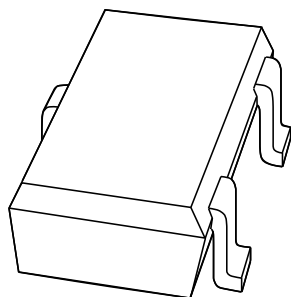


# DATA SHEET



## **BAV70W** High-speed double diode

Product specification  
Supersedes data of April 1996  
File under Discrete Semiconductors, SC01

1996 Sep 17

# High-speed double diode

# BAV70W

## FEATURES

- Very small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 70 V
- Repetitive peak reverse voltage: max. 75 V
- Repetitive peak forward current: max. 500 mA.

## APPLICATIONS

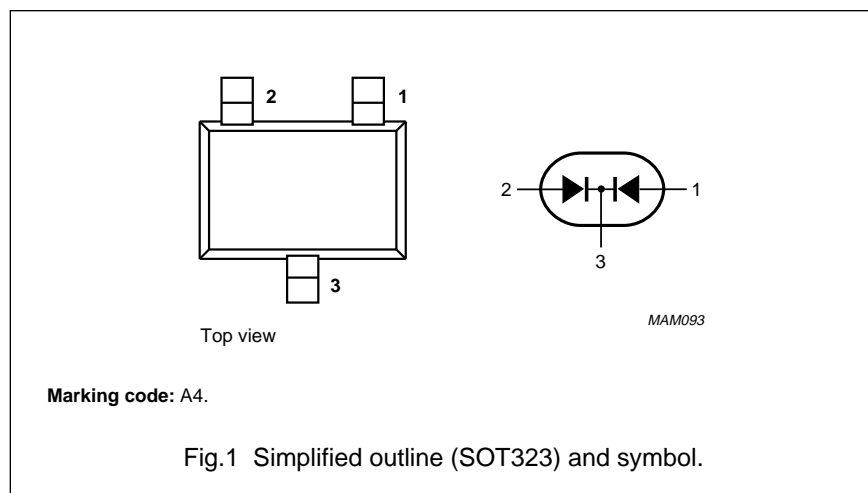
- High-speed switching in e.g. surface mounted circuits.

## DESCRIPTION

The BAV70W consists of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in the very small plastic SMD SOT323 package.

## PINNING

PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common cathode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	75	V
$V_R$	continuous reverse voltage		–	70	V
$I_F$	continuous forward current	single diode loaded; see Fig.2; note 1	–	175	mA
		double diode loaded; see Fig.2; note 1	–	100	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			
		$t = 1\ \mu\text{s}$	–	4	A
		$t = 1\ \text{ms}$	–	1	A
		$t = 1\ \text{s}$	–	0.5	A
$P_{tot}$	total power dissipation	$T_{amb} = 25\text{ °C}$ ; note 1	–	200	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C

## Note

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

## High-speed double diode

## BAV70W

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	forward voltage	see Fig.3			
		$I_F = 1\text{ mA}$	–	715	mV
		$I_F = 10\text{ mA}$	–	855	mV
		$I_F = 50\text{ mA}$	–	1	V
		$I_F = 150\text{ mA}$	–	1.25	V
$I_R$	reverse current	see Fig.5			
		$V_R = 25\text{ V}$	–	30	nA
		$V_R = 70\text{ V}$	–	2.5	$\mu\text{A}$
		$V_R = 25\text{ V}; T_j = 150\text{ °C}$	–	60	$\mu\text{A}$
		$V_R = 70\text{ V}; T_j = 150\text{ °C}$	–	100	$\mu\text{A}$
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	–	1.5	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ ; $R_L = 100\ \Omega$ ; 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
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		300	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

