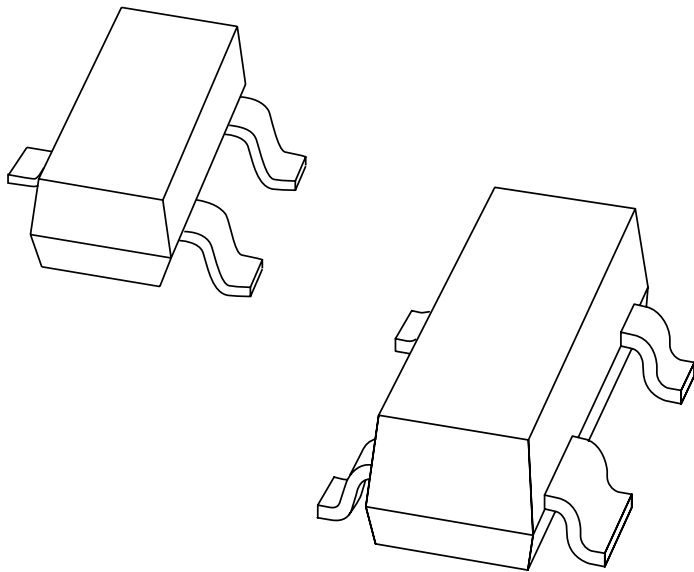


DATA SHEET



BAS70 series Schottky barrier (double) diodes

Product specification
Supersedes data of 1999 Jun 01

2001 Oct 11

Schottky barrier (double) diodes

BAS70 series

FEATURES

- Low forward current
- High breakdown voltage
- Guard ring protected
- Small plastic SMD package
- Low diode capacitance.

APPLICATIONS

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

DESCRIPTION

Planar Schottky barrier diodes with an integrated guard ring for stress protection. Single diodes and double diodes with different pinning are available.

The diodes BAS70, BAS70-04, BAS70-05 and BAS70-06 are encapsulated in a SOT23 small plastic SMD package. The BAS70-07 is encapsulated in a SOT143B small plastic SMD package.

MARKING

| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BAS70 | 73* |
| BAS70-04 | 74* |
| BAS70-05 | 75* |
| BAS70-06 | 76* |
| BAS70-07 | 77* |

Note

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

PINNING

| PIN | DESCRIPTION | | | | |
|-----|-----------------------|---------------------------------|---------------------------------|---------------------------------|-------------------------|
| | SOT23 | | | | SOT143B |
| | BAS70 (see Fig.1b) | BAS70-04 (see Fig.1c) | BAS70-05 (see Fig.1d) | BAS70-06 (see Fig.1e) | BAS70-07 (see Fig.2) |
| 1 | a ₁ | a ₁ | a ₁ | k ₁ | k ₁ |
| 2 | n.c. | k ₂ | a ₂ | k ₂ | k ₂ |
| 3 | k ₁ | k ₁ , a ₂ | k ₁ , k ₂ | a ₁ , a ₂ | a ₂ |
| 4 | – | – | – | – | a ₁ |

