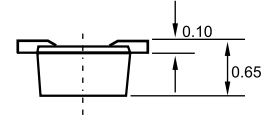
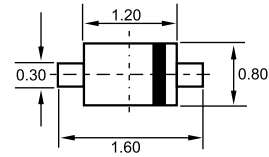


# BAS521

High voltage switching diode



## SOD-523



Dimensions in inches and (millimeters)

### 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.

**ELECTRICAL CHARACTERISTICS**
 $T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{BR}$	breakdown voltage	$I_R = 100\text{ }\mu\text{A}$	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
		$V_R = 250\text{ V}$ ; $T_a = 150\text{ }^{\circ}\text{C}$	–	40	100	$\mu\text{A}$
$t_{rr}$	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; 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**

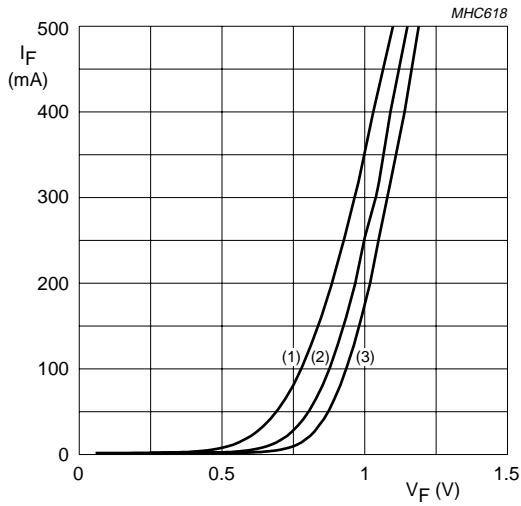
1. Pulse test:  $t_p = 300\text{ }\mu\text{s}$ ;  $\delta = 0.02$ .

**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

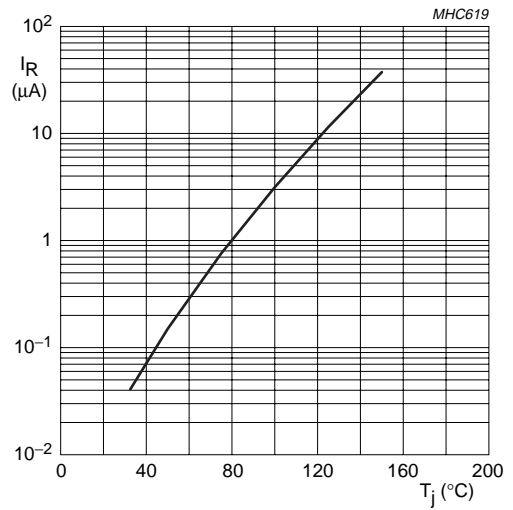
**Notes**

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

**GRAPHICAL DATA**


- (1)  $T_{amb} = 150\text{ }^{\circ}\text{C}$ .
- (2)  $T_{amb} = 75\text{ }^{\circ}\text{C}$ .
- (3)  $T_{amb} = 25\text{ }^{\circ}\text{C}$ .

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.

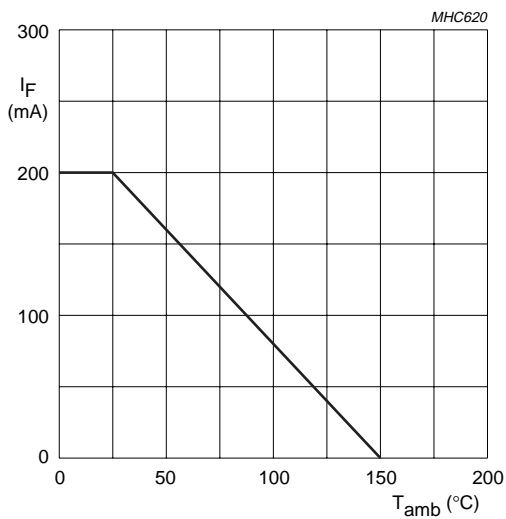


Fig.4 Maximum permissible continuous forward current as a function of ambient temperature.

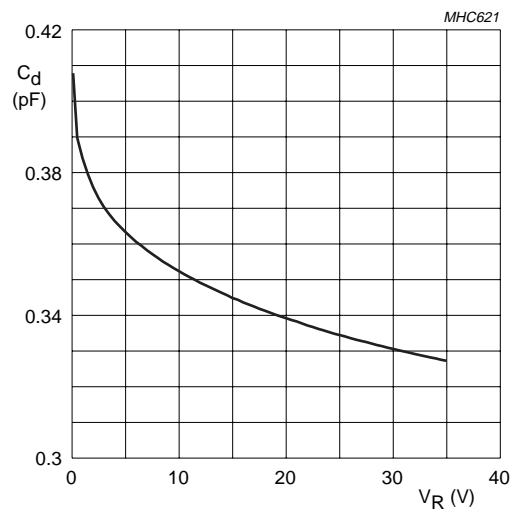
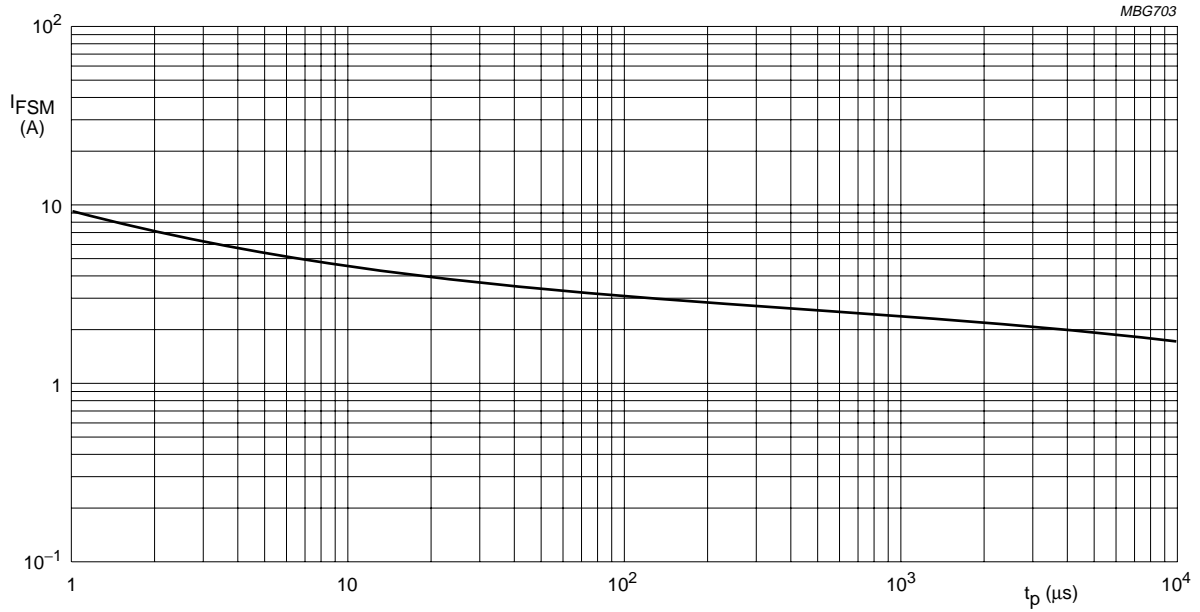


Fig.5 Diode capacitance as a function of reverse voltage; typical values.



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

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