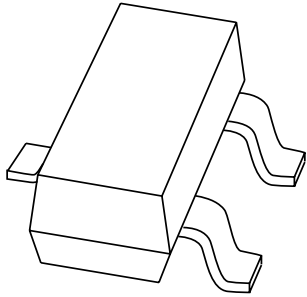


# DATA SHEET



## **BAV99** High-speed double diode

Product specification  
Supersedes data of 1999 May 11

2001 Oct 15

# High-speed double diode

# BAV99

### 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.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BAV99	A7*

#### Note

1. \* = p: Made in Hong Kong.  
\* = t: Made in Malaysia.  
\* = W: Made in China.

### PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	common connection

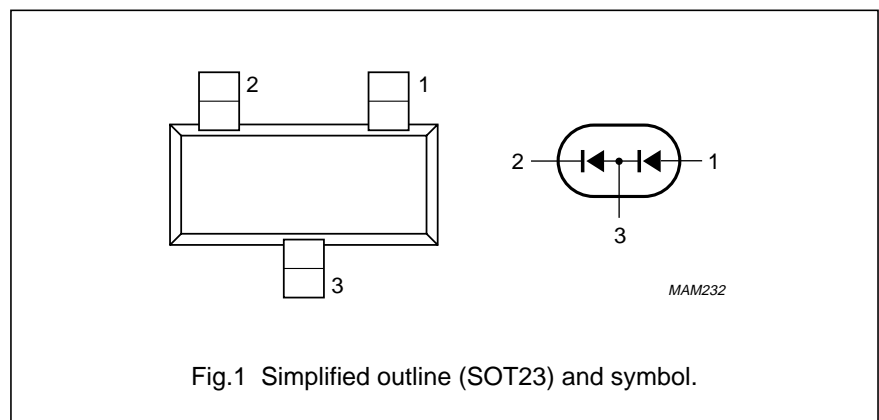


Fig.1 Simplified outline (SOT23) and symbol.

### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	85	V
$V_R$	continuous reverse voltage		–	75	V
$I_F$	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; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\ \mu\text{s}$	–	4	A
		$t = 1\ \text{ms}$	–	1	A
		$t = 1\ \text{s}$	–	0.5	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.

## High-speed double diode

BAV99

**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		
		$I_F = 1\text{ mA}$	715	mV
		$I_F = 10\text{ mA}$	855	mV
		$I_F = 50\text{ mA}$	1	V
$I_R$	reverse current	$I_F = 150\text{ mA}$	1.25	V
		see Fig.5		
		$V_R = 25\text{ V}$	30	nA
		$V_R = 75\text{ V}$	1	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 25\text{ V}; T_j = 150\text{ °C}$	30	$\mu\text{A}$
		$V_R = 75\text{ V}; T_j = 150\text{ °C}$	50	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	1.5	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ ; $R_L = 100\ \Omega$ ; measured at $I_R = 1\text{ mA}$ ; see Fig.7	4	ns
$V_{fr}$	forward recovery voltage	when switched from $I_F = 10\text{ mA}$ ; $t_r = 20\text{ ns}$ ; see Fig.8	1.75	V

