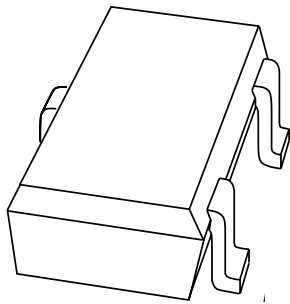


DATA SHEET



BAT854W series Schottky barrier (double) diodes

Product specification

2001 Feb 27

Schottky barrier (double) diodes

BAT854W series

FEATURES

- Very low forward voltage
- Very low reverse current
- Guard ring protected
- Very small SMD plastic package.

APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes
- Low power consumption applications (e.g. hand-held applications).

DESCRIPTION

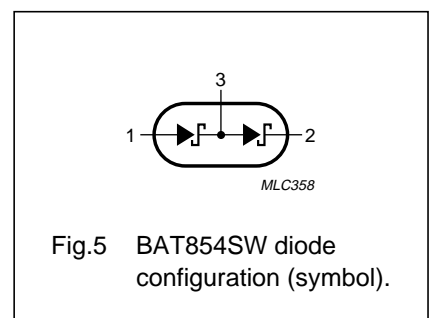
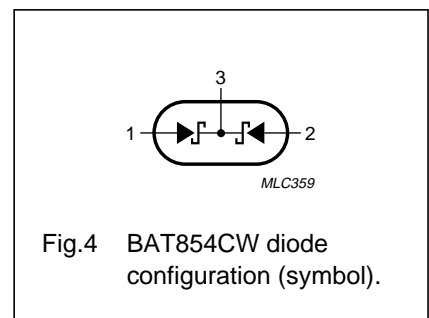
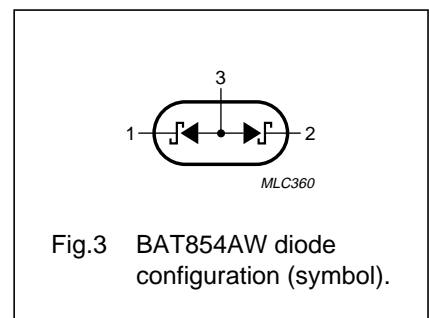
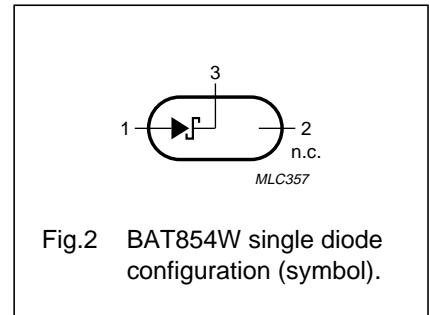
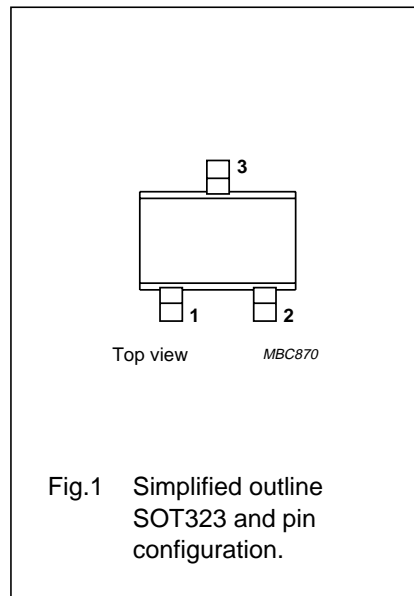
Planar Schottky barrier diodes encapsulated in a SOT323 very small SMD plastic package. Single diodes and double diodes with different pinning are available.

MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| BAT854W | 81 |
| BAT854AW | 82 |
| BAT854CW | 83 |
| BAT854SW | 84 |

PINNING

| PIN | SYMBOL |
|-----------------|---------------------------------|
| BAT854W | |
| 1 | a |
| 2 | n.c. |
| 3 | k |
| BAT854AW | |
| 1 | k ₁ |
| 2 | k ₂ |
| 3 | a ₁ , a ₂ |
| BAT854CW | |
| 1 | a ₁ |
| 2 | a ₂ |
| 3 | k ₁ , k ₂ |
| BAT854SW | |
| 1 | a ₁ |
| 2 | k ₂ |
| 3 | k ₁ , a ₂ |



Schottky barrier (double) diodes

BAT854W series

LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|---|------|------|------|
| Per diode | | | | | |
| V_R | continuous reverse voltage | | – | 40 | 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 | $t = 8.3$ ms half sinewave; JEDEC method | – | 1 | A |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |
| T_{amb} | operating ambient temperature | | –65 | +150 | °C |

