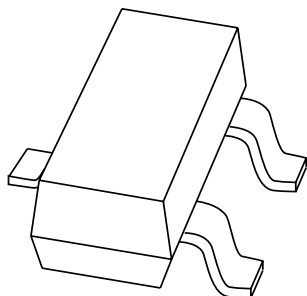


DATA SHEET



BAV170

Low-leakage double diode

Product specification
Supersedes data of 1996 Mar 13

1999 May 11

Low-leakage double diode

BAV170

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

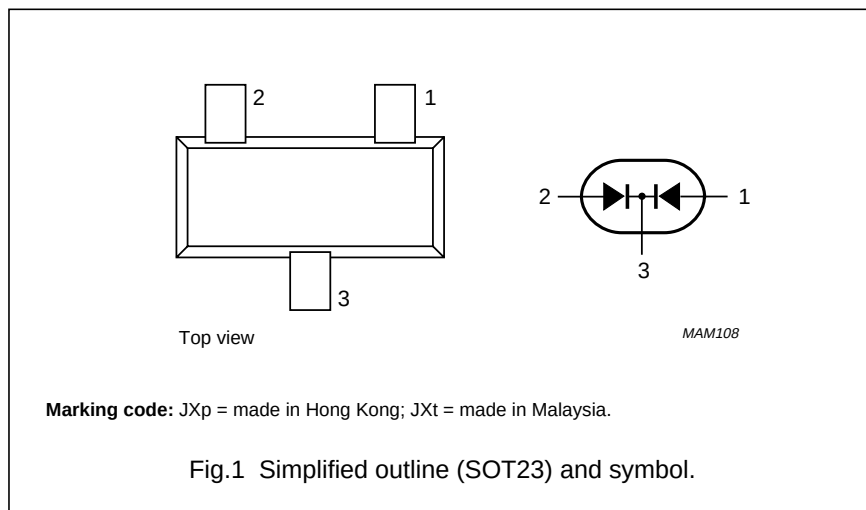
- Low-leakage current applications in surface mounted circuits.

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	anode
2	anode
3	common cathode



LIMITING VALUES

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

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	—	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; $T_j = 25\text{ }^{\circ}\text{C}$ 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	$T_{amb} = 25\text{ }^{\circ}\text{C}$; 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.

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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

