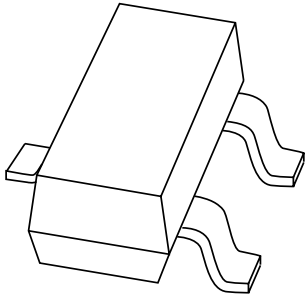


# DATA SHEET



**BAV170**

Low-leakage double diode

Product data sheet  
Supersedes data of 1999 May 11

2003 Mar 25

# Low-leakage double diode

# BAV170

### FEATURES

- Plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8 μs
- 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.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BAV170	JX*

### Note

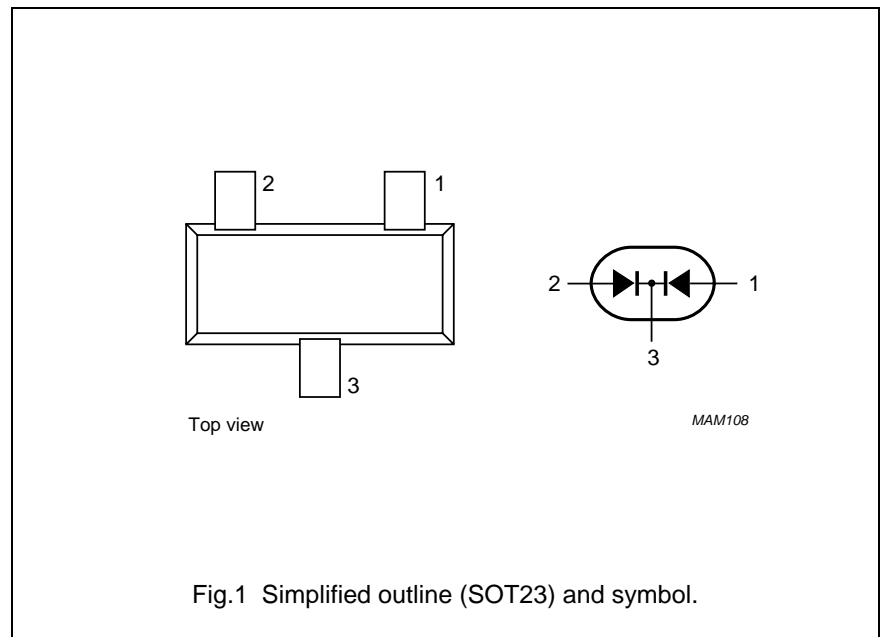
1. \* = p : Made in Hong Kong.  
 \* = t : Made in Malaysia.  
 \* = W : Made in China.

### DESCRIPTION

Epitaxial, medium-speed switching, double diode in a small SOT23 plastic SMD package. The diodes are in common cathode configuration.

### PINNING

PIN	DESCRIPTION
1	anode
2	anode
3	common cathode



## Low-leakage double diode

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**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; note 1; see Fig.2	–	215	mA
		double diode loaded; note 1; see Fig.2	–	125	mA
$I_{FRM}$	repetitive peak forward current		–	500	mA
$I_{FSM}$	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ 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	$T_{amb} = 25\text{ °C}$ ; note 1	–	250	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C

**Note**

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

**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ °C}$  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
		$V_R = 75\ \text{V}$ ; $T_j = 150\text{ °C}$	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 $I_R = 10\ \text{mA}$ ; $R_L = 100\ \Omega$ ; measured at $I_R = 1\ \text{mA}$ ; see Fig.7	0.8	3	$\mu\text{s}$

