

# DATA SHEET

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## BAT56 Schottky barrier diode

Preliminary specification  
File under Discrete Semiconductors, SC01

December 1993

Philips Semiconductors



**PHILIPS**

Schottky barrier diode

BAT56

FEATURES

- Low leakage current
- Low turn-on and high breakdown voltage
- Ultra-fast switching speed.

DESCRIPTION

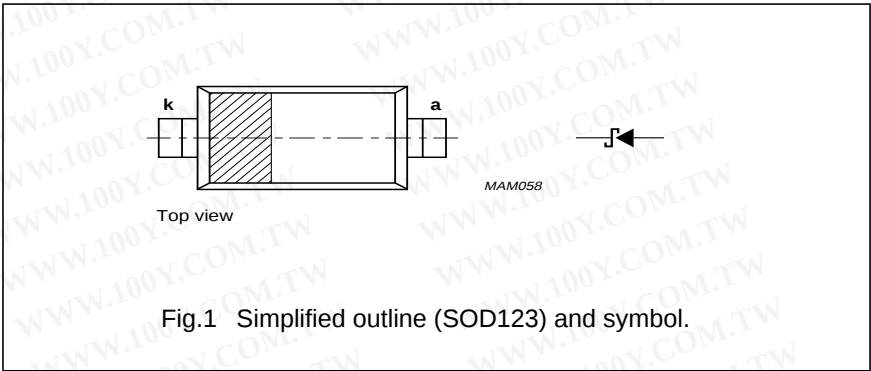
Silicon epitaxial Schottky barrier diode with an integrated guard ring for stress protection. Intended for high speed switching, circuit protection and voltage clamping applications.

The diode is encapsulated in a SOD123 SMD plastic package.

QUICK REFERENCE DATA

| SYMBOL | PARAMETER                  | CONDITIONS          | MAX. | UNIT |
|--------|----------------------------|---------------------|------|------|
| $V_R$  | continuous reverse voltage |                     | 60   | V    |
| $I_F$  | continuous forward current |                     | 30   | mA   |
| $V_F$  | forward voltage            | $I_F = 1\text{ mA}$ | 410  | mV   |
| $I_R$  | reverse current            | $V_R = 60\text{ V}$ | 200  | nA   |
| $T_j$  | junction temperature       |                     | 150  | °C   |
| $C_d$  | diode capacitance          | $V_R = 1\text{ V}$  | 1.6  | pF   |

PIN CONFIGURATION



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## LIMITING VALUES

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

| SYMBOL    | PARAMETER                           | CONDITIONS                        | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|-----------------------------------|------|------|------|
| $V_R$     | continuous reverse voltage          |                                   | –    | 60   | V    |
| $I_F$     | continuous forward current          |                                   | –    | 30   | mA   |
| $I_{FRM}$ | repetitive peak forward current     | $t_p \leq 1$ s; $\delta \leq 0.5$ | –    | 100  | mA   |
| $I_{FSM}$ | non-repetitive peak forward current | $t_p < 10$ ms                     | –    | 250  | mA   |
| $T_{stg}$ | storage temperature                 |                                   | –65  | +150 | °C   |
| $T_{amb}$ | operating ambient temperature       |                                   | –65  | +150 | °C   |
| $T_j$     | junction temperature                |                                   | –    | 150  | °C   |

## THERMAL RESISTANCE

| SYMBOL        | PARAMETER                        | THERMAL RESISTANCE |
|---------------|----------------------------------|--------------------|
| $R_{th\ j-a}$ | from junction to ambient; note 1 | 500 K/W            |

### Note

- Printed-circuit board mounting (SOD123 standard conditions).

## CHARACTERISTICS

$T_j = 25$  °C unless otherwise specified.

