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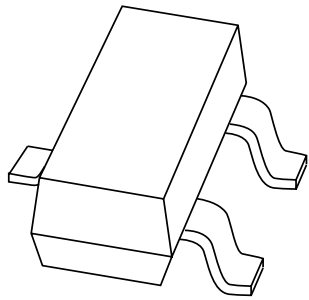
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Kind regards,

Team Nexperia

# DATA SHEET



**BAV74**

High-speed double diode

Product data sheet  
Supersedes data of 1999 May 11

2004 Jan 14

# High-speed double diode

**BAV74**

## FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 50 V
- Repetitive peak reverse voltage: max. 60 V
- Repetitive peak forward current: max. 450 mA.

## APPLICATIONS

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

## DESCRIPTION

The BAV74 consists of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in a small SOT23 plastic SMD package.

## MARKING

| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| BAV74       | JA*                         |

## Note

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

## LIMITING VALUES

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

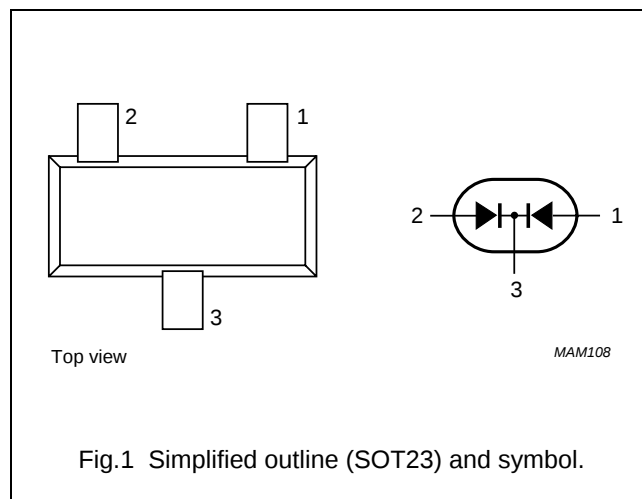
| SYMBOL           | PARAMETER                           | CONDITIONS                                                  | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|-------------------------------------------------------------|------|------|------|
| <b>Per diode</b> |                                     |                                                             |      |      |      |
| $V_{RRM}$        | repetitive peak reverse voltage     |                                                             | –    | 60   | V    |
| $V_R$            | continuous reverse voltage          |                                                             | –    | 50   | 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.

## PINNING

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



## High-speed double diode

BAV74

## ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |                                          |         |
|-------------|---------|------------------------------------------|---------|
|             | NAME    | DESCRIPTION                              | VERSION |
| BAV74       | –       | plastic surface mounted package; 3 leads | SOT23   |

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL           | PARAMETER                | CONDITIONS                                                                                                                                                                  | MAX.                   | UNIT                                                  |
|------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------|
| <b>Per diode</b> |                          |                                                                                                                                                                             |                        |                                                       |
| $V_F$            | forward voltage          | see Fig.3<br>$I_F = 1\text{ mA}$<br>$I_F = 10\text{ mA}$<br>$I_F = 100\text{ mA}$                                                                                           | 715<br>855<br>1.0      | mV<br>mV<br>V                                         |
| $I_R$            | reverse current          | see Fig.5<br>$V_R = 25\text{ V}$<br>$V_R = 50\text{ V}$<br>$V_R = 25\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$<br>$V_R = 50\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ | 30<br>0.1<br>30<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 $I_R = 10\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; 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  |

