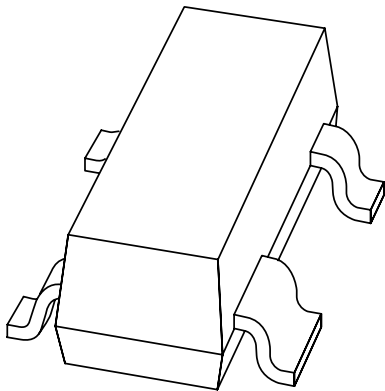


# DATA SHEET



## **BAW101** High voltage double diode

Product data sheet

2003 May 13

High voltage double diode

BAW101

FEATURES

- Small plastic SMD package
- High switching speed: max. 50 ns
- High continuous reverse voltage: 300 V
- Electrically insulated diodes.

APPLICATIONS

- High voltage switching
- Automotive
- Communication.

DESCRIPTION

The BAW101 is a high-speed switching diode array with two separate dice, fabricated in planar technology and encapsulated in a small SOT143B plastic SMD package.

MARKING

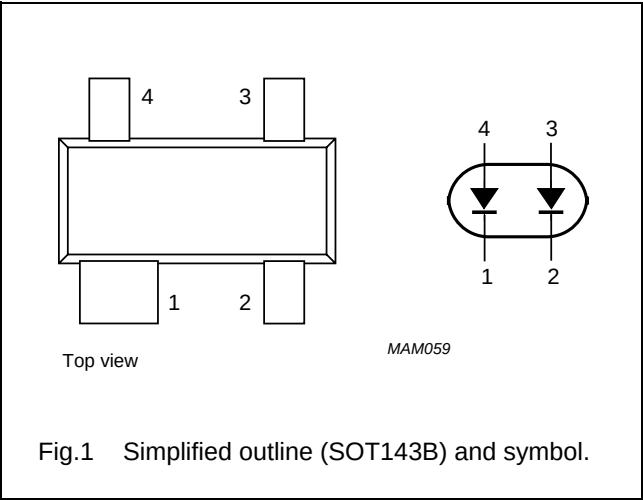
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| BAW101      | *AB                         |

Note

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

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | cathode 1   |
| 2   | cathode 2   |
| 3   | anode 2     |
| 4   | anode 1     |



## High voltage double diode

BAW101

**LIMITING VALUES**

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

| SYMBOL           | PARAMETER                           | CONDITIONS                                                                   | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|------------------------------------------------------------------------------|------|------|------|
| <b>Per diode</b> |                                     |                                                                              |      |      |      |
| $V_R$            | continuous reverse voltage          |                                                                              | –    | 300  | V    |
|                  |                                     | series connection                                                            | –    | 600  | V    |
| $V_{RRM}$        | repetitive peak reverse voltage     |                                                                              | –    | 300  | V    |
|                  |                                     | series connection                                                            | –    | 600  | V    |
| $I_F$            | continuous forward current          | single diode loaded; note 1; see Fig.2                                       | –    | 250  | mA   |
|                  |                                     | double diode loaded; note 1; see Fig.2                                       | –    | 140  | mA   |
| $I_{FRM}$        | repetitive peak forward current     |                                                                              | –    | 625  | mA   |
| $I_{FSM}$        | non-repetitive peak forward current | square wave; $T_j = 25\text{ °C}$ prior to surge; $t = 1\text{ }\mu\text{s}$ | –    | 4.5  | A    |
| $P_{tot}$        | total power dissipation             | $T_{amb} = 25\text{ °C}$ ; note 1                                            | –    | 350  | mW   |
| $T_{stg}$        | storage temperature                 |                                                                              | –65  | +150 | °C   |
| $T_j$            | junction temperature                |                                                                              | –    | 150  | °C   |
| $T_{amb}$        | operating ambient temperature       |                                                                              | –65  | +150 | °C   |

**Note**

- Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm<sup>2</sup>.