Low-leakage double diode

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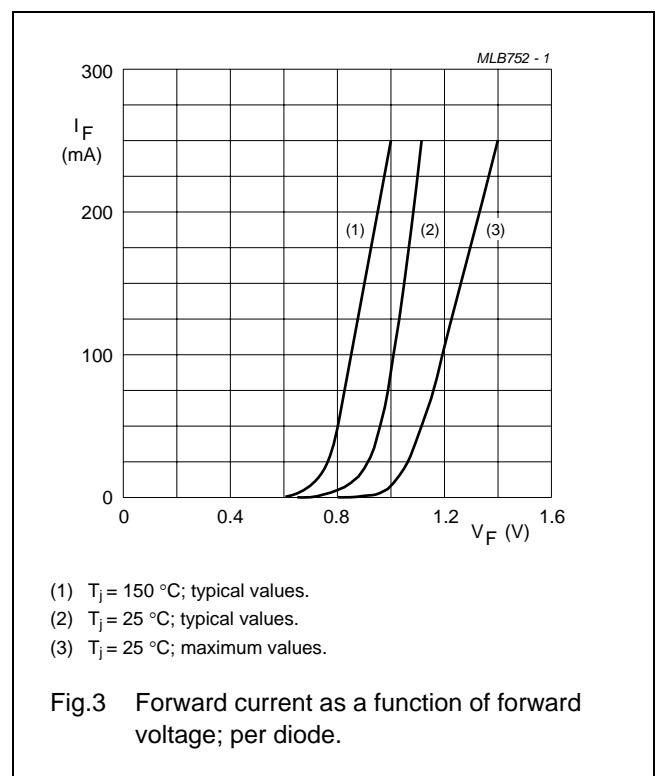
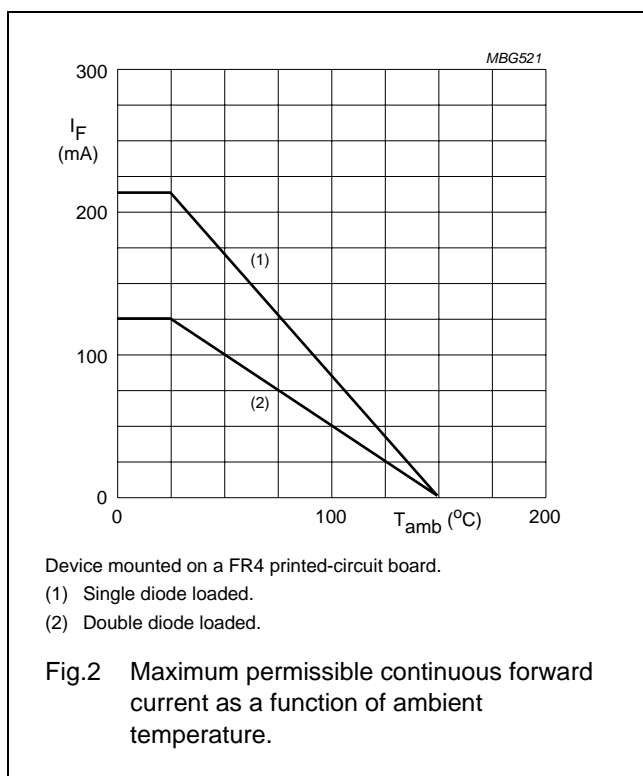
**THERMAL CHARACTERISTICS**

