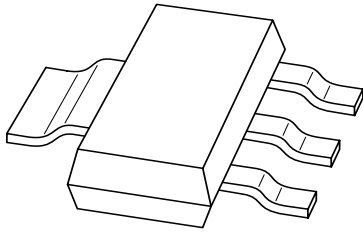


# DATA SHEET



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## **BAT120 series** Schottky barrier double diodes

Product specification  
Supersedes data of 1998 Jan 21

1998 Oct 30

Schottky barrier double diodes

BAT120 series

FEATURES

- Low switching losses
- Capability of absorbing very high surge current
- Fast recovery time
- Guard ring protected
- Plastic SMD package.

APPLICATIONS

- Low power switched-mode power supplies
- Rectification
- Polarity protection.

DESCRIPTION

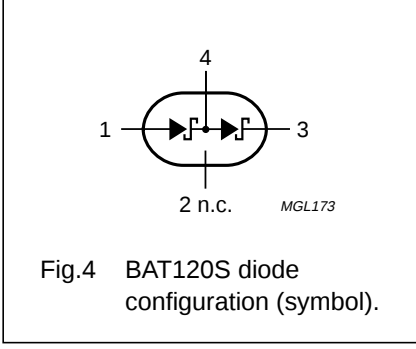
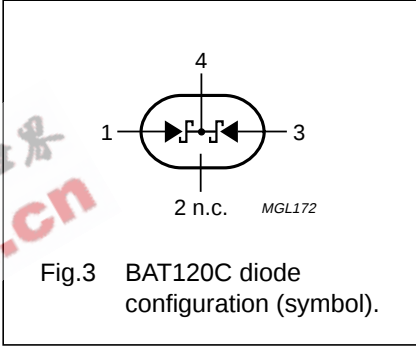
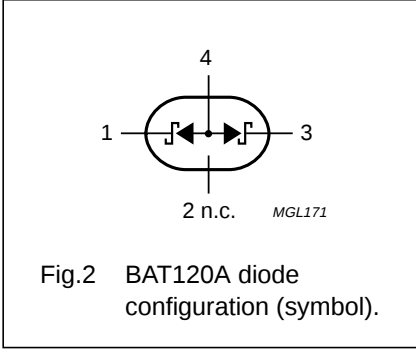
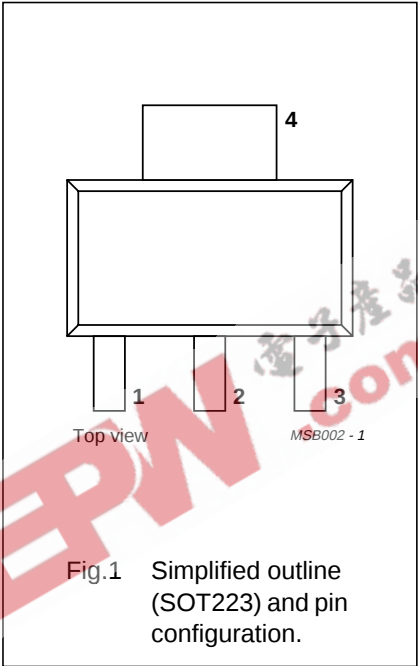
Planar Schottky barrier double diodes encapsulated in a SOT223 plastic SMD package

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| BAT120A     | AT120A       |
| BAT120C     | AT120C       |
| BAT120S     | AT120S       |

PINNING

| PIN | BAT120                          |                                 |                                 |
|-----|---------------------------------|---------------------------------|---------------------------------|
|     | A                               | C                               | S                               |
| 1   | k <sub>1</sub>                  | a <sub>1</sub>                  | a <sub>1</sub>                  |
| 2   | n.c.                            | n.c.                            | n.c.                            |
| 3   | k <sub>2</sub>                  | a <sub>2</sub>                  | k <sub>2</sub>                  |
| 4   | a <sub>1</sub> , a <sub>2</sub> | k <sub>1</sub> , k <sub>2</sub> | k <sub>1</sub> , a <sub>2</sub> |



