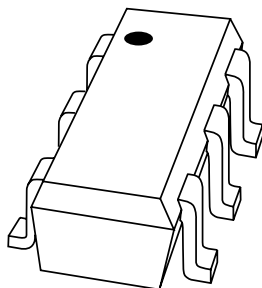


DATA SHEET



BAV70S

High-speed double diode array

Product specification
Supersedes data of 1997 Aug 27
File under Discrete Semiconductors, SC01

1997 Oct 21

High-speed double diode array

BAV70S

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.

PINNING

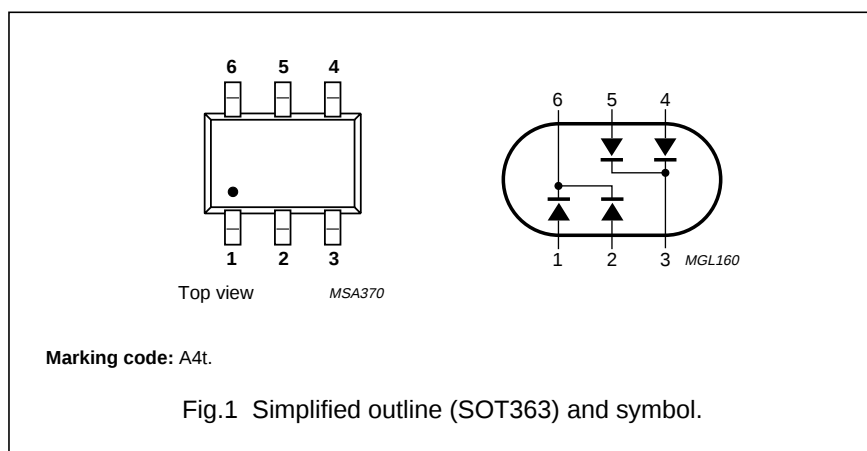
PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common cathode (k1)
4	anode (a3)
5	anode (a4)
6	common cathode (k2)

APPLICATIONS

- General purpose switching in e.g. surface mounted circuits.

DESCRIPTION

The BAV70S consists of two dual high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in the small SMD SOT363 plastic package.



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; see Fig.2	–	250	mA
		all diodes loaded; see Fig.2	–	100	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			
		$t = 1\text{ }\mu\text{s}$	–	4	A
		$t = 1\text{ ms}$	–	1	A
		$t = 1\text{ s}$	–	0.5	A
P_{tot}	total power dissipation	$T_s = 60\text{ °C}$; note 1	–	350	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

Note

1. One or more diodes loaded.

High-speed double diode array

BAV70S

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.3 $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 150\text{ mA}$	715 855 1 1.25	mV mV V V
I_R	reverse current	see Fig.5 $V_R = 25\text{ V}$ $V_R = 75\text{ V}$ $V_R = 25\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ $V_R = 75\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	30 2.5 60 100	nA μA μA μA
C_d	diode capacitance	$V_R = 0$; $f = 1\text{ MHz}$; see Fig.6	1.5	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; 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
$R_{th\text{ j-s}}$	thermal resistance from junction to soldering point	note 1	255	K/W