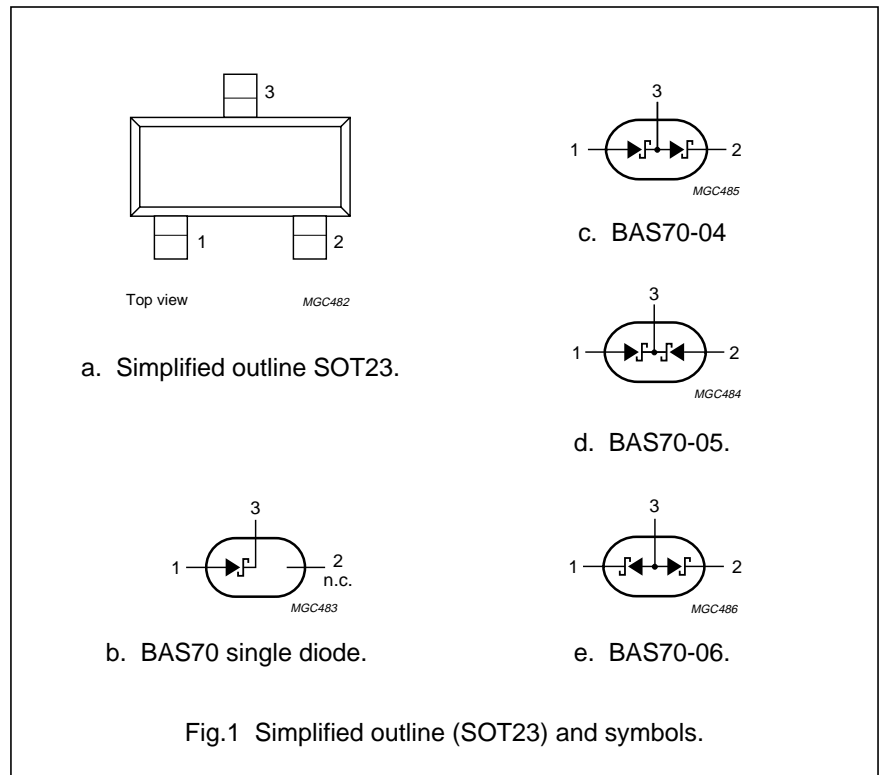


Fig.1 Simplified outline (SOT23) and symbols.

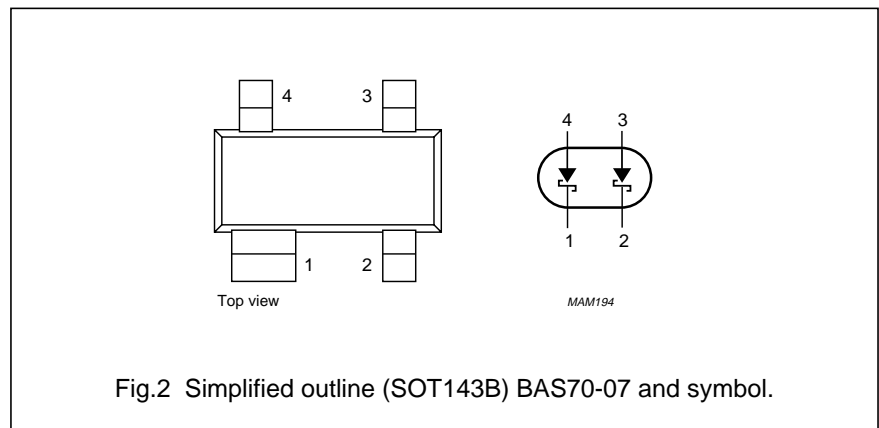


Fig.2 Simplified outline (SOT143B) BAS70-07 and symbol.

Schottky barrier (double) diodes

BAS70 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 | | – | 70 | V |
| I_F | continuous forward current | | – | 70 | mA |
| I_{FRM} | repetitive peak forward current | $t_p \leq 1 \text{ s}; \delta \leq 0.5$ | – | 70 | mA |
| I_{FSM} | non-repetitive peak forward current | $t_p < 10 \text{ ms}$ | – | 100 | mA |
| T_{stg} | storage temperature | | –65 | +150 | °C |
| T_j | junction temperature | | – | 150 | °C |
| T_{amb} | operating ambient temperature | | –65 | +150 | °C |

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|------------------|--|--|-----------------|---------------------|
| Per diode | | | | |
| V_F | forward voltage | see Fig.3 $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 15 \text{ mA}$ | 410 750 1 | mV mV V |
| I_R | reverse current | $V_R = 50 \text{ V}$; note 1; see Fig.4 $V_R = 70 \text{ V}$; note 1; see Fig.4 | 100 10 | nA μA |
| τ | charge carrier life time (Krakauer method) | $I_F = 5 \text{ mA}$ | 100 | ps |
| C_d | diode capacitance | $f = 1 \text{ MHz}$; $V_R = 0$; see Fig.6 | 2 | pF |

