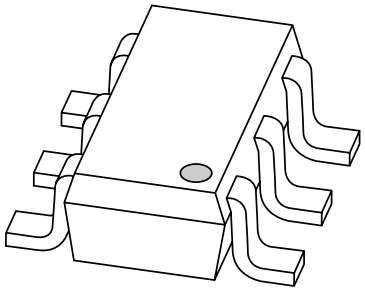
# DATA SHEET



# 1PS74SB23
## Schottky barrier diode

Product specification
Supersedes data of 1999 Apr 26

2001 Aug 27

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# Schottky barrier diode 1PS74SB23

## FEATURES

- Ultra fast switching speed
- Low forward voltage
- Fast recovery time
- Guard ring protected
- Small plastic SMD package
- Capability of absorbing very high surge current.

## APPLICATIONS

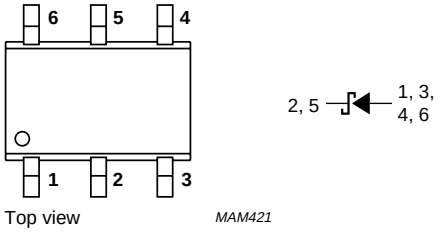
- Rectification
- Circuit protection
- Polarity protection
- Switched-mode power supplies.

## DESCRIPTION

Planar Schottky barrier diode encapsulated in an SC-74 (SOT457) small plastic SMD package.

## PINNING

| PIN | DESCRIPTION |
|---|---|
| 1 | anode |
| 2 | cathode |
| 3 | anode |
| 4 | anode |
| 5 | cathode |
| 6 | anode |




**Marking code:** P1.

Fig.1 Simplified outline SC-74 (SOT457) and symbol.

## LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|---|---|---|---|---|---|
| $V_R$ | continuous reverse voltage | | – | 25 | V |
| $I_F$ | continuous forward current | | – | 1 | A |
| $I_{FSM}$ | non-repetitive peak forward current | $t_p$ = 8.3 ms; half sinewave; JEDEC method; note 1 | – | 25 | A |
| $I_{RSM}$ | non-repetitive peak reverse current | $t_p$ = 100 μs | – | 0.5 | A |
| $T_{stg}$ | storage temperature | | –65 | +150 | °C |
| $T_j$ | junction temperature | | – | 125 | °C |

**Note**

1. Pins 1, 3, 4 and 6 are connected in parallel; pins 2 and 5 are connected in parallel.

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|
| $V_F$ | forward voltage | $I_F$ = 100 mA | 260 | 300 | mV |
| | | $I_F$ = 1 A | 400 | 450 | mV |
| $I_R$ | reverse current | $V_R$ = 20 V; note 1; see Fig.3 | 80 | 500 | μA |
| | | $V_R$ = 25 V; note 1; see Fig.3 | – | 1 | mA |
| $C_d$ | diode capacitance | f = 1 MHz; $V_R$ = 4 V; see Fig.4 | 100 | – | pF |

**Note**

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

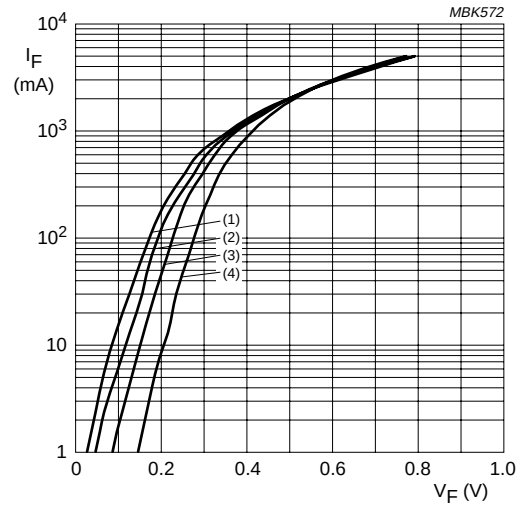
## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $R_{th\ j\text{-}a}$ | thermal resistance from junction to ambient | note 1 | 250 | K/W |

**Note**

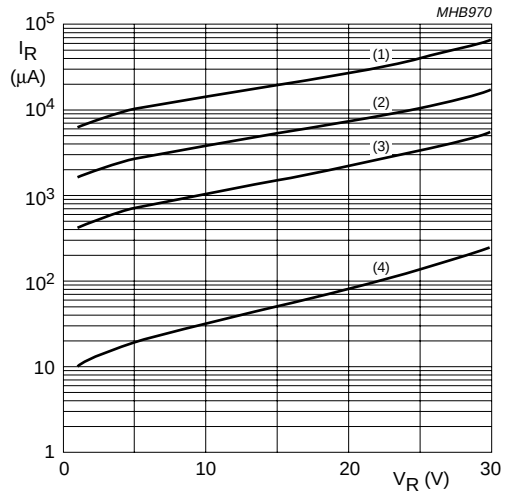
1. Refer to SC-74 (SOT457) standard mounting conditions.

## GRAPHICAL DATA



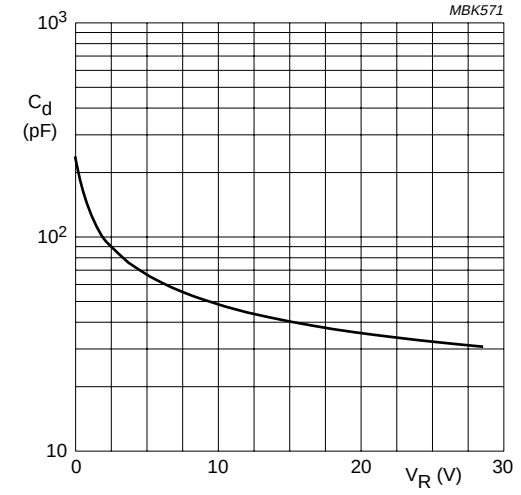

(1) $T_{amb}$ = 125 °C.
(2) $T_{amb}$ = 100 °C.
(3) $T_{amb}$ = 75 °C.
(4) $T_{amb}$ = 25 °C.

