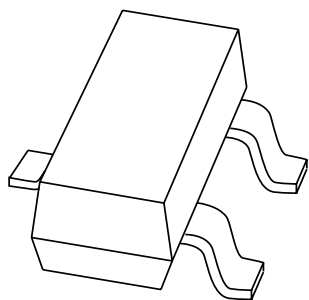


DATA SHEET



BAV70 High-speed double diode

Product specification
Supersedes data of 1999 May 05

2001 Oct 11

High-speed double diode

BAV70

FEATURES

- 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. 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

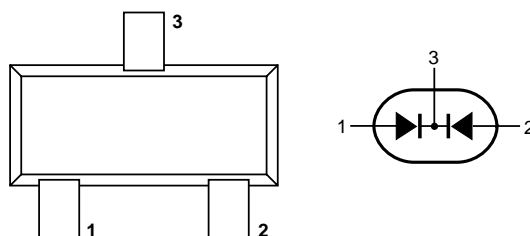
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BAV70 | A4* |

Note

- * = 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 |



Top view

MAM383

Fig.1 Simplified outline (SOT23) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| 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 | | – | 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 | $T_{amb} = 25\text{ °C}$; 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

BAV70

ELECTRICAL CHARACTERISTICS $T_j = 25\text{ °C}$ 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 $V_R = 25\text{ V}$ $V_R = 75\text{ V}$ $V_R = 25\text{ V}; T_j = 150\text{ °C}$ $V_R = 75\text{ V}; T_j = 150\text{ °C}$ | 30 2.5 60 100 | nA μA μA μA |
| 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 $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; 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 |
|----------------|---|------------|-------|------|
| $R_{th\ j-tp}$ | 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 |

