

# DATA SHEET



**BAV23S**

General purpose double diode

Product specification  
Supersedes data of 1998 Jan 08

1999 May 05

# General purpose double diode

# BAV23S

### FEATURES

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 200 V
- Repetitive peak reverse voltage: max. 250 V
- Repetitive peak forward current: max. 625 mA.

### APPLICATIONS

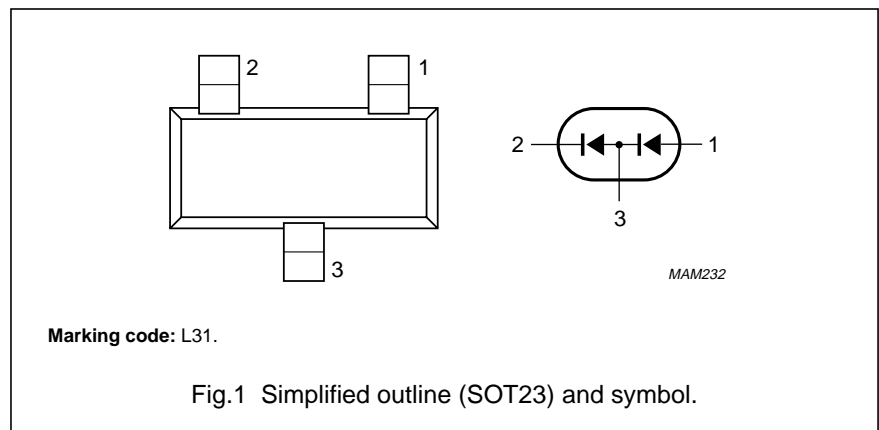
- General purpose where high breakdown voltages are required.

### DESCRIPTION

The BAV23S consists of two general purpose diodes connected in series fabricated in planar technology, and encapsulated in the small SOT23 plastic SMD package.

### PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	common connection



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	250	V
$V_{RRM}$	repetitive peak reverse voltage	series connection	–	500	V
$V_R$	continuous reverse voltage		–	200	V
$V_R$	continuous reverse voltage	series connection	–	400	V
$I_F$	continuous forward current	single diode loaded; note 1; see Fig.2	–	225	mA
		double diode loaded; note 1; see Fig.2	–	125	mA
$I_{FRM}$	repetitive peak forward current		–	625	mA
$I_{FSM}$	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\ \mu\text{s}$	–	9	A
		$t = 100\ \mu\text{s}$	–	3	A
		$t = 10\ \text{ms}$	–	1.7	A
$P_{tot}$	total power dissipation	$T_{amb} = 25\text{ °C}$ ; note 1	–	250	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C

### Note

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

## General purpose double diode

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**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
<b>Per diode</b>				
$V_F$	forward voltage	see Fig.3 $I_F = 100\text{ mA}$ $I_F = 200\text{ mA}$	1.0 1.25	V V
$V_F$	forward voltage	series connection; see Fig.3 $I_F = 100\text{ mA}$ $I_F = 200\text{ mA}$	2.0 2.5	V V
$I_R$	reverse current	see Fig.5 $V_R = 200\text{ V}$ $V_R = 200\text{ V}; T_j = 150\text{ °C}$	100 100	nA mA
$I_R$	reverse current	series connection $V_R = 400\text{ V}$ $V_R = 400\text{ V}; T_j = 150\text{ °C}$	100 100	nA mA
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	5	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}; R_L = 100\text{ }\Omega$ ; measured at $I_R = 3\text{ mA}$ ; see Fig.7	50	ns