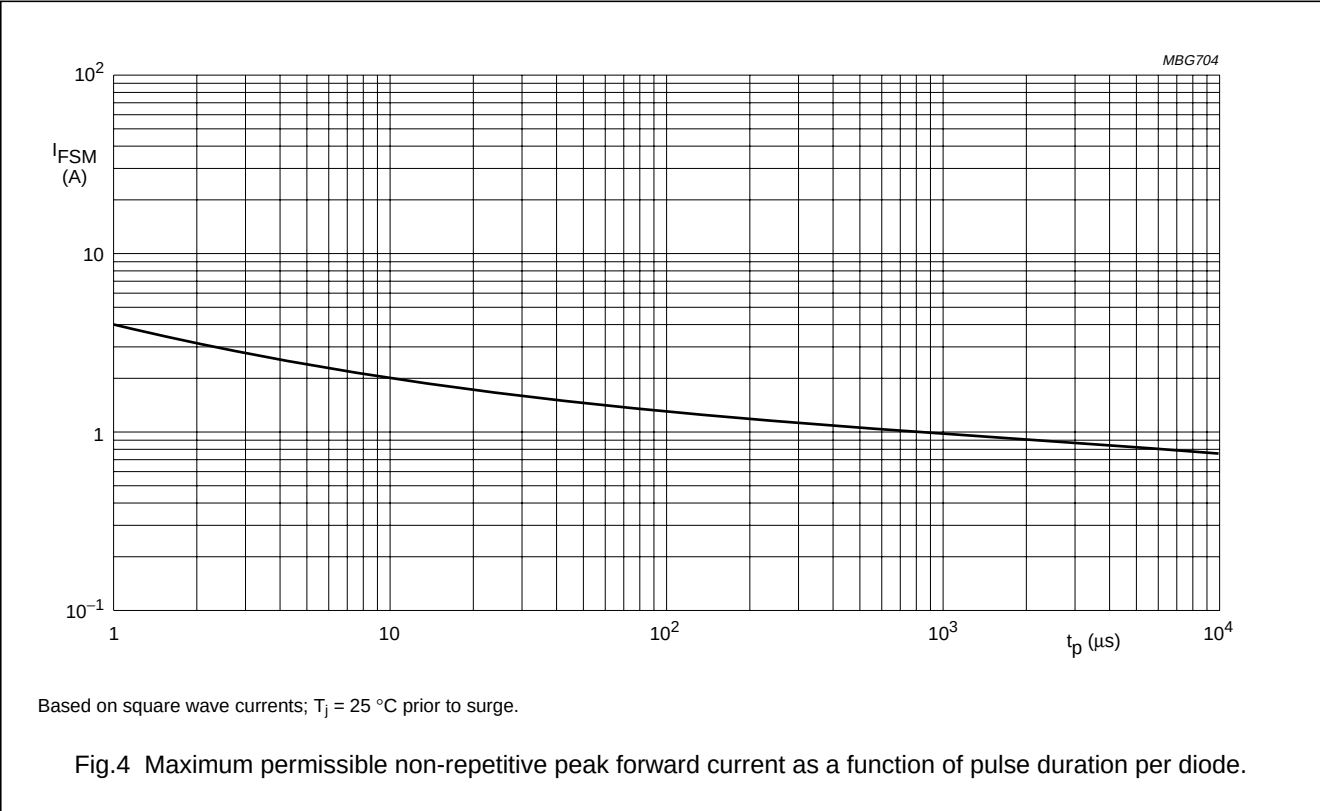
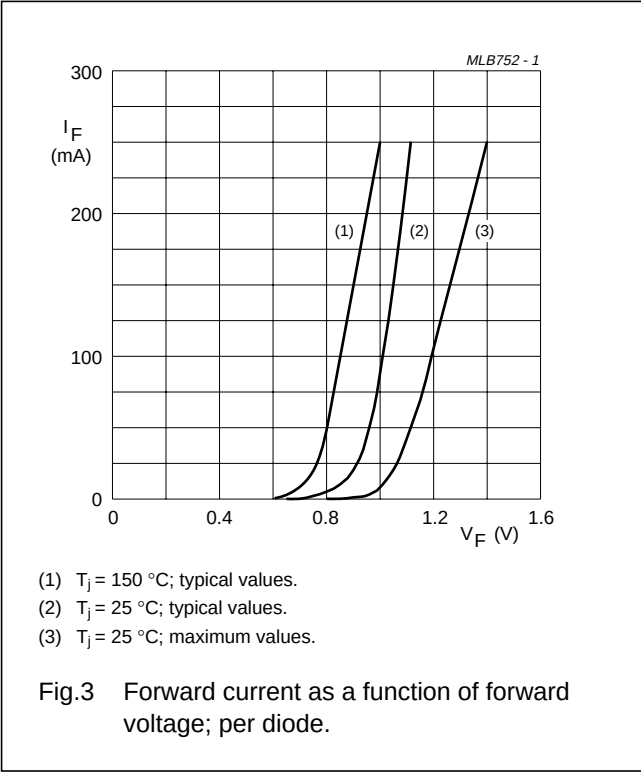
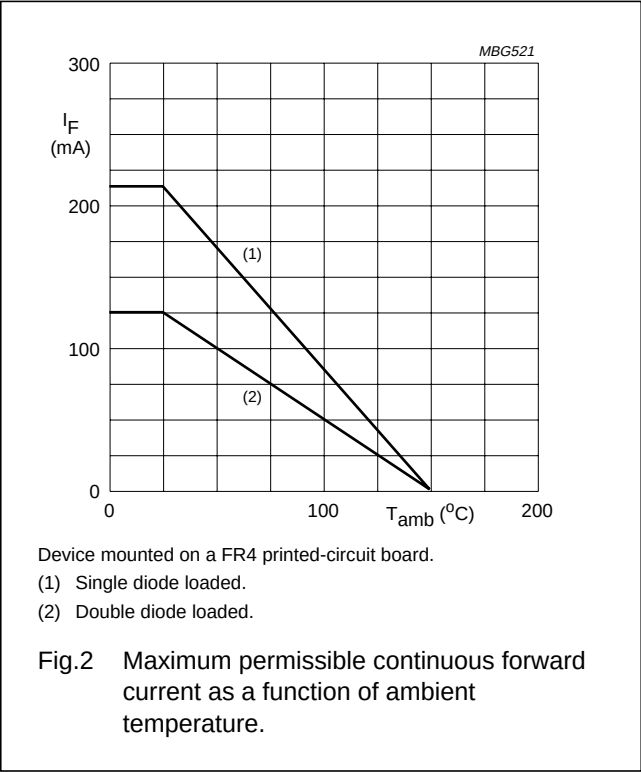
Note