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

| SYMBOL           | PARAMETER                 | CONDITIONS                                                                                                                    | MIN. | MAX. | UNIT          |
|------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------|------|------|---------------|
| <b>Per diode</b> |                           |                                                                                                                               |      |      |               |
| $V_{BR(R)}$      | reverse breakdown voltage | $I_R = 100\text{ }\mu\text{A}$                                                                                                | 300  | –    | V             |
| $V_F$            | forward voltage           | $I_F = 100\text{ mA}$ ; note 1                                                                                                | –    | 1.1  | V             |
| $I_R$            | reverse current           | $V_R = 250\text{ V}$                                                                                                          | –    | 150  | nA            |
|                  |                           | $V_R = 250\text{ V}$ ; $T_{amb} = 150\text{ °C}$                                                                              | –    | 50   | $\mu\text{A}$ |
| $t_{rr}$         | reverse recovery time     | when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; measured at $I_R = 3\text{ mA}$ | –    | 50   | ns            |
| $C_d$            | diode capacitance         | $V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$                                                                                       | –    | 2    | pF            |

**Note**

- Pulse test: pulse width = 300  $\mu\text{s}$ ;  $\delta = 0.02$ .

High voltage double diode

BAW101

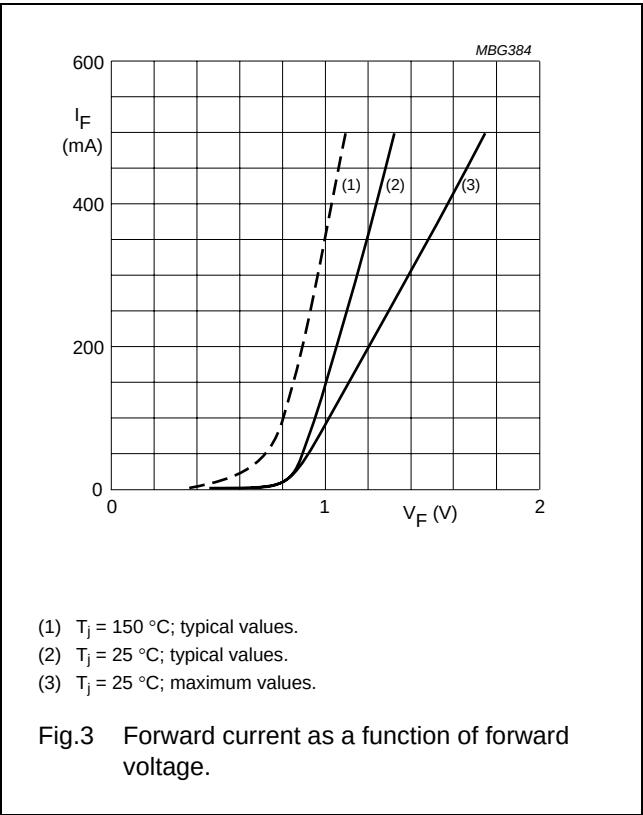
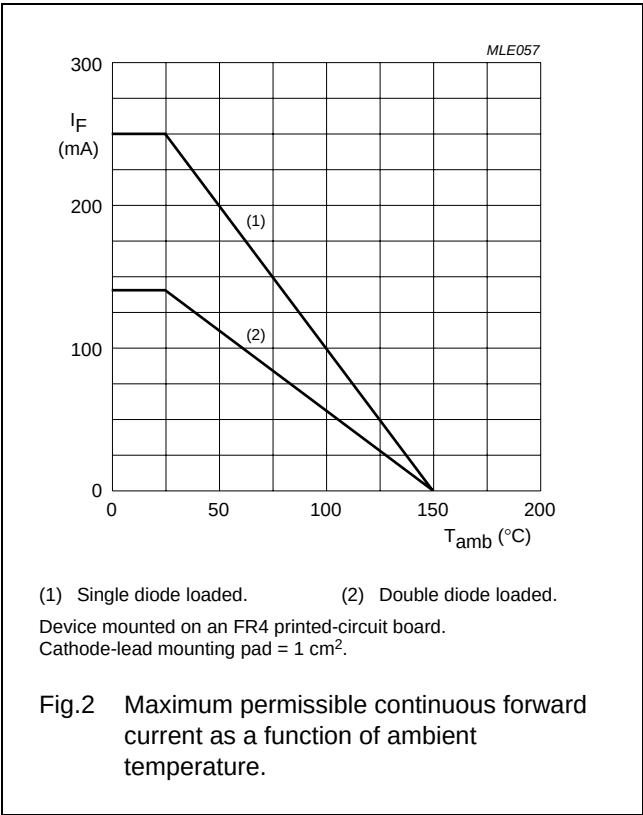
THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                           | CONDITIONS | VALUE | UNIT |
|---------------|-----------------------------------------------------|------------|-------|------|
| $R_{th\,j-s}$ | thermal resistance from junction to soldering point | note 1     | 255   | K/W  |
| $R_{th\,j-a}$ | thermal resistance from junction to ambient         | note 2     | 357   | K/W  |

