

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

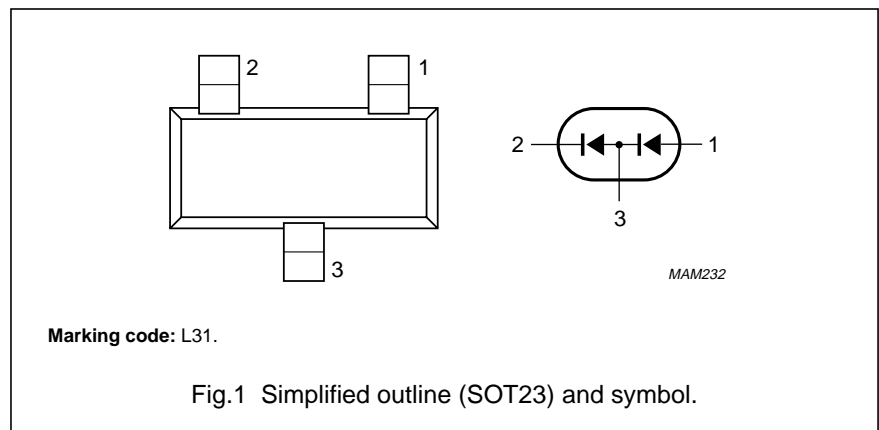
- General purpose where high breakdown voltages are required.

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
Per diode					
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.

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
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

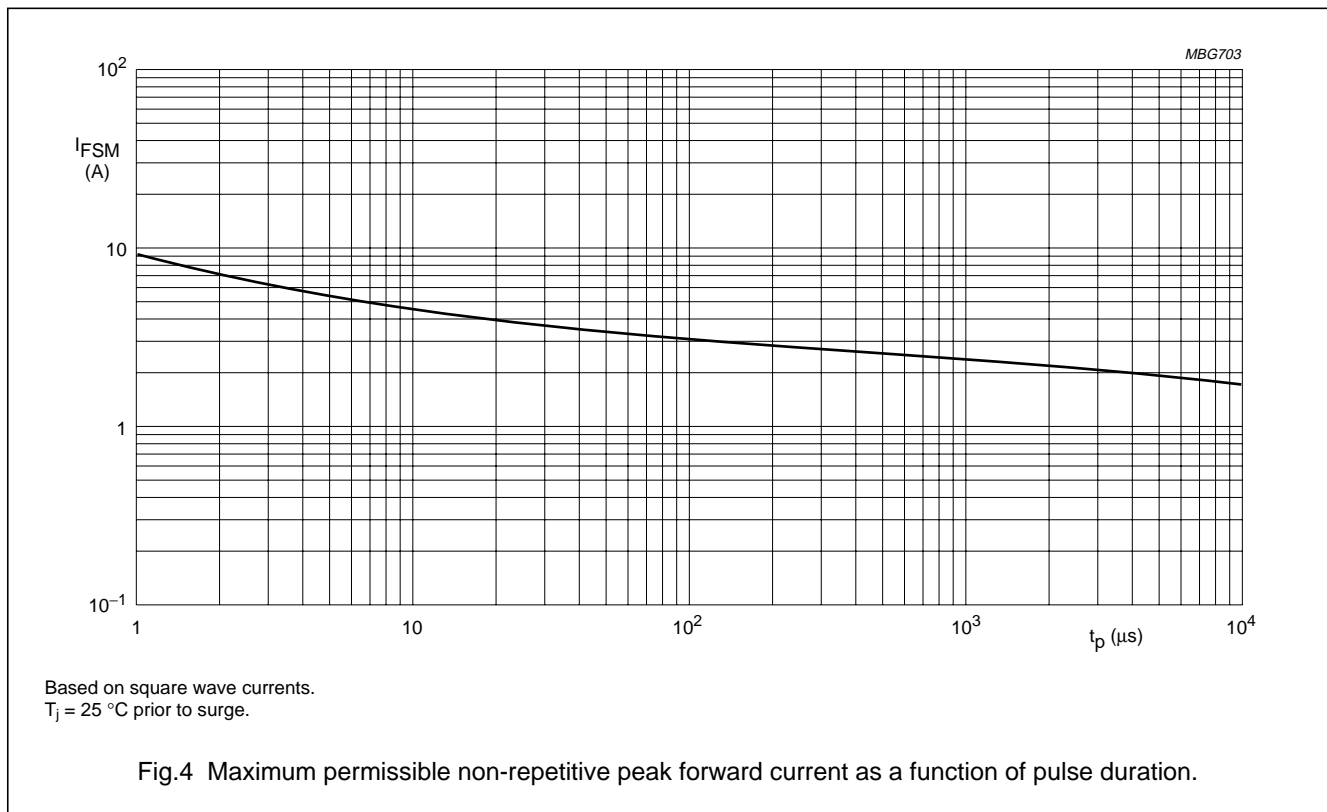
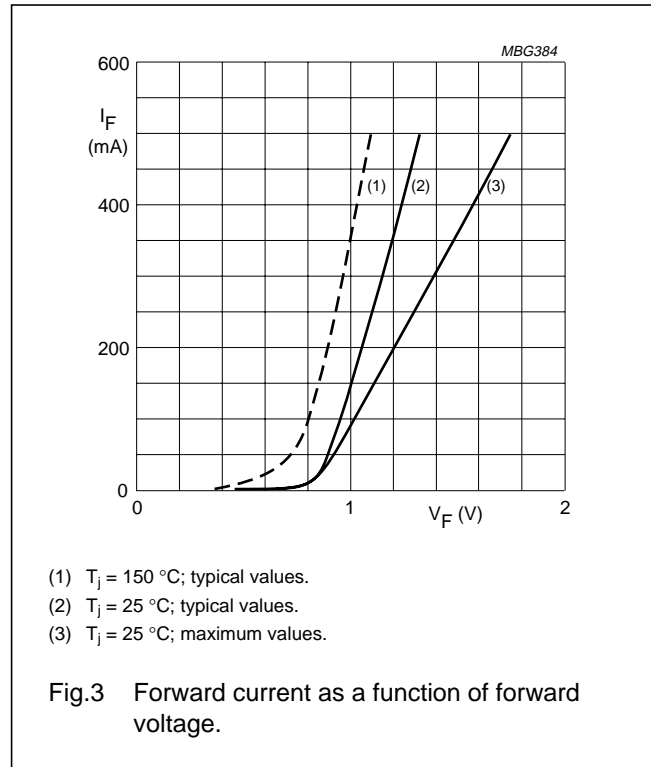
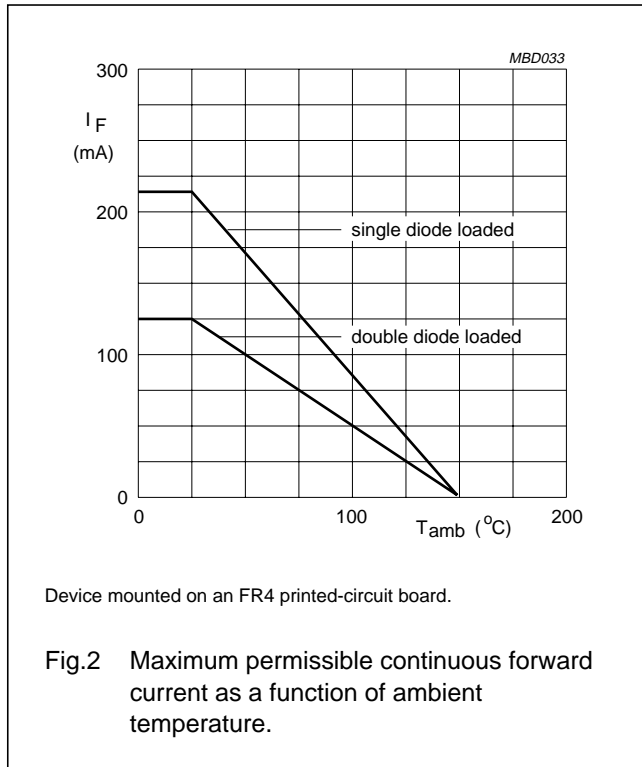
Note

