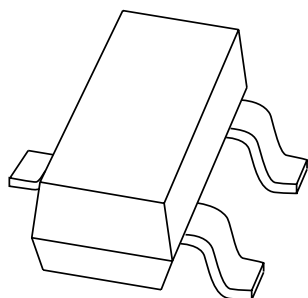


# DATA SHEET



## **BAT54 series** Schottky barrier (double) diodes

Product specification  
Supersedes data of 1999 May 06

2001 Oct 12

Schottky barrier (double) diodes

BAT54 series

FEATURES

- Low forward voltage
- Guard ring protected
- Small plastic SMD package.

APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes.

DESCRIPTION

Planar Schottky barrier diodes encapsulated in a SOT23 small plastic SMD package. Single diodes and double diodes with different pinning are available.

MARKING

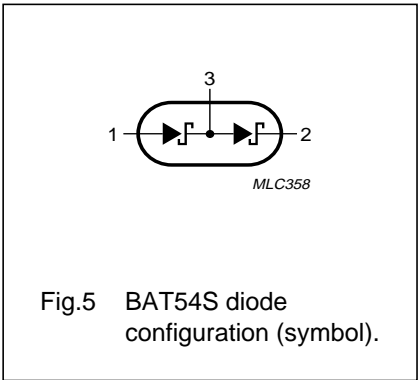
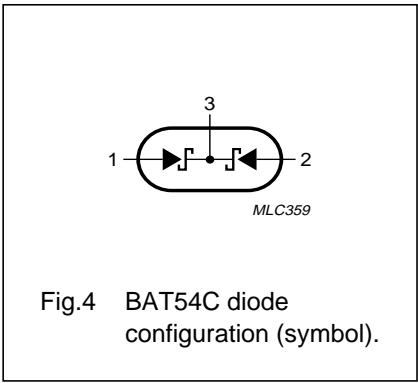
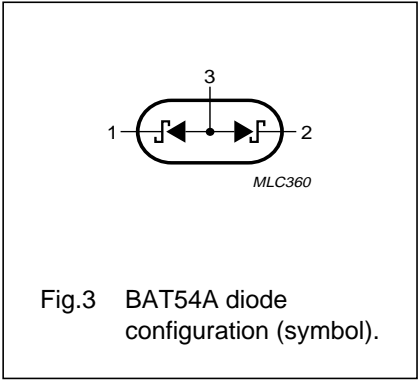
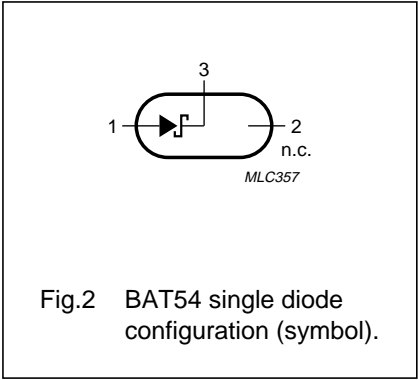
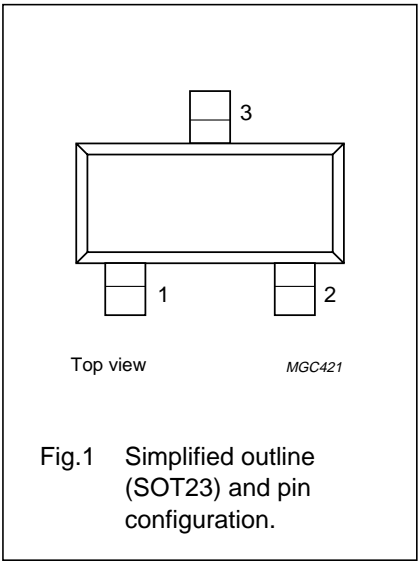
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| BAT54       | L4*                         |
| BAT54A      | L42 or *V3                  |
| BAT54C      | L43                         |
| BAT54S      | L44 or *V4                  |

Note

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

PINNING

| PIN | BAT54 |                                 |                                 |                                 |
|-----|-------|---------------------------------|---------------------------------|---------------------------------|
|     |       | A                               | C                               | S                               |
| 1   | a     | k <sub>1</sub>                  | a <sub>1</sub>                  | a <sub>1</sub>                  |
| 2   | n.c.  | k <sub>2</sub>                  | a <sub>2</sub>                  | k <sub>2</sub>                  |
| 3   | k     | 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