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

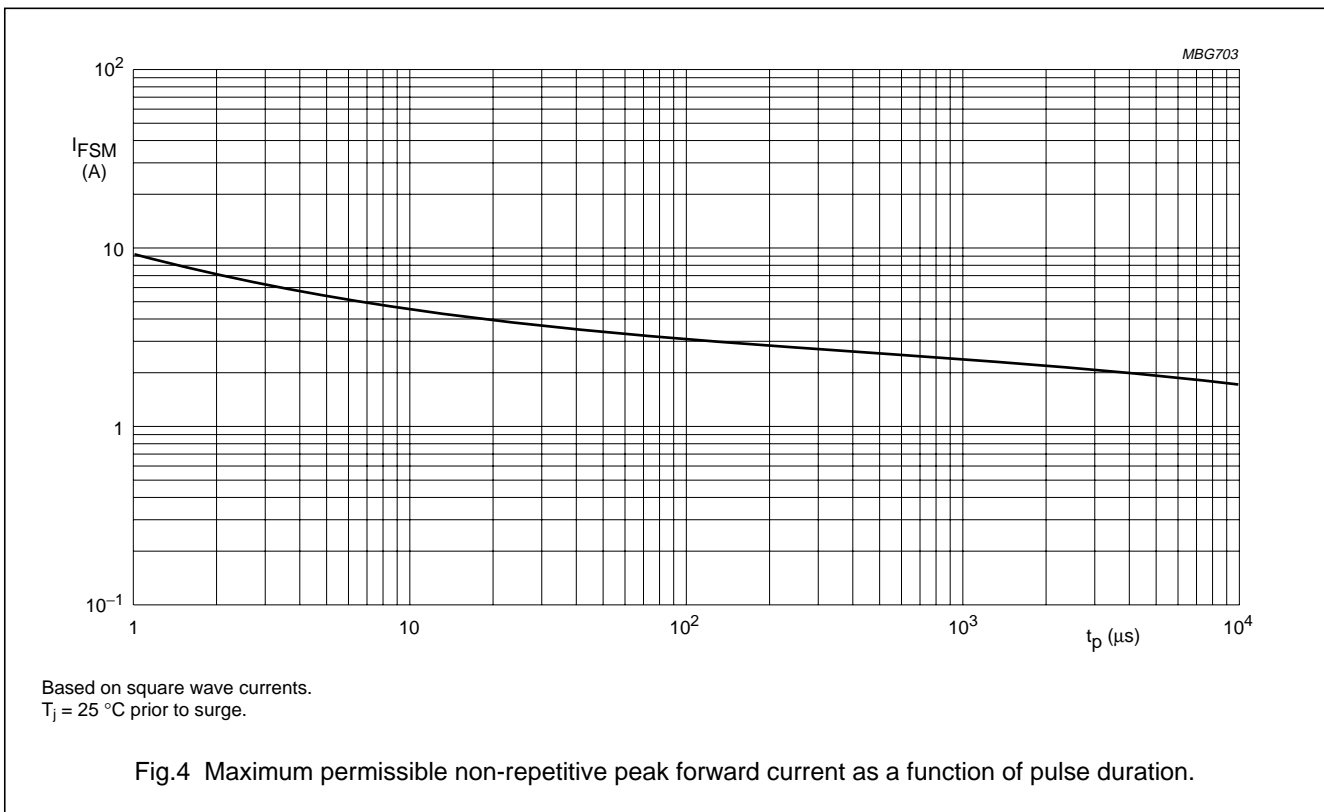
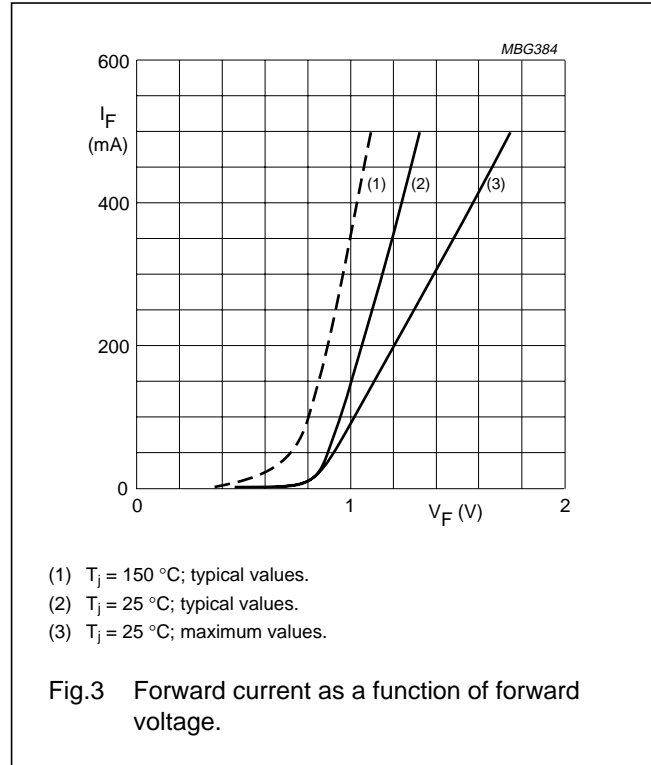
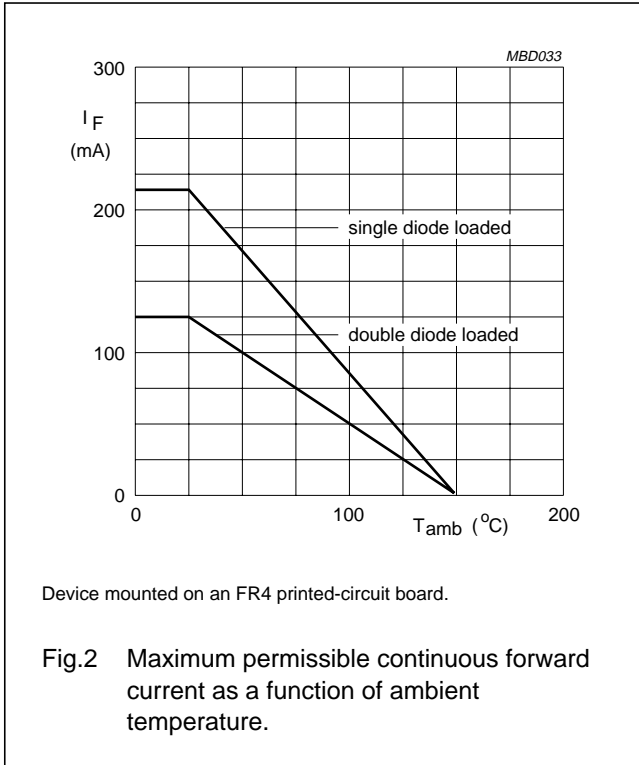
**Note**

