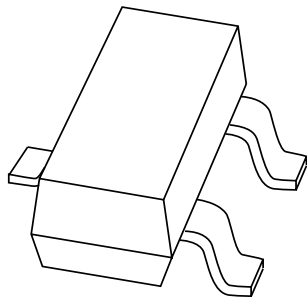


DATA SHEET



BAS19; BAS20; BAS21 General purpose diodes

Product data sheet
Supersedes data of 1999 May 26

2003 Mar 20

General purpose diodes

BAS19; BAS20; BAS21

FEATURES

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 100 V; 150 V; 200 V
- Repetitive peak reverse voltage: max. 120 V; 200 V; 250 V
- Repetitive peak forward current: max. 625 mA.

APPLICATIONS

- General purpose switching in e.g. surface mounted circuits.

DESCRIPTION

The BAS19, BAS20 and BAS21 are general purpose diodes fabricated in planar technology, and encapsulated in a small SOT23 plastic SMD package.

MARKING

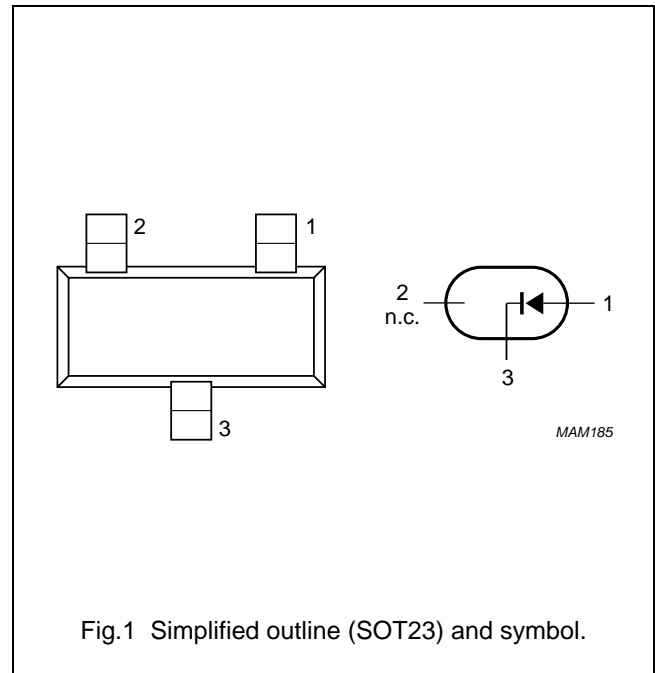
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BAS19 | JP* |
| BAS20 | JR* |
| BAS21 | JS* |

Note

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

PINNING

| PIN | DESCRIPTION |
|-----|---------------|
| 1 | anode |
| 2 | not connected |
| 3 | cathode |



General purpose diodes

BAS19; BAS20; BAS21

LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|---|------|------|------|
| V _R | repetitive peak reverse voltage | | | | |
| | BAS19 | | – | 120 | V |
| | BAS20 | | – | 200 | V |
| | BAS21 | | – | 250 | V |
| V _R | continuous reverse voltage | | | | |
| | BAS19 | | – | 100 | V |
| | BAS20 | | – | 150 | V |
| | BAS21 | | – | 200 | V |
| I _F | continuous forward current | see Fig.2; note 1 | – | 200 | mA |
| I _{FRM} | repetitive peak forward current | | – | 625 | mA |
| I _{FSM} | non-repetitive peak forward current | square wave; T _j = 25 °C prior to surge; see Fig.4 | | | |
| | | t = 1 μs | – | 9 | A |
| | | t = 100 μs | – | 3 | A |
| | | t = 10 ms | – | 1.7 | A |
| P _{tot} | total power dissipation | T _{amb} = 25 °C; note 1 | – | 250 | mW |
| T _{stg} | storage temperature | | –65 | +150 | °C |
| T _j | junction temperature | | – | 150 | °C |