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**

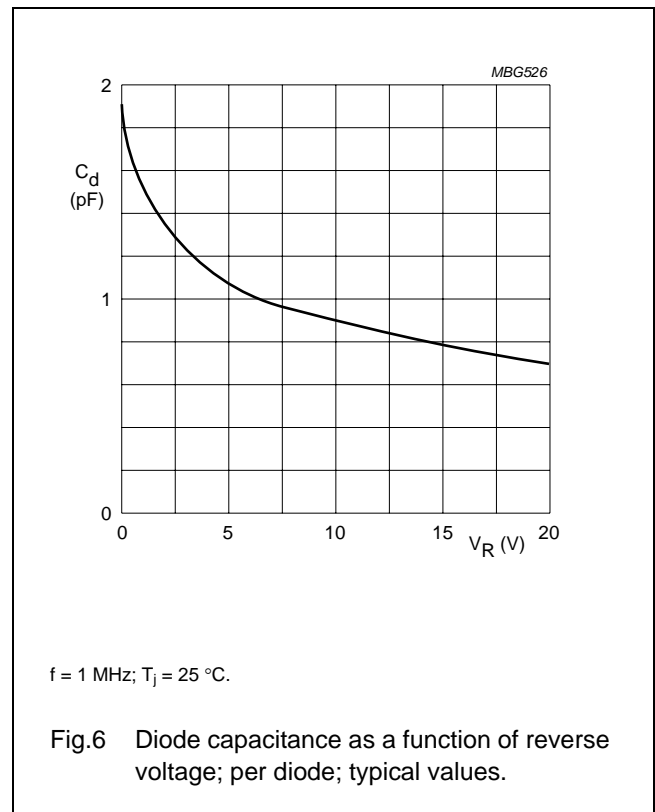
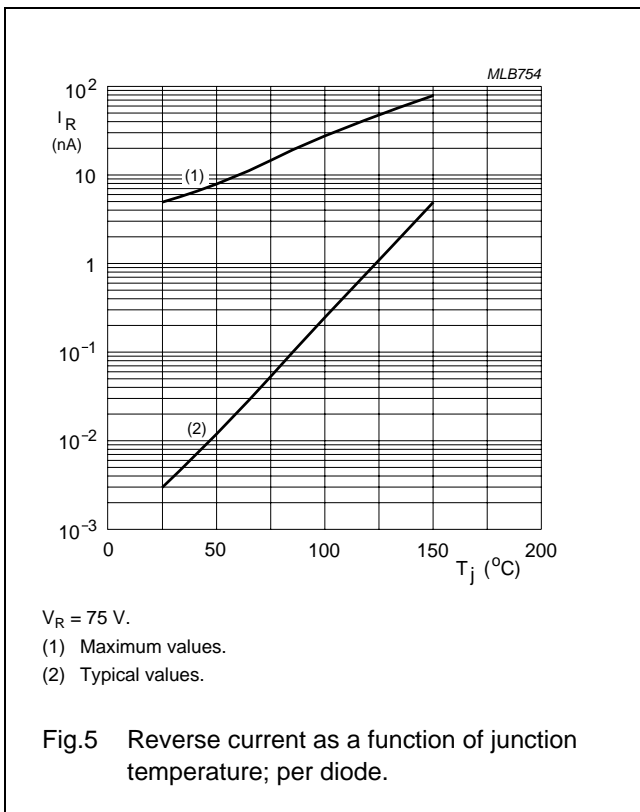
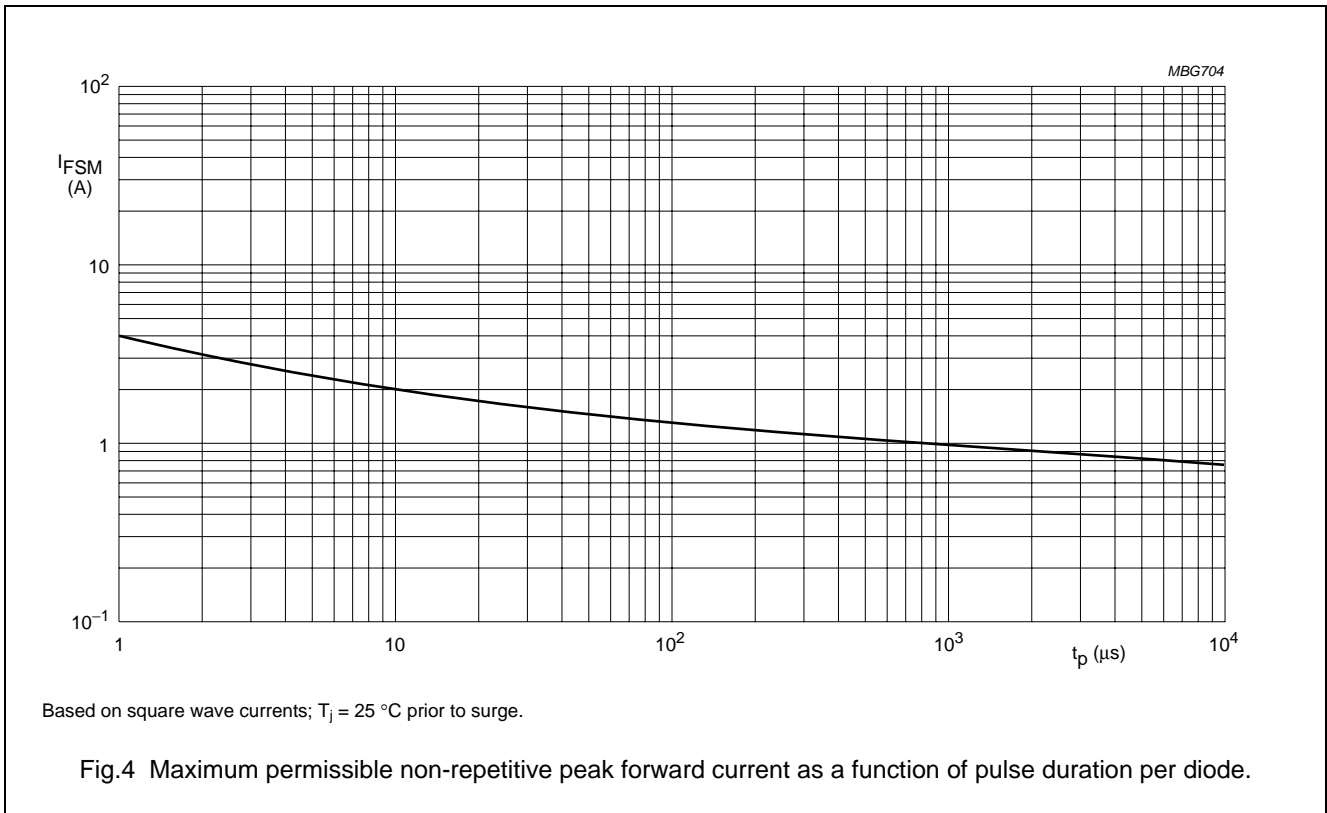
1. Device mounted on a FR4 printed-circuit board.