Notes

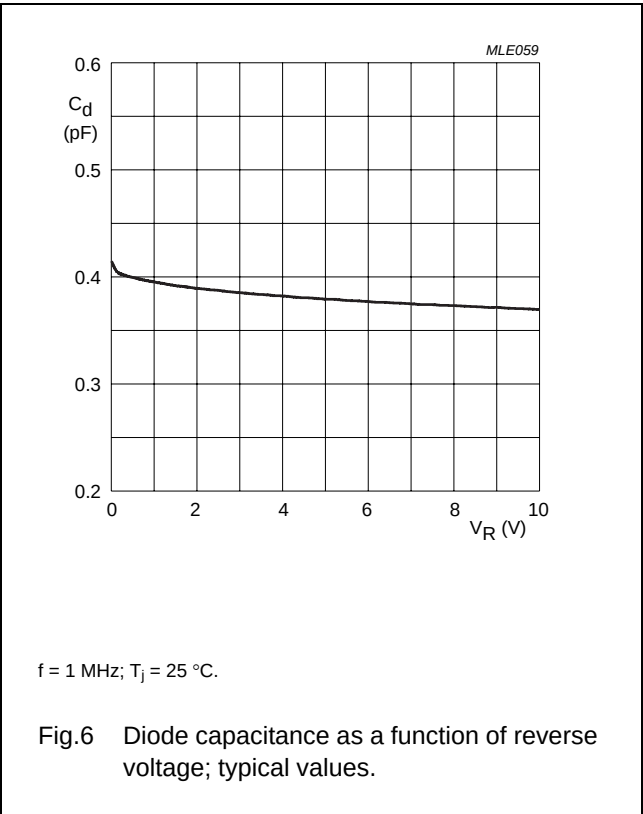
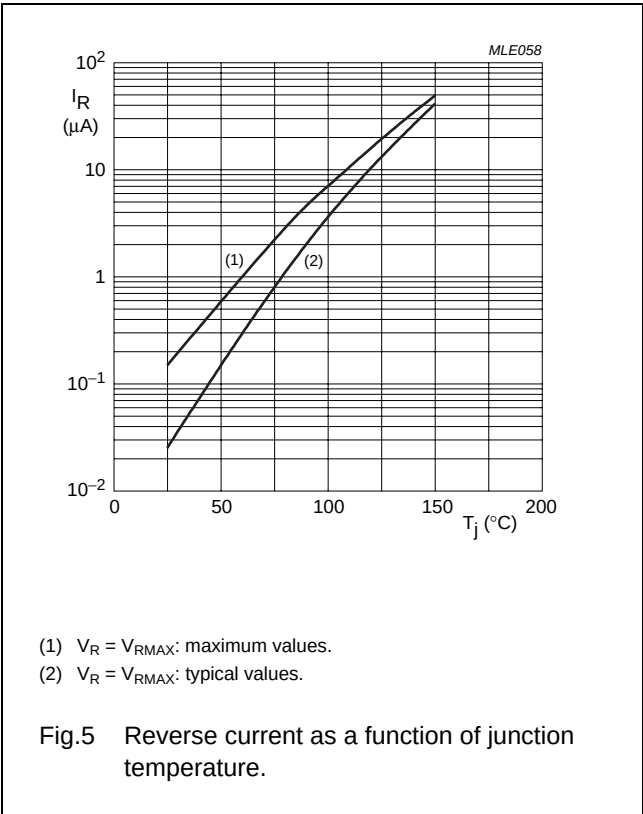
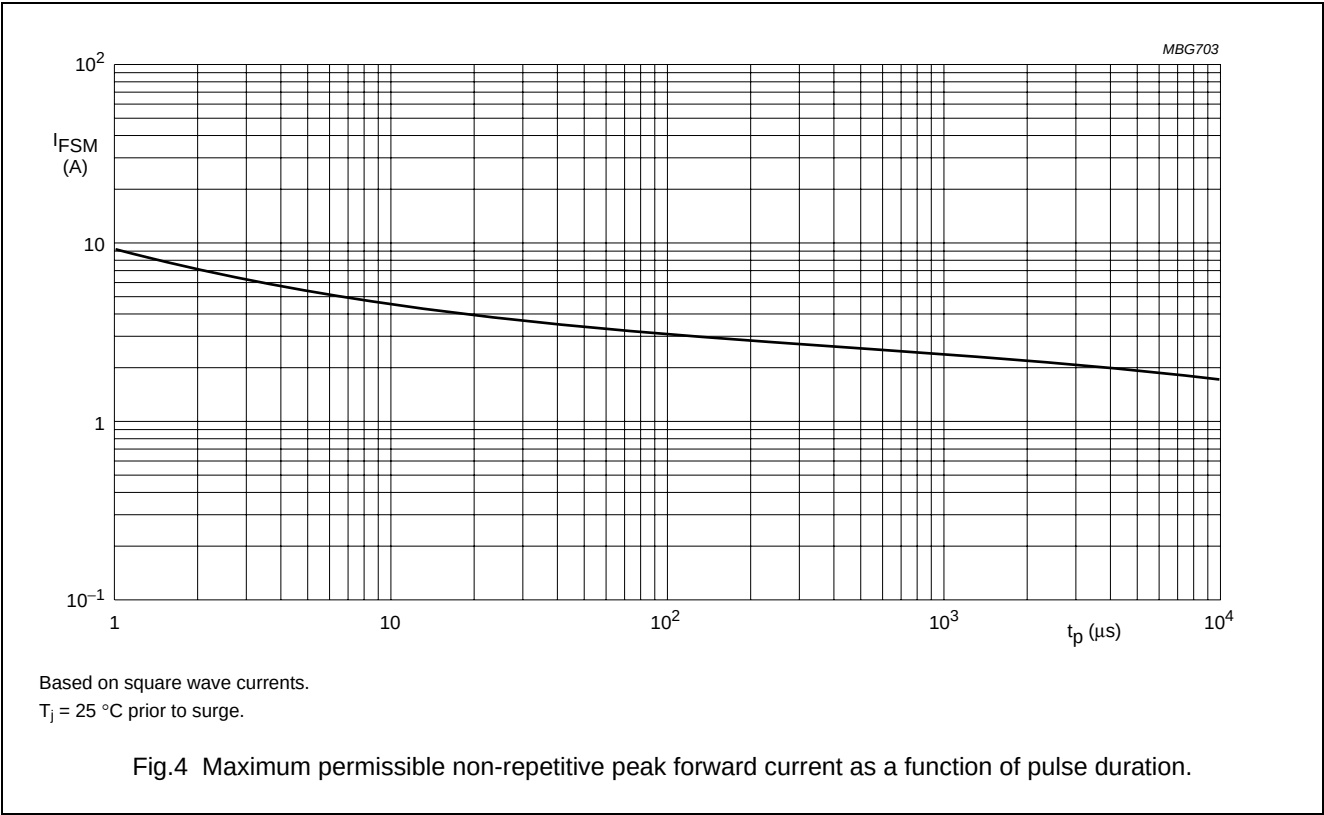
1. One or more diodes loaded.
2. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm<sup>2</sup>.