Note

1. Device mounted on an FR4 printed-circuit board.

General purpose diodes

BAS19; BAS20; BAS21

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|----------|--|--|--|---|
| V_F | forward voltage | see Fig.3 $I_F = 100\text{ mA}$ $I_F = 200\text{ mA}$ | 1 1.25 | V V |
| I_R | reverse current BAS19 BAS20 BAS21 | see Fig.5 $V_R = 100\text{ V}$ $V_R = 100\text{ V}; T_j = 150\text{ °C}$ $V_R = 150\text{ V}$ $V_R = 150\text{ V}; T_j = 150\text{ °C}$ $V_R = 200\text{ V}$ $V_R = 200\text{ V}; T_j = 150\text{ °C}$ | 100 100 100 100 100 100 | nA μA nA μA nA μA |
| C_d | diode capacitance | $f = 1\text{ MHz}; V_R = 0$; see Fig.6 | 5 | pF |
| t_{rr} | reverse recovery time | when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}; R_L = 100\ \Omega$; measured at $I_R = 3\text{ mA}$; see Fig.8 | 50 | ns |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|---|------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | | 330 | K/W |
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 500 | K/W |

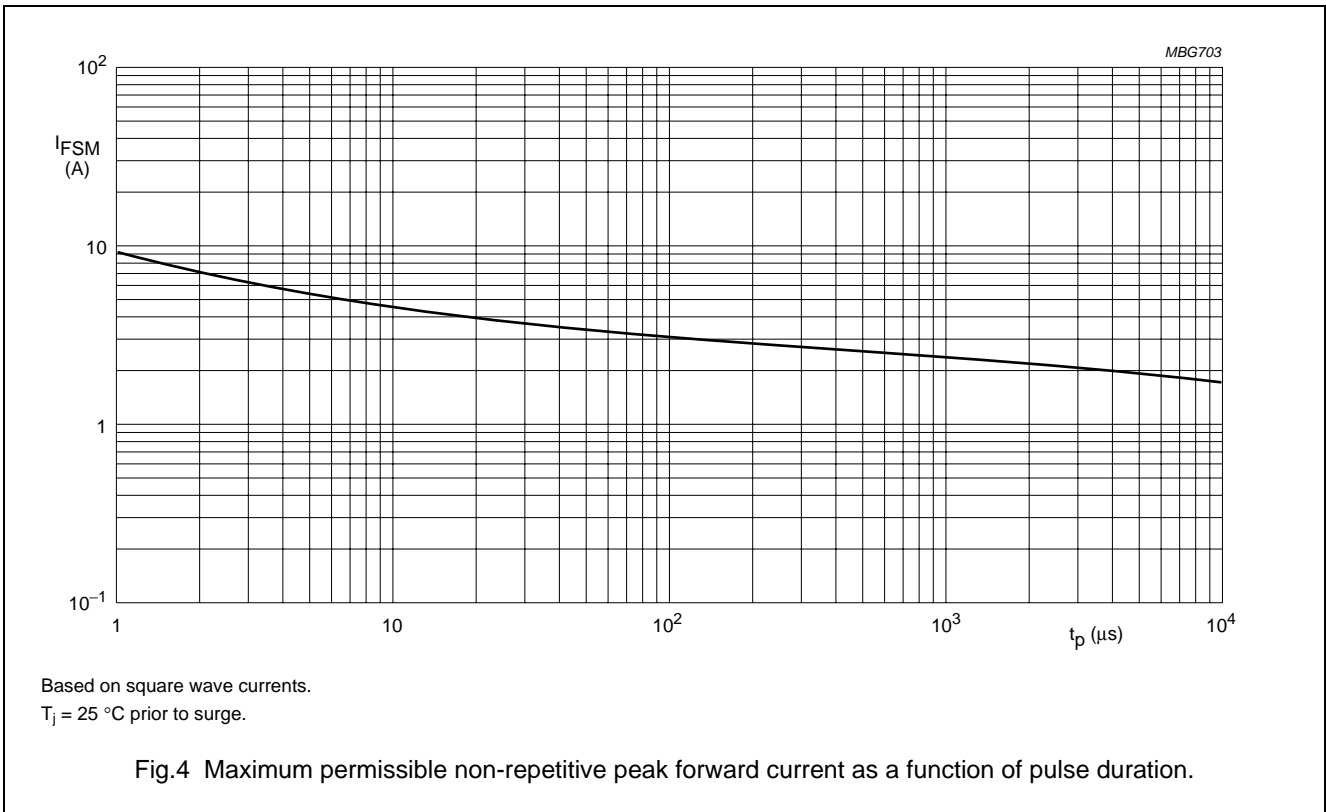
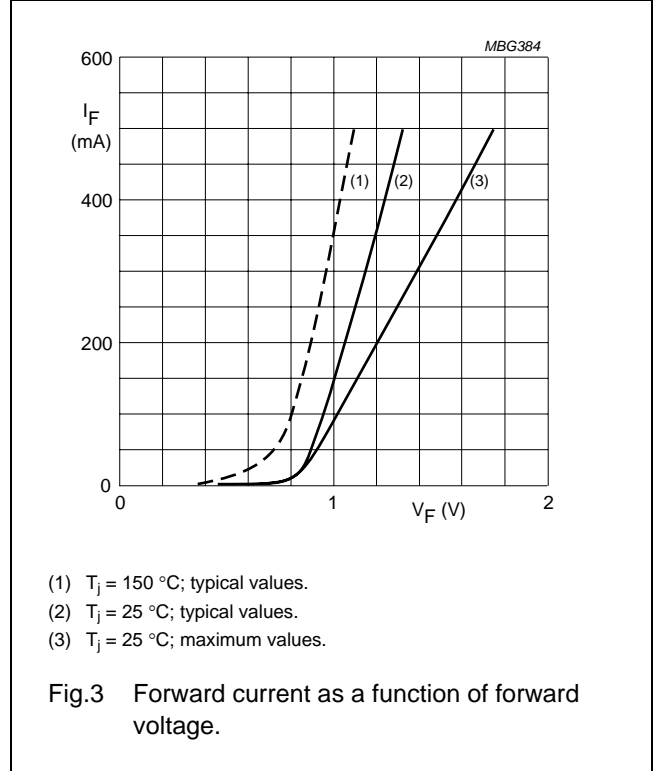
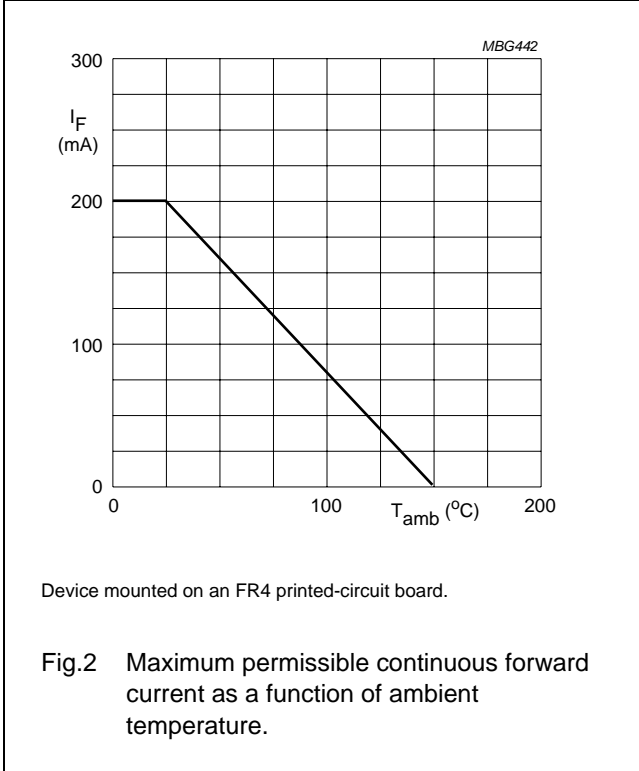
Note

