DISCRETE SEMICONDUCTORS



Product specification Supersedes data of 1999 May 11 2001 Oct 15



MARKING

Note

TYPE NUMBER

BAV99

1. * = p: Made in Hong Kong.

* = t: Made in Malaysia.

* = W: Made in China.

FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 450 mA.

APPLICATIONS

• High-speed switching in thick and thin-film circuits.

DESCRIPTION

The BAV99 consists of two high-speed switching diodes connected in series, fabricated in planar technology, and encapsulated in the small SOT23 plastic SMD package.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode			•	•	•
V _{RRM}	repetitive peak reverse voltage		-	85	V
V _R	continuous reverse voltage		-	75	V
l _F	continuous forward current	single diode loaded; see Fig.2; note 1	-	215	mA
		double diode loaded; see Fig.2; note 1	-	125	mA
I _{FRM}	repetitive peak forward current		-	450	mA
I _{FSM}	non-repetitive peak forward current	square wave; T _j = 25 °C prior to surge; see Fig.4			
		t = 1 μs	-	4	A
		t = 1 ms	-	1	A
		t = 1 s	-	0.5	A
P _{tot}	total power dissipation	T _{amb} = 25 °C; note 1	-	250	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-	150	°C

2

Note

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

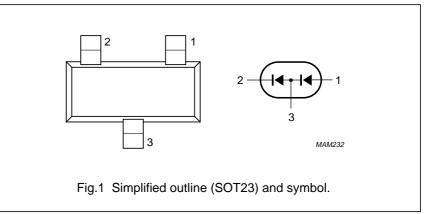
PINNING

MARKING

CODE⁽¹⁾

A7*

PIN	DESCRIPTION	
1	anode	
2	cathode	
3	common connection	



BAV99

BAV99

ELECTRICAL CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V _F	forward voltage	see Fig.3		
		I _F = 1 mA	715	mV
		I _F = 10 mA	855	mV
		I _F = 50 mA	1	V
		I _F = 150 mA	1.25	V
I _R	reverse current	see Fig.5		
		V _R = 25 V	30	nA
		V _R = 75 V	1	μA
		V _R = 25 V; T _j = 150 °C	30	μA
		V _R = 75 V; T _j = 150 °C	50	μA
C _d	diode capacitance	$f = 1 \text{ MHz}; V_R = 0; \text{ see Fig.6}$	1.5	pF
t _{rr}	reverse recovery time	when switched from $I_F = 10$ mA to	4	ns
		$I_R = 10 \text{ mA}; R_L = 100 \Omega;$ measured		
		at I _R = 1 mA; see Fig.7		
V _{fr}	forward recovery voltage	when switched from $I_F = 10 \text{ mA}$;	1.75	V
		t _r = 20 ns; see Fig.8		

THERMAL CHARACTERISTICS

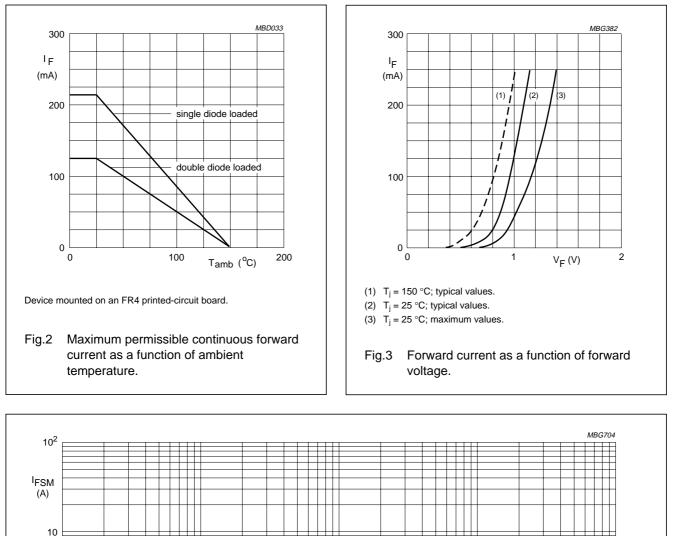
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-tp}	thermal resistance from junction to tie-point		360	K/W
R _{th j-a}	thermal resistance from junction to ambient	note 1	500	K/W

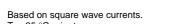
Note

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

BAV99

GRAPHICAL DATA





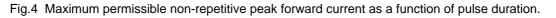
10

 $T_j = 25 \ ^\circ C$ prior to surge.

