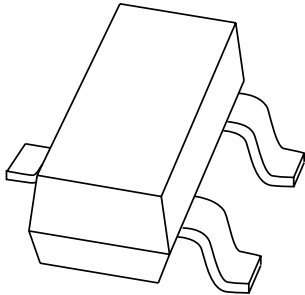


DATA SHEET



BAV199

Low-leakage double diode

Product specification
Supersedes data of 1999 May 11

2001 Oct 12

Low-leakage double diode

BAV199

FEATURES

- Plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8 μ s
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

APPLICATION

- Low-leakage current applications in surface mounted circuits.

DESCRIPTION

Epitaxial, medium-speed switching, double diode in a small SOT23 plastic SMD package. The diodes are connected in series.

MARKING

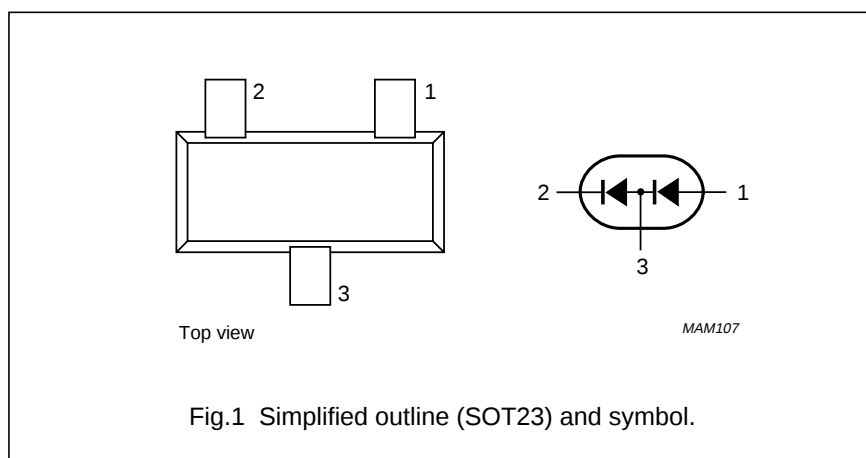
TYPE NUMBER	MARKING CODE ⁽¹⁾
BAV199	JY*

Note

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

PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	anode; cathode



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
I_F	continuous forward current	single diode loaded; note 1; see Fig.2	—	160	mA
		double diode loaded; note 1; see Fig.2	—	140	mA
I_{FRM}	repetitive peak forward current		—	500	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25^\circ\text{C}$ prior to surge; see Fig.4			
		$t_p = 1\ \mu\text{s}$	—	4	A
		$t_p = 1\ \text{ms}$	—	1	A
		$t_p = 1\ \text{s}$	—	0.5	A
P_{tot}	total power dissipation	$T_{amb} = 25^\circ\text{C}$; note 1	—	250	mW
T_{stg}	storage temperature		−65	+150	$^\circ\text{C}$
T_j	junction temperature		—	150	$^\circ\text{C}$

Note

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

Low-leakage double diode

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
Per diode					
V_F	forward voltage	see Fig.3 $I_F = 1\text{ mA}$	—	900	mV
		$I_F = 10\text{ mA}$	—	1000	mV
		$I_F = 50\text{ mA}$	—	1100	mV
		$I_F = 150\text{ mA}$	—	1250	mV
I_R	reverse current	see Fig.5 $V_R = 75\text{ V}$	0.003	5	nA
		$V_R = 75\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	3	80	nA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.6	2	—	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	0.8	3	μs

