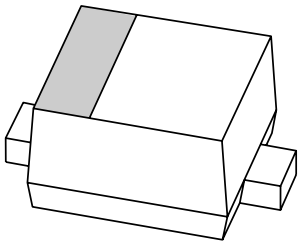
DATA SHEET



BAS521
High voltage switching diode

Product specification

2003 Aug 12

Philips
Semiconductors

PHILIPS

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

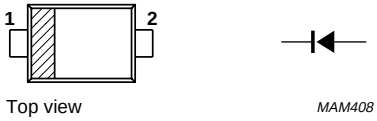
- High speed switching
- High voltage switching.

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



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	$T_s \leq 90$ °C; note 1	–	250	mA
I_{FRM}	repetitive peak forward current	$t_p = 1$ ms; $\delta = 0.25$	–	1	A
I_{FSM}	non-repetitive peak forward current	$t_p = 1$ µs; square wave; $T_j = 25$ °C prior to surge	–	4.5	A
P_{tot}	total power dissipation	$T_s \leq 90$ °C; note 1	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

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

ELECTRICAL CHARACTERISTICS

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

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

Note

1. Pulse test: t_p = 300 μs; δ = 0.02.

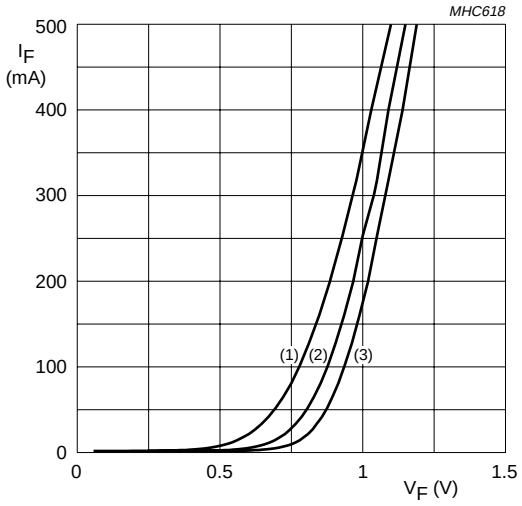
THERMAL CHARACTERISTICS

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

Notes

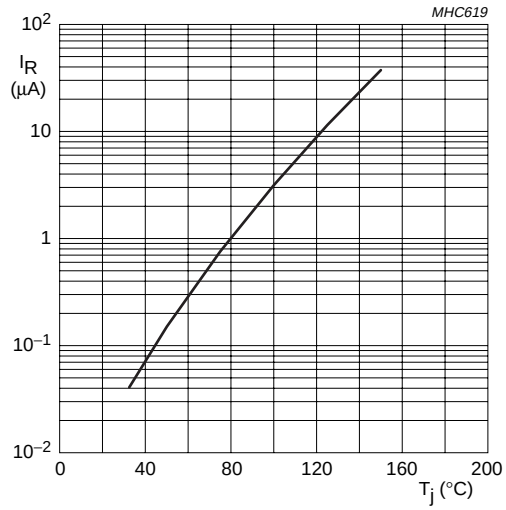
1. Soldering point of the cathode tab.
2. Refer to SOD523 (SC-79) standard mounting conditions.

GRAPHICAL DATA



(1) T_{amb} = 150 °C.
(2) T_{amb} = 75 °C.
(3) T_{amb} =25 °C.

Fig.2 Forward current as a function of forward voltage; typical values.



$V_R = V_{Rmax}$; typical values.

Fig.3 Reverse current as a function of junction temperature.

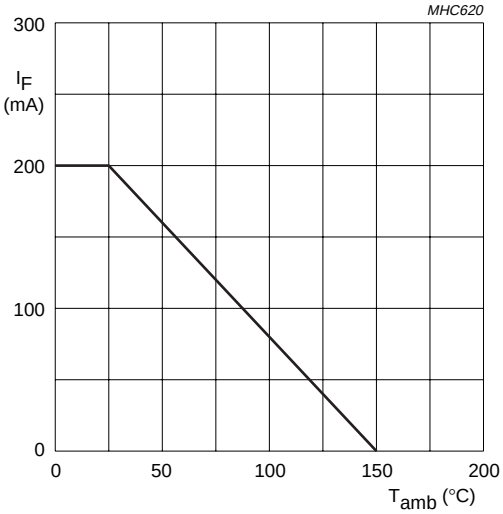


Fig.4 Maximum permissible continuous forward current as a function of ambient temperature.