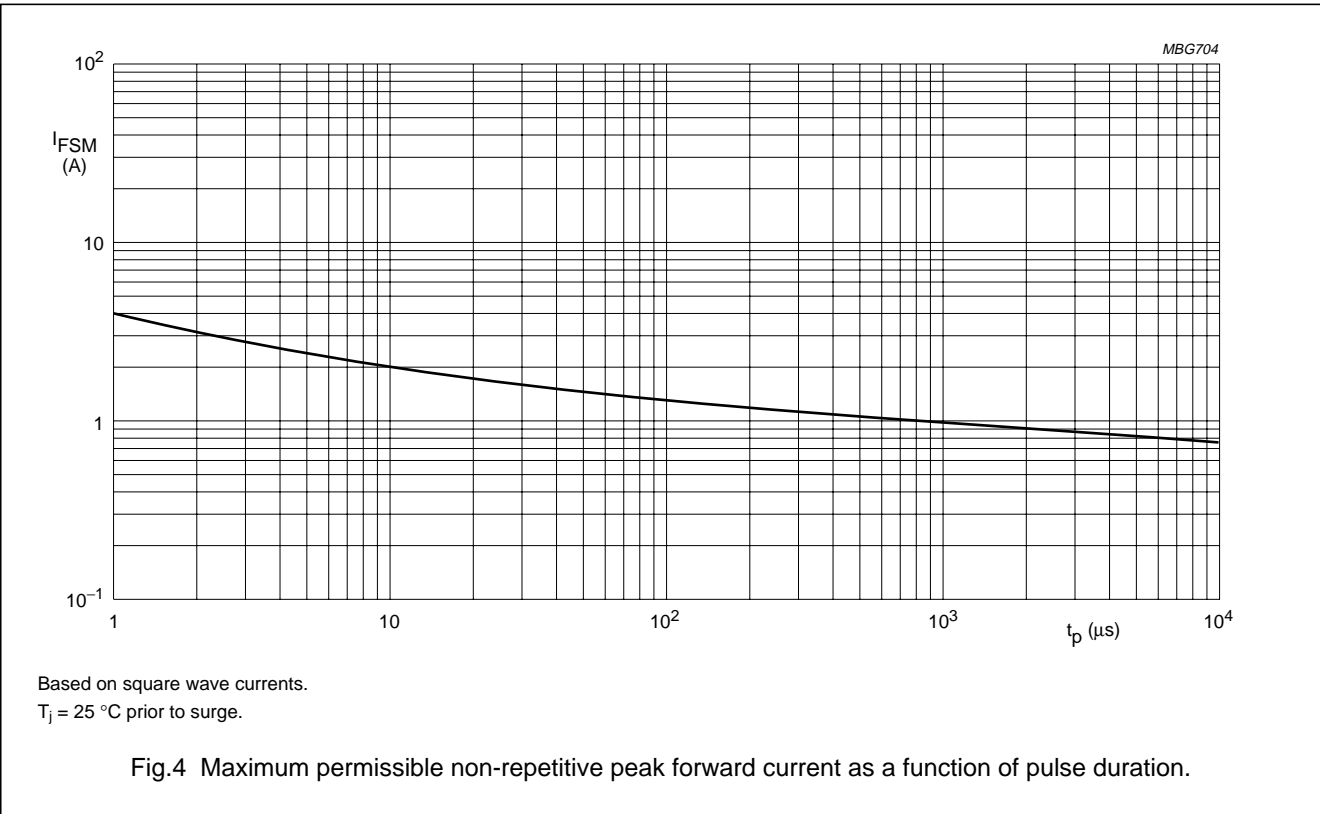
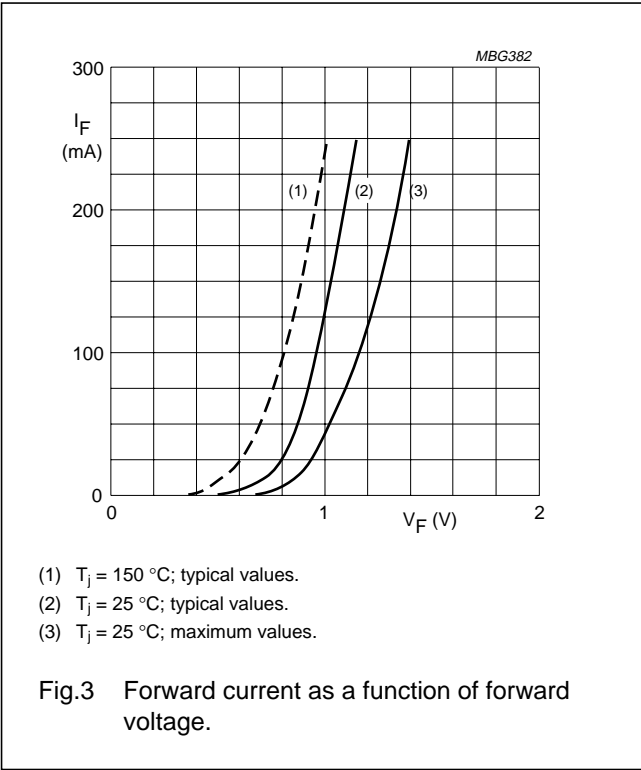
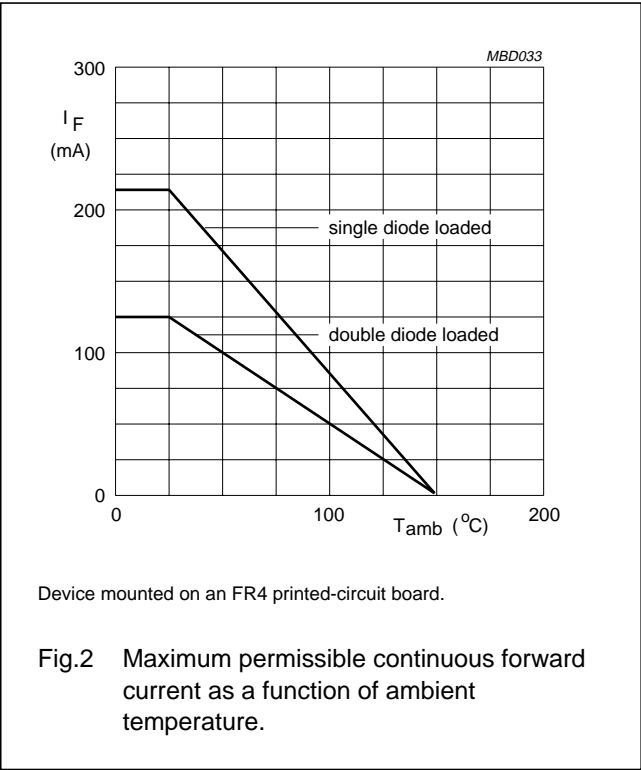
Note