**GRAPHICAL DATA**



Low-leakage double diode

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Low-leakage double diode

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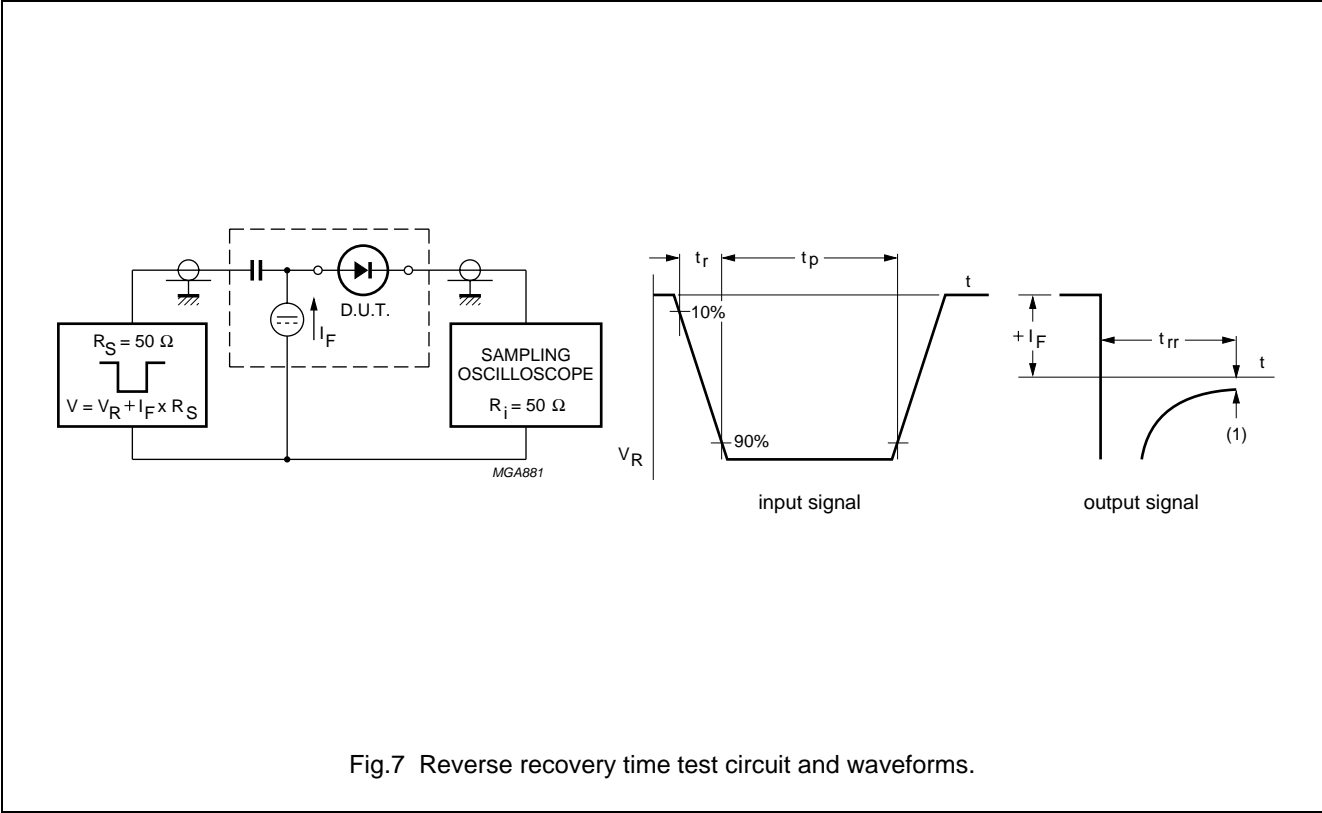


