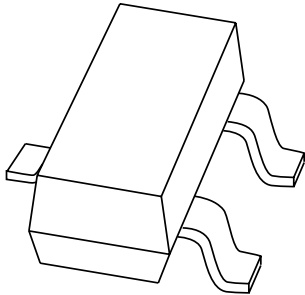


DATA SHEET



BAV170 Low-leakage double diode

Product specification
Supersedes data of 1996 Mar 13

1999 May 11

Low-leakage double diode

BAV170

FEATURES

- Plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8 μs
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

APPLICATION

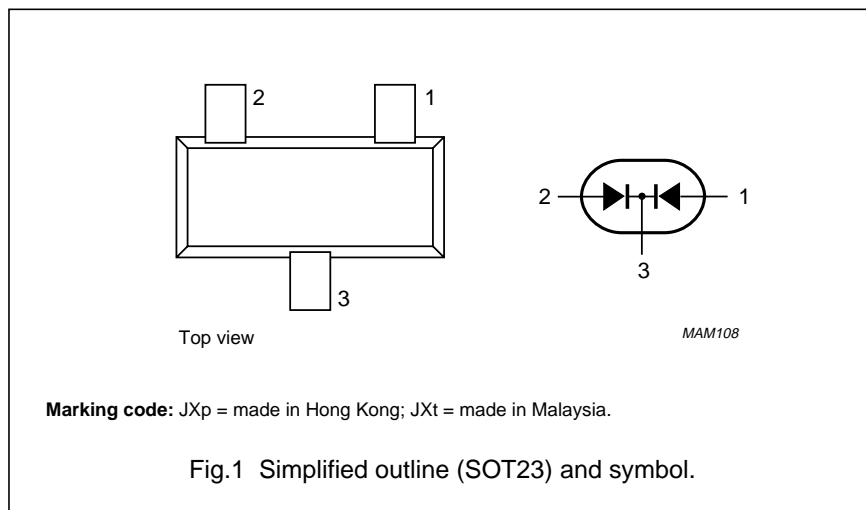
- Low-leakage current applications in surface mounted circuits.

DESCRIPTION

Epitaxial, medium-speed switching, double diode in a small SOT23 plastic SMD package. The diodes are in common cathode configuration.

PINNING

| PIN | DESCRIPTION |
|-----|----------------|
| 1 | anode |
| 2 | anode |
| 3 | common cathode |



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|---|------|------|------|
| Per diode | | | | | |
| V _{RRM} | repetitive peak reverse voltage | | – | 85 | V |
| V _R | continuous reverse voltage | | – | 75 | V |
| I _F | continuous forward current | single diode loaded; note 1; see Fig.2 | – | 215 | mA |
| | | double diode loaded; note 1; see Fig.2 | – | 125 | mA |
| I _{FRM} | repetitive peak forward current | | – | 500 | mA |
| I _{FSM} | non-repetitive peak forward current | square wave; T _j = 25 °C prior to surge; see Fig.4 | | | |
| | | t _p = 1 μs | – | 4 | A |
| | | t _p = 1 ms | – | 1 | A |
| | | t _p = 1 s | – | 0.5 | 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 a FR4 printed-circuit board.

Low-leakage double diode

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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|------------------|-----------------------|--|-------|------|---------------|
| Per diode | | | | | |
| V_F | forward voltage | see Fig.3 | | | |
| | | $I_F = 1\text{ mA}$ | – | 900 | mV |
| | | $I_F = 10\text{ mA}$ | – | 1000 | mV |
| | | $I_F = 50\text{ mA}$ | – | 1100 | mV |
| | | $I_F = 150\text{ mA}$ | – | 1250 | mV |
| I_R | reverse current | see Fig.5 | | | |
| | | $V_R = 75\text{ V}$ | 0.003 | 5 | nA |
| | | $V_R = 75\text{ V}; T_j = 150\text{ °C}$ | 3 | 80 | nA |
| C_d | diode capacitance | $f = 1\text{ MHz}; V_R = 0$; see Fig.6 | 2 | – | pF |
| t_{rr} | reverse recovery time | when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}; R_L = 100\ \Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7 | 0.8 | 3 | μs |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|---|------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | | 360 | K/W |
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 500 | K/W |