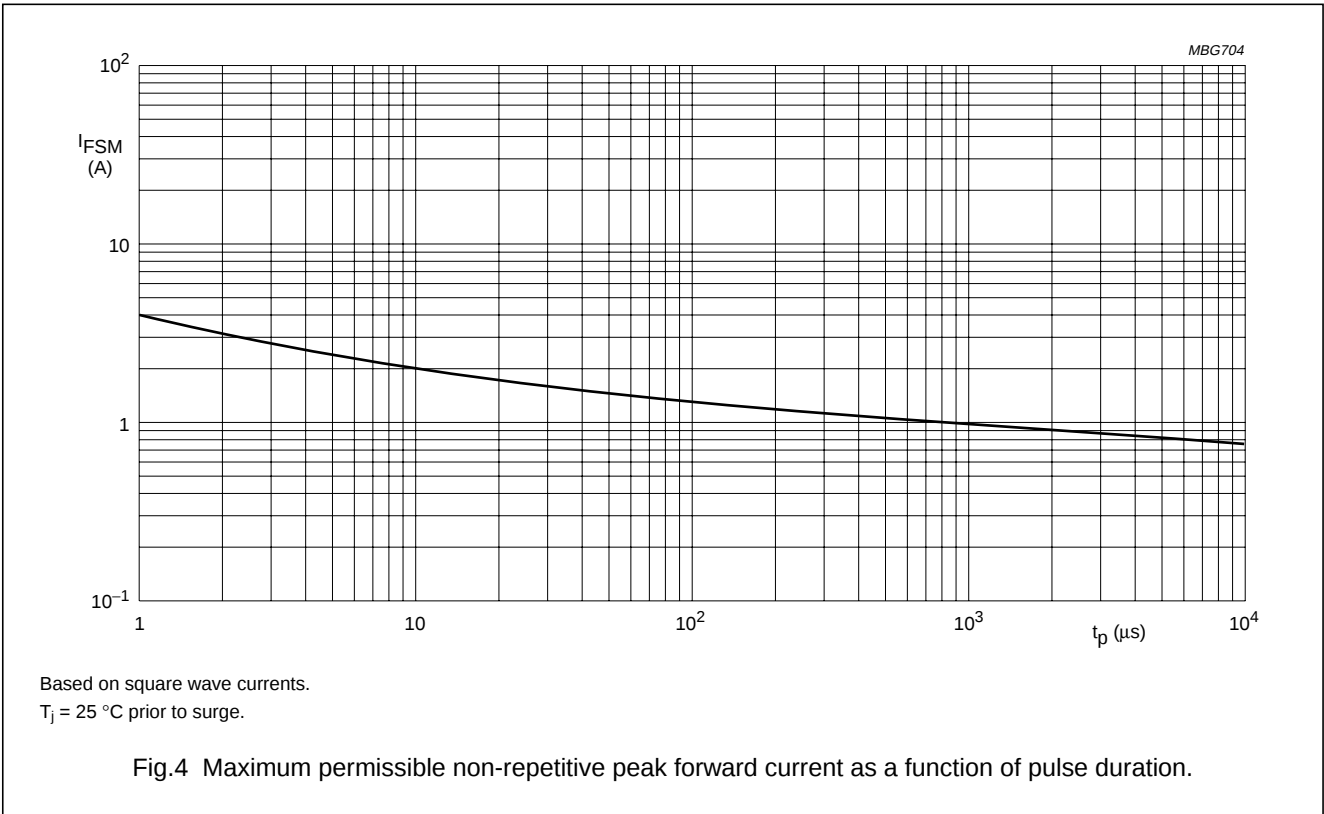
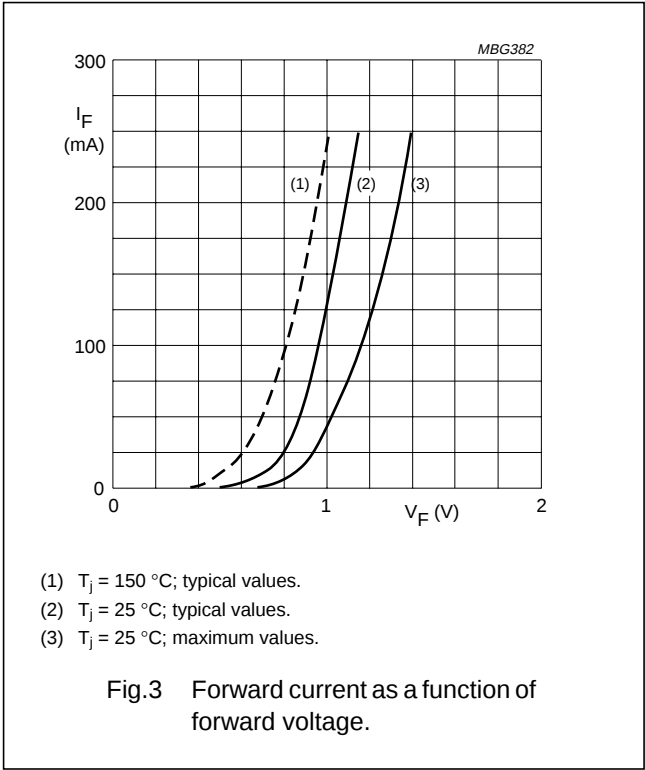
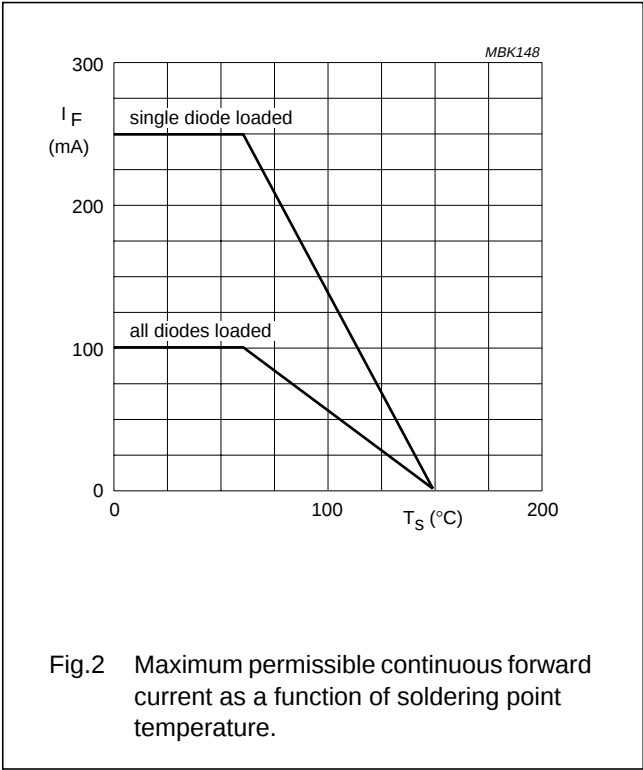
Note

- One or more diodes loaded.