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

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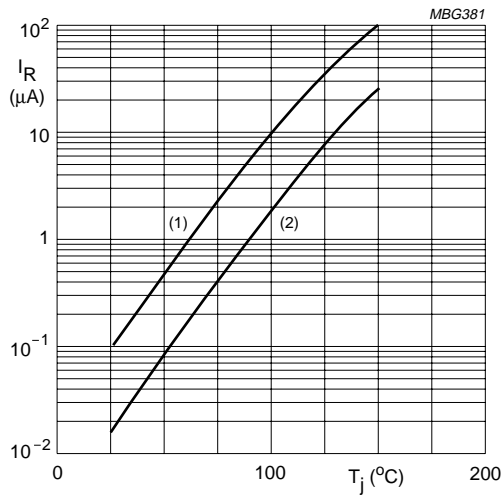
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GRAPHICAL DATA



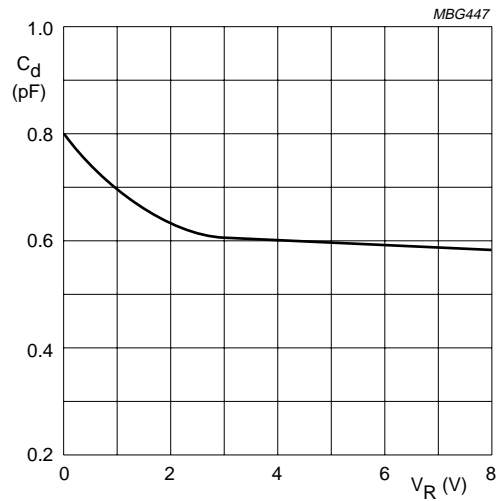
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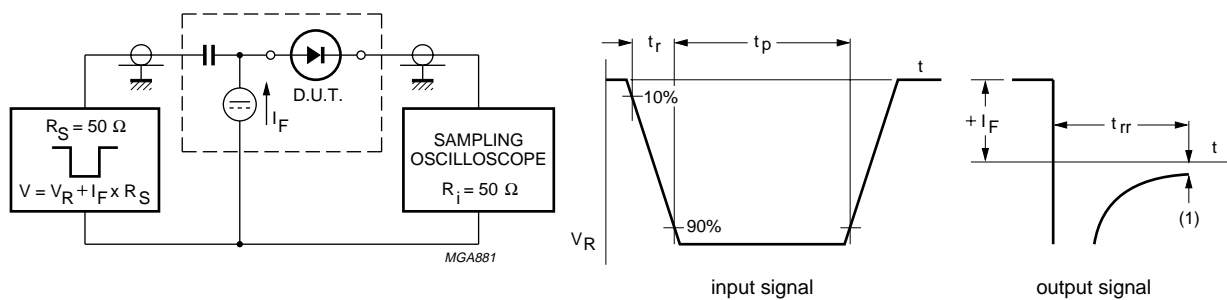
- (1)  $V_R = 200$  V; maximum values.
- (2)  $V_R = 200$  V; typical values.

Fig.5 Reverse current as a function of junction temperature.



$f = 1$  MHz;  $T_j = 25$  °C.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.



- (1)  $I_R = 3$  mA.

Fig.7 Reverse recovery voltage test circuit and waveforms.

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23						97-02-28

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**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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Printed in The Netherlands

115002/00/04/pp8

Date of release: 1999 May 05

Document order number: 9397 750 05935

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