Note

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

THERMAL CHARACTERISTICS

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

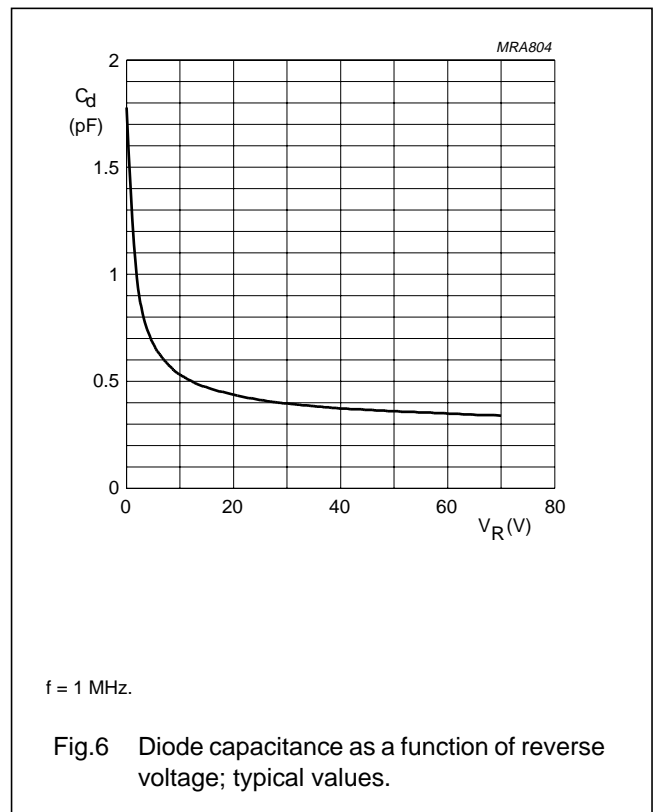
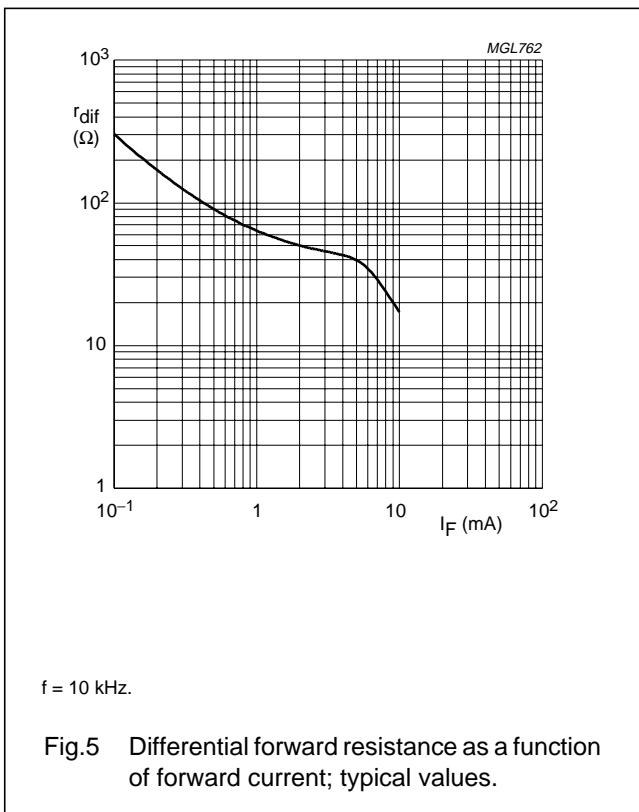
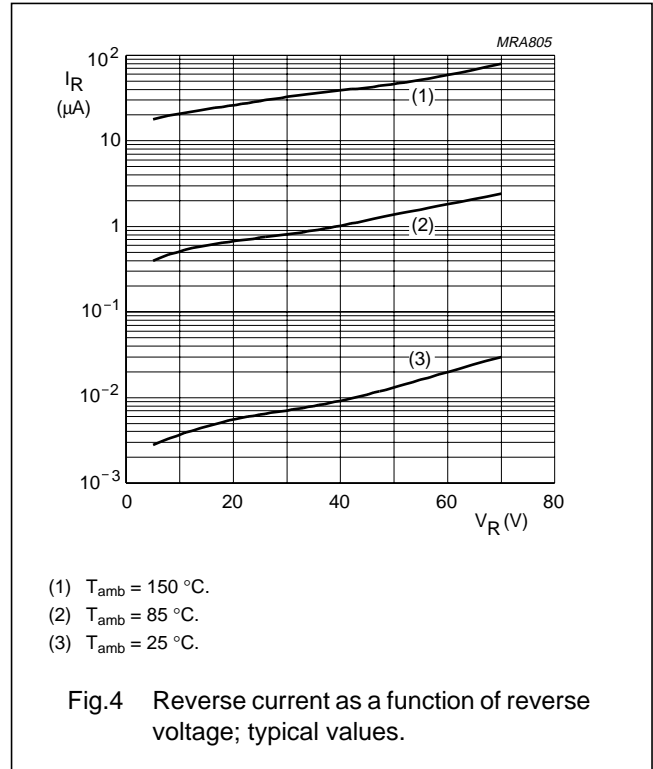
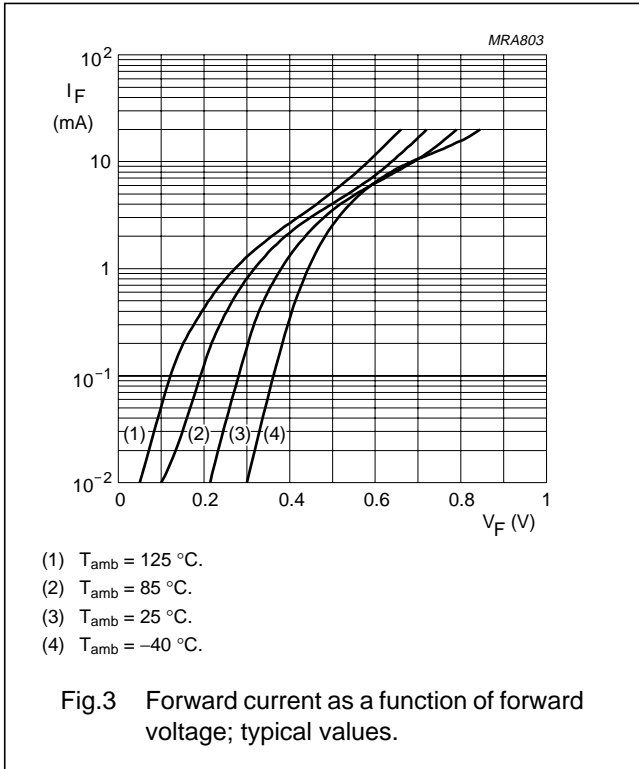
Note