**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

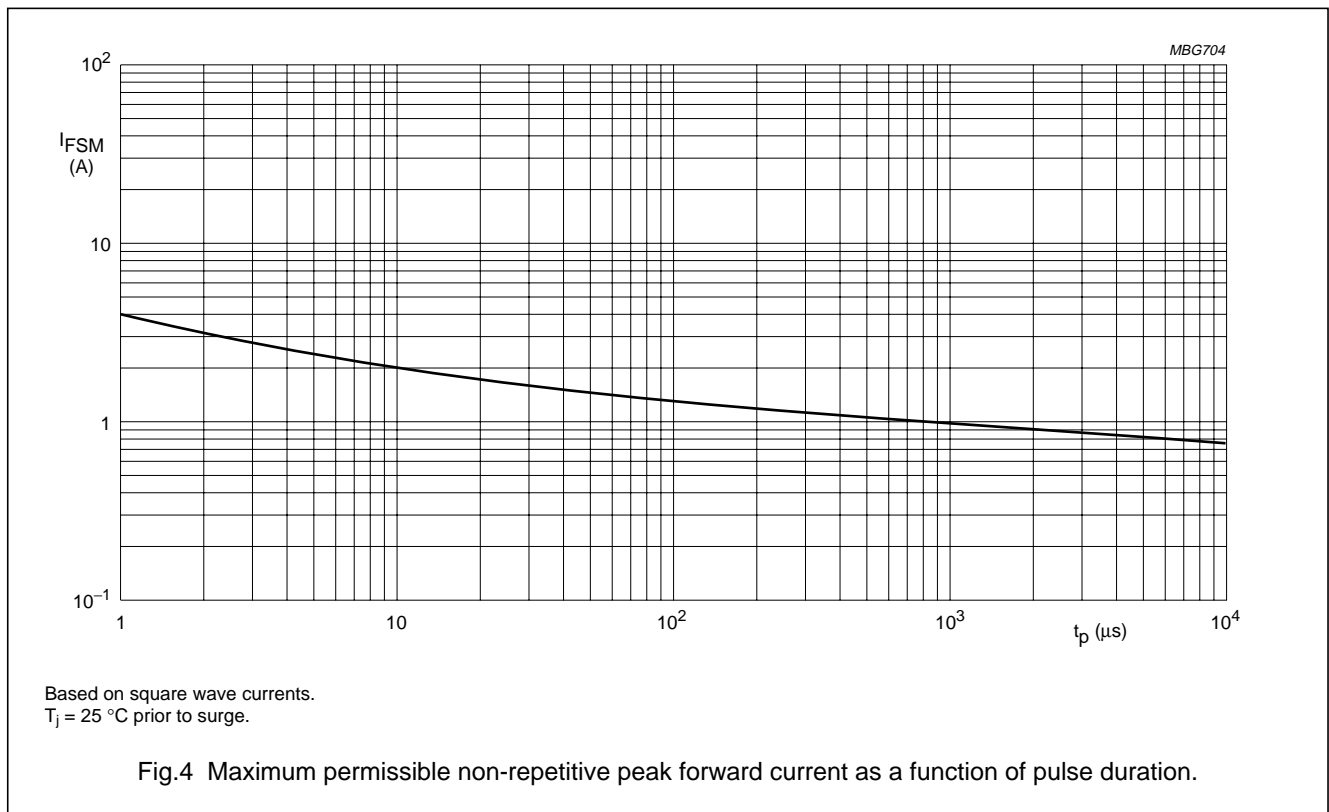
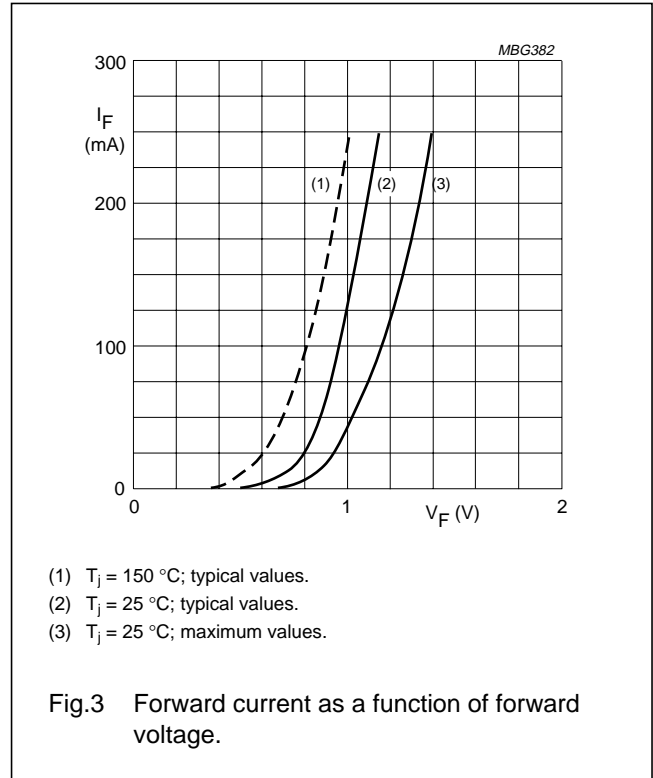
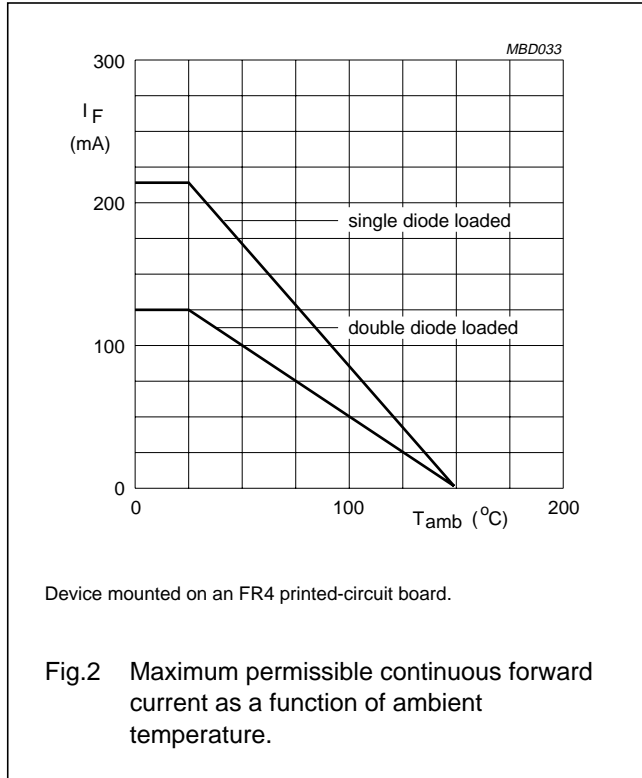
**Note**