Fig.7 Reverse recovery time test circuit and waveforms.

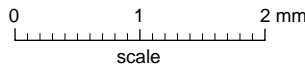
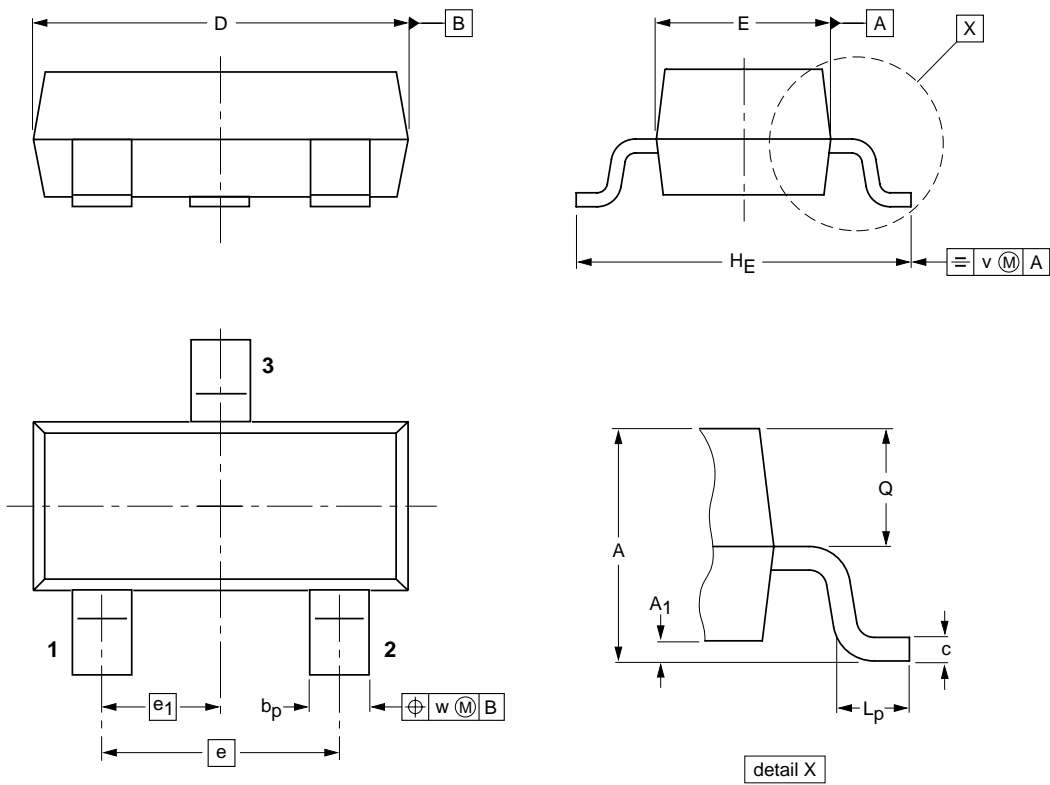
Low-leakage double diode

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



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

Low-leakage double diode

BAV170

**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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