1. Refer to SOT23 or SOT143B standard mounting conditions.

Schottky barrier (double) diodes

BAS70 series

GRAPHICAL DATA



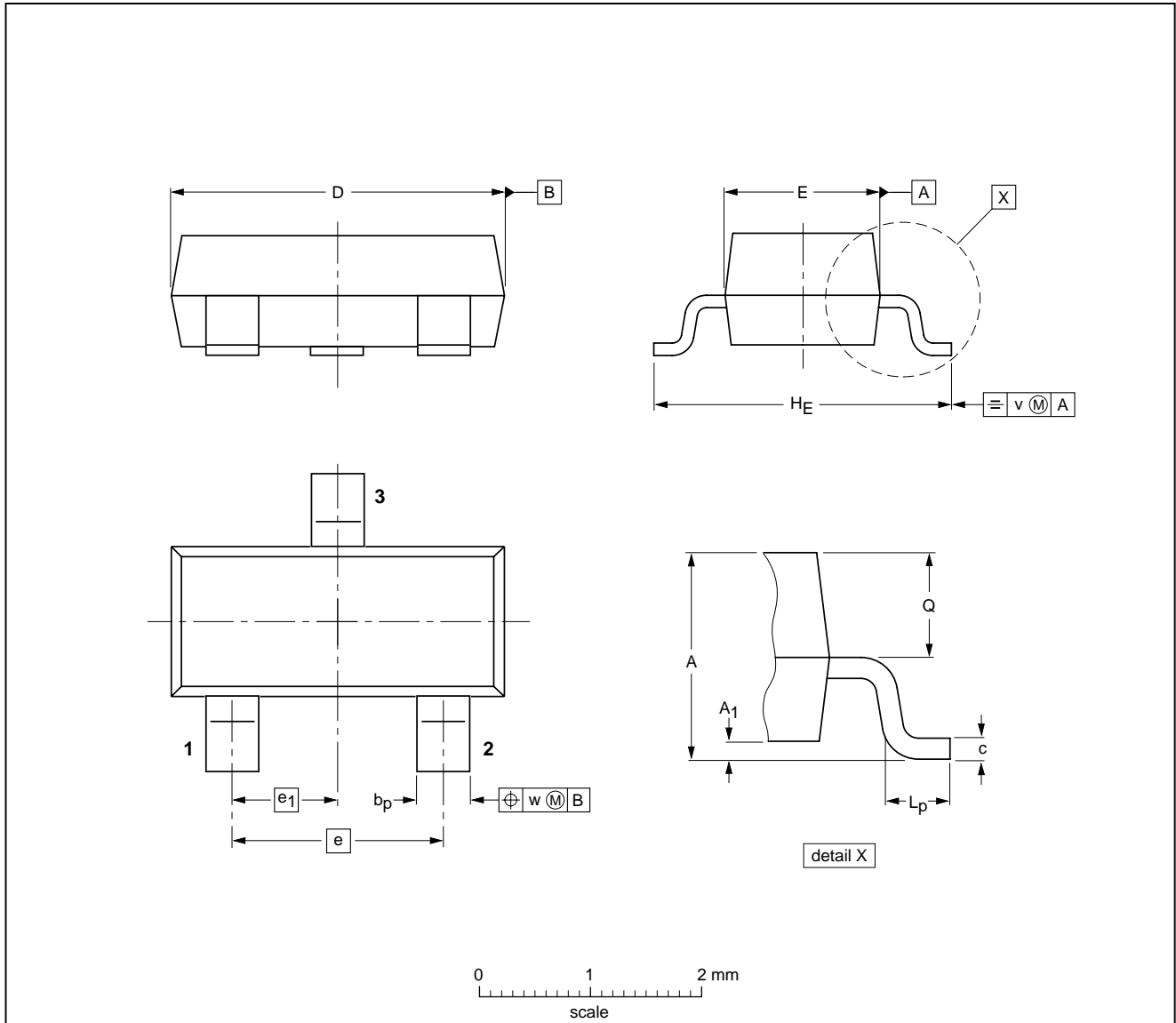
Schottky barrier (double) diodes

BAS70 series

PACKAGE OUTLINES

Plastic surface mounted package; 3 leads

SOT23



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 0.9 | 0.1 | 0.48 0.38 | 0.15 0.09 | 3.0 2.8 | 1.4 1.2 | 1.9 | 0.95 | 2.5 2.1 | 0.45 0.15 | 0.55 0.45 | 0.2 | 0.1 |