## Schottky barrier double diodes

## BAT120 series

## LIMITING VALUES

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

| SYMBOL           | PARAMETER                           | CONDITIONS                                 | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|--------------------------------------------|------|------|------|
| <b>Per diode</b> |                                     |                                            |      |      |      |
| $V_R$            | continuous reverse voltage          |                                            | –    | 25   | V    |
| $I_F$            | continuous forward current          |                                            | –    | 1    | A    |
| $I_{FSM}$        | non-repetitive peak forward current | $t_p < 10$ ms; half sinewave; JEDEC method | –    | 10   | A    |
| $I_{RSM}$        | non-repetitive peak reverse current | $t_p = 100$ $\mu$ s                        | –    | 0.5  | A    |
| $T_{stg}$        | storage temperature                 |                                            | –65  | +150 | °C   |
| $T_j$            | junction temperature                |                                            | –    | 125  | °C   |
| $T_{amb}$        | operating ambient temperature       |                                            | –65  | +125 | °C   |

## ELECTRICAL CHARACTERISTICS

$T_{amb} = 25$  °C unless otherwise specified.

| SYMBOL           | PARAMETER         | CONDITIONS                                 | TYP.       | MAX.       | UNIT     |
|------------------|-------------------|--------------------------------------------|------------|------------|----------|
| <b>Per diode</b> |                   |                                            |            |            |          |
| $V_F$            | forward voltage   | see Fig.5<br>$I_F = 100$ mA<br>$I_F = 1$ A | 260<br>400 | 300<br>450 | mV<br>mV |
| $I_R$            | reverse current   | $V_R = 20$ V; note 1; see Fig.6            | 80         | 500        | $\mu$ A  |
|                  |                   | $V_R = 25$ V; note 1; see Fig.6            | –          | 1          | mA       |
|                  |                   | $V_R = 20$ V; $T_j = 100$ °C; note 1       | –          | 10         | mA       |
| $C_d$            | diode capacitance | $f = 1$ MHz; $V_R = 4$ V; see Fig.7        | 100        | –          | pF       |

## Note

1. Pulse test:  $t_p = 300$   $\mu$ s;  $\delta = 0.02$ .

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                   | CONDITIONS | VALUE | UNIT |
|---------------|---------------------------------------------|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1     | 100   | K/W  |