## BAT54 series

## 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            |                                   | –    | 30   | V    |
| $I_F$            | continuous forward current            |                                   | –    | 200  | mA   |
| $I_{FRM}$        | repetitive peak forward current       | $t_p \leq 1$ s; $\delta \leq 0.5$ | –    | 300  | mA   |
| $I_{FSM}$        | non-repetitive peak forward current   | $t_p < 10$ ms                     | –    | 600  | mA   |
| $P_{tot}$        | total power dissipation (per package) | $T_{amb} \leq 25$ °C              | –    | 230  | mW   |
| $T_{stg}$        | storage temperature                   |                                   | –65  | +150 | °C   |
| $T_j$            | junction temperature                  |                                   | –    | 125  | °C   |

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL           | PARAMETER             | CONDITIONS  | MAX.                            | UNIT                       |
|------------------|-----------------------|---|---------------------------------|----------------------------|
| <b>Per diode</b> |                       |   |                                 |                            |
| $V_F$            | forward voltage       | see Fig.6<br>$I_F = 0.1$ mA<br>$I_F = 1$ mA<br>$I_F = 10$ mA<br>$I_F = 30$ mA<br>$I_F = 100$ mA       | 240<br>320<br>400<br>500<br>800 | mV<br>mV<br>mV<br>mV<br>mV |
| $I_R$            | reverse current       | $V_R = 25$ V; see Fig.7   | 2                               | µA                         |
| $t_{rr}$         | reverse recovery time | when switched from $I_F = 10$ mA to $I_R = 10$ mA; $R_L = 100$ Ω; measured at $I_R = 1$ mA; see Fig.9 | 5                               | ns                         |
| $C_d$            | diode capacitance     | $f = 1$ MHz; $V_R = 1$ V; see Fig.8   | 10                              | pF                         |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                   | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1     | 500   | K/W  |