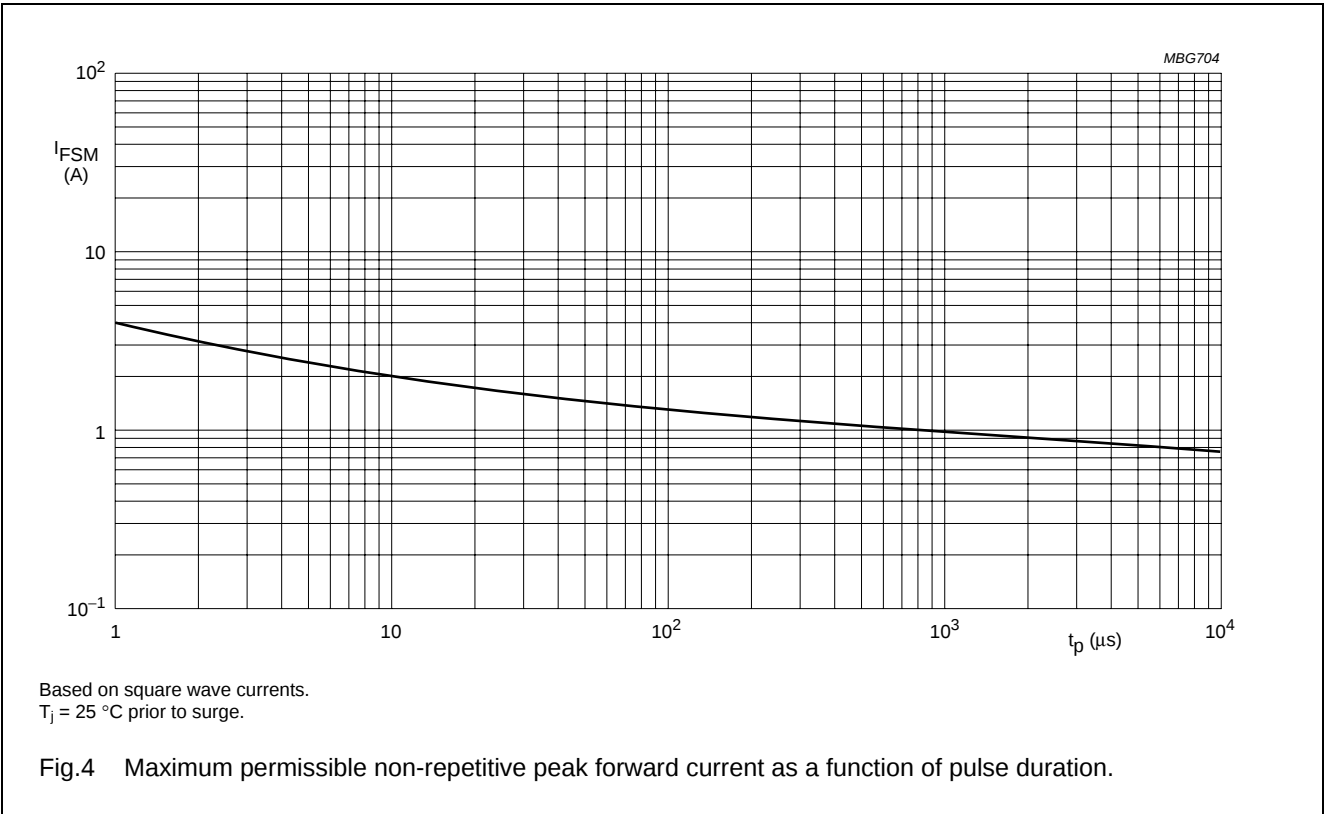
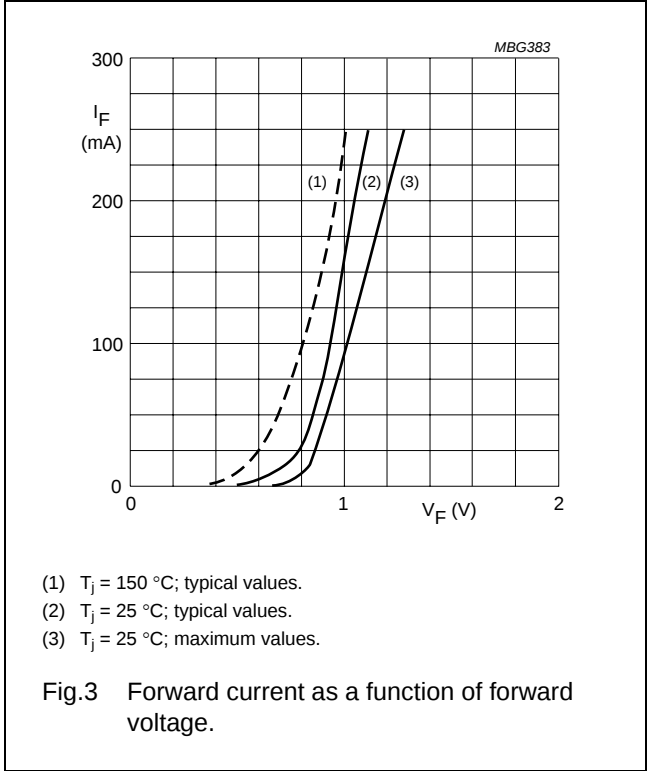
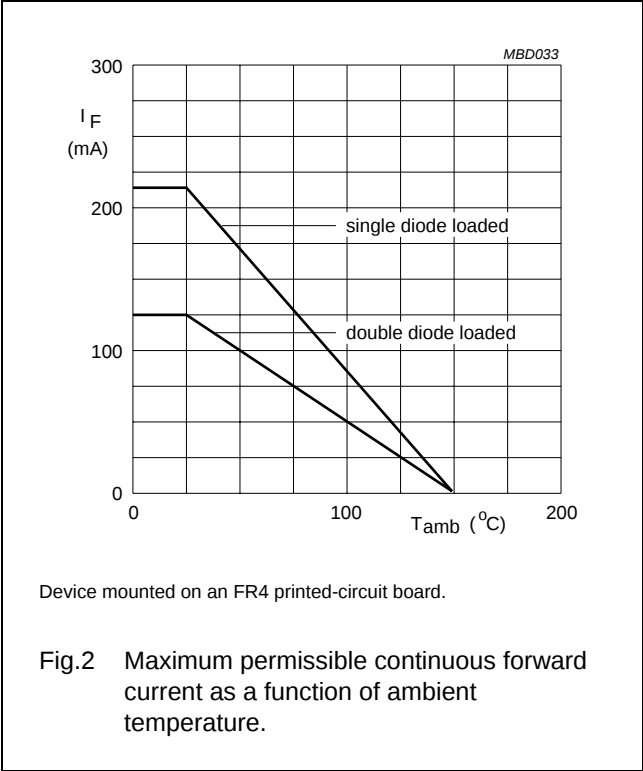
## Note