High-speed double diode array

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GRAPHICAL DATA



High-speed double diode array

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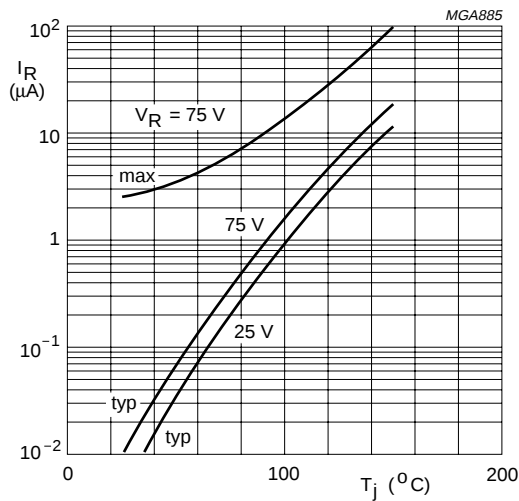
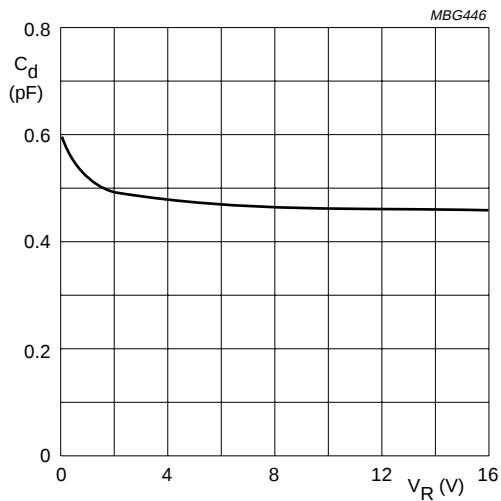


Fig.5 Reverse current as a function of junction temperature.

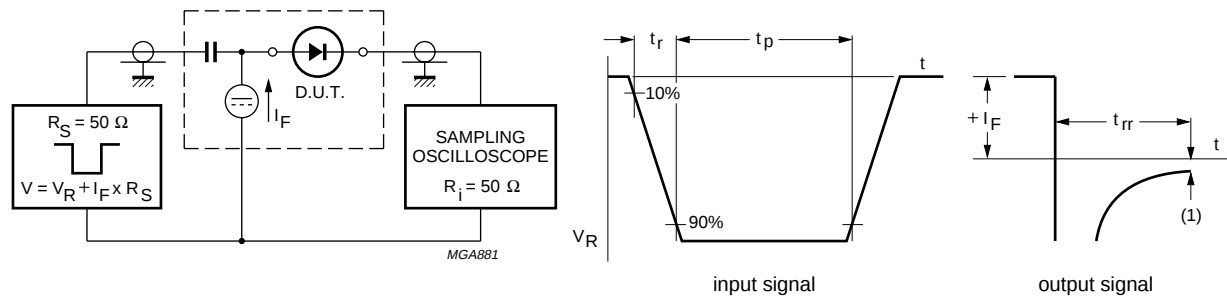


$f = 1 \text{ MHz}$; $T_j = 25^{\circ}C$.

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

High-speed double diode array

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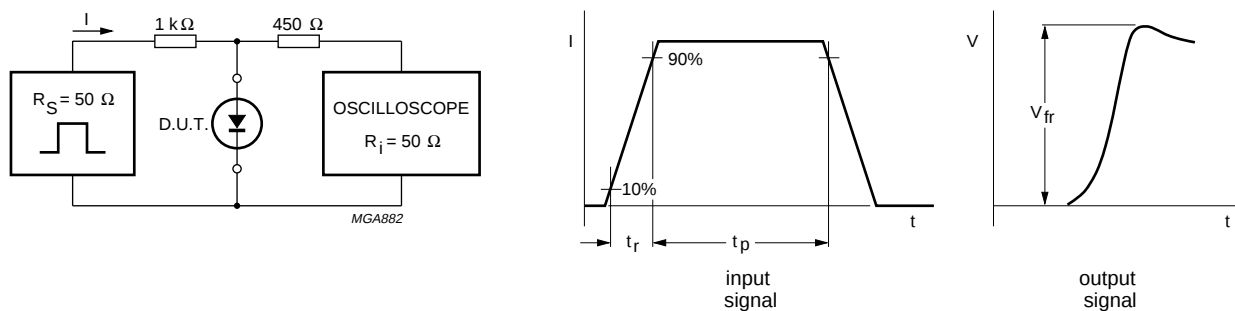


(1) $I_R = 1 \text{ mA}$.