Fig.2 Forward current as a function of forward voltage; typical values.




(1) $T_{amb}$ = 125 °C.
(2) $T_{amb}$ = 100 °C.
(3) $T_{amb}$ = 75 °C.
(4) $T_{amb}$ = 25 °C.

Fig.3 Reverse current as a function of reverse voltage; typical values.

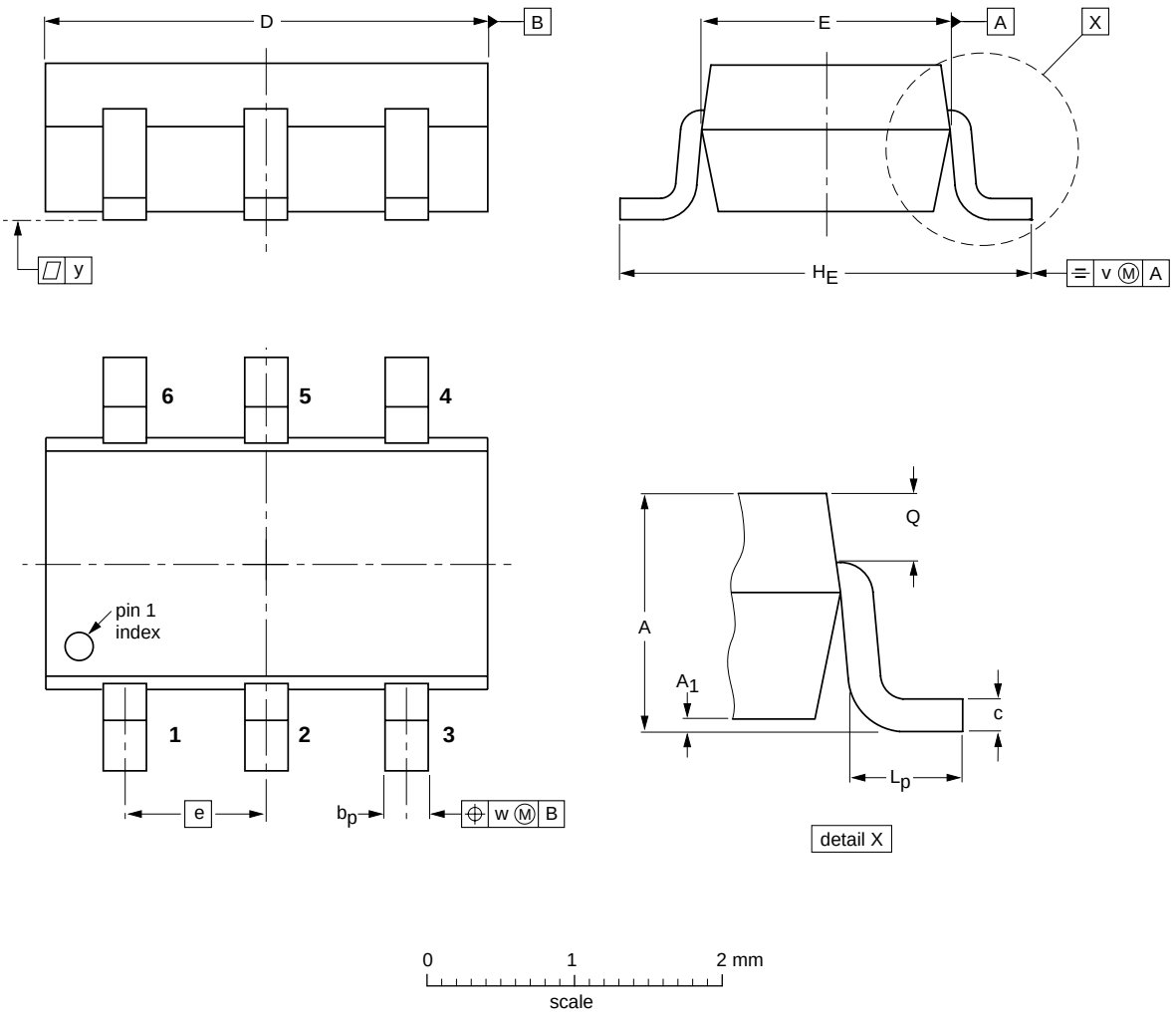



f = 1 MHz; $T_{amb}$ = 25 °C.

Fig.4 Diode capacitance as a function of reverse voltage; typical values.

## PACKAGE OUTLINE

**Plastic surface mounted package; 6 leads** **SOT457**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ | $b_p$ | c | D | E | e | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.1<br>0.013 | 0.40<br>0.25 | 0.26<br>0.10 | 3.1<br>2.7 | 1.7<br>1.3 | 0.95 | 3.0<br>2.5 | 0.6<br>0.2 | 0.33<br>0.23 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | EIAJ | | | |
| SOT457 | | | SC-74 | | | ~~97-02-28~~<br>01-05-04 |

**DATA SHEET STATUS**

| DATA SHEET STATUS[1] | PRODUCT STATUS[2] | DEFINITIONS |
|---|---|---|
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