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|------------------|----------------------------|-------------------------------------|------|------|------|
| Per diode | | | | | |
| V_F | continuous forward voltage | see Fig.6 | | | |
| | | $I_F = 0.1$ mA | 200 | – | mV |
| | | $I_F = 1$ mA | 260 | – | mV |
| | | $I_F = 10$ mA | 340 | – | mV |
| | | $I_F = 30$ mA | – | 420 | mV |
| | $I_F = 100$ mA | – | 550 | mV | |
| I_R | continuous reverse current | $V_R = 25$ V; note 1; see Fig.7 | – | 0.5 | μA |
| C_d | diode capacitance | $V_R = 1$ V; $f = 1$ MHz; see Fig.8 | – | 20 | pF |

Note

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

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 625 | K/W |

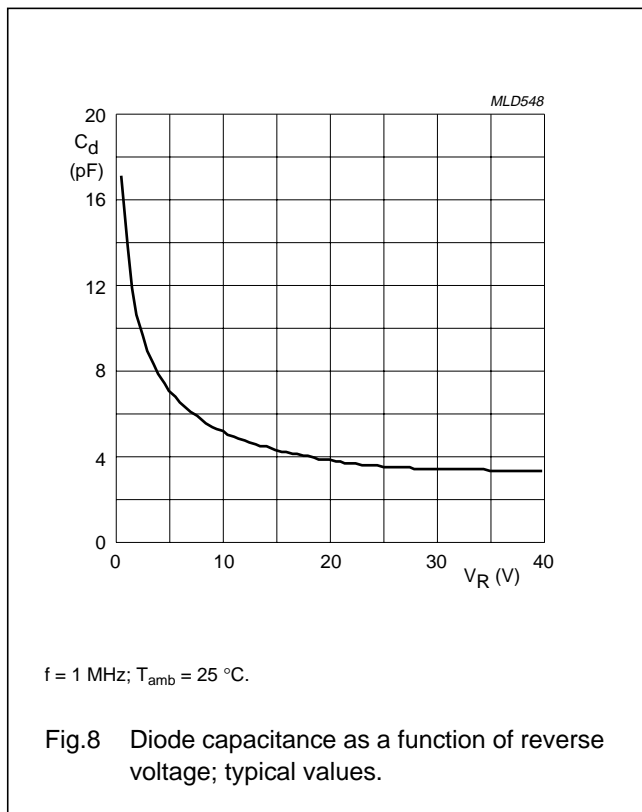
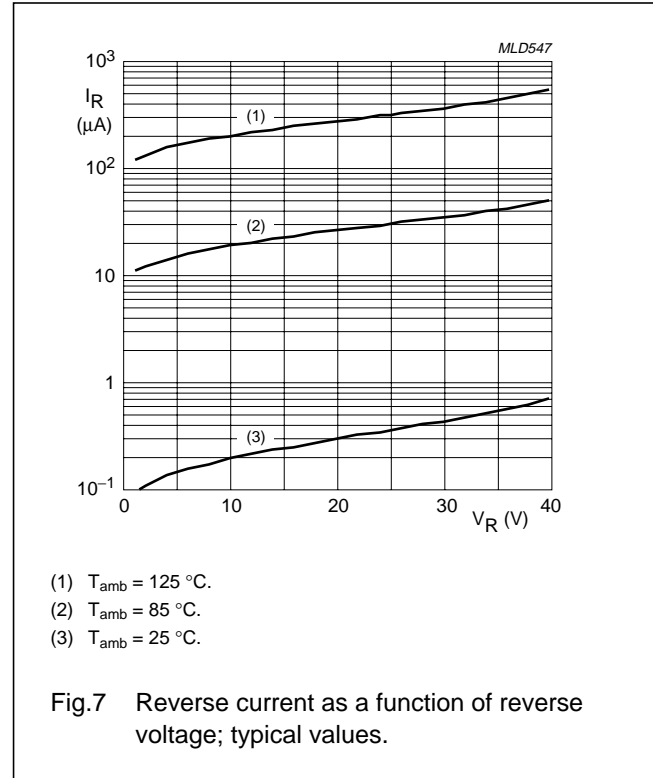
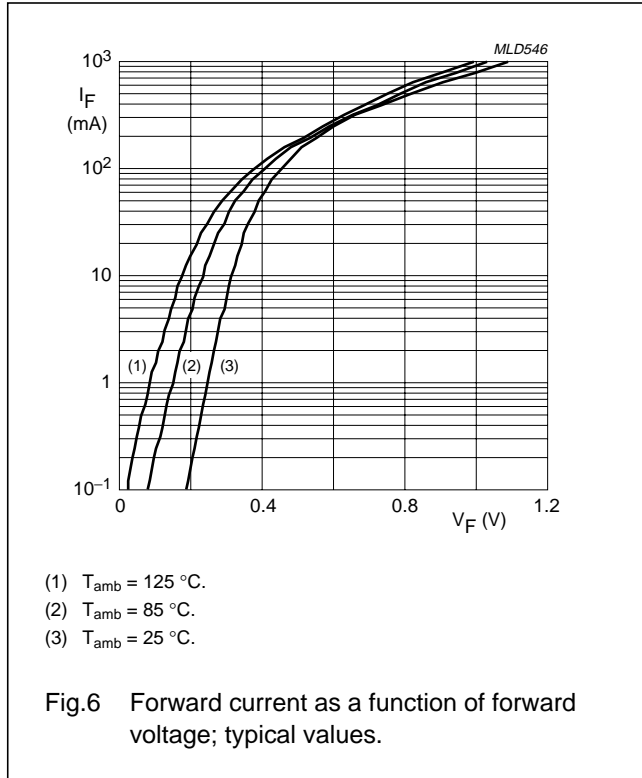
Note