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

High-speed double diode

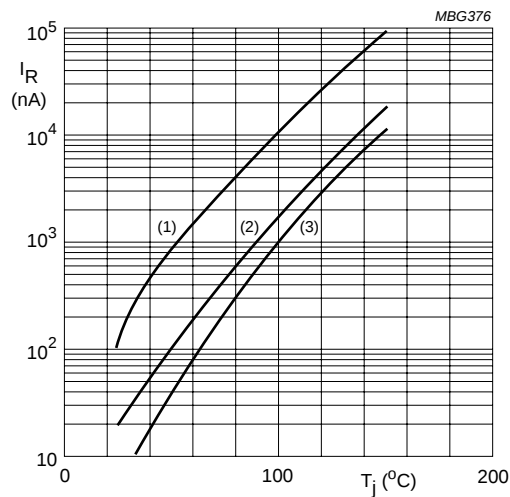
BAV74

GRAPHICAL DATA



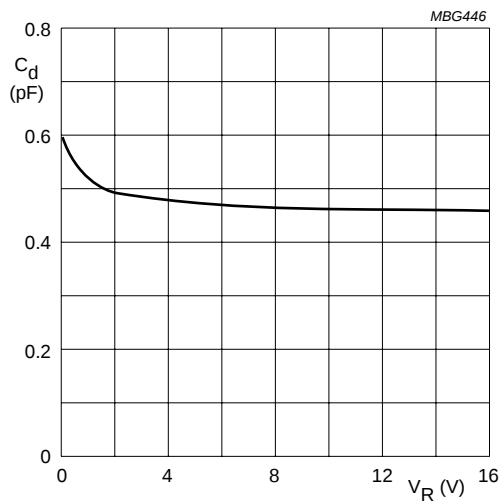
High-speed double diode

BAV74



- (1)  $V_R = 50\text{ V}$ ; maximum values.
- (2)  $V_R = 50\text{ V}$ ; typical values.
- (3)  $V_R = 25\text{ V}$ ; typical values.