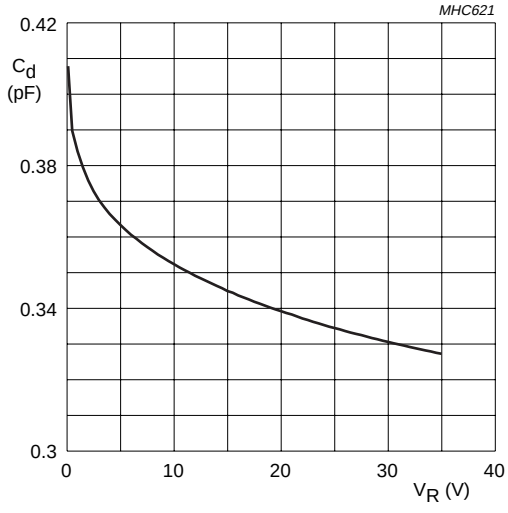
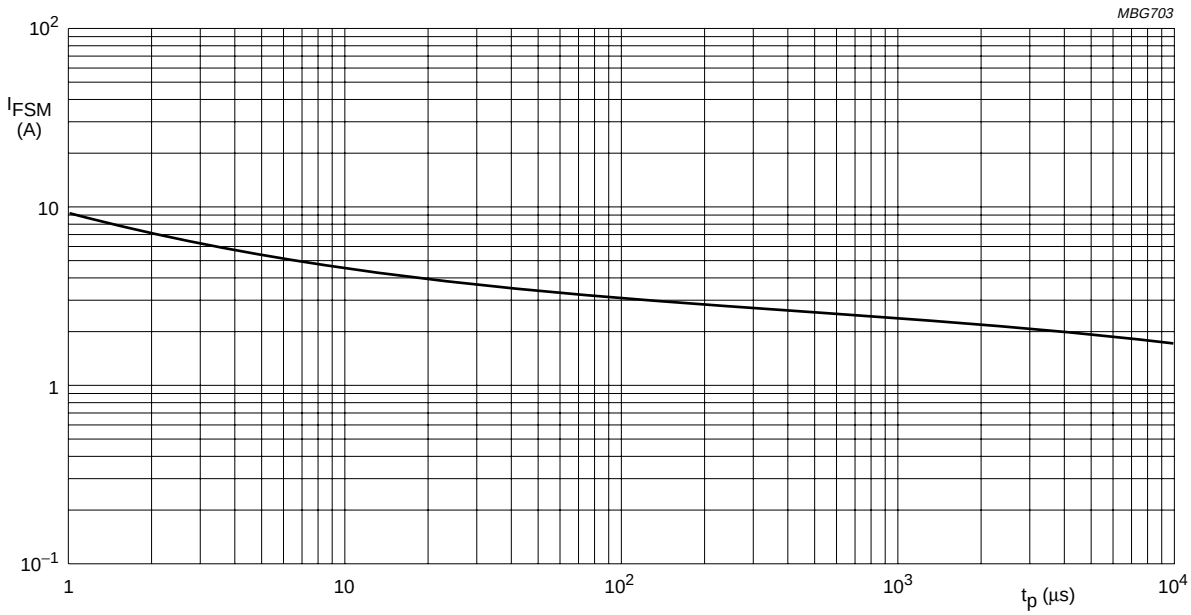


Fig.5 Diode capacitance as a function of reverse voltage; typical values.

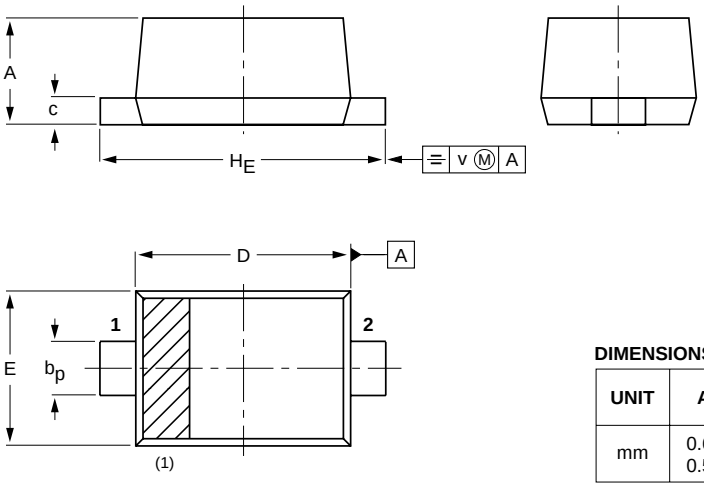


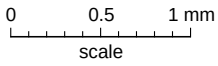
Based on square wave currents.
T_j = 25°C prior to surge.

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

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads **SOD523**





DIMENSIONS (mm are the original dimensions)

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

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

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