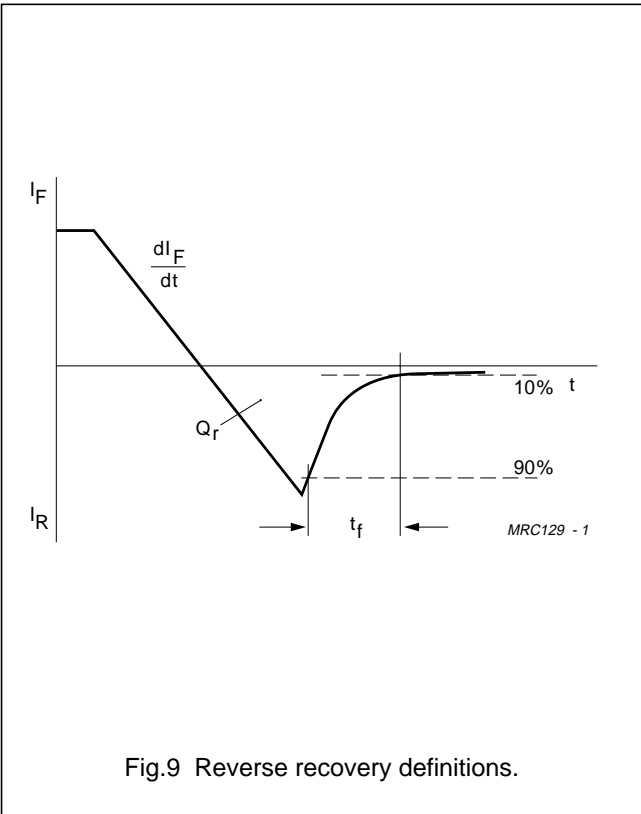
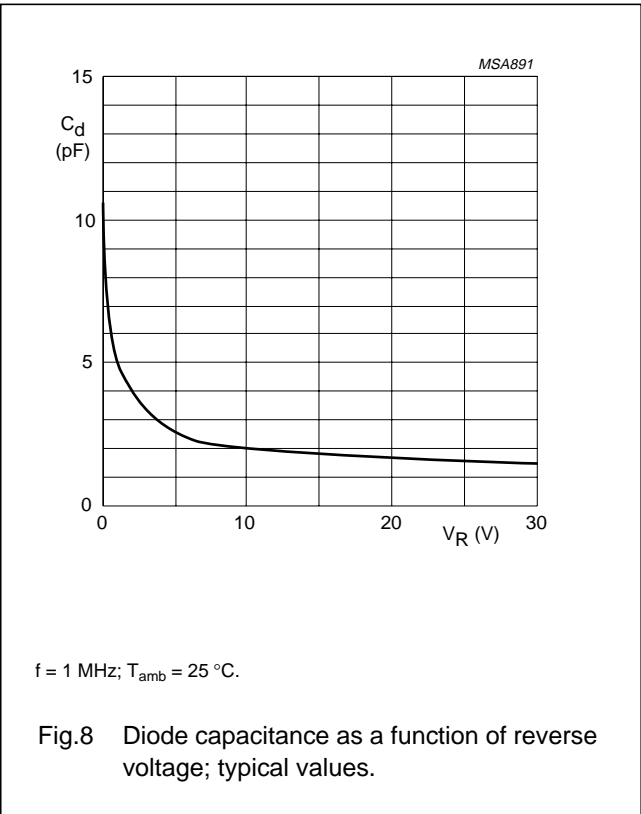
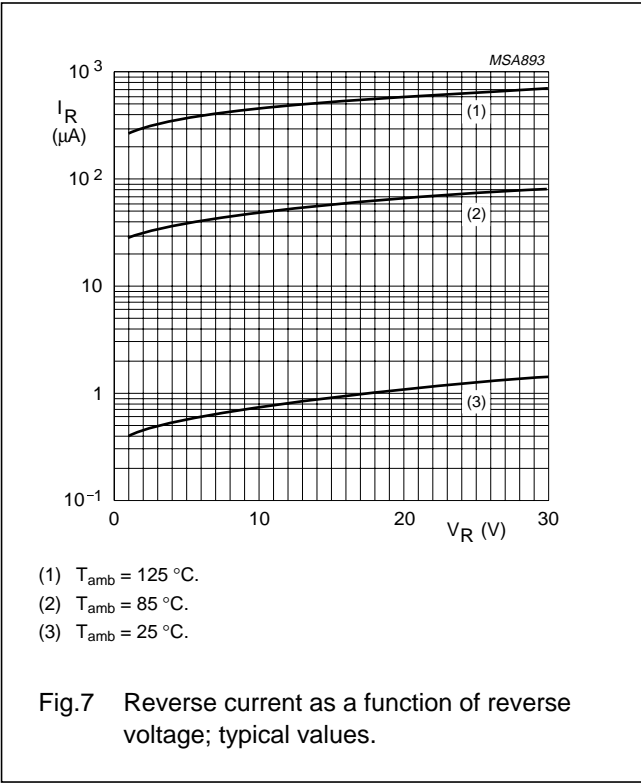
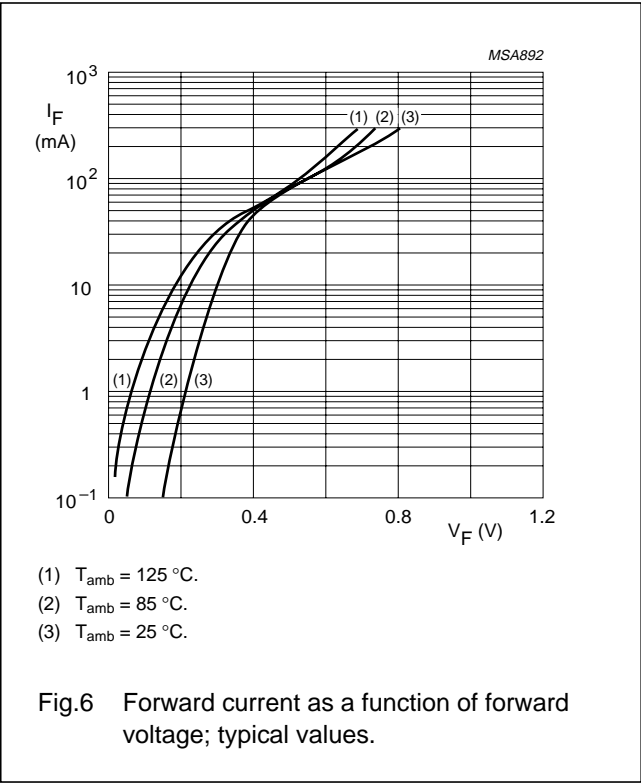
## Note

