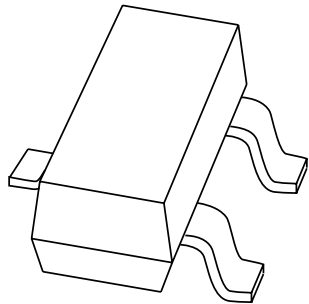


# DATA SHEET



**BAV70**

High-speed double diode

Product specification  
Supersedes data of 2001 Oct 11

2002 Apr 03

# High-speed double diode

# BAV70

### 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.

### APPLICATIONS

- High-speed switching in thick and thin-film circuits.

### DESCRIPTION

The BAV70 consists of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in the small SOT23 plastic SMD package.

### MARKING

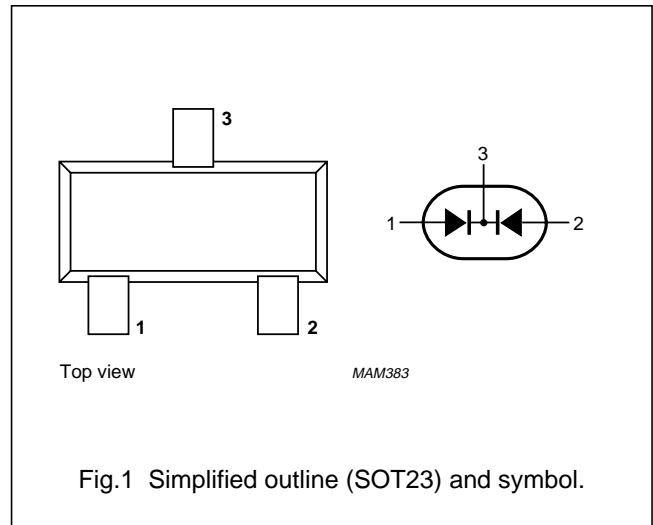
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| BAV70       | A4*                         |

### Note

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

### PINNING

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



## High-speed 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;<br>see Fig.2                      | –    | 215  | mA   |
|                  |                                     | double diode loaded; note 1;<br>see Fig.2                      | –    | 125  | 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<br>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                              | –    | 250  | 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

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

| SYMBOL           | PARAMETER                | CONDITIONS  | MAX.                    | UNIT  |
|------------------|--------------------------|---|-------------------------|---|
| <b>Per diode</b> |                          |   |                         |   |
| $V_F$            | forward voltage          | see Fig.0<br>$I_F = 1\text{ mA}$<br>$I_F = 10\text{ mA}$<br>$I_F = 50\text{ mA}$<br>$I_F = 150\text{ mA}$                                       | 715<br>855<br>1<br>1.25 | mV<br>mV<br>V<br>V                                    |
| $I_R$            | reverse current          | see Fig.5<br>$V_R = 25\text{ V}$<br>$V_R = 75\text{ V}$<br>$V_R = 25\text{ V}; T_j = 150\text{ °C}$<br>$V_R = 75\text{ V}; T_j = 150\text{ °C}$ | 30<br>2.5<br>60<br>100  | nA<br>$\mu\text{A}$<br>$\mu\text{A}$<br>$\mu\text{A}$ |
| $C_d$            | 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 |            | 360   | K/W  |
| $R_{th\ j-a}$  | thermal resistance from junction to ambient   | note 1     | 500   | K/W  |