- Device mounted on an FR4 printed-circuit board.

High-speed double diode

BAV99

GRAPHICAL DATA



High-speed double diode

BAV99

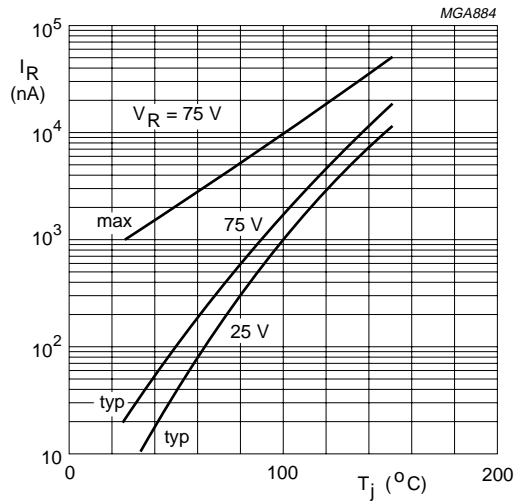
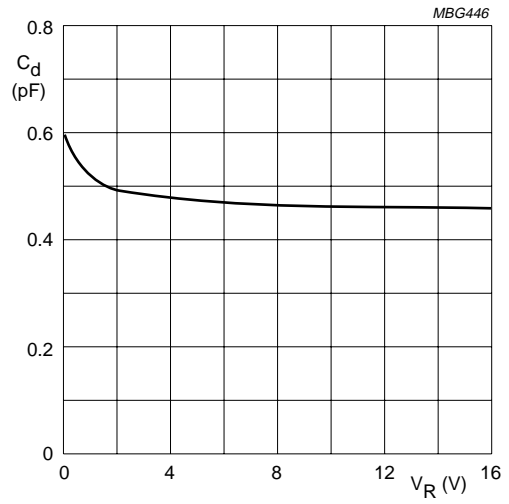


Fig.5 Reverse current as a function of junction temperature.