Input signal: reverse pulse rise time $t_r = 0.6 \text{ ns}$; reverse voltage pulse duration $t_p = 100 \text{ ns}$; duty factor $\delta = 0.05$.

Oscilloscope: rise time $t_r = 0.35 \text{ ns}$.

Fig.7 Reverse recovery voltage test circuit and waveforms.



Input signal: forward pulse rise time $t_r = 20 \text{ ns}$; forward current pulse duration $t_p \geq 100 \text{ ns}$; duty factor $\delta \leq 0.005$.

Fig.8 Forward recovery voltage test circuit and waveforms.

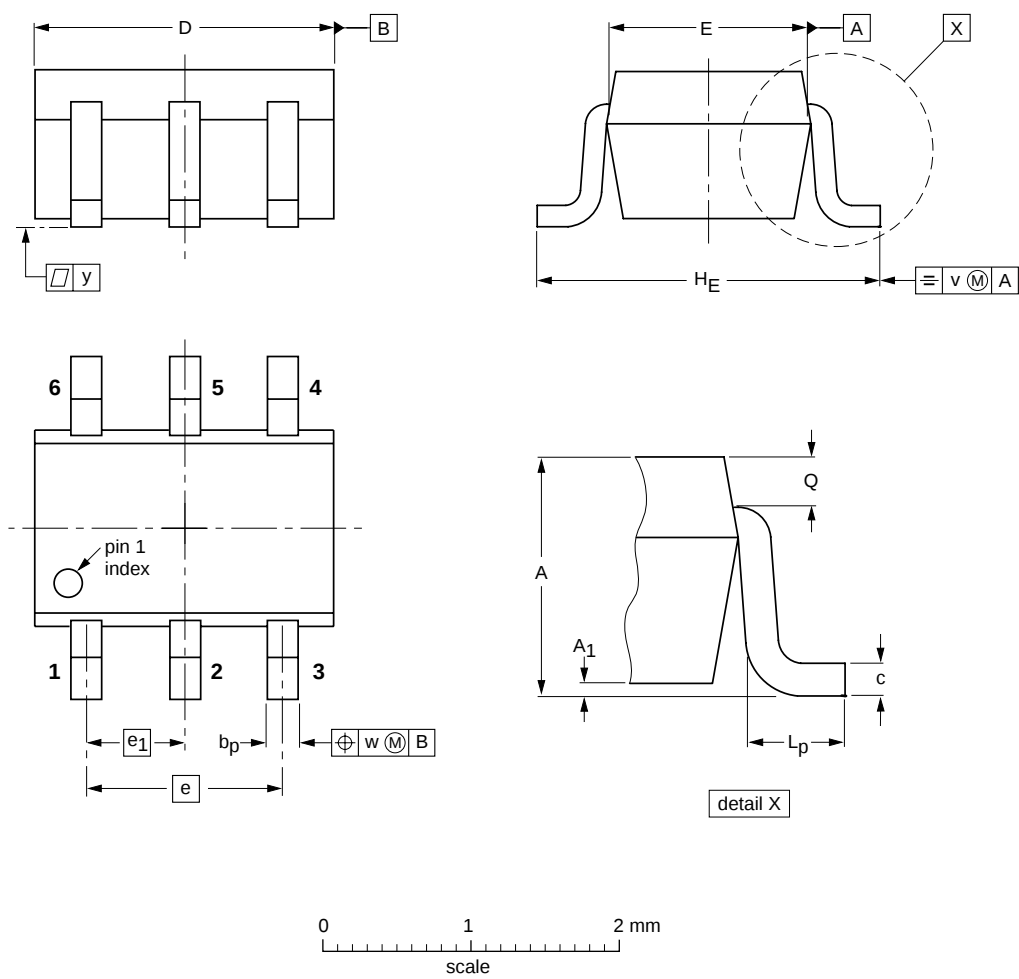
High-speed double diode array

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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



DIMENSIONS (mm are the original dimensions)

UNIT	A	A1 max	bp	c	D	E	e	e1	HE	Lp	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT363			SC-88			97-02-28

High-speed double diode array

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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.	

LIFE SUPPORT APPLICATIONS

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NOTES

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NOTES

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