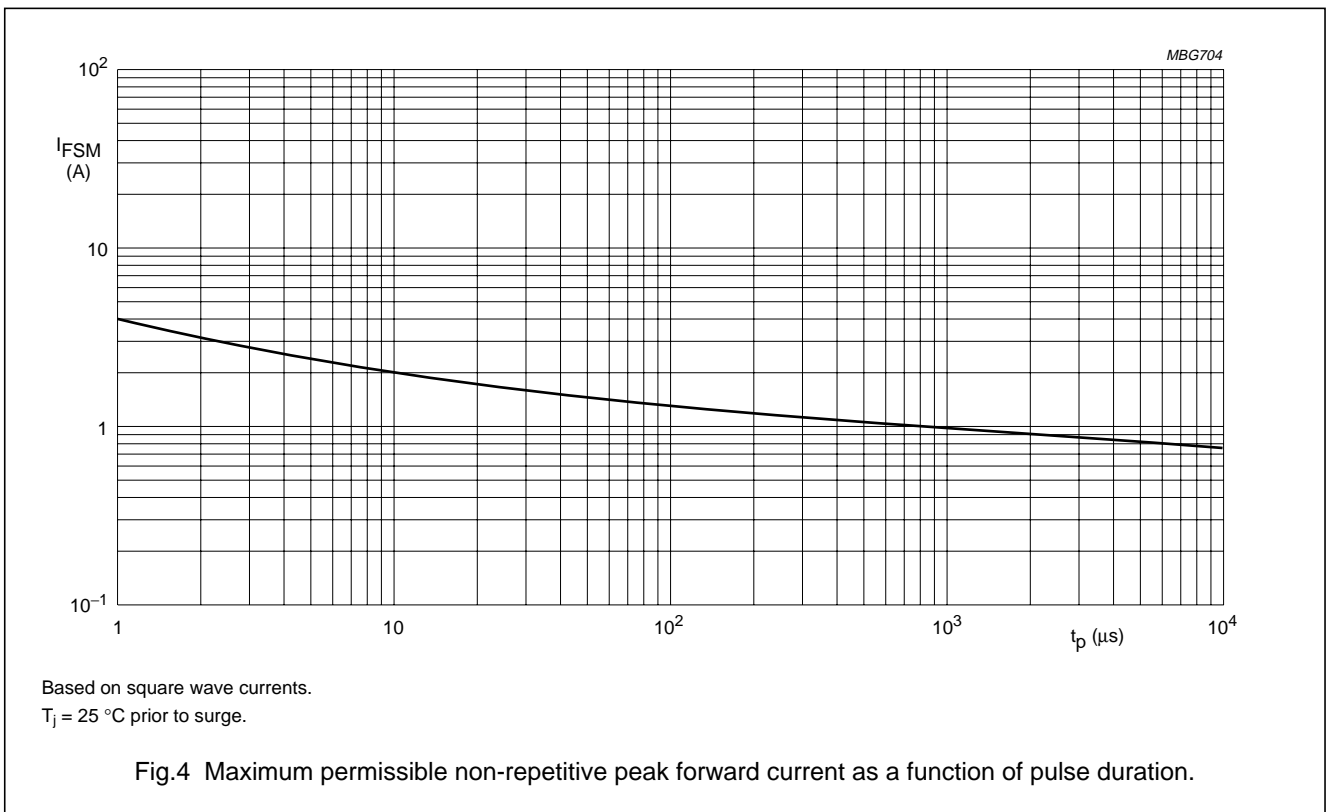
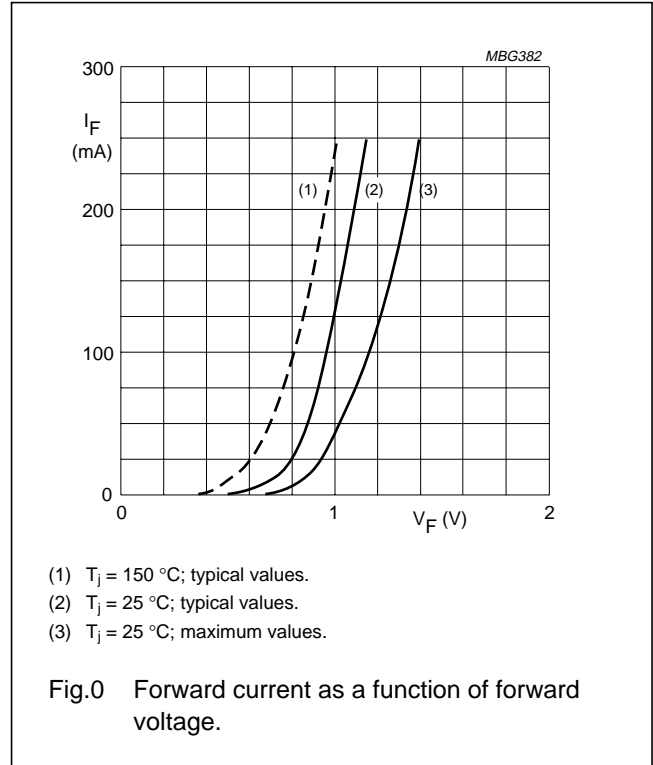
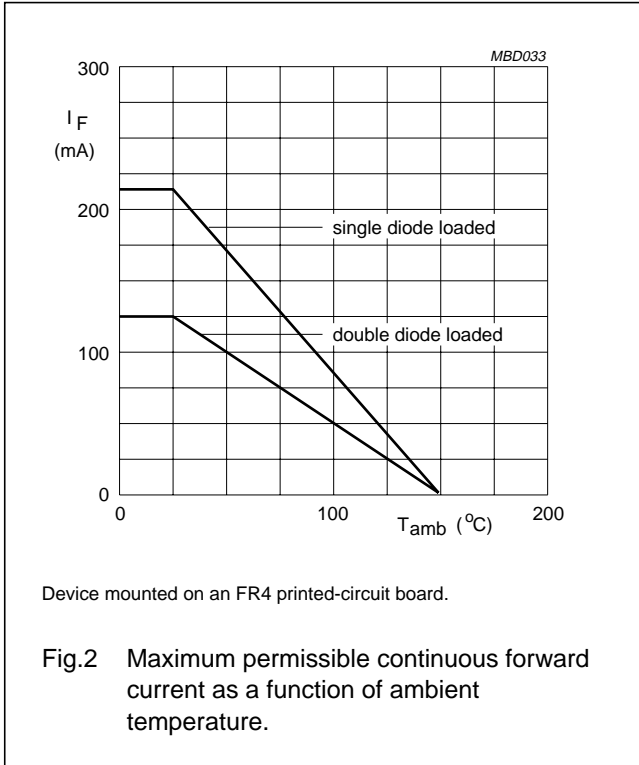
**Note**