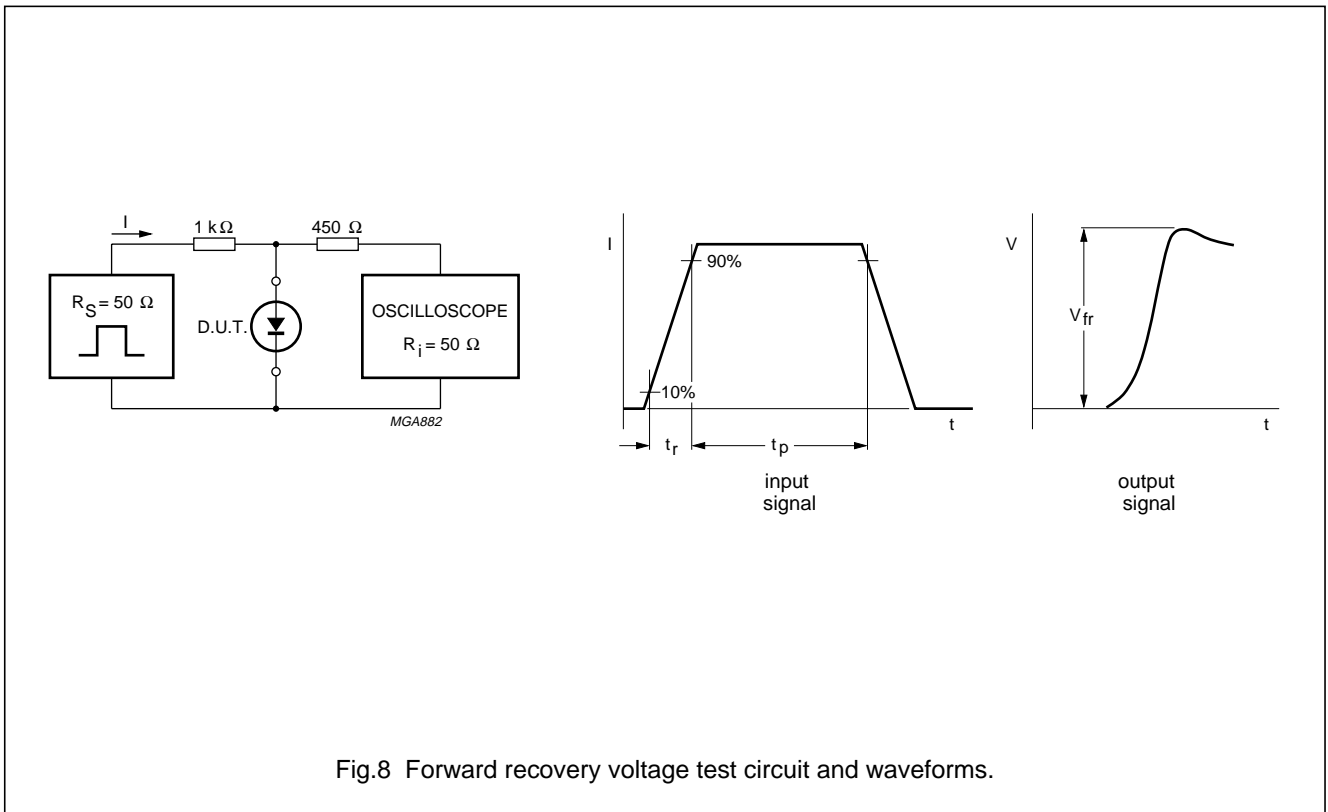
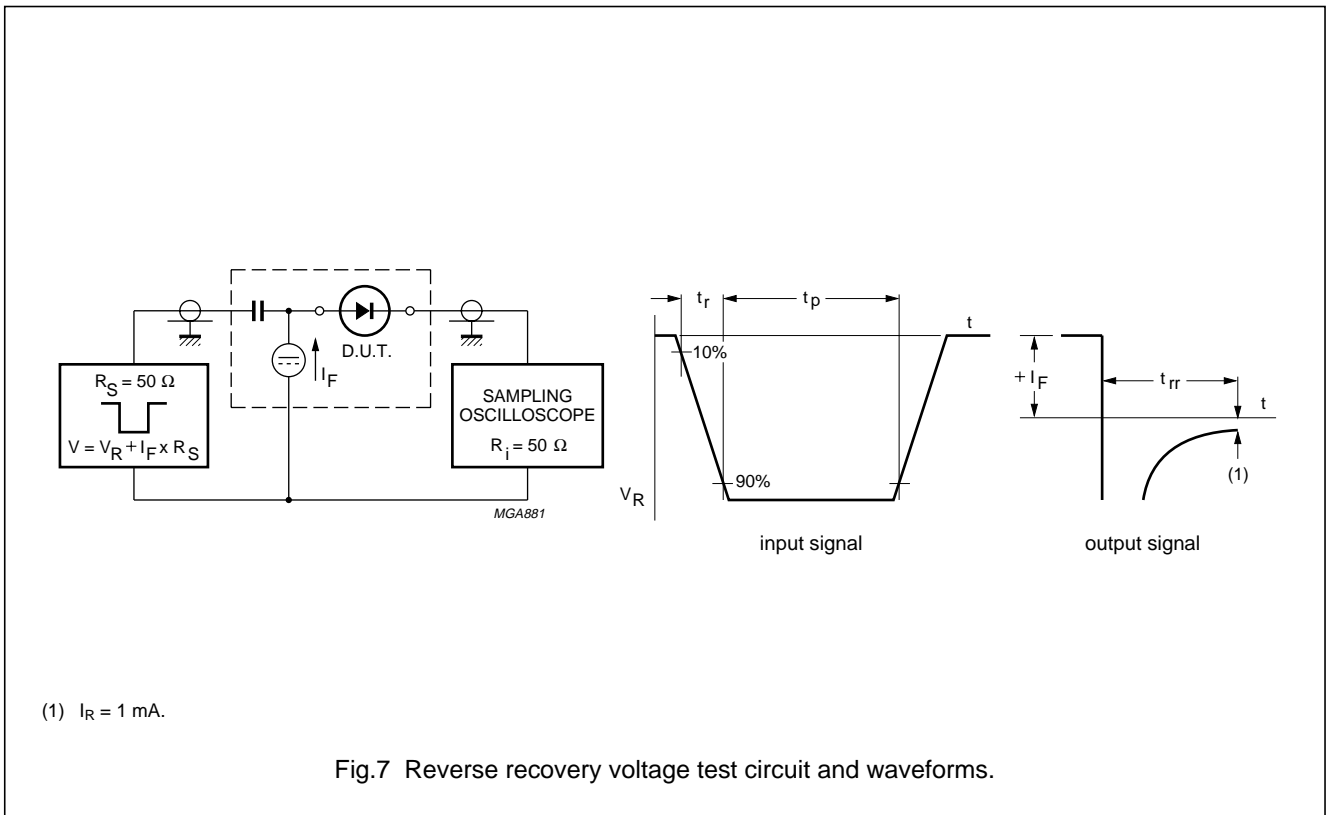