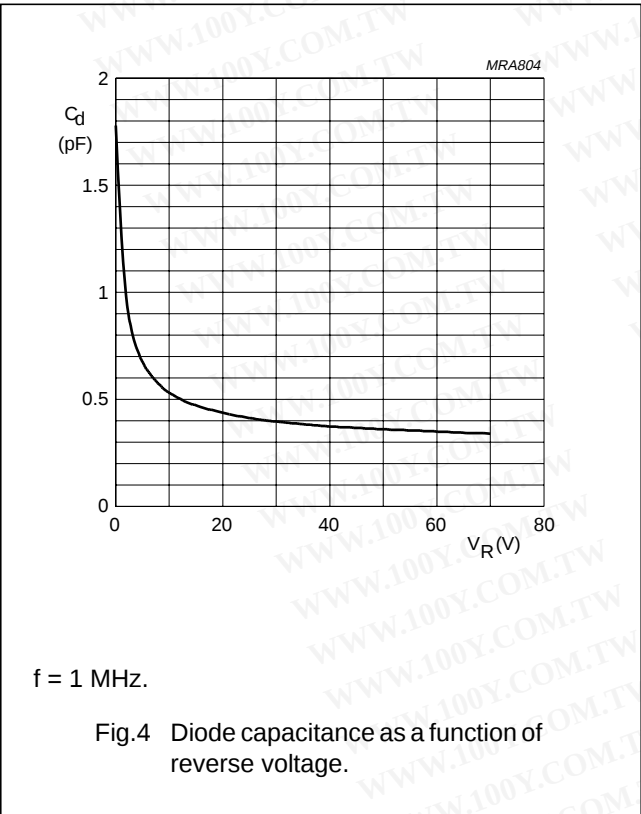
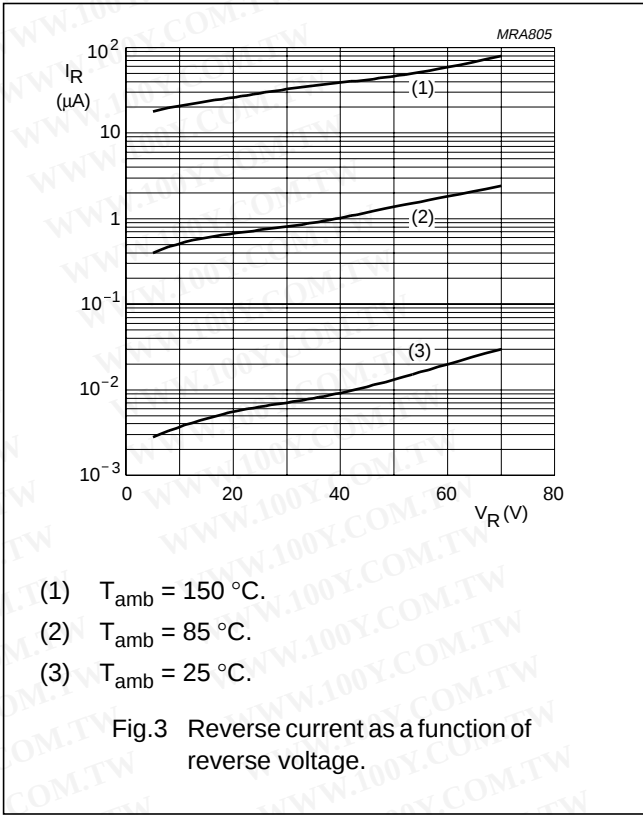
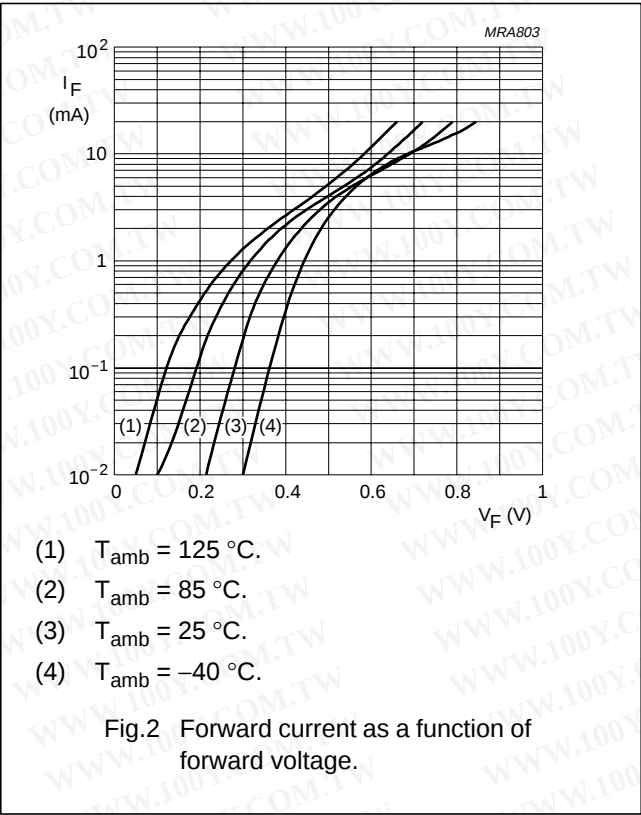
| SYMBOL      | PARAMETER                 | CONDITIONS               | MIN. | MAX. | UNIT |
|-------------|---------------------------|--------------------------|------|------|------|
| $V_F$       | forward voltage           | $I_F = 0.1$ mA           | –    | 330  | mV   |
|             |                           | $I_F = 1$ mA             | –    | 410  | mV   |
|             |                           | $I_F = 15$ mA            | –    | 1    | V    |
| $V_{(BR)R}$ | reverse breakdown voltage | $I_R = 10$ $\mu$ A       | 60   | –    | V    |
| $I_R$       | reverse current           | $V_R = 30$ V; note 1     | –    | 100  | nA   |
|             |                           | $V_R = 60$ V; note 1     | –    | 200  | nA   |
| $C_d$       | diode capacitance         | $V_R = 1$ V; $f = 1$ MHz | –    | 1.6  | pF   |

### Note

- Pulsed test:  $t_p = 300$   $\mu$ s;  $\delta = 0.02$ .