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

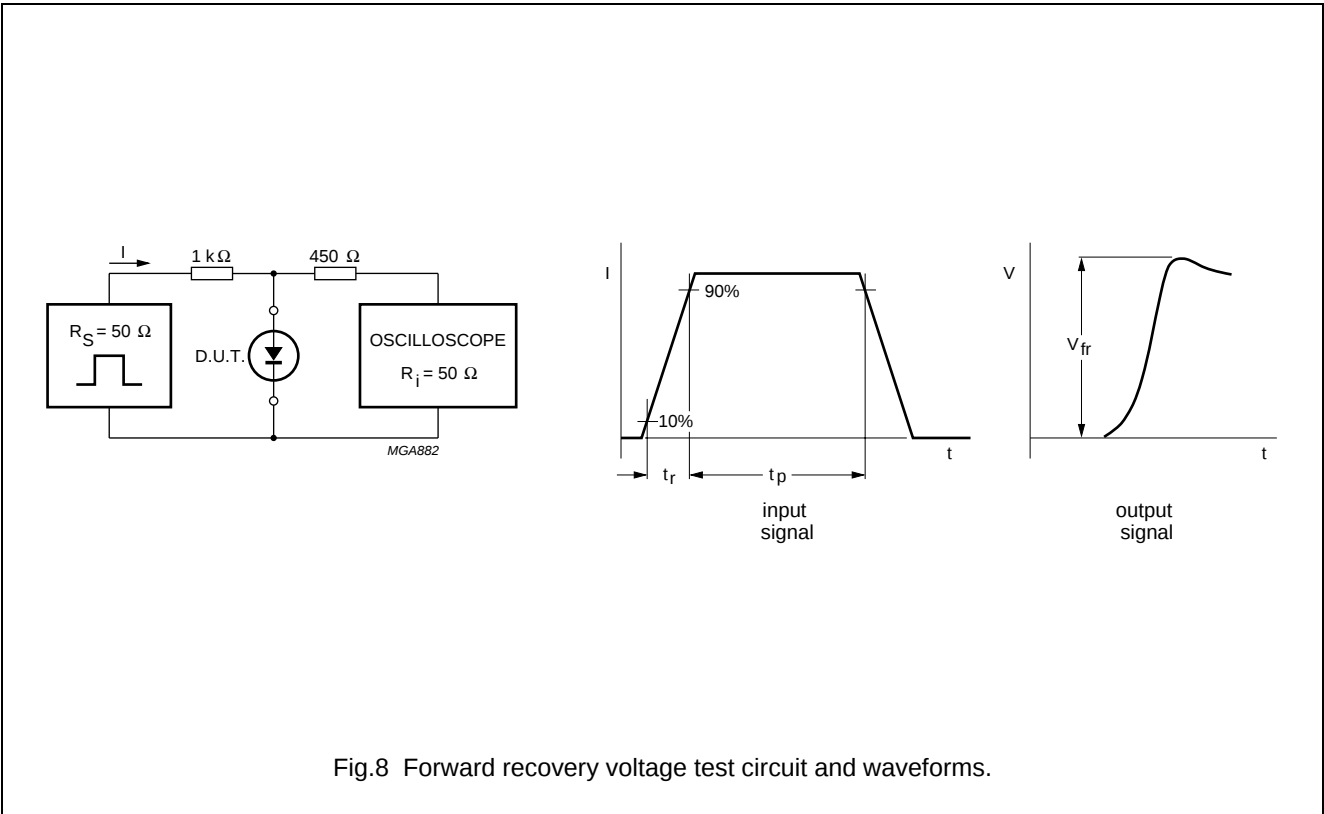