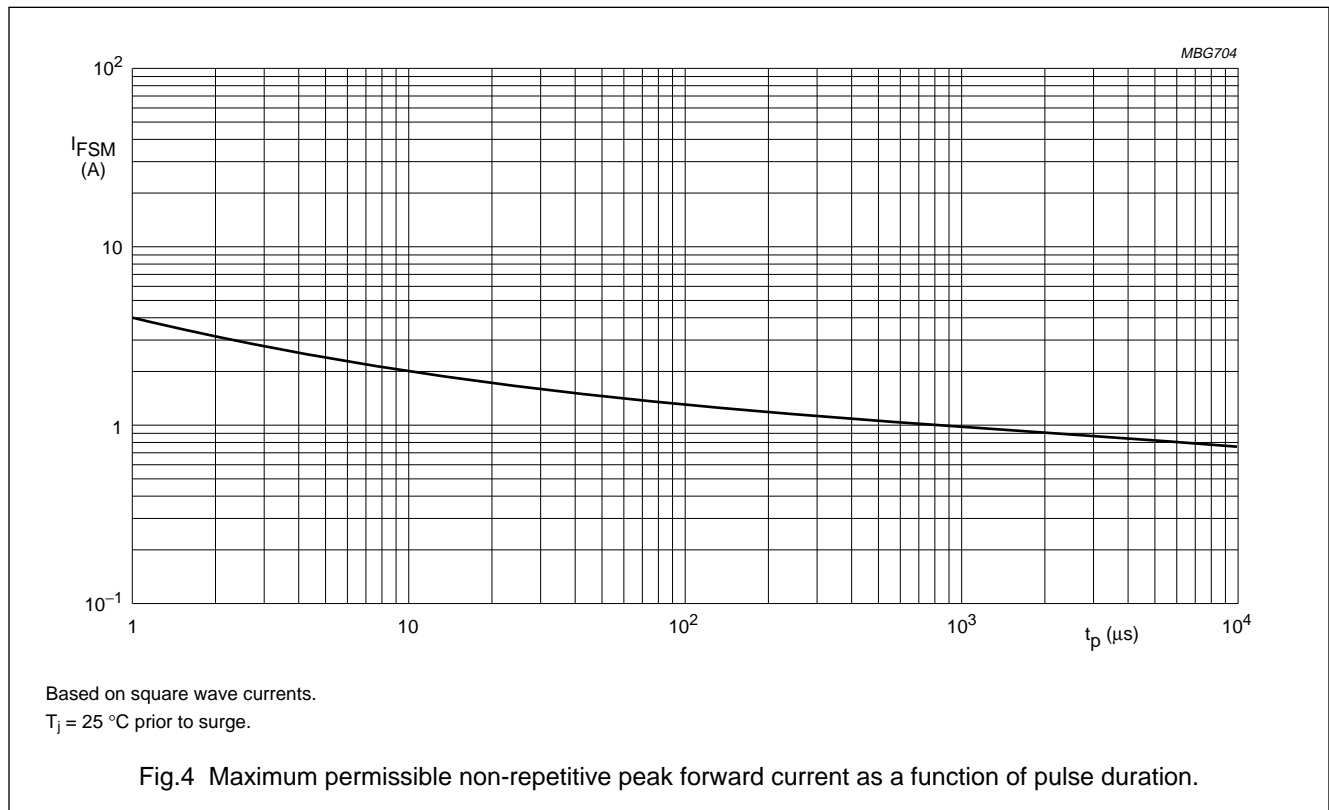
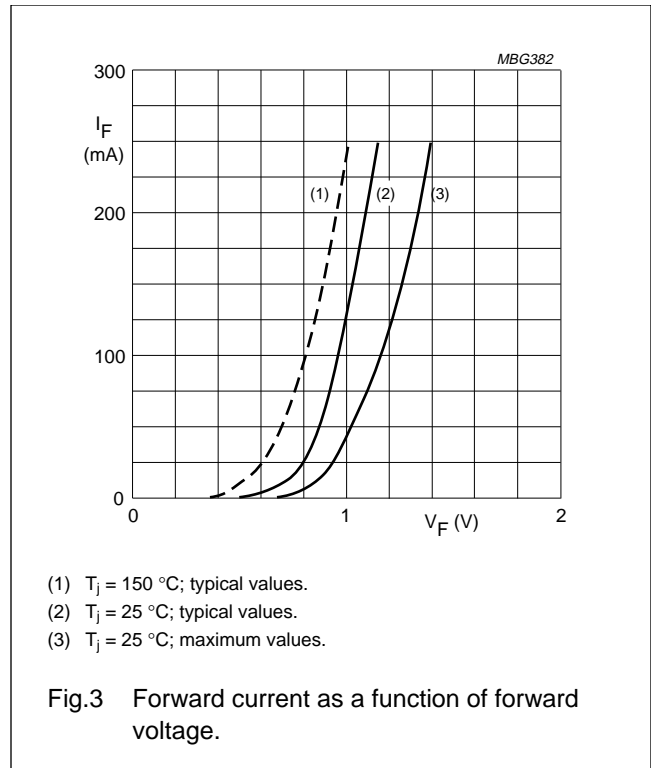
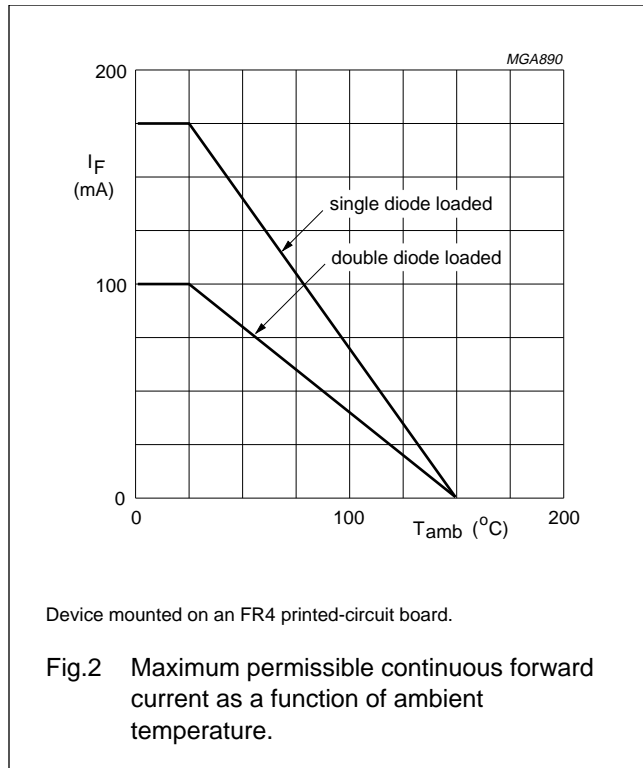
**Note**