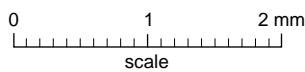
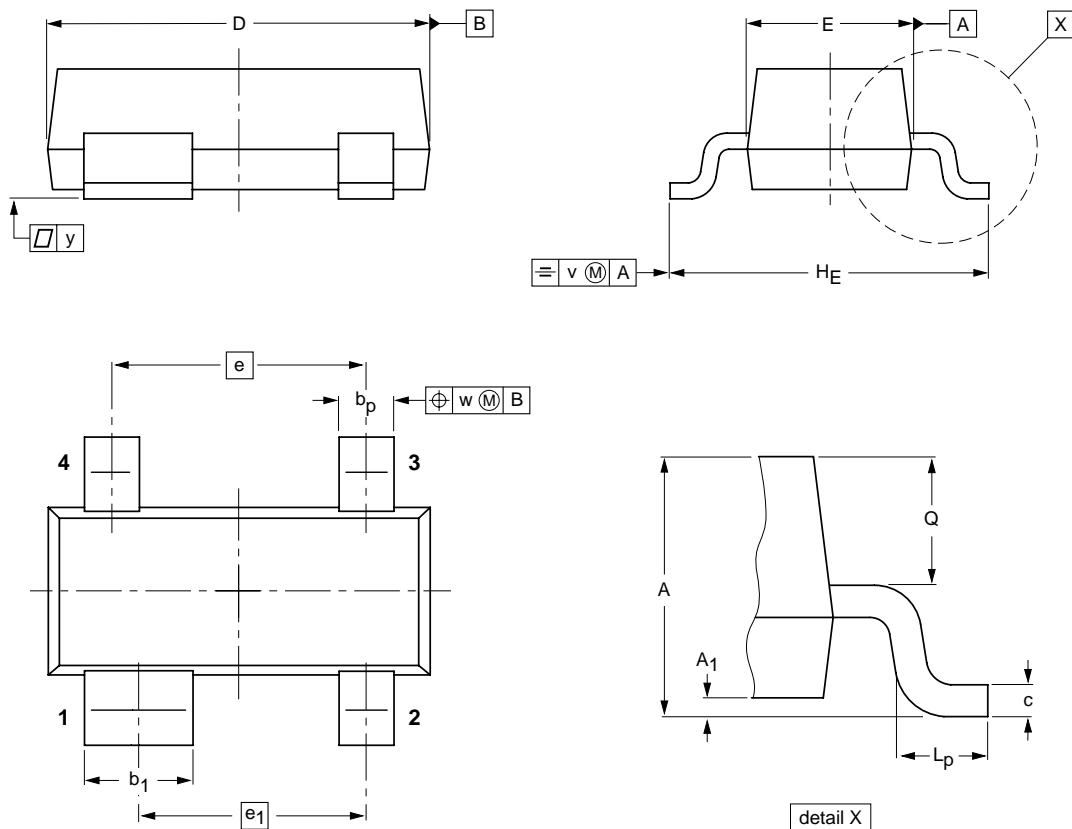
| OUTLINE VERSION | REFERENCES | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|----------|------|---------------------|----------------------|
| | IEC | JEDEC | EIAJ | | |
| SOT23 | | TO-236AB | | | 97-02-28 99-09-13 |

Schottky barrier (double) diodes

BAS70 series

Plastic surface mounted package; 4 leads

SOT143B



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | b ₁ | c | D | E | e | e ₁ | H _E | L _p | Q | v | w | y |
|------|------------|-----------------------|----------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|-----|
| mm | 1.1 0.9 | 0.1 | 0.48 0.38 | 0.88 0.78 | 0.15 0.09 | 3.0 2.8 | 1.4 1.2 | 1.9 | 1.7 | 2.5 2.1 | 0.45 0.15 | 0.55 0.45 | 0.2 | 0.1 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|------|--|---------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT143B | | | | | | 97-02-28 |

Schottky barrier (double) diodes

BAS70 series

DATA SHEET STATUS

| DATA SHEET STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITIONS |
|----------------------------------|-------------------------------|--|
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