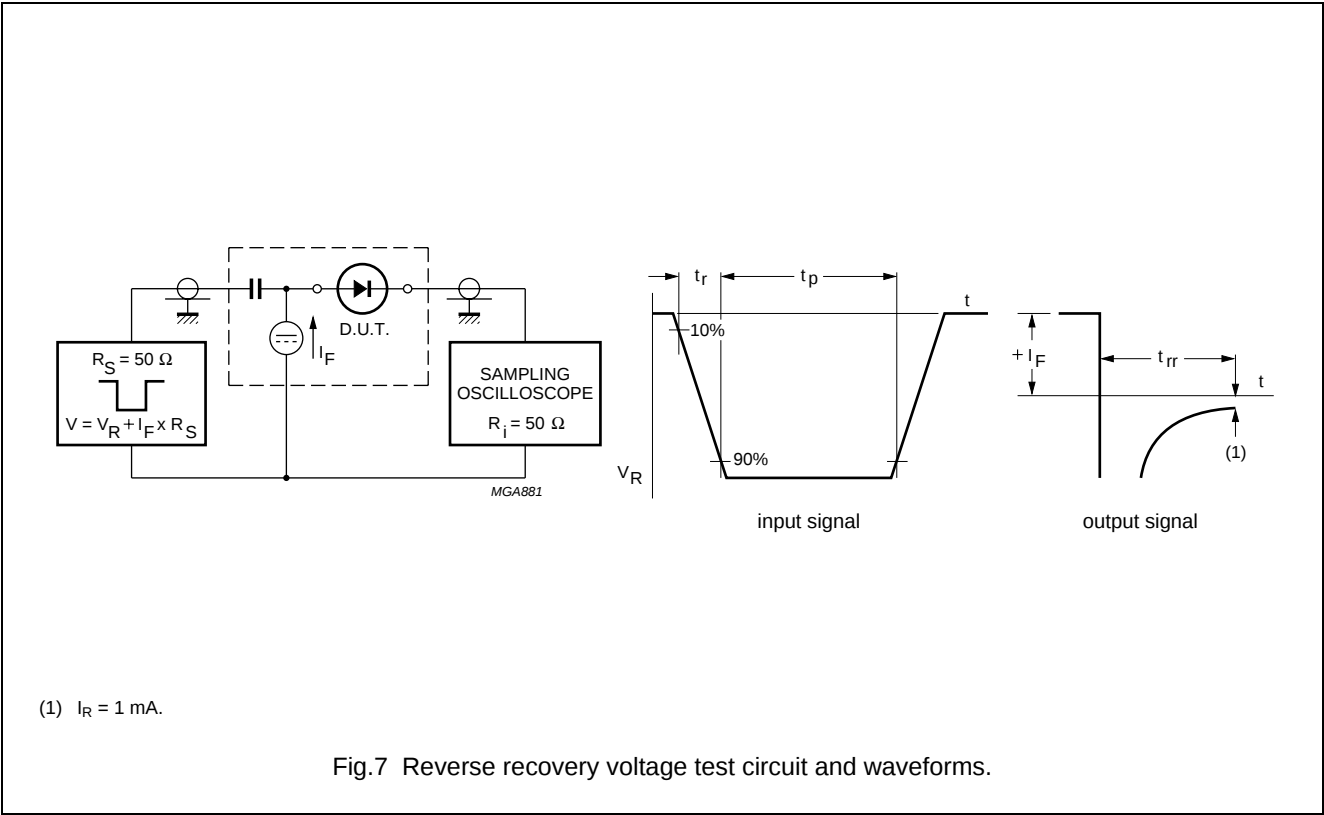


$f = 1\text{ MHz}$ ;  $T_j = 25\text{ }^{\circ}\text{C}$ .