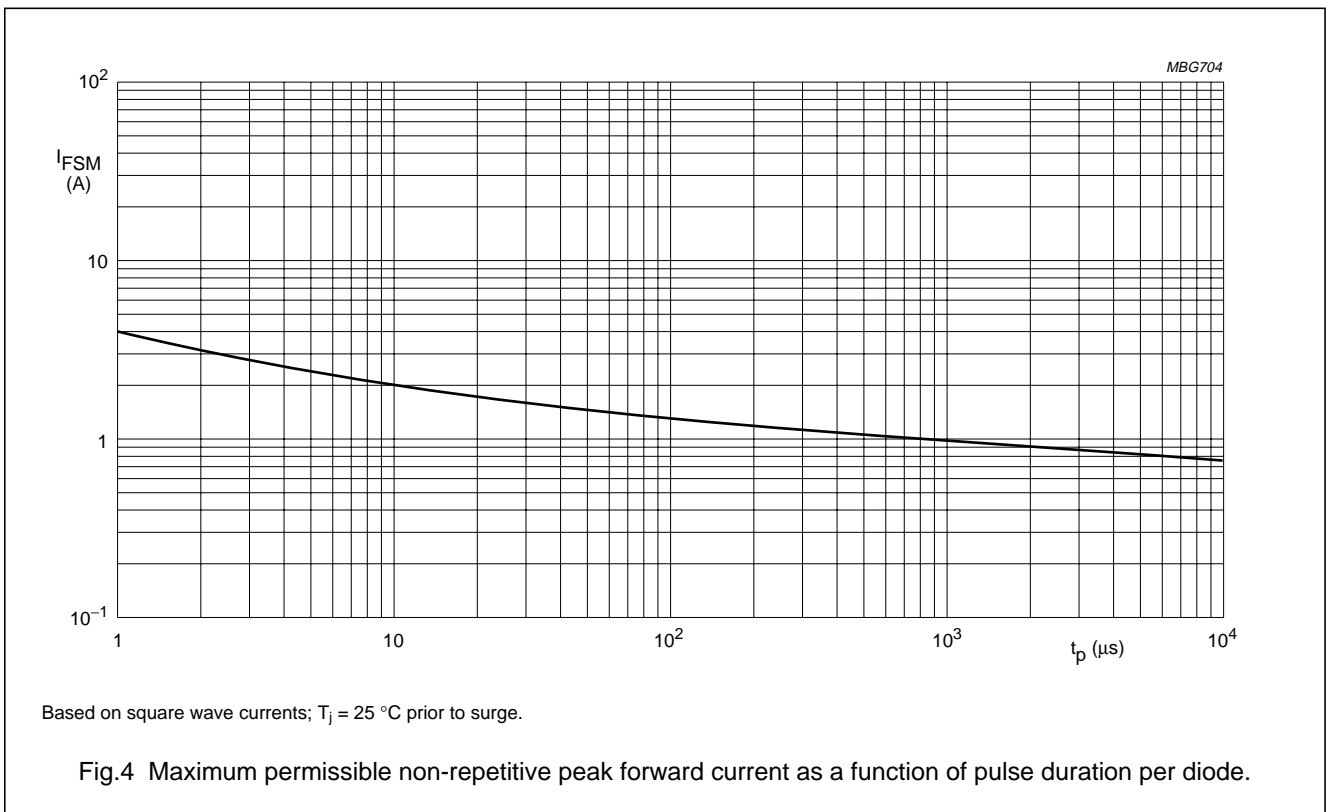
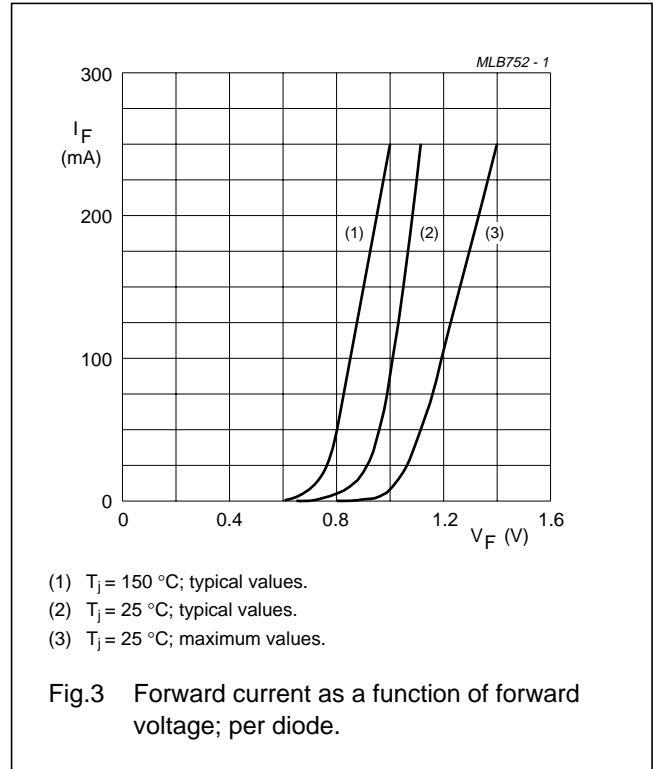