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

# High-speed double diode

# BAV70W

## GRAPHICAL DATA



High-speed double diode

BAV70W

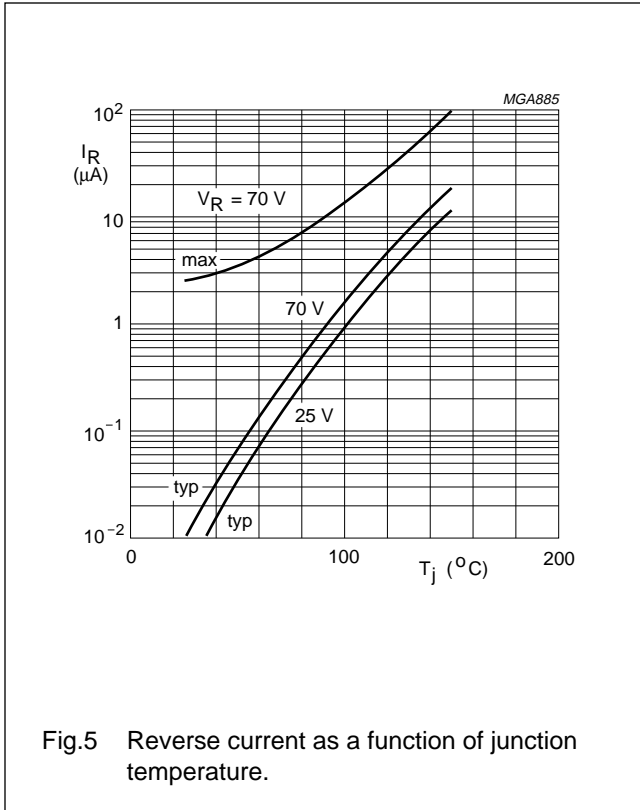
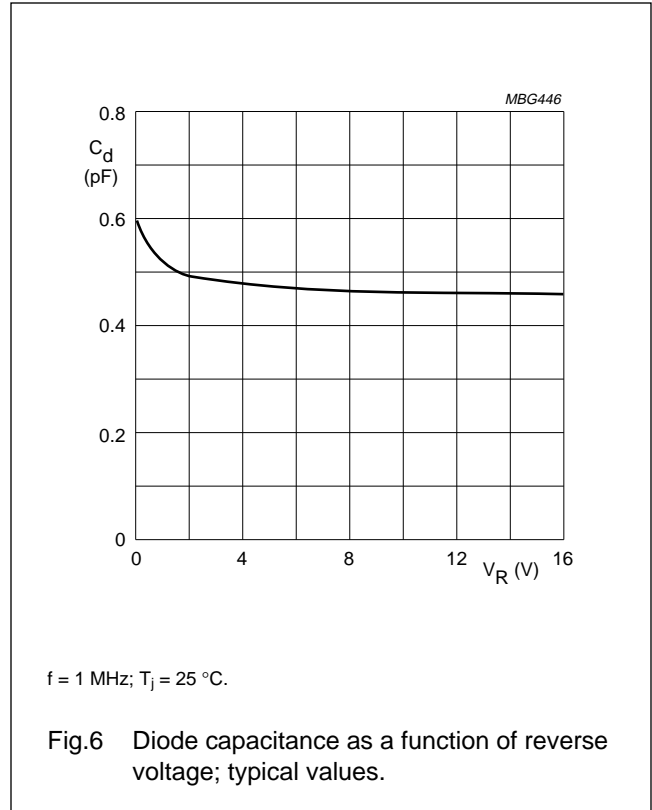