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

High-speed double diode

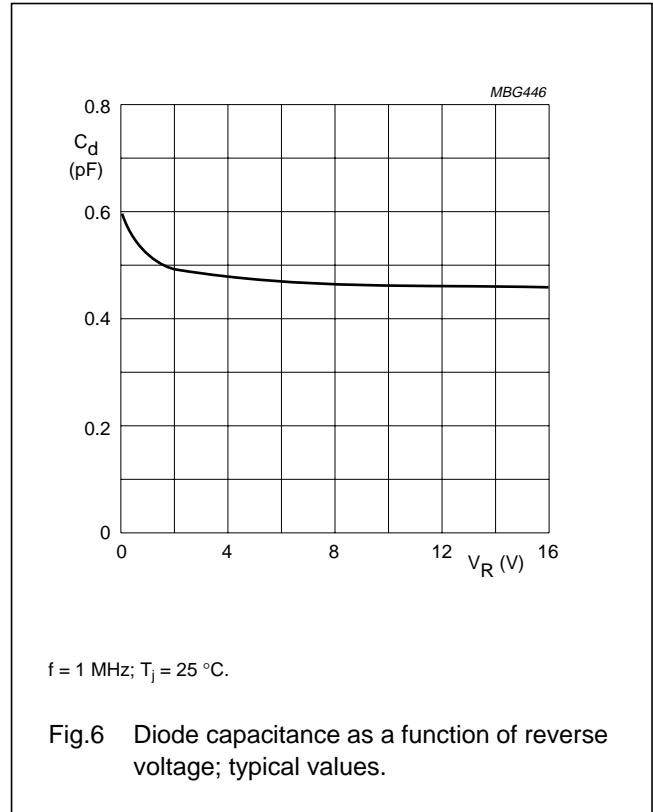
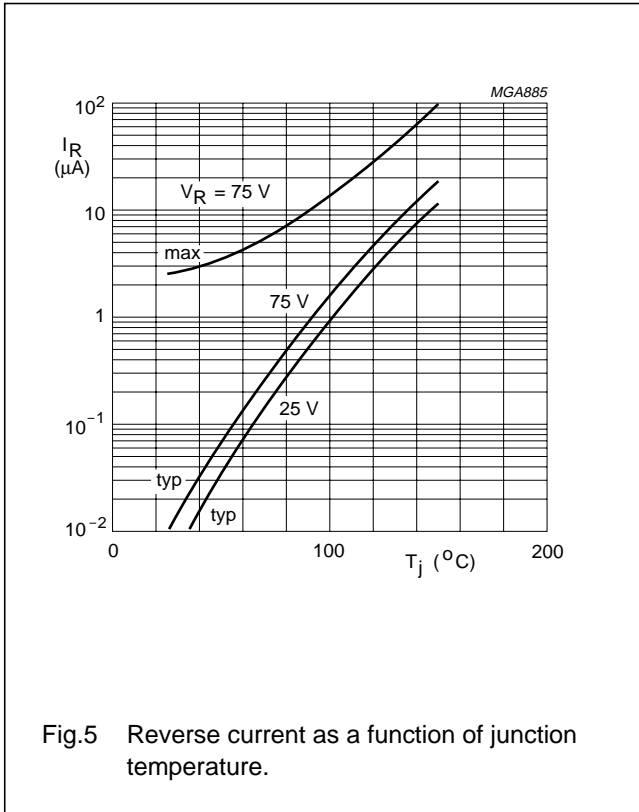
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GRAPHICAL DATA