$f = 1$  MHz;  $T_j = 25$  °C.

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

High-speed double diode

BAV99



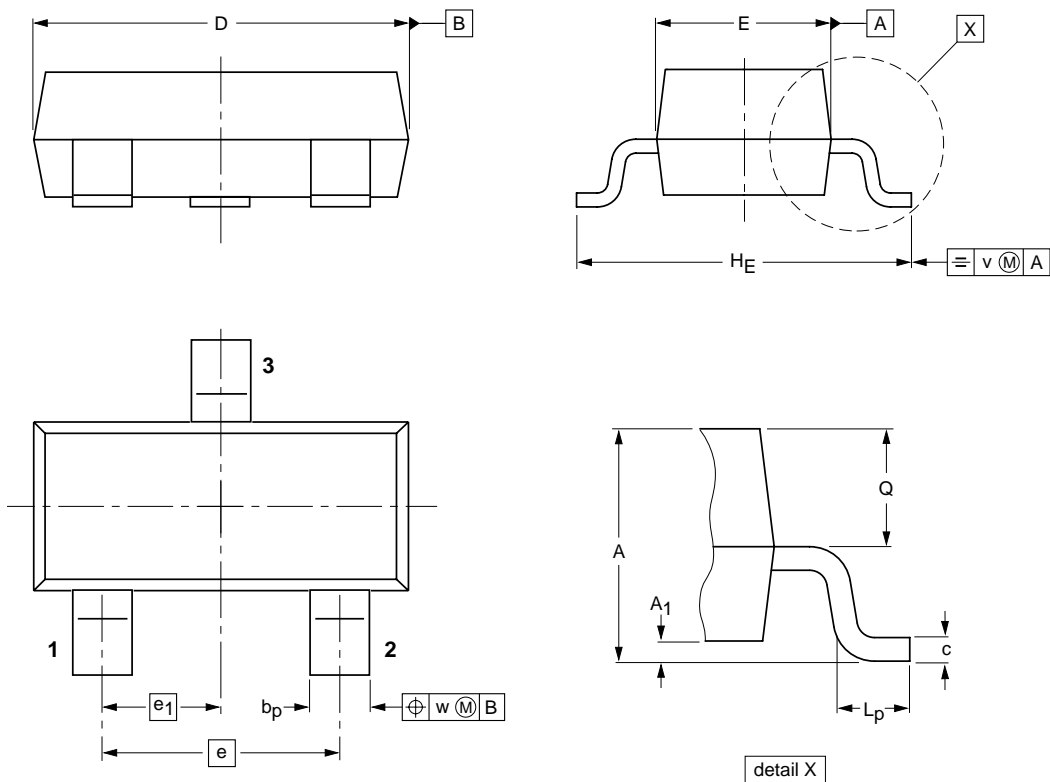
# High-speed double diode

BAV99

## 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		TO-236AB			97-02-28 99-09-13

## High-speed double diode

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BAV99

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**NOTES**

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**NOTES**

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