Fig.5 Reverse current as a function of junction temperature.

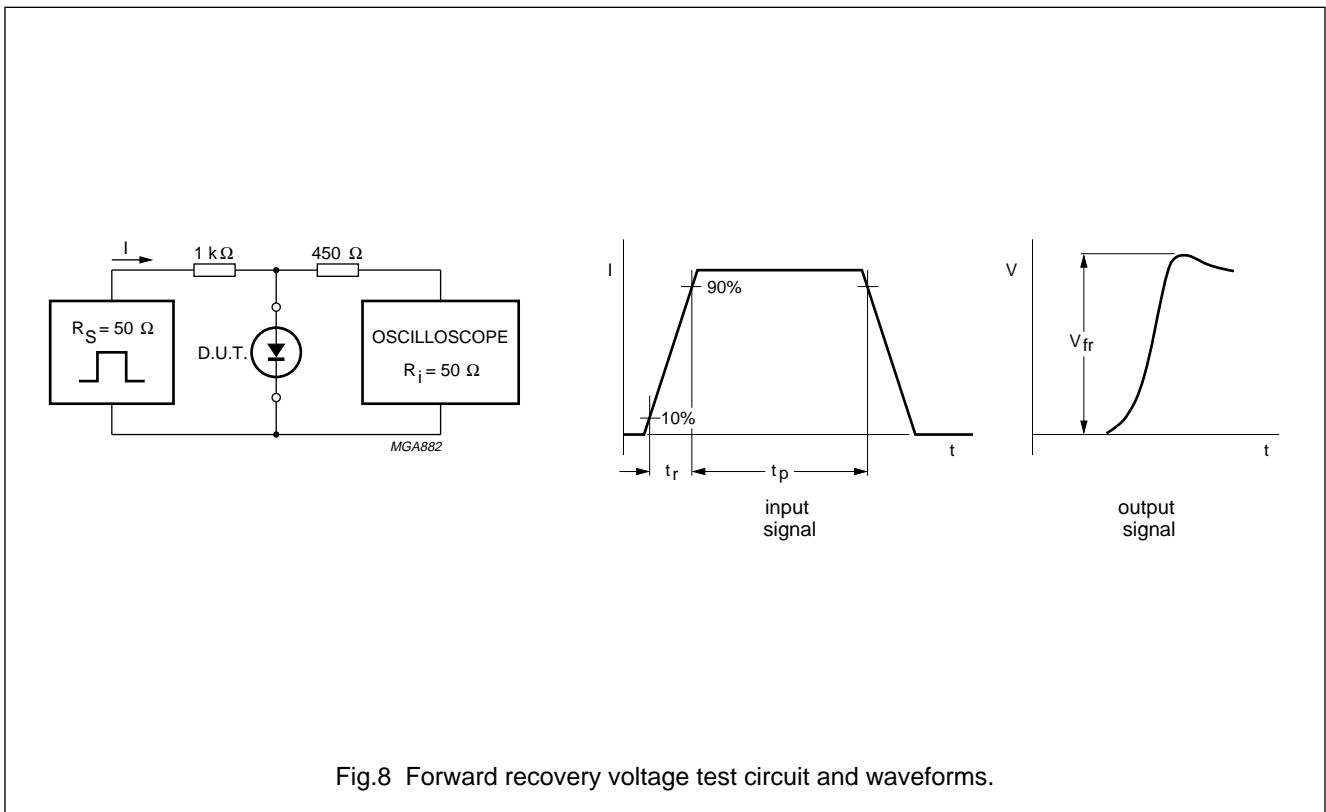
