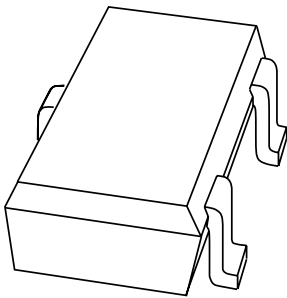


# DATA SHEET



## **BAV199W** Low-leakage double diode

Product data sheet  
Supersedes data of 1998 Jan 09

1999 May 11

## Low-leakage double diode

## BAV199W

## FEATURES

- Small plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8  $\mu$ s
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

## APPLICATIONS

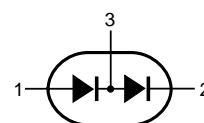
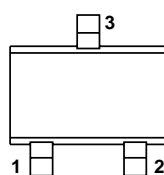
- Low-leakage current applications in surface mounted circuits.

## DESCRIPTION

Epitaxial, medium-speed switching, double diode in a small plastic SOT323 (SC-70) SMD package. The diodes are connected in series.

## PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	cathode; anode



**Marking code:** JY- = made in Hong Kong; JYt = made in Malaysia.

Fig.1 Simplified outline (SOT323; SC-70) and symbol.

## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode unless otherwise specified</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	85	V
$V_R$	continuous reverse voltage		–	75	V
$I_F$	continuous forward current	single diode loaded; $T_s = 90\text{ }^{\circ}\text{C}$ ; see Fig.2	–	135	mA
		double diode loaded; $T_s = 90\text{ }^{\circ}\text{C}$ ; see Fig.2	–	110	mA
$I_{FRM}$	repetitive peak forward current		–	500	mA
$I_{FSM}$	non-repetitive peak forward current	square wave; $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge; see Fig.4			
		$t_p = 1\text{ }\mu\text{s}$	–	4	A
		$t_p = 1\text{ ms}$	–	1	A
		$t_p = 1\text{ s}$	–	0.5	A
$P_{tot}$	total power dissipation	single diode loaded; $T_s = 90\text{ }^{\circ}\text{C}$	–	150	mW
		double diode loaded; $T_s = 90\text{ }^{\circ}\text{C}$	–	240	mW
$T_{stg}$	storage temperature		–65	+150	$^{\circ}\text{C}$
$T_j$	junction temperature		–	150	$^{\circ}\text{C}$

## Low-leakage double diode

BAV199W

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	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	$\mu\text{s}$