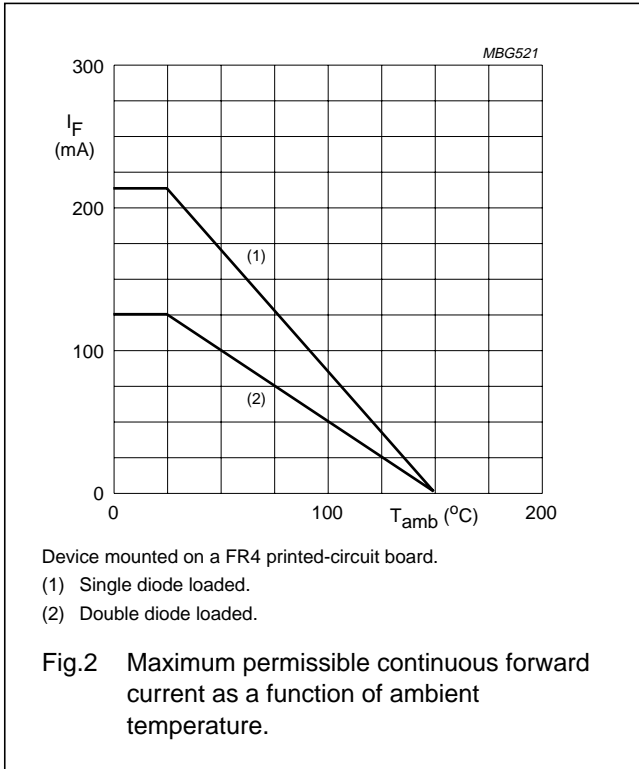
Note