Schottky barrier diode

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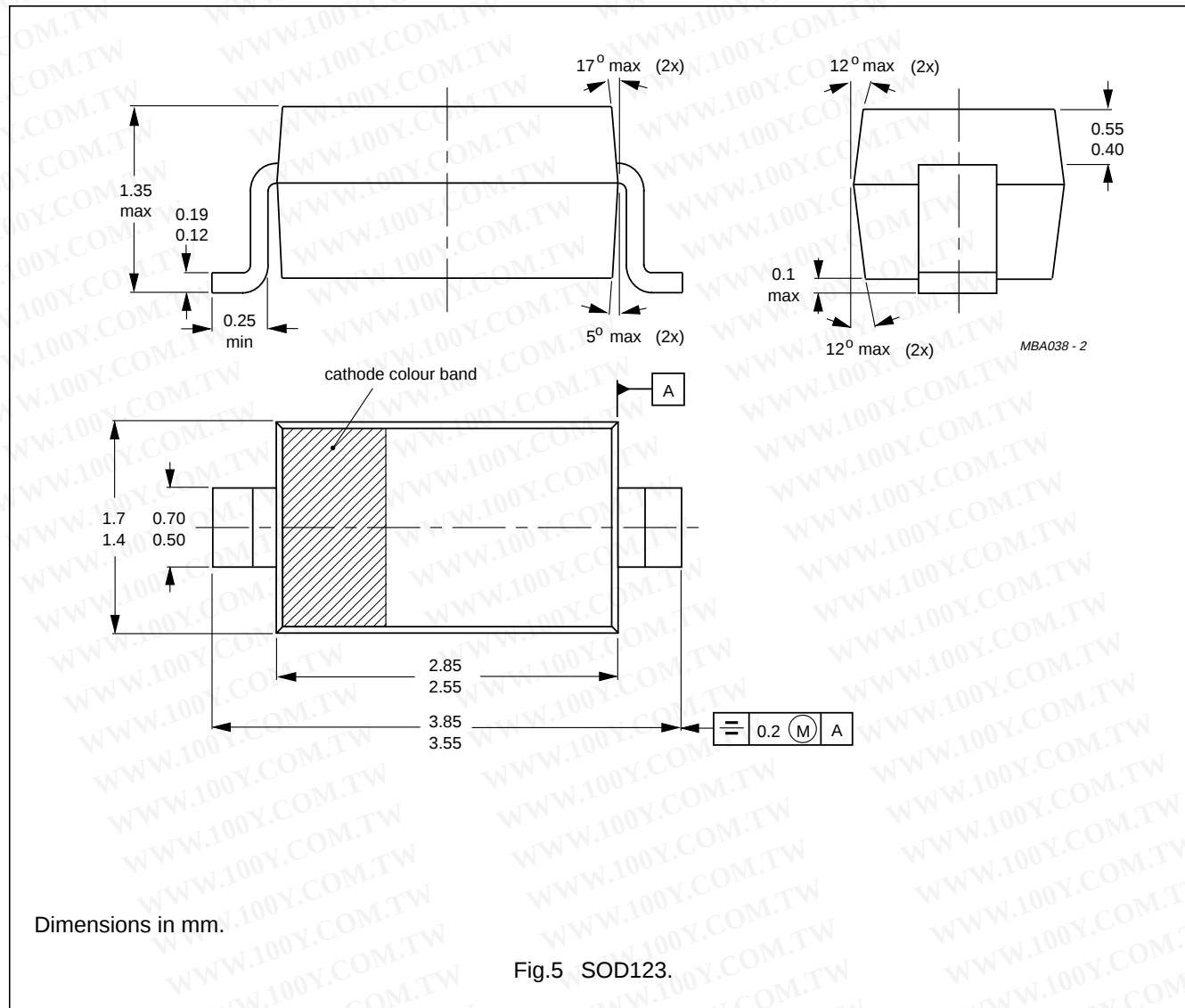


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## PACKAGE OUTLINE



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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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## NOTES

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