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

High-speed double diode

BAV70

GRAPHICAL DATA



High-speed double diode

BAV70

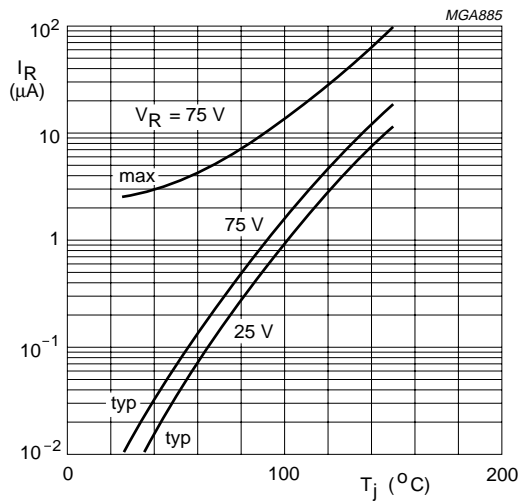
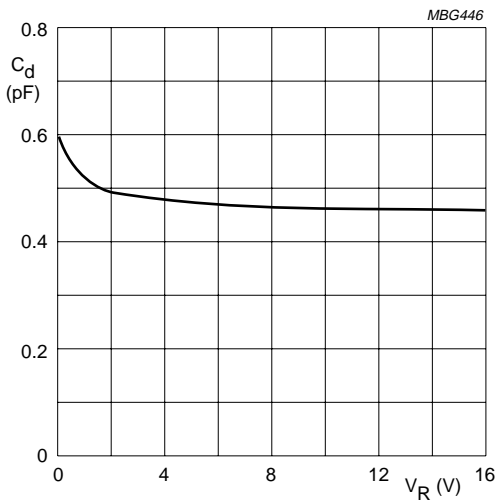


Fig.5 Reverse current as a function of junction temperature.

