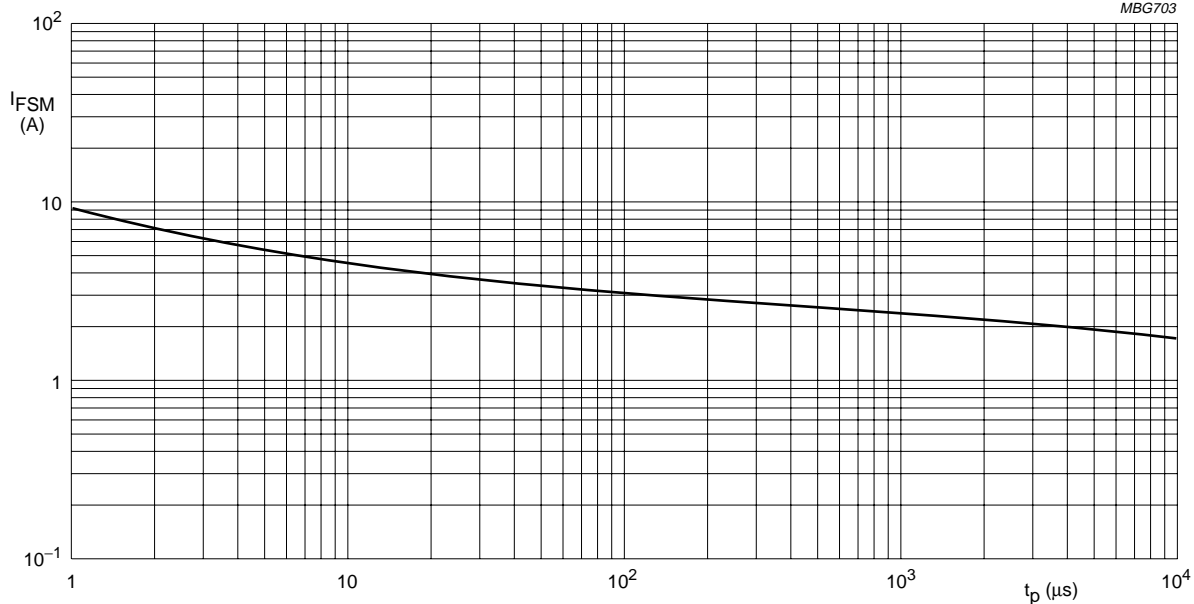
BAS521

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 ⁽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.
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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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