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

Low-leakage double diode

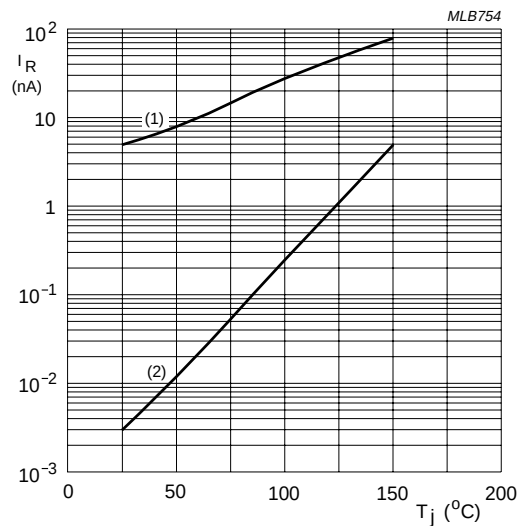
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GRAPHICAL DATA



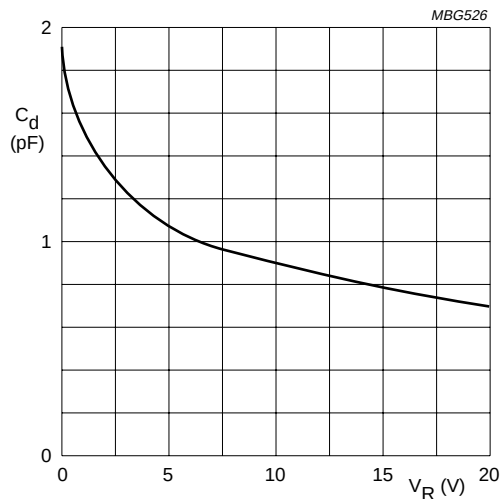
Low-leakage double diode

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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.



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

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

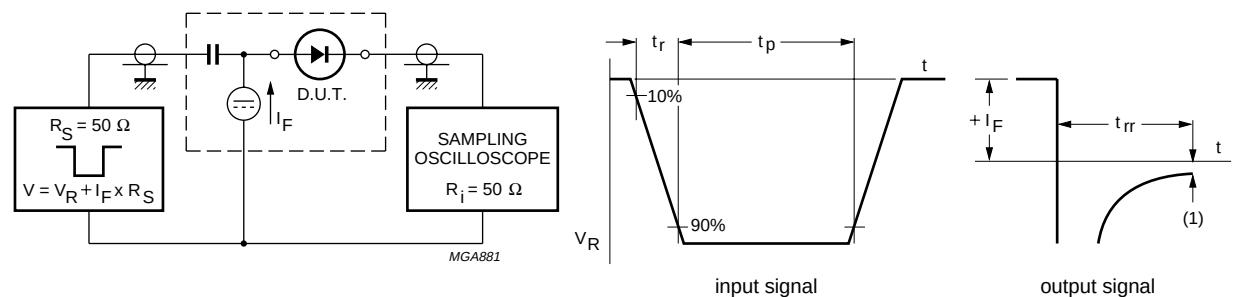


Fig.7 Reverse recovery time test circuit and waveforms.