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

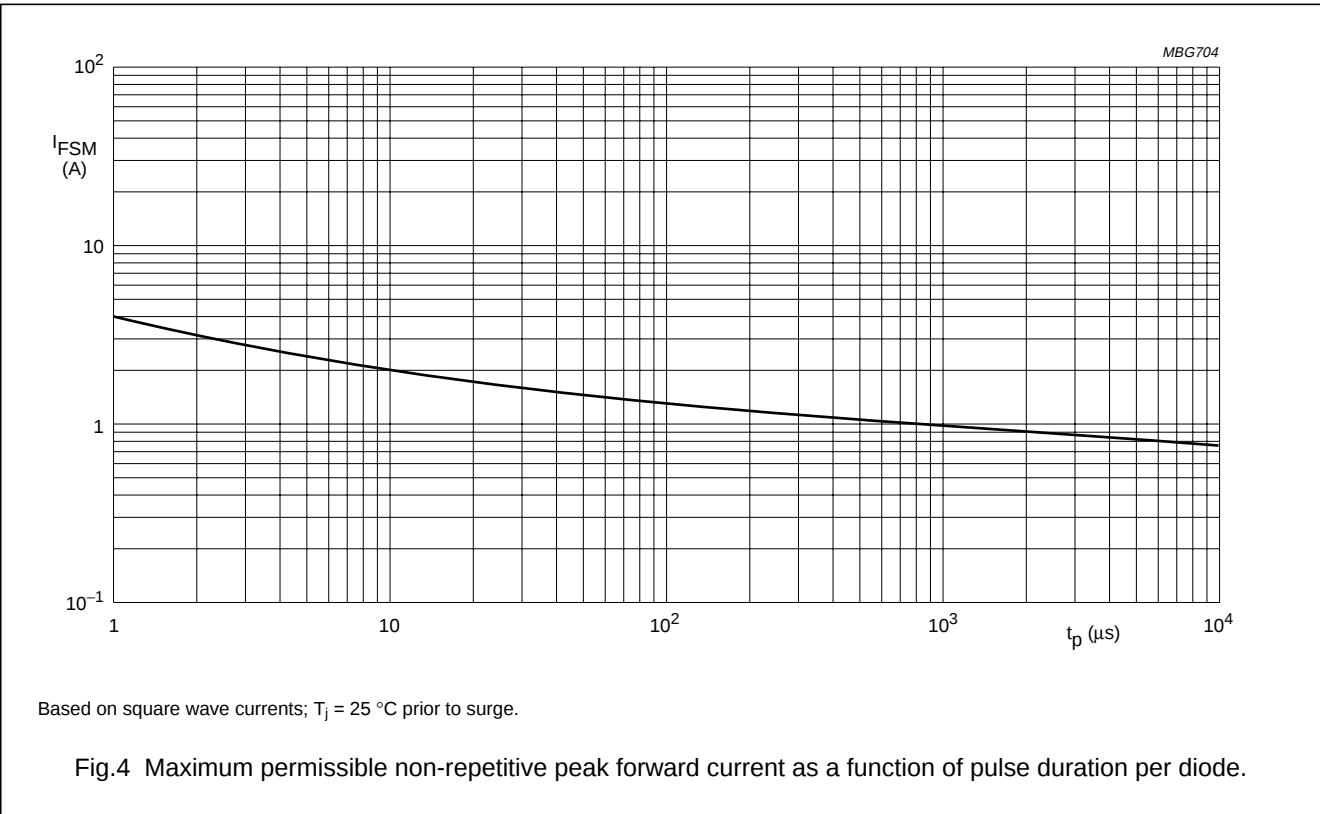
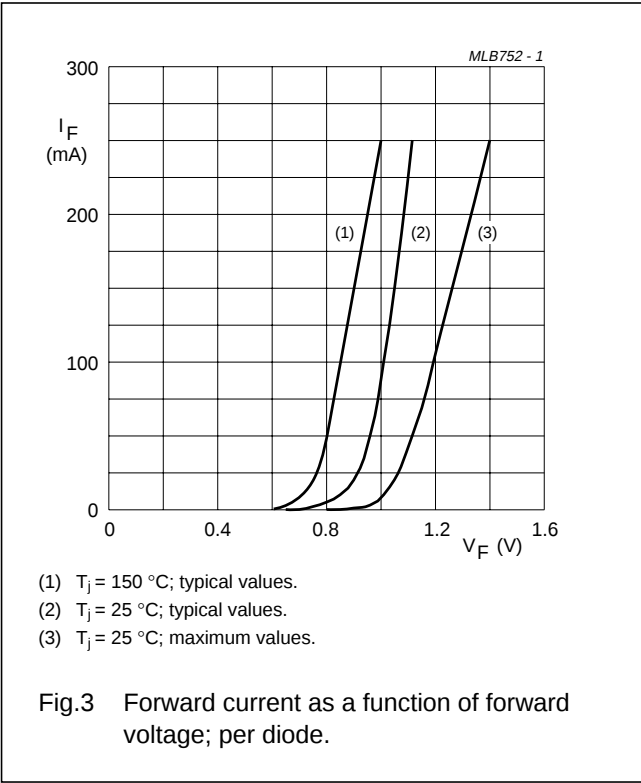
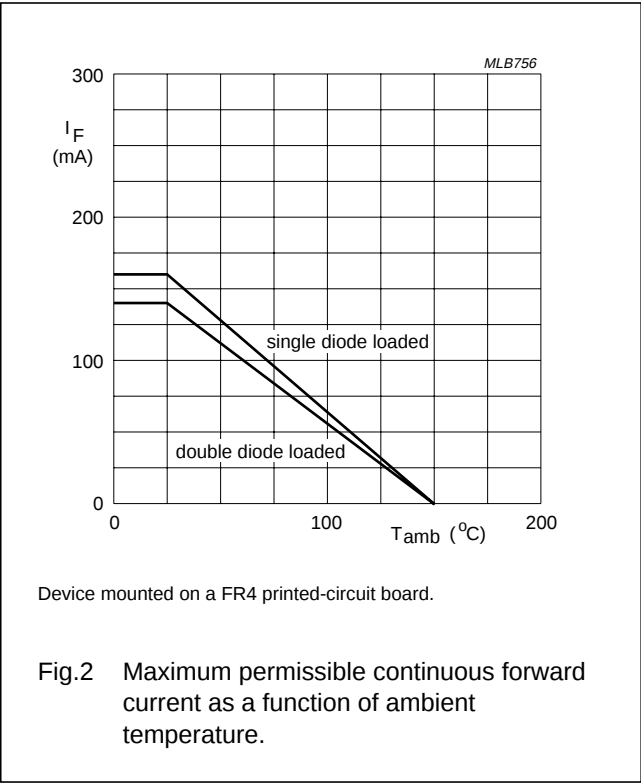
Note