1. Refer to SOT323 standard mounting conditions.

Schottky barrier (double) diodes

BAT854W series

GRAPHICAL DATA



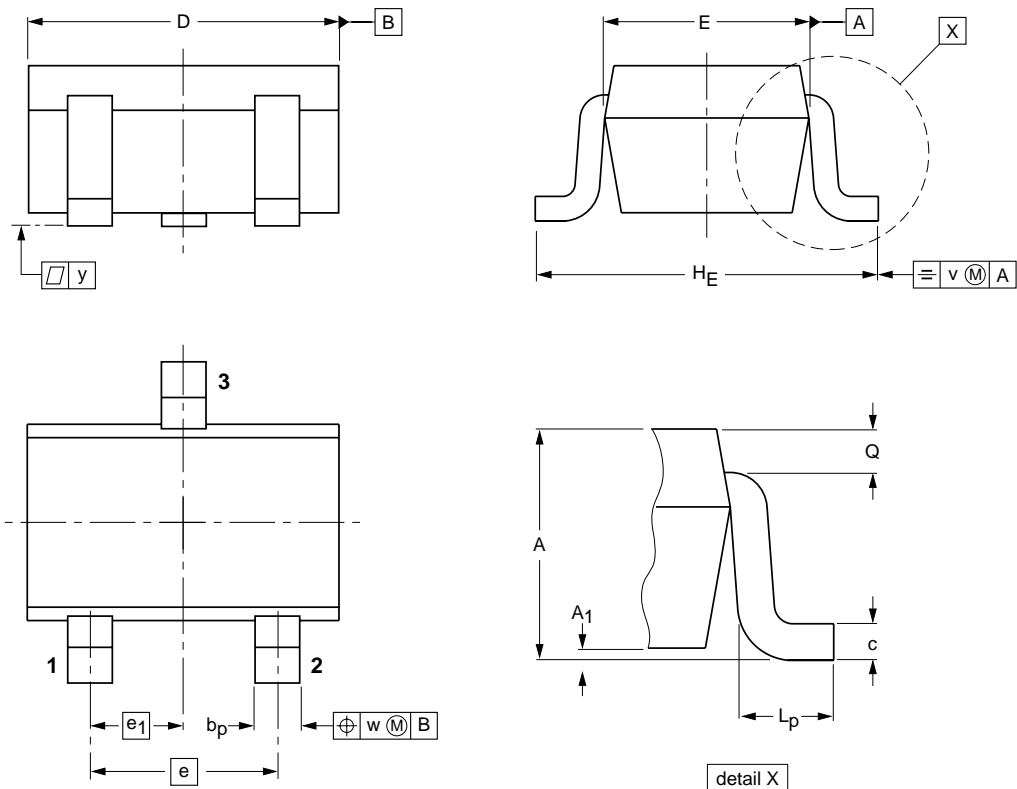
Schottky barrier (double) diodes

BAT854W series

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



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 0.8 | 0.1 | 0.4 0.3 | 0.25 0.10 | 2.2 1.8 | 1.35 1.15 | 1.3 | 0.65 | 2.2 2.0 | 0.45 0.15 | 0.23 0.13 | 0.2 | 0.2 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|-------|--|---------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT323 | | | SC-70 | | | 97-02-28 |

Schottky barrier (double) diodes

BAT854W series

DATA SHEET STATUS

| DATA SHEET STATUS | PRODUCT STATUS | DEFINITIONS ⁽¹⁾ |
|---------------------------|----------------|--|
| Objective specification | Development | This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice. |
| Preliminary specification | Qualification | This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |
| Product specification | Production | This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |

Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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Schottky barrier (double) diodes

BAT854W series

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