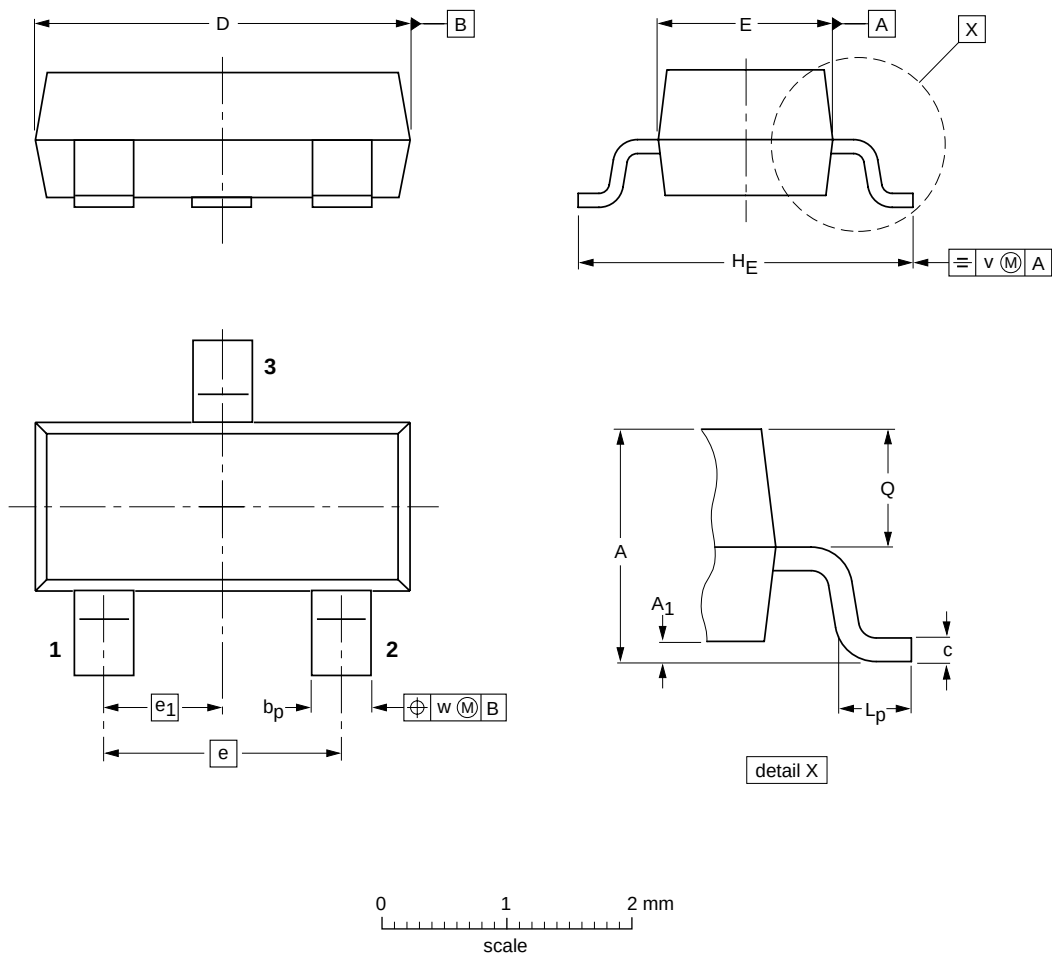
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _P	c	D	E	e	e ₁	H _E	L _P	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						97-02-28

Low-leakage double diode

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DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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