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

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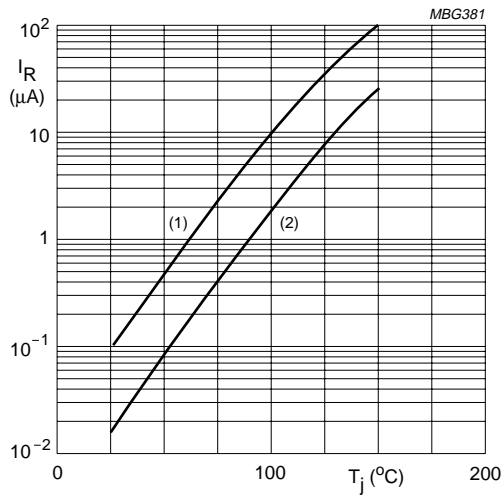
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GRAPHICAL DATA



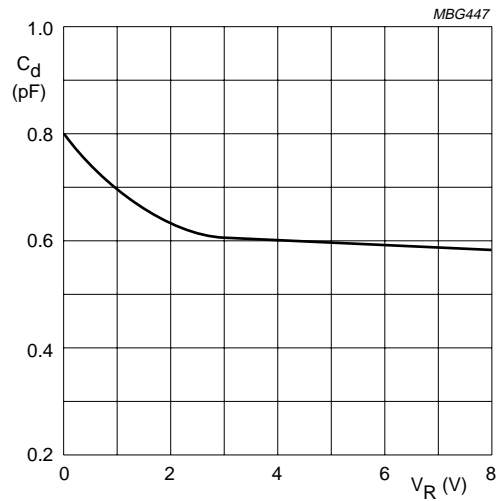
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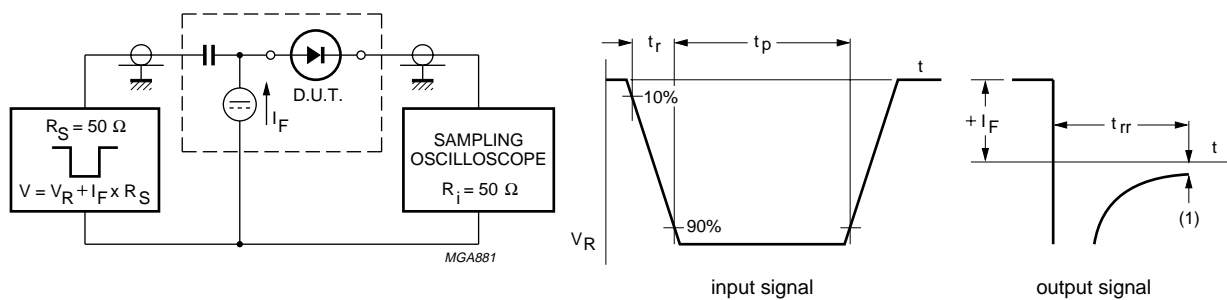
- (1) $V_R = 200$ V; maximum values.
- (2) $V_R = 200$ V; typical values.

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 ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	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

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

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