1. Device mounted on an FR4 printed-circuit board.

General purpose diodes

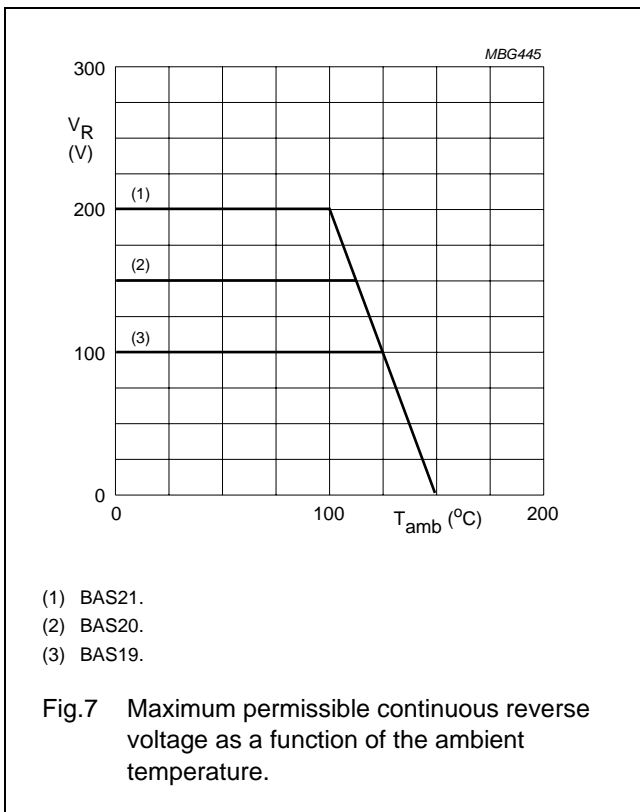
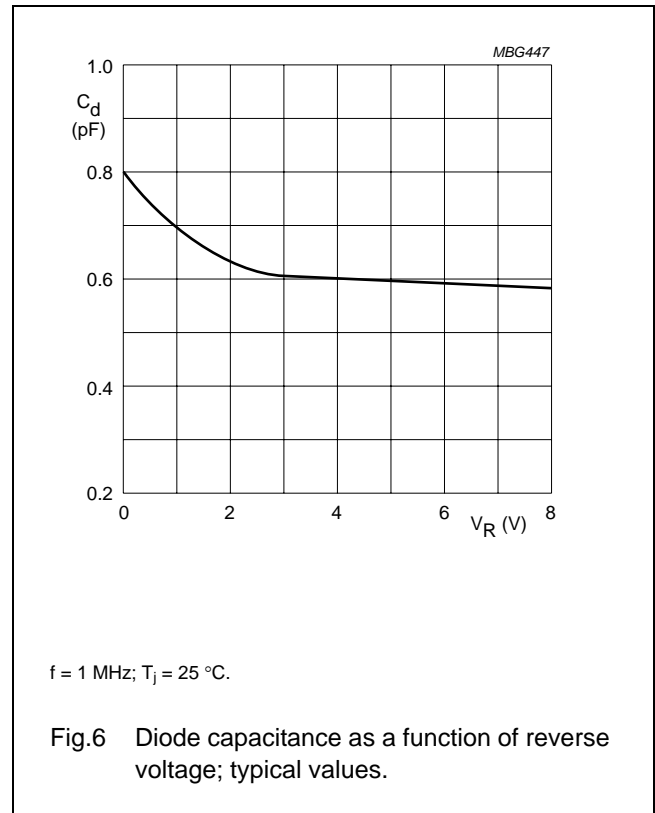
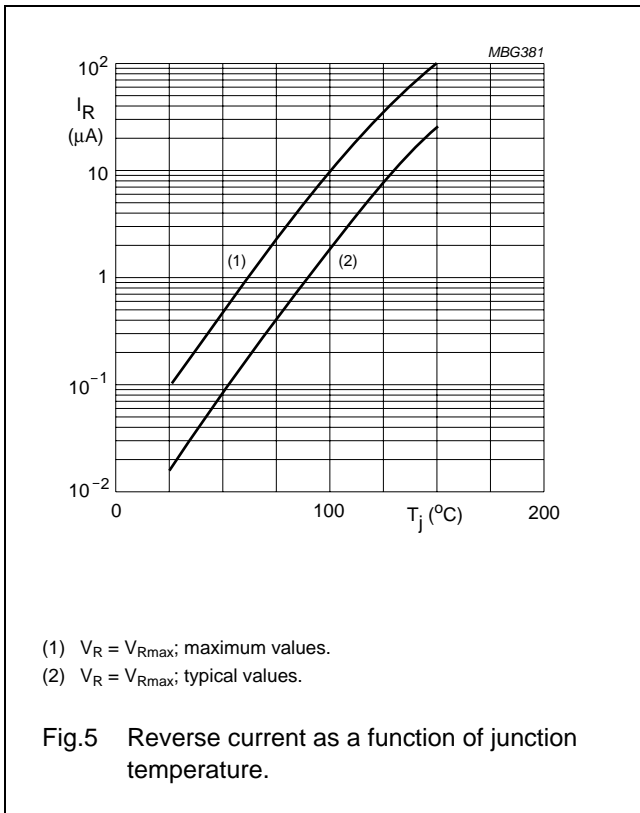
BAS19; BAS20; BAS21