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

Low-leakage double diode

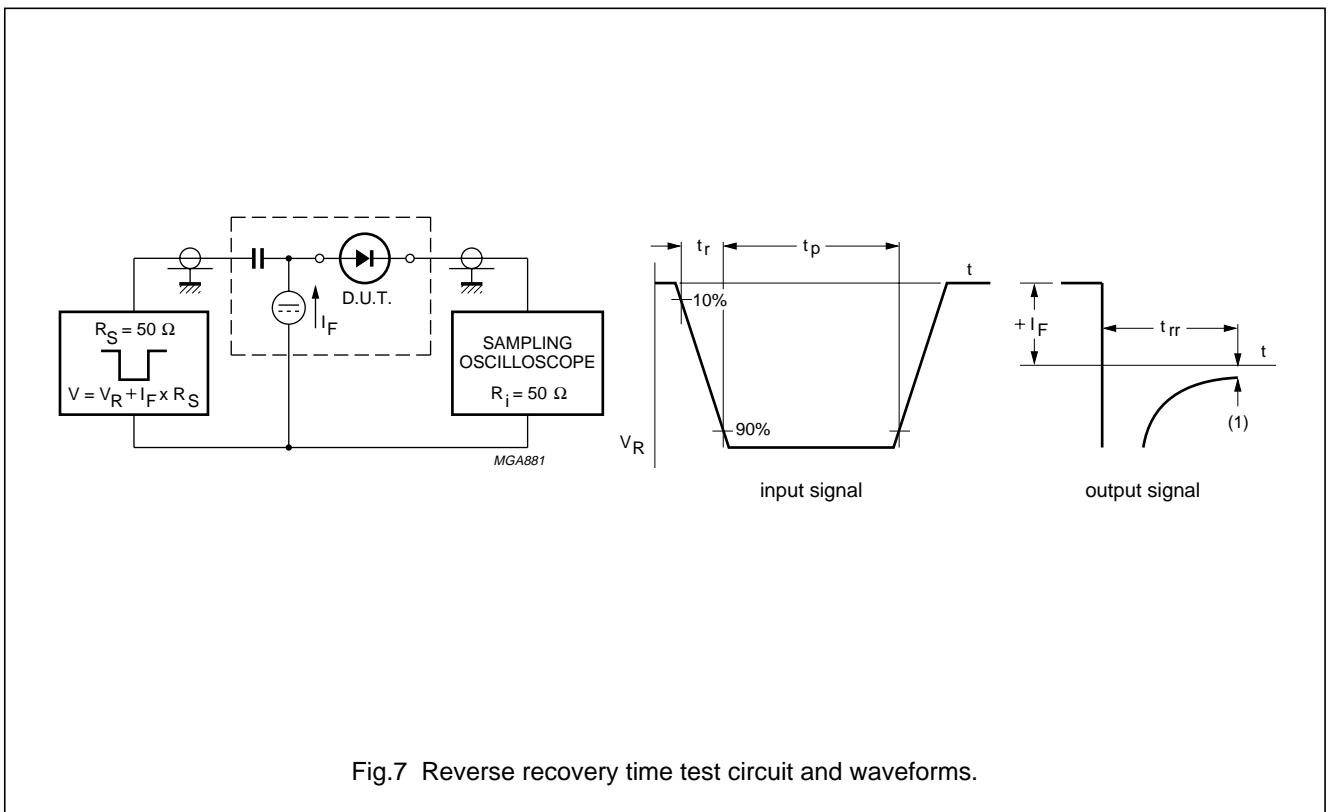
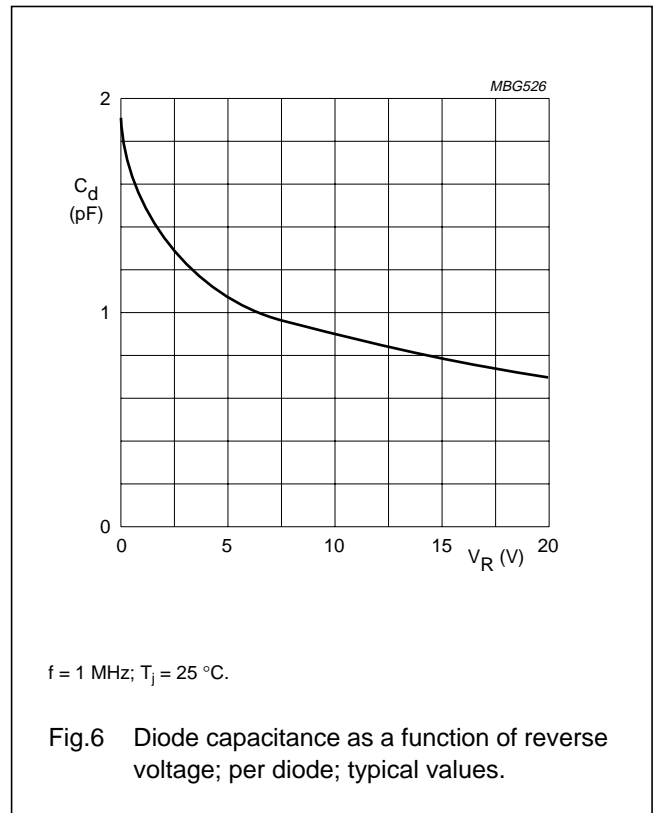