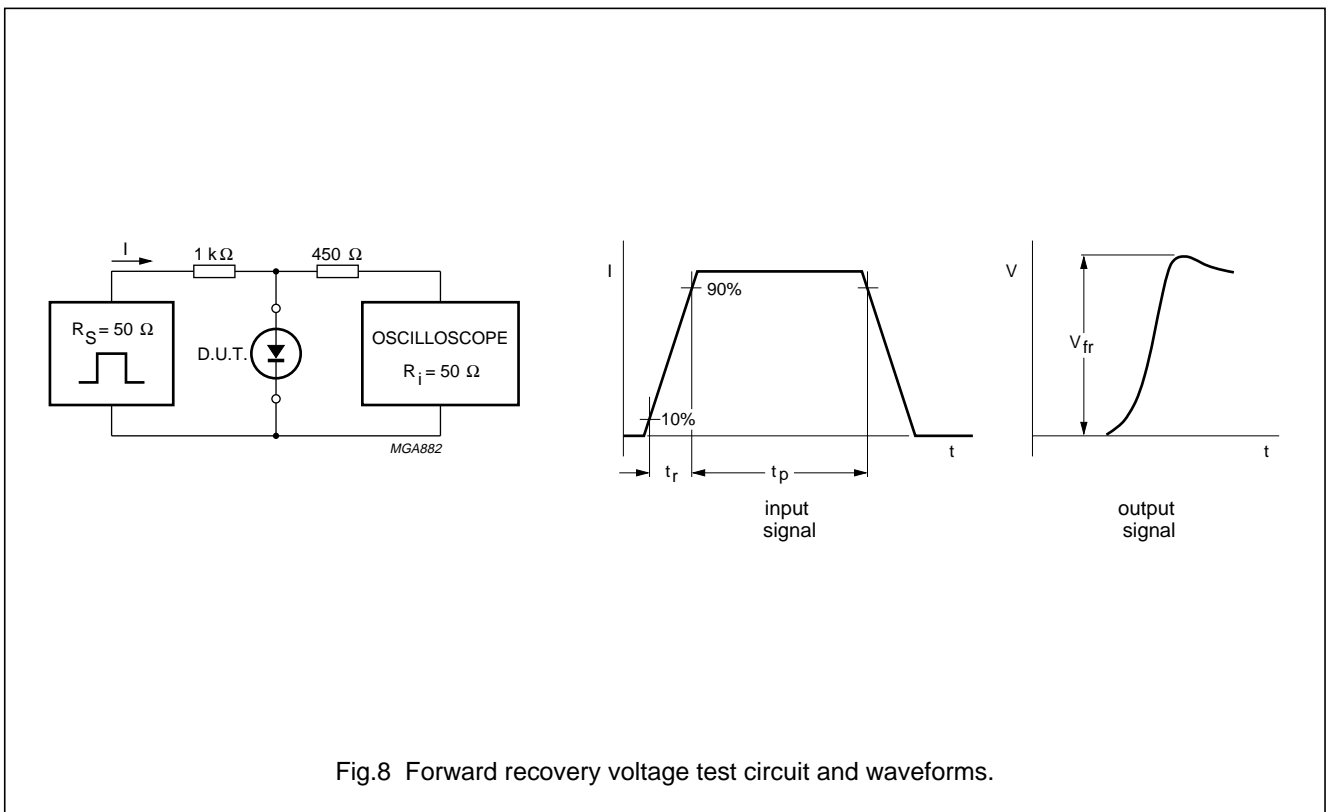