GRAPHICAL DATA



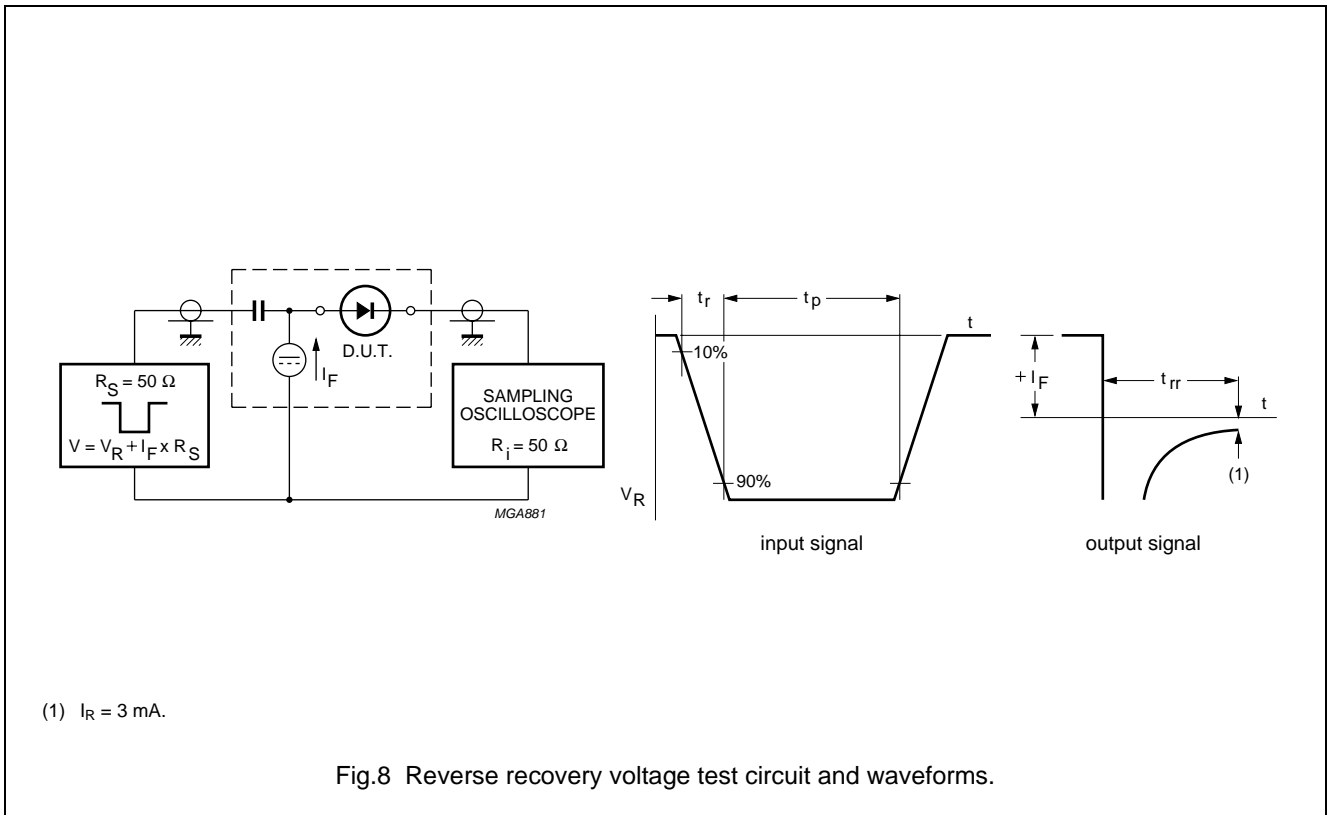
General purpose diodes

BAS19; BAS20; BAS21



General purpose diodes

BAS19; BAS20; BAS21



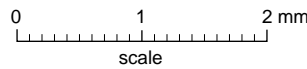
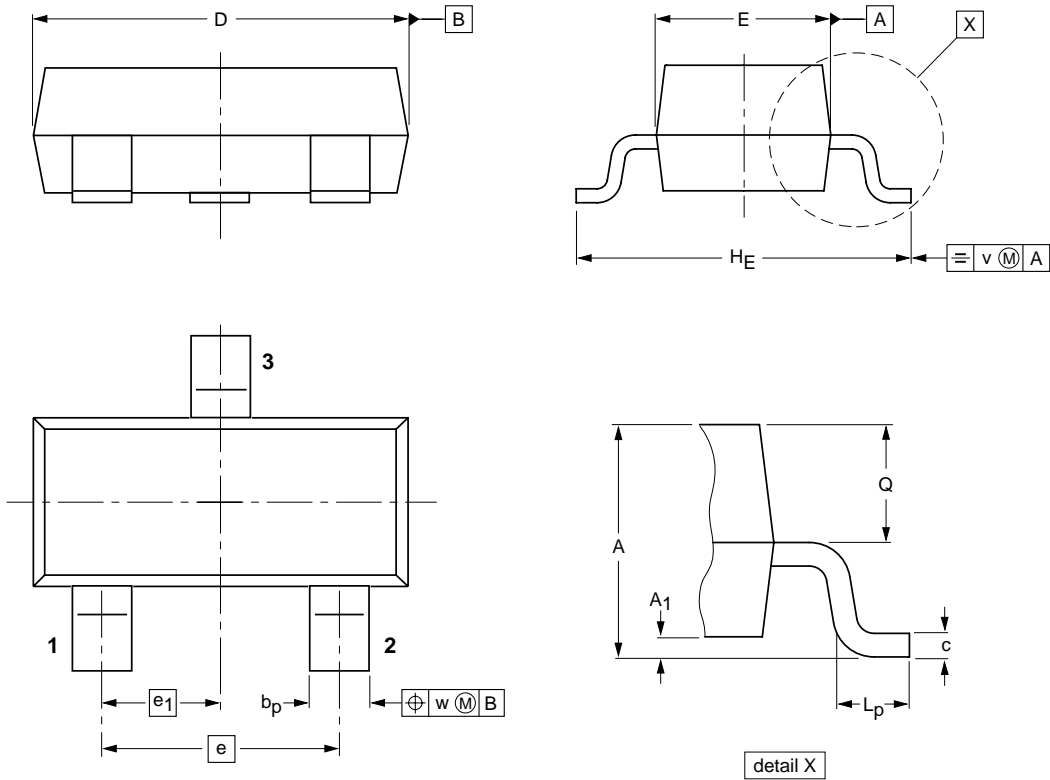
General purpose diodes

BAS19; BAS20; BAS21

PACKAGE OUTLINE

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 |

General purpose diodes

BAS19; BAS20; BAS21

DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITION |
|--------------------------------|-------------------------------|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

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