1

 10^{-1}

1



10²

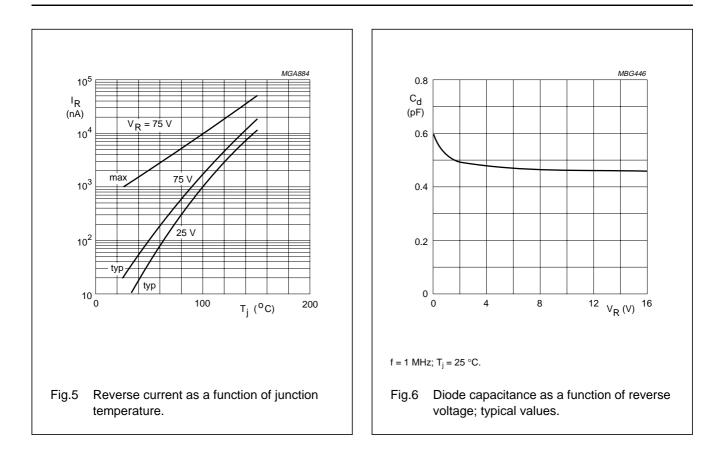
10³

10⁴

t_p (μs)

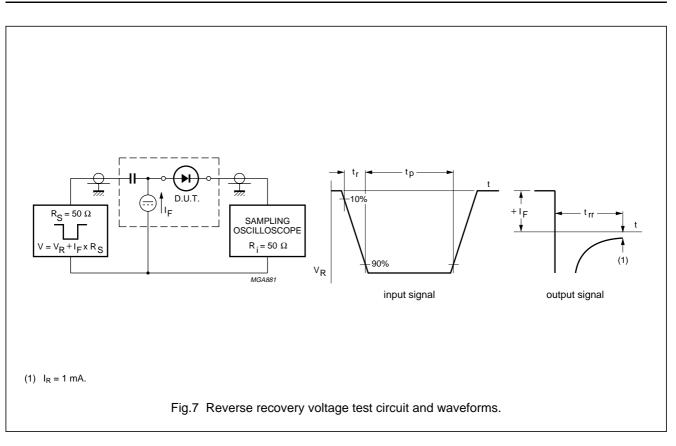
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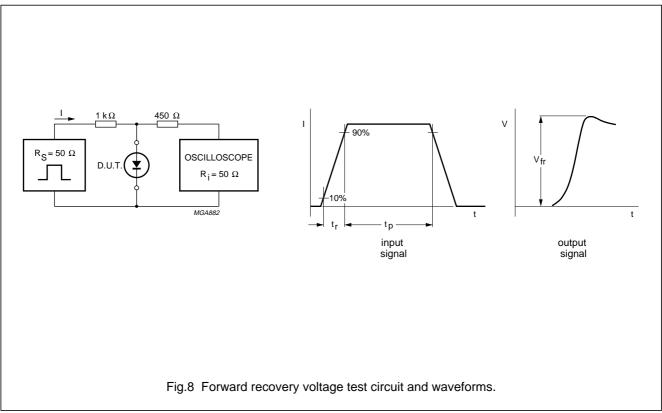
High-speed double diode



2001 Oct 15

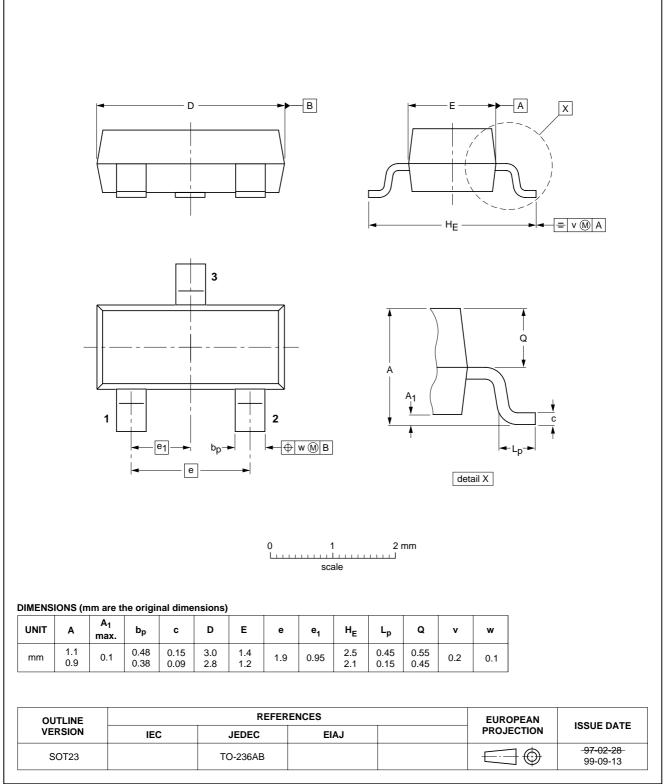
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PACKAGE OUTLINE





BAV99

SOT23

BAV99

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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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Notes

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- 2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.

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Printed in The Netherlands

613514/04/pp**12**

Date of release: 2001 Oct 15

Document order number: 9397 750 08767

SCA73

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