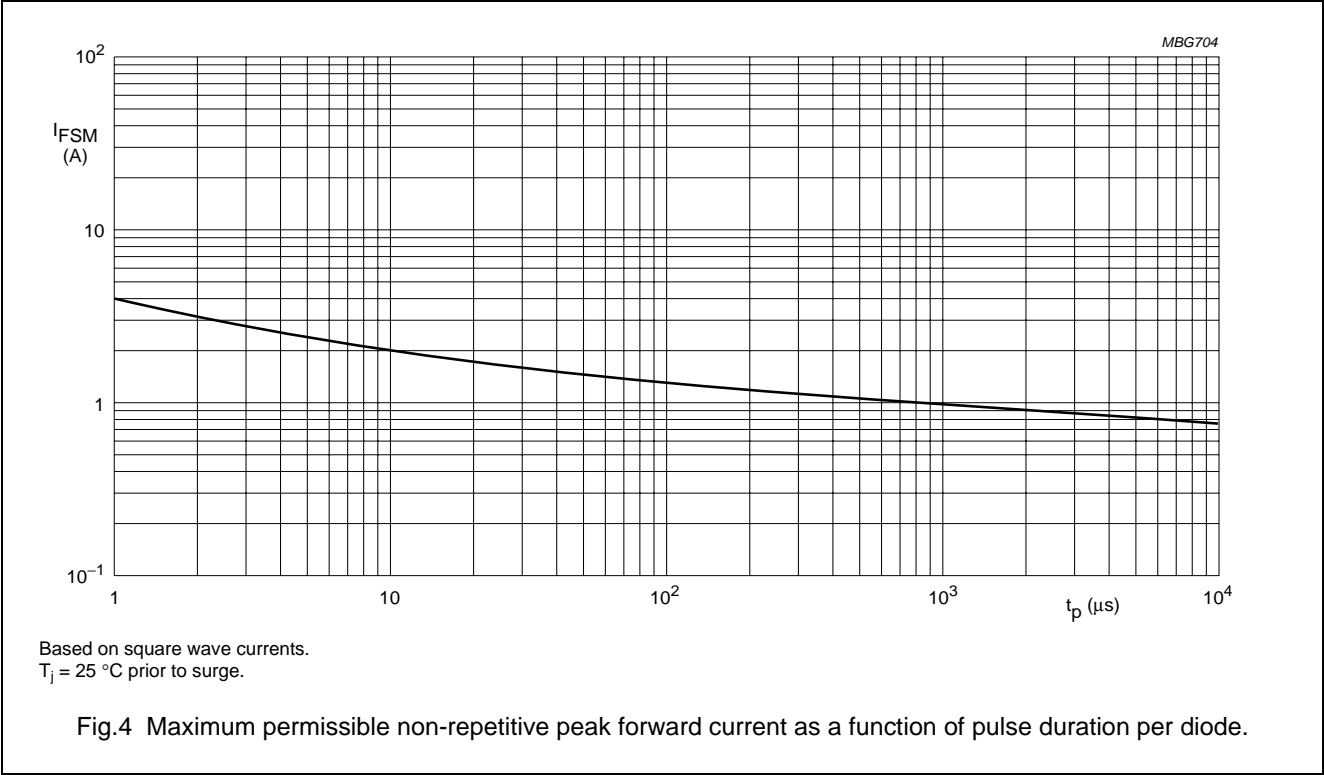
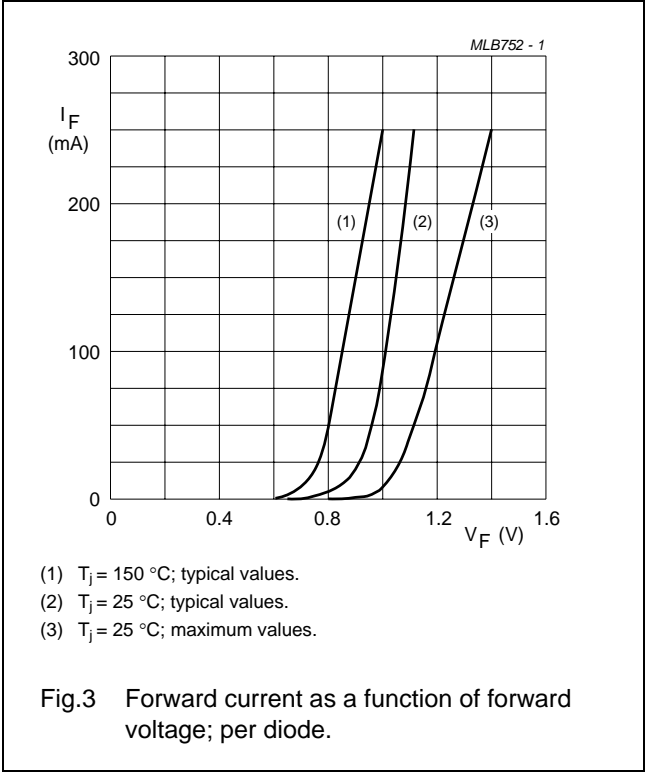
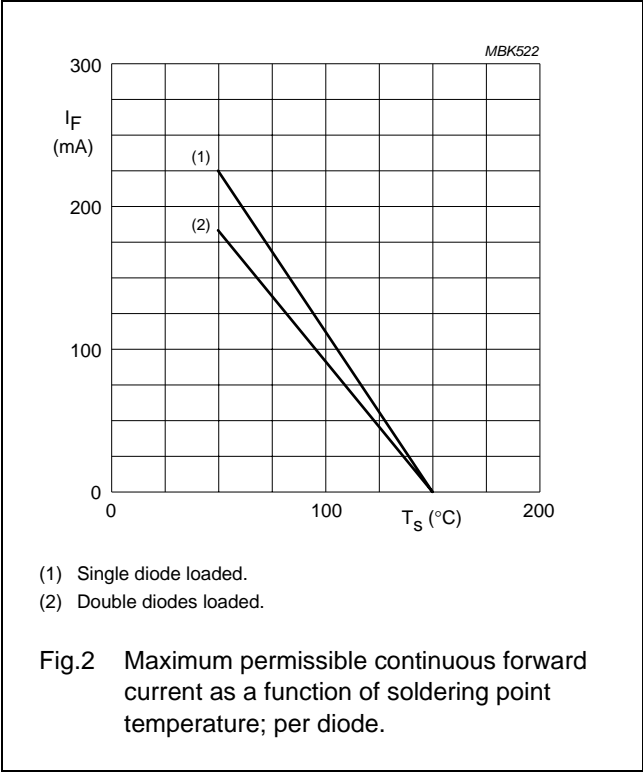
**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	$T_s = 90\text{ }^{\circ}\text{C}$	400	K/W