1. Refer to SOT23 standard mounting conditions.

Schottky barrier (double) diodes

BAT54 series

GRAPHICAL DATA



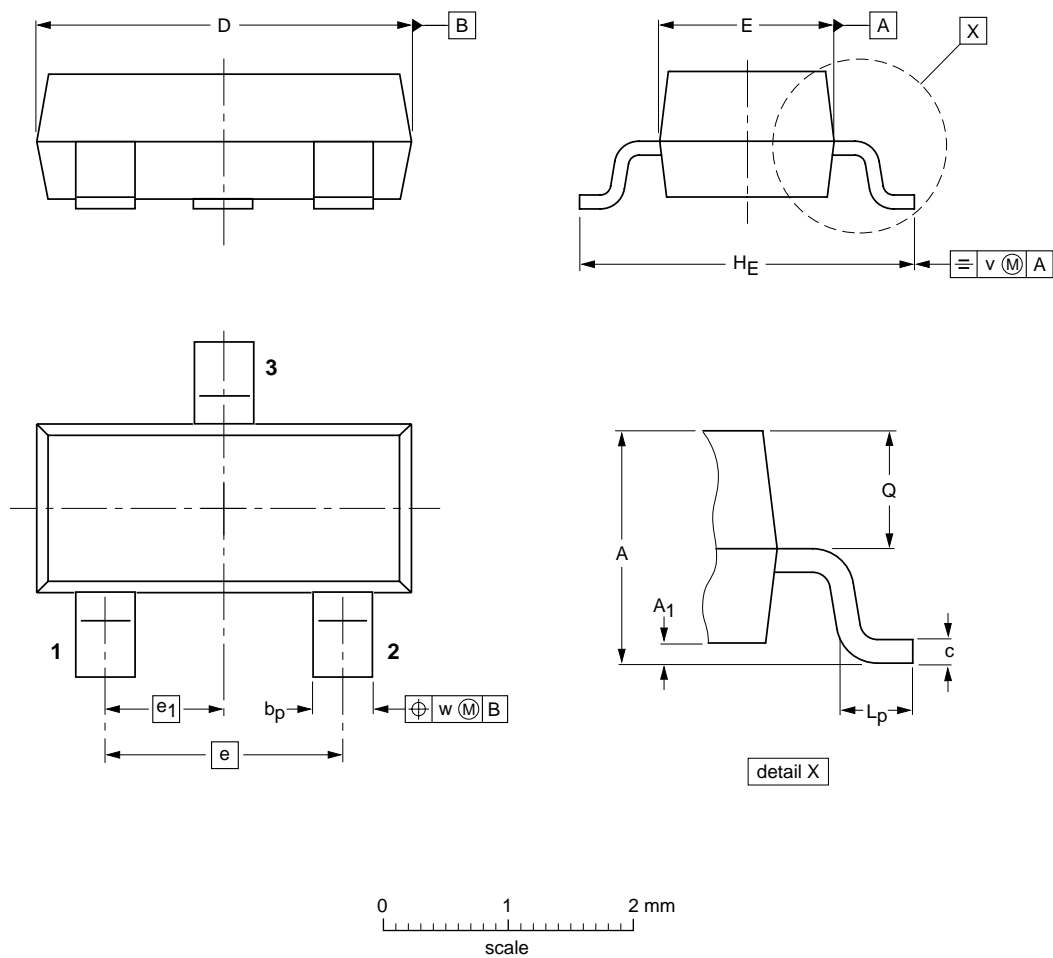
Schottky barrier (double) diodes

BAT54 series

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    | EIAJ |  |                        |                                    |
| SOT23              |            | TO-236AB |      |  |                        | <div>-97-02-28-<br/>99-09-13</div> |

## Schottky barrier (double) diodes

## BAT54 series

## 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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Schottky barrier (double) diodes

BAT54 series

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**NOTES**

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Printed in The Netherlands

613514/03/pp8

Date of release: 2001 Oct 12

Document order number: 9397 750 08762

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