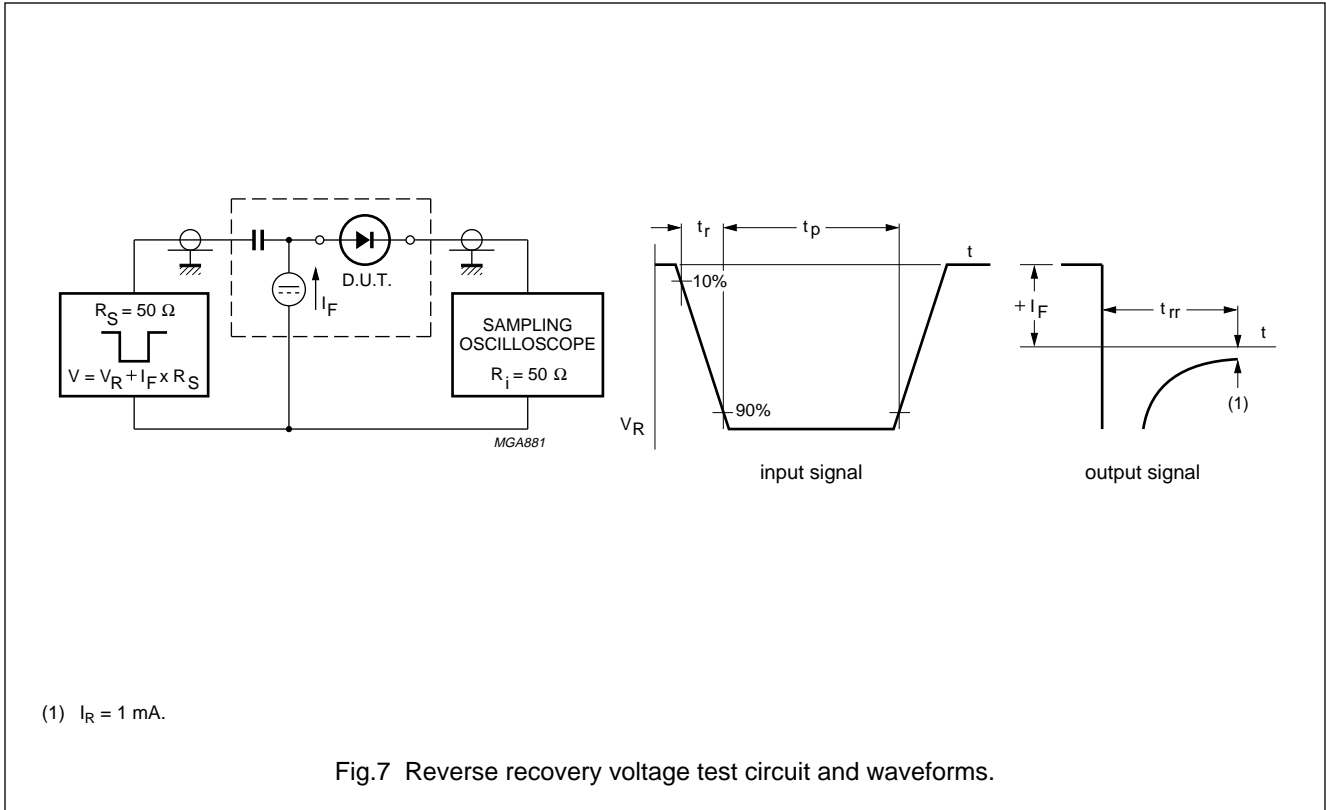


$f = 1 \text{ MHz}; T_j = 25 \text{ }^{\circ}C$ .