Low-leakage double diode

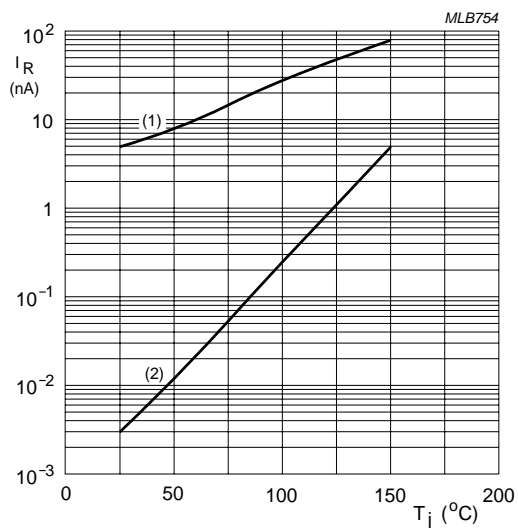
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GRAPHICAL DATA



## Low-leakage double diode

## BAV199W

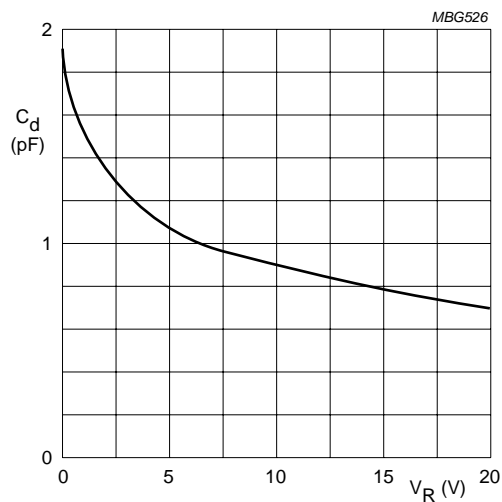


$V_R = 75$  V.

(1) Maximum values.

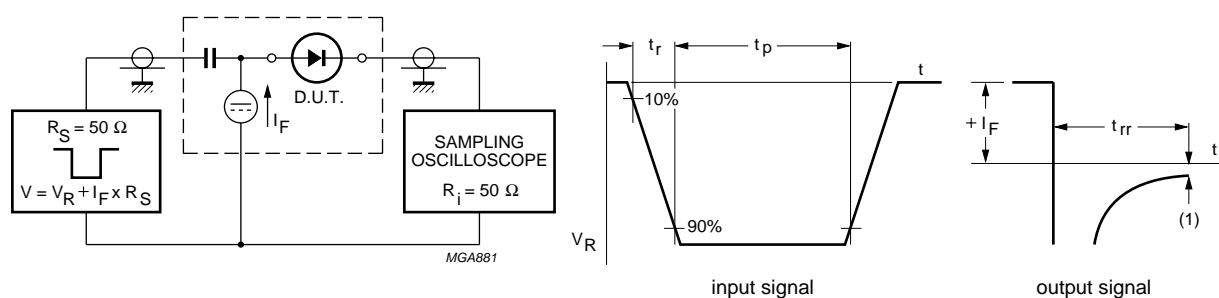
(2) Typical values.

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



$f = 1$  MHz;  $T_j = 25$  °C.

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



(1)  $I_R = 1$  mA.

Input signal: reverse pulse rise time  $t_r = 0.6$  ns; reverse voltage pulse duration  $t_p = 5$  μs; duty factor  $\delta = 0.05$ .