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

Low-leakage double diode

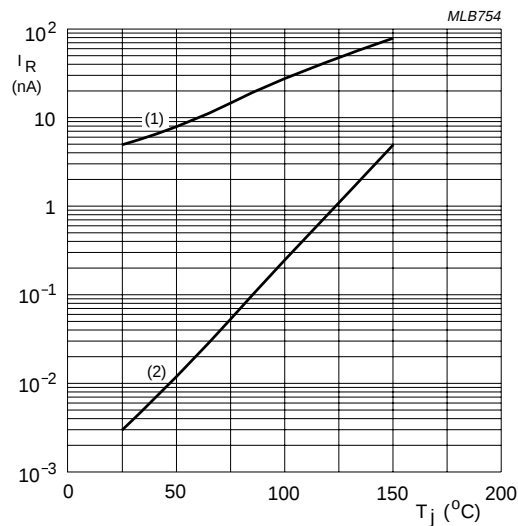
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GRAPHICAL DATA



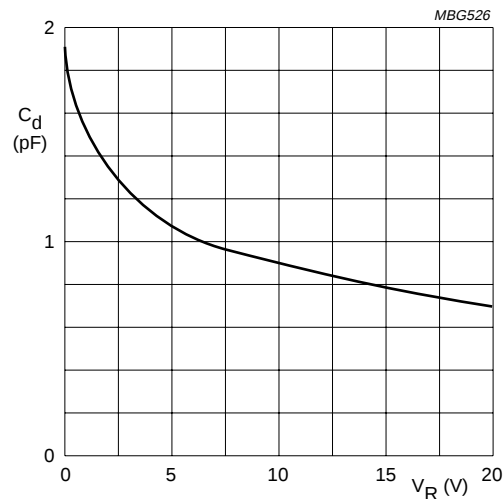
Low-leakage double diode

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$V_R = 75\text{ V}$.
(1) Maximum values.
(2) Typical values.

Fig.5 Reverse current as a function of junction temperature; per diode.



$f = 1\text{ MHz}$; $T_j = 25\text{ }^{\circ}\text{C}$.

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

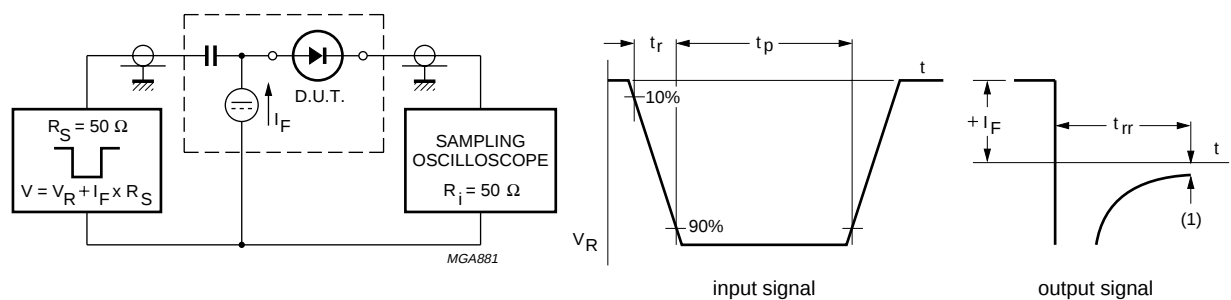


Fig.7 Reverse recovery time test circuit and waveforms.