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

High-speed double diode

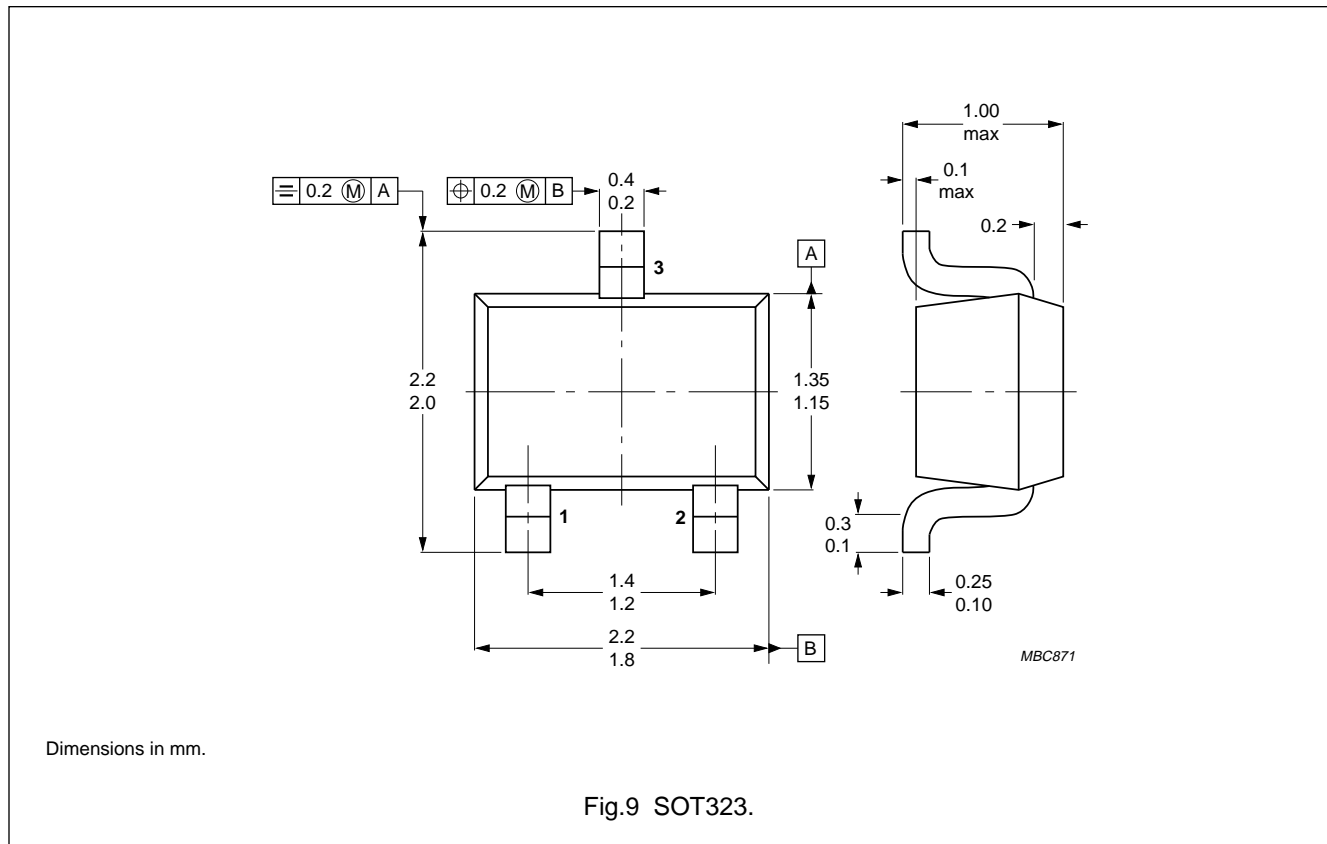
BAV70W



# High-speed double diode

# BAV70W

## PACKAGE OUTLINE



## 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

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.