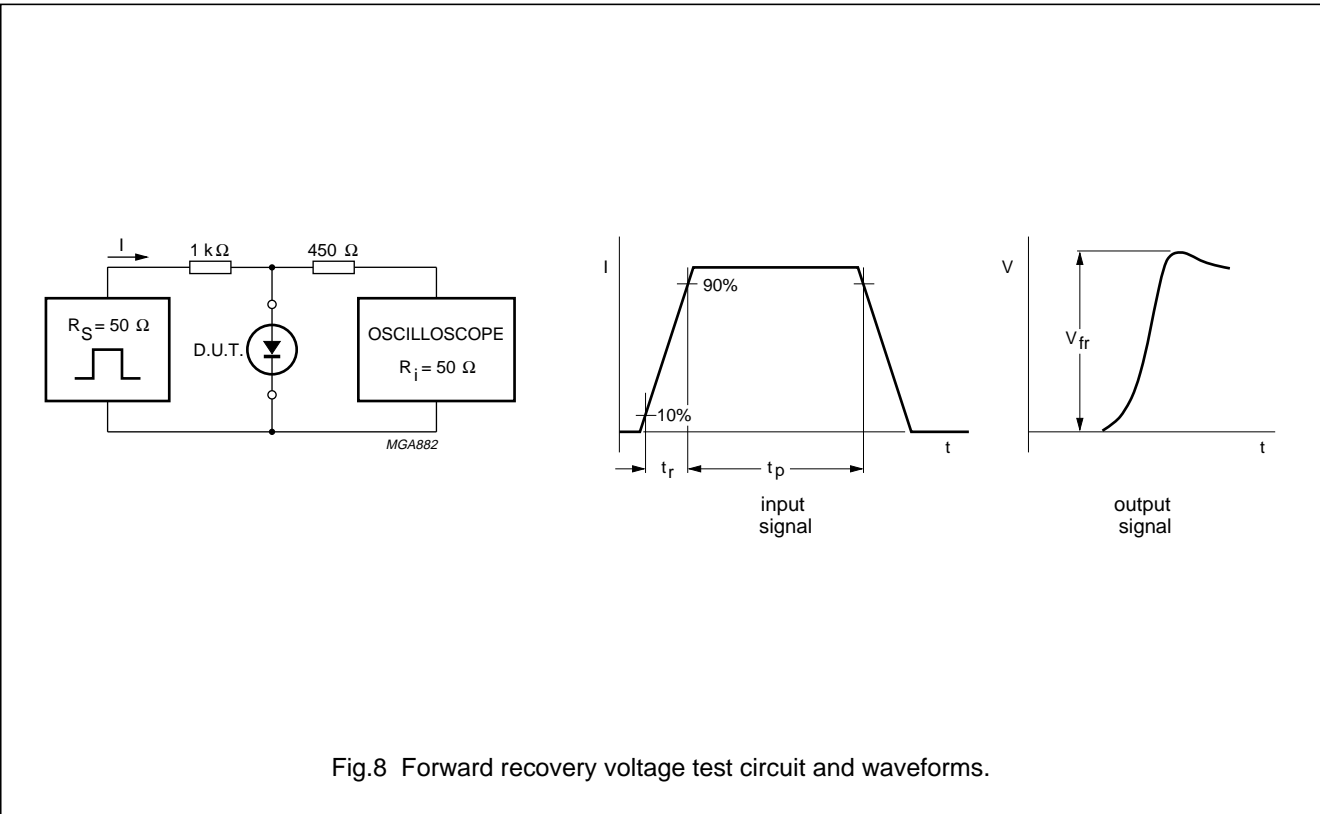
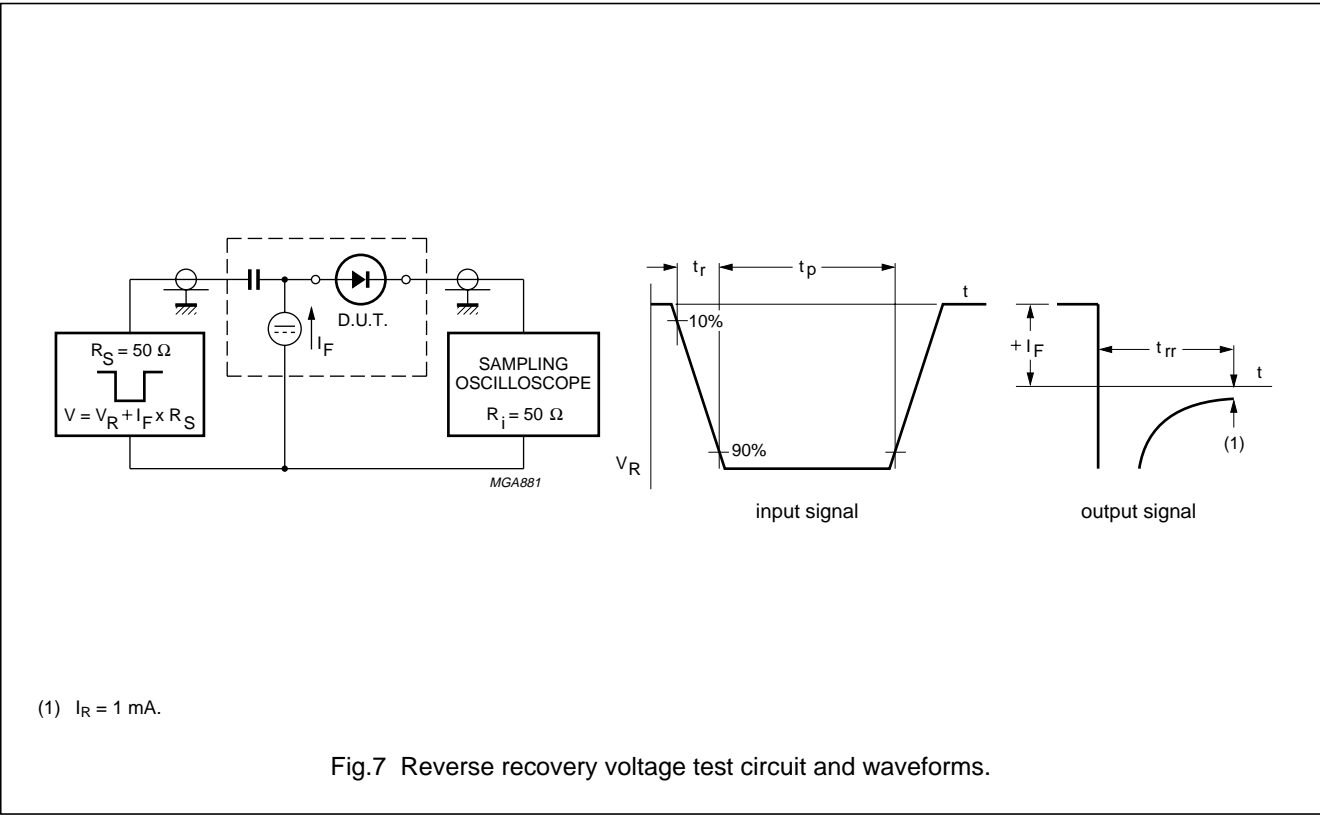


$f = 1\text{ MHz}$; $T_j = 25\text{ }^{\circ}C$.