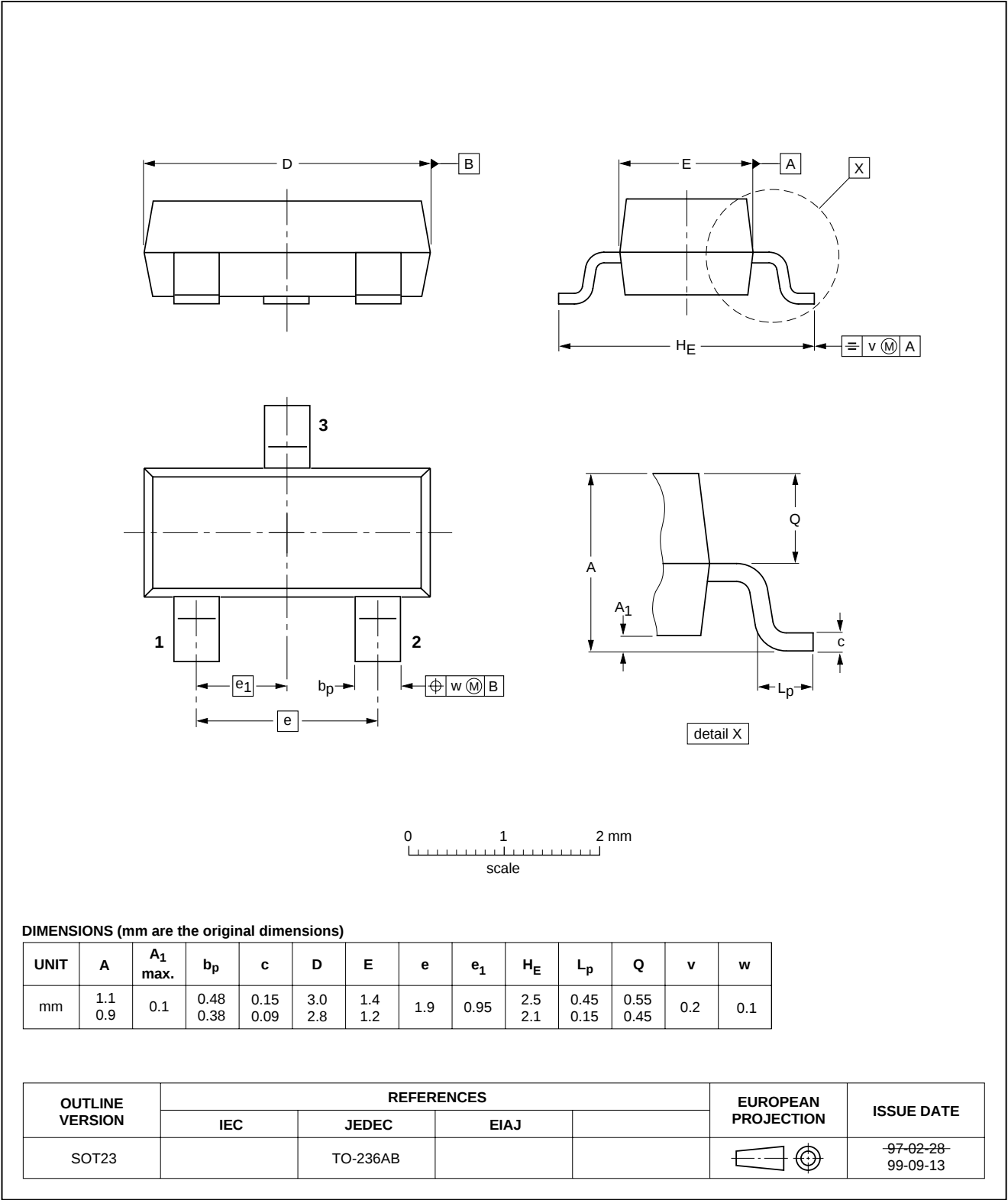
Low-leakage double diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



Low-leakage double diode

BAV199

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.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A.

Notes

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