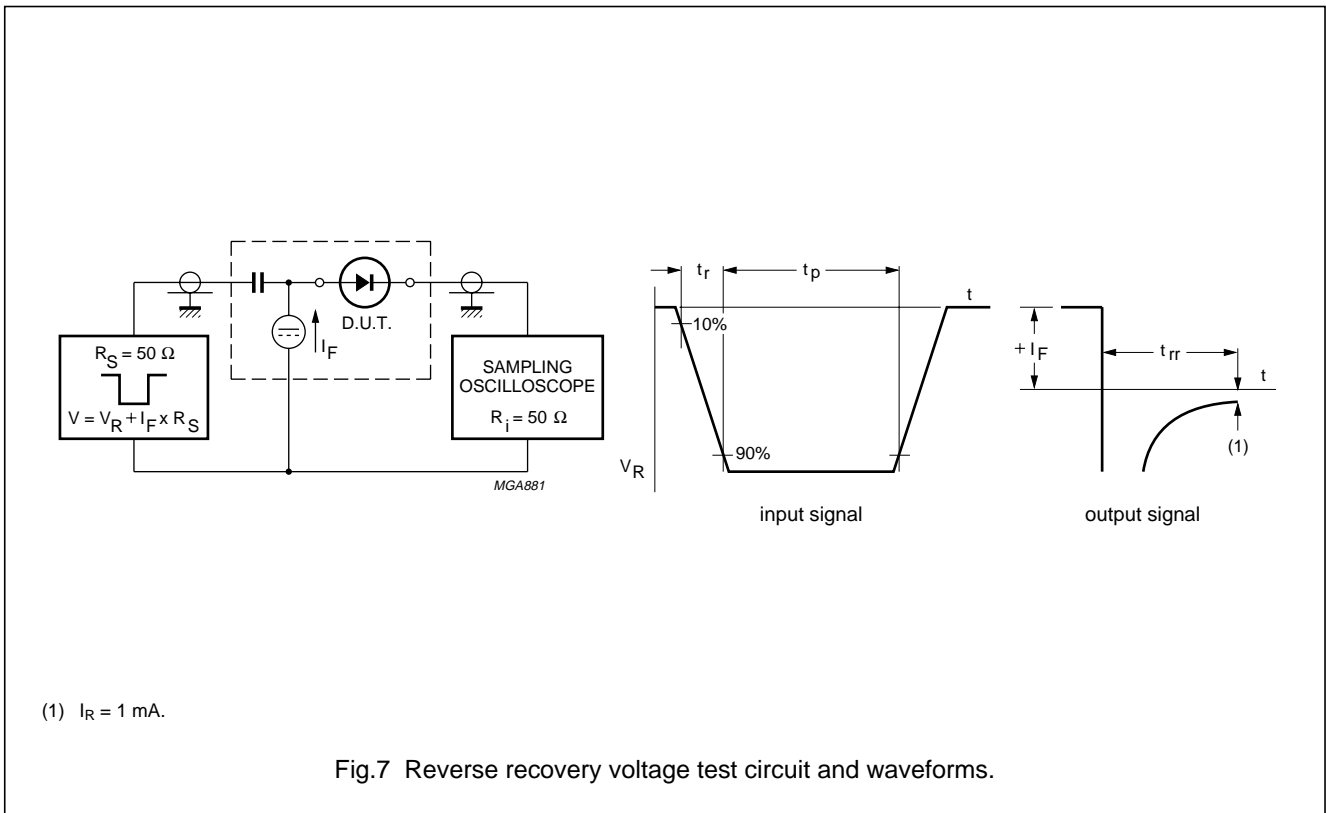
High-speed double diode