Oscilloscope: rise time  $t_r = 0.35$  ns.

Fig.7 Reverse recovery time test circuit and waveforms.

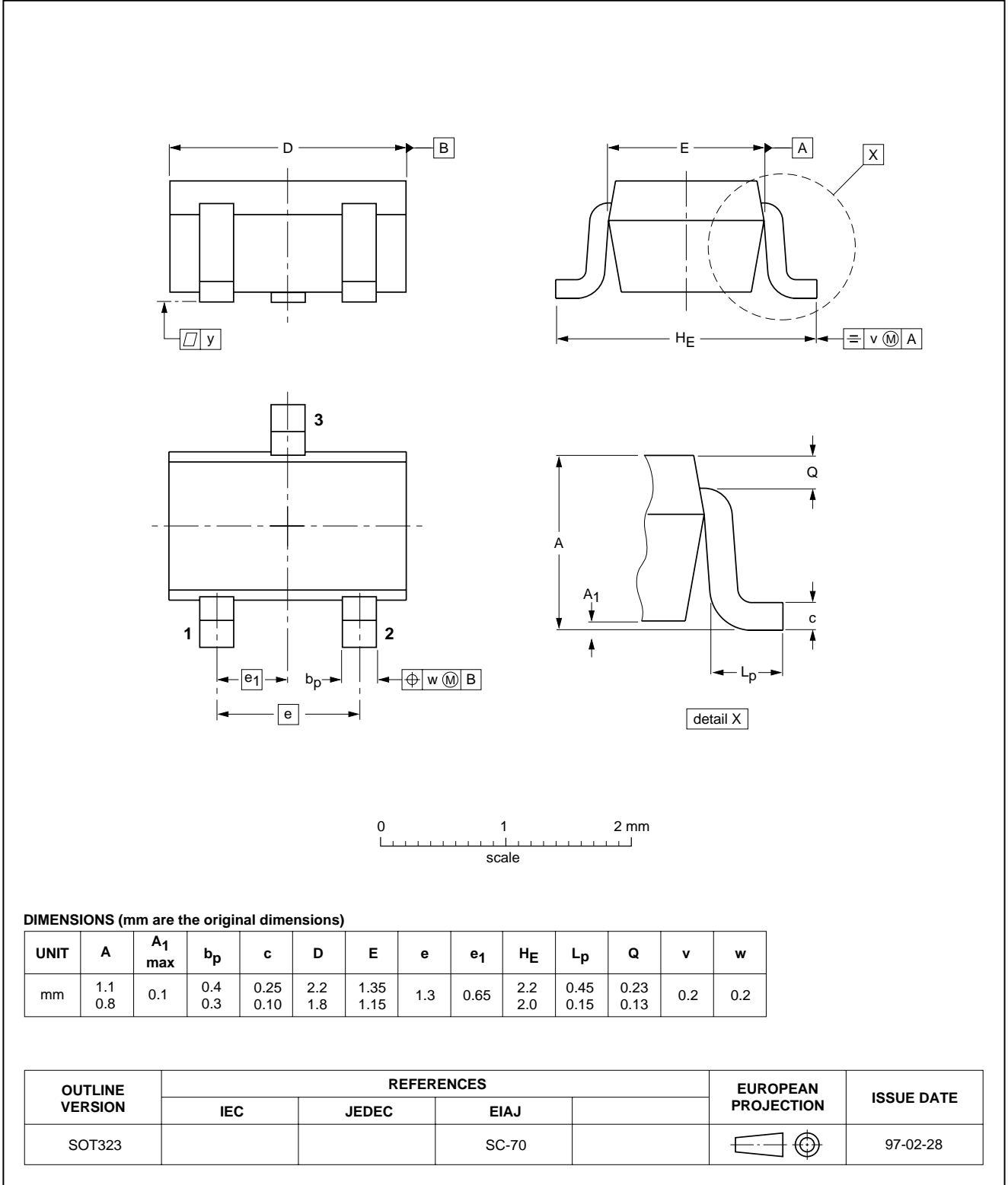
Low-leakage double diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



## Low-leakage double diode

## BAV199W

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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