GRAPHICAL DATA



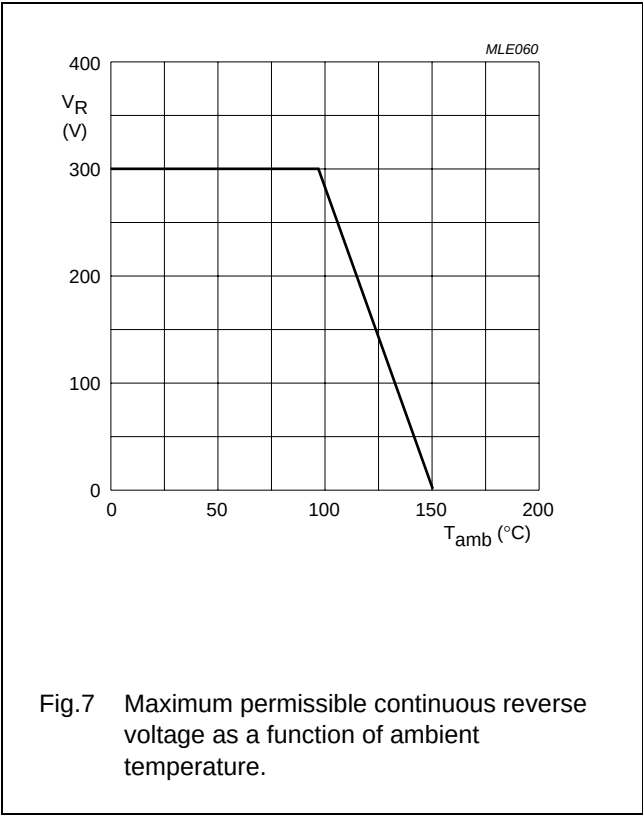
High voltage double diode

BAW101



High voltage double diode

BAW101



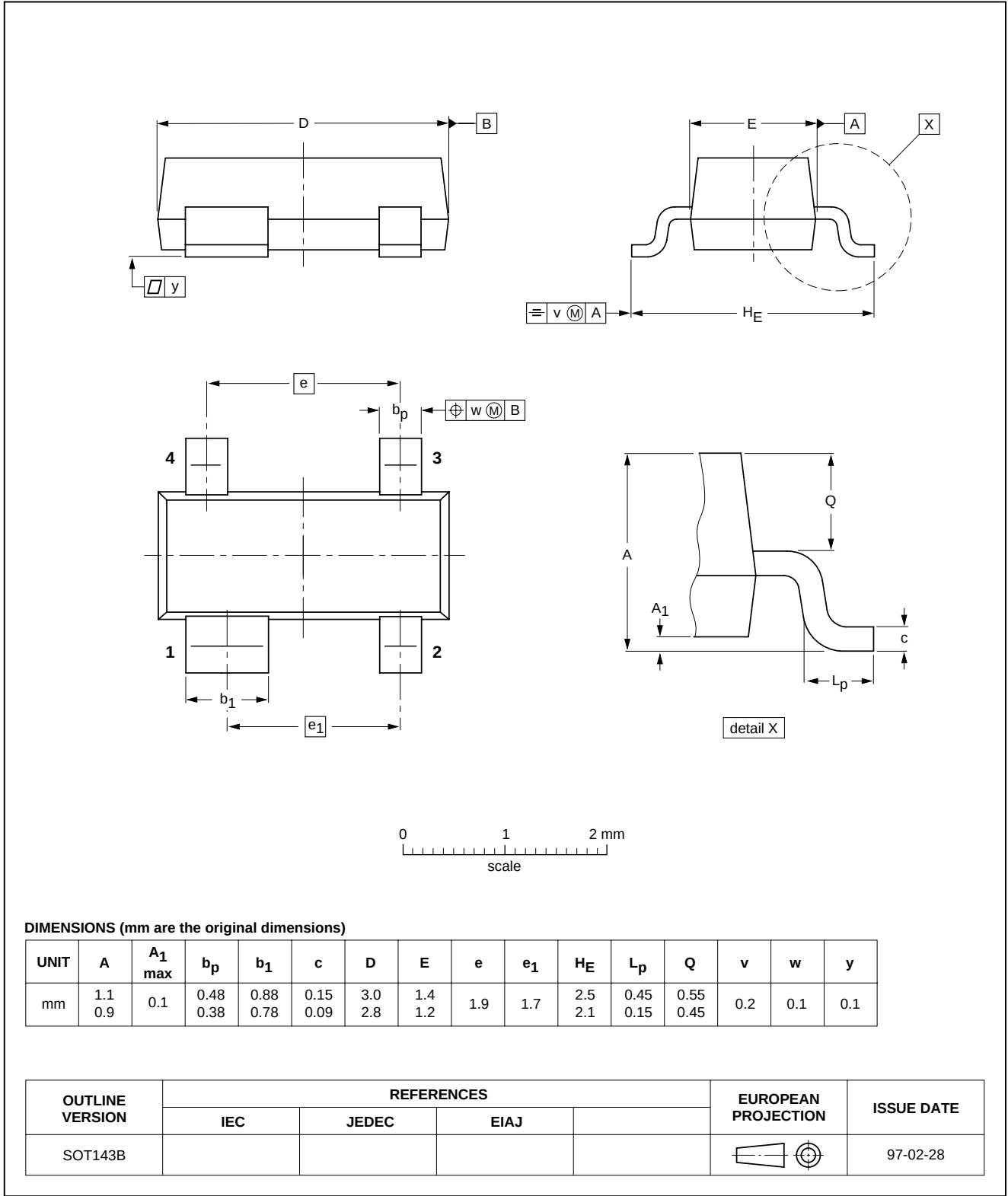
High voltage double diode

BAW101

PACKAGE OUTLINE

Plastic surface mounted package; 4 leads

SOT143B



## High voltage double diode

BAW101

## 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.                                     |

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Printed in The Netherlands

613514/01/pp9

Date of release: 2003 May 13

Document order number: 9397 750 11147

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