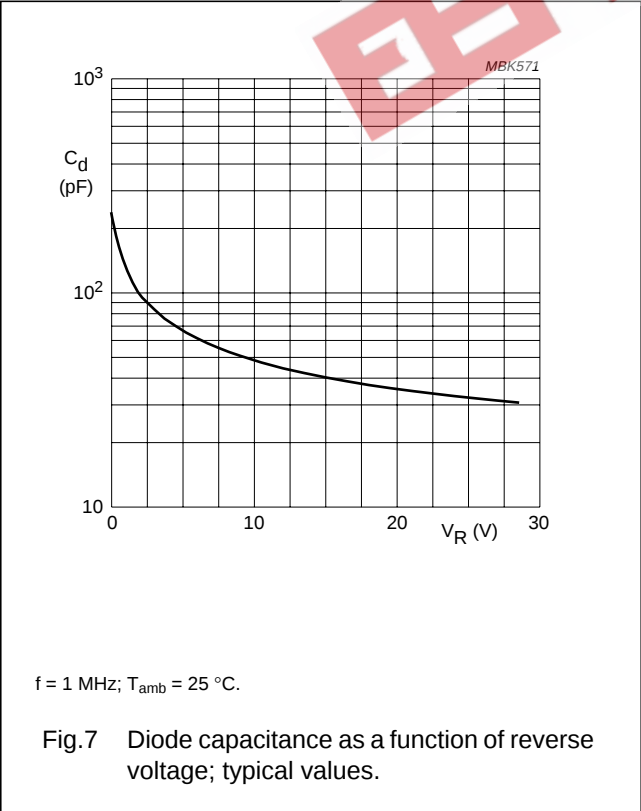
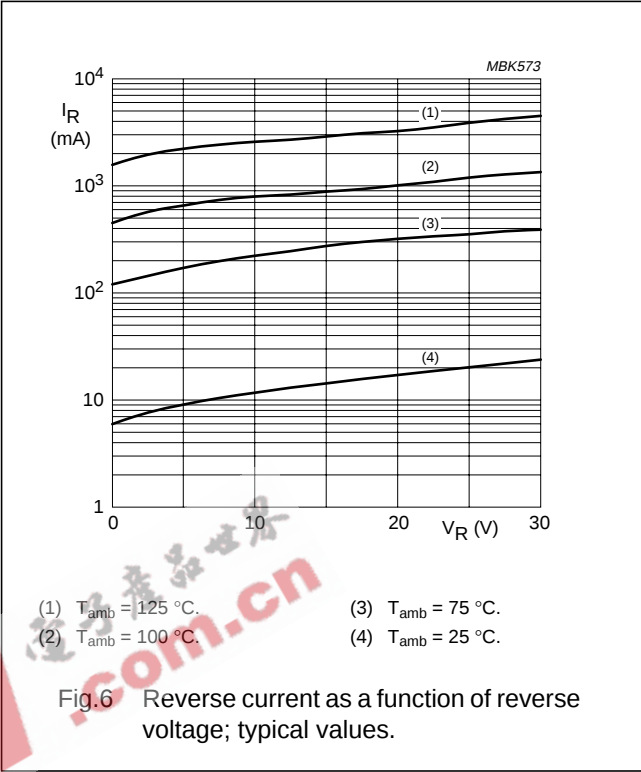
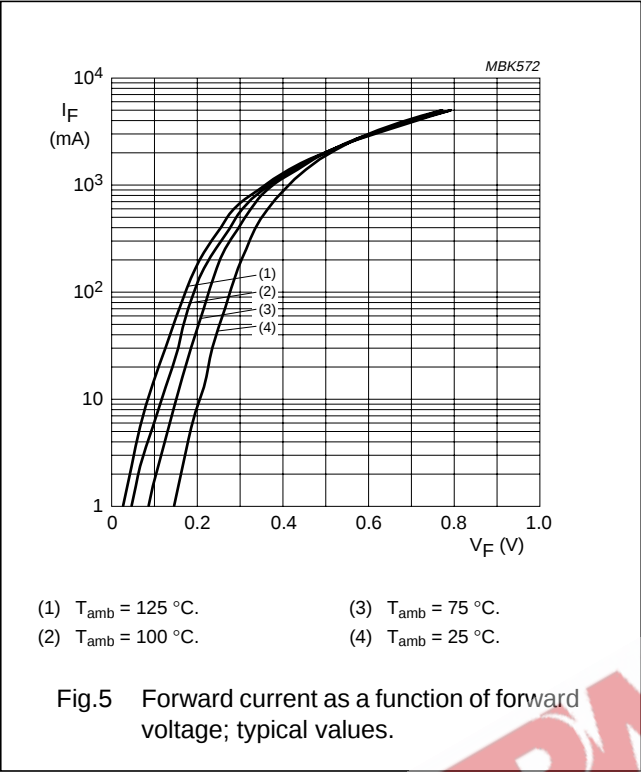
## Note