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High-speed double diode

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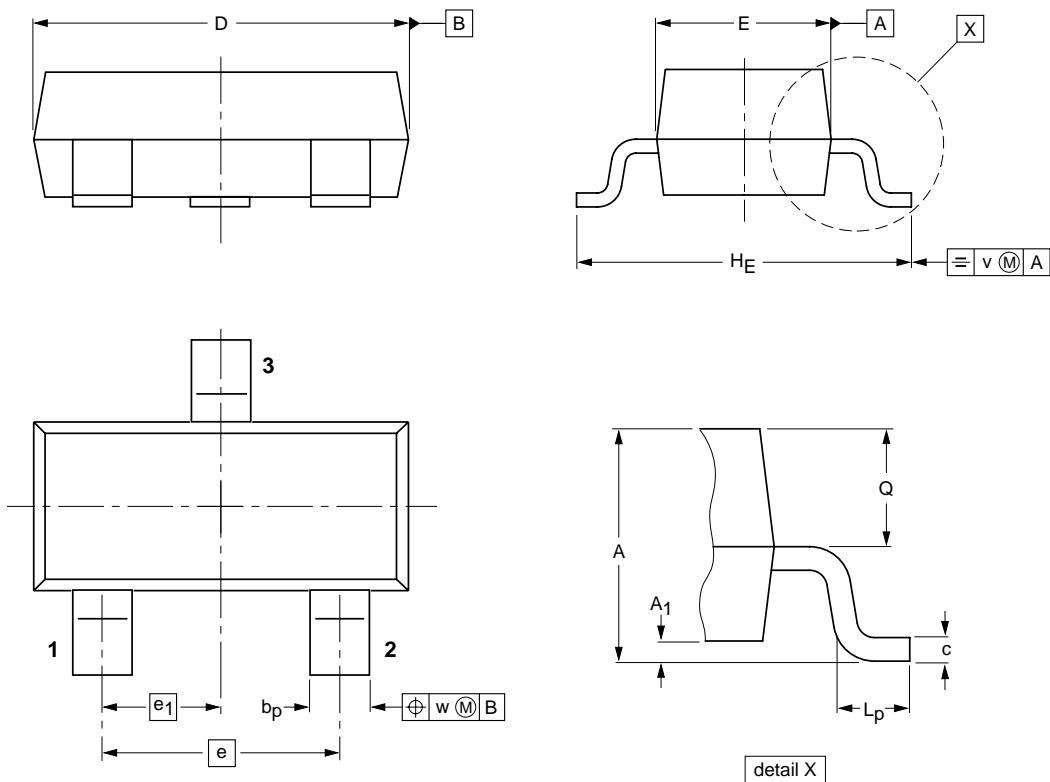
# High-speed double diode

BAV70

## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



**DIMENSIONS (mm are the original dimensions)**

| UNIT | A          | A <sub>1</sub><br>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<br>0.9 | 0.1                    | 0.48<br>0.38   | 0.15<br>0.09 | 3.0<br>2.8 | 1.4<br>1.2 | 1.9 | 0.95           | 2.5<br>2.1     | 0.45<br>0.15   | 0.55<br>0.45 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES |          |      | EUROPEAN PROJECTION | ISSUE DATE           |
|-----------------|------------|----------|------|---------------------|----------------------|
|                 | IEC        | JEDEC    | EIAJ |                     |                      |
| SOT23           |            | TO-236AB |      |                     | 97-02-28<br>99-09-13 |



## High-speed double diode

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## DATA SHEET STATUS

| DATA SHEET STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | DEFINITIONS  |
|----------------------------------|-------------------------------|--|
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| Preliminary data                 | Qualification                 | This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.                                     |
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**NOTES**

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**NOTES**

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