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

High-speed double diode

BAV70



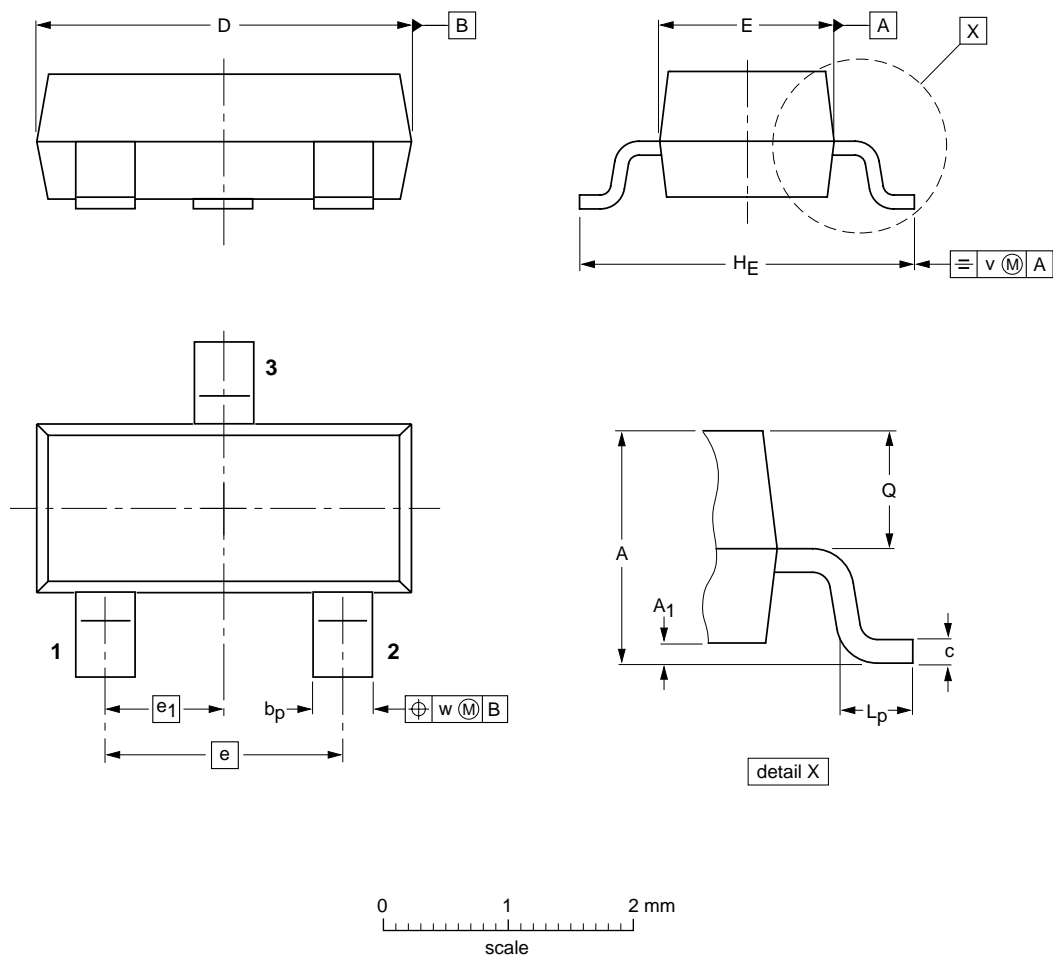
High-speed double diode

BAV70

PACKAGE OUTLINE

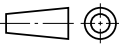
Plastic surface mounted package; 3 leads

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 | | TO-236AB | | |  | 97-02-28 99-09-13 |

High-speed double diode

BAV70

DATA SHEET STATUS

| DATA SHEET STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITIONS |
|----------------------------------|-------------------------------|--|
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NOTES

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Contact information

For additional information please visit **<http://www.semiconductors.philips.com>**. Fax: **+31 40 27 24825**

For sales offices addresses send e-mail to: **sales.addresses@www.semiconductors.philips.com**.

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