1. Refer to SOT223 standard mounting conditions.

Schottky barrier double diodes

BAT120 series

GRAPHICAL DATA



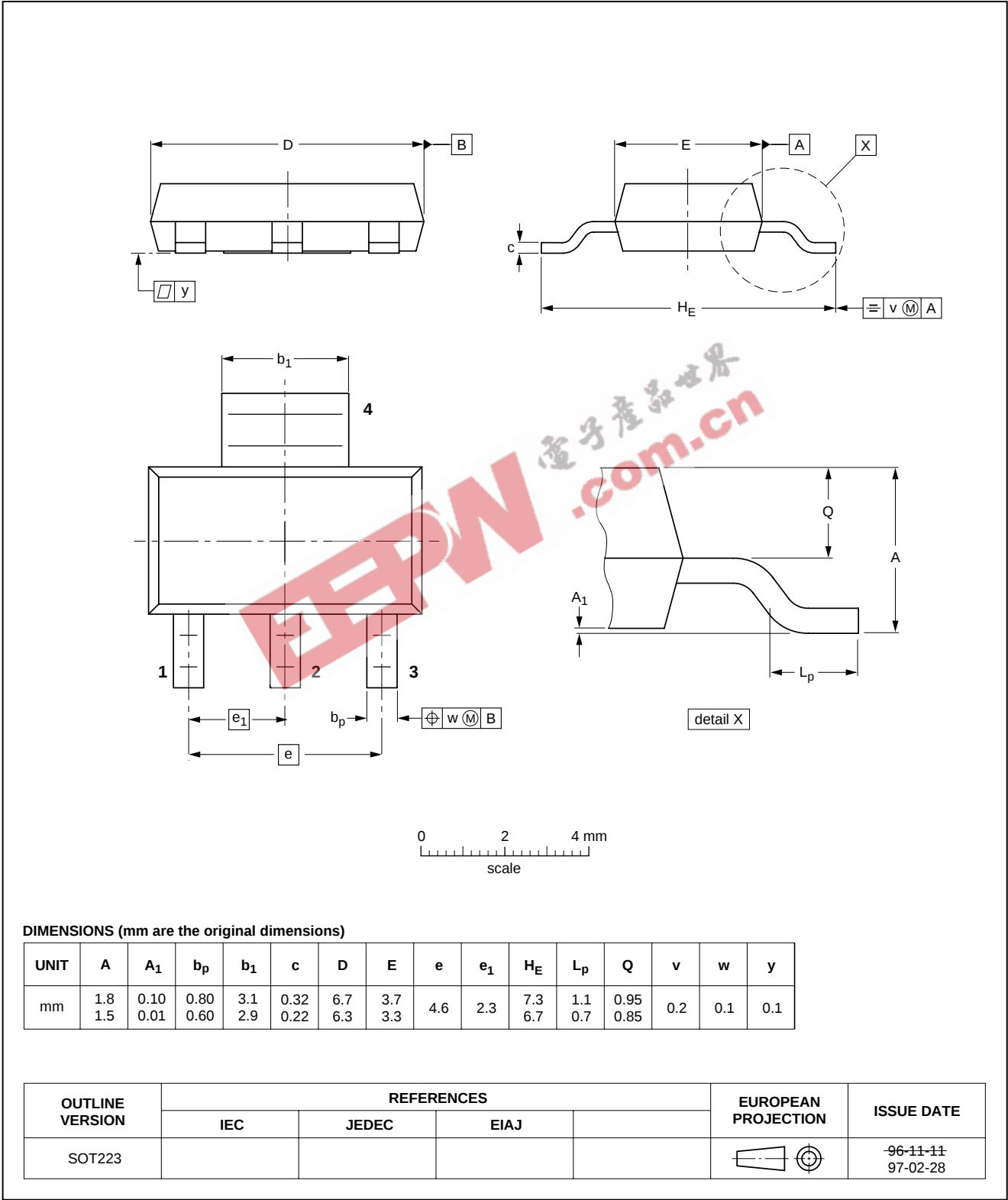
Schottky barrier double diodes

BAT120 series

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



## Schottky barrier double diodes

## BAT120 series

## 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.                                                                                                                                                                                                                                                                                                                                                       |                                                                                       |

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Schottky barrier double diodes

BAT120 series

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