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

High-speed double diode

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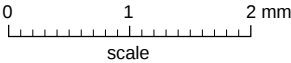
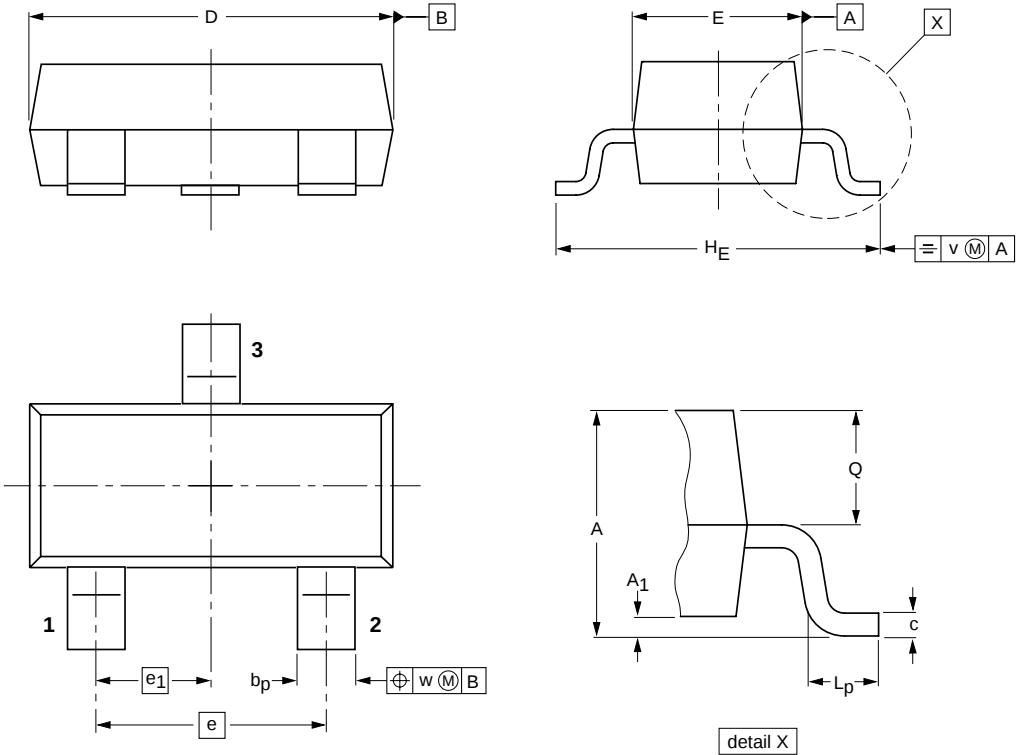
High-speed double diode

BAV74

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<br>VERSION | REFERENCES |          |       |  | EUROPEAN<br>PROJECTION | ISSUE DATE           |
|--------------------|------------|----------|-------|--|------------------------|----------------------|
|                    | IEC        | JEDEC    | JEITA |  |                        |                      |
| SOT23              |            | TO-236AB |       |  |                        | 04-11-04<br>06-03-16 |

## High-speed double diode

BAV74

## DATA SHEET STATUS

| DOCUMENT STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | DEFINITION                                                                            |
|--------------------------------|-------------------------------|---------------------------------------------------------------------------------------|
| Objective data sheet           | Development                   | This document contains data from the objective specification for product development. |
| Preliminary data sheet         | Qualification                 | This document contains data from the preliminary specification.                       |
| Product data sheet             | Production                    | This document contains the product specification.                                     |

## Notes

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# ***NXP Semiconductors***

## **Customer notification**

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## **Contact information**

For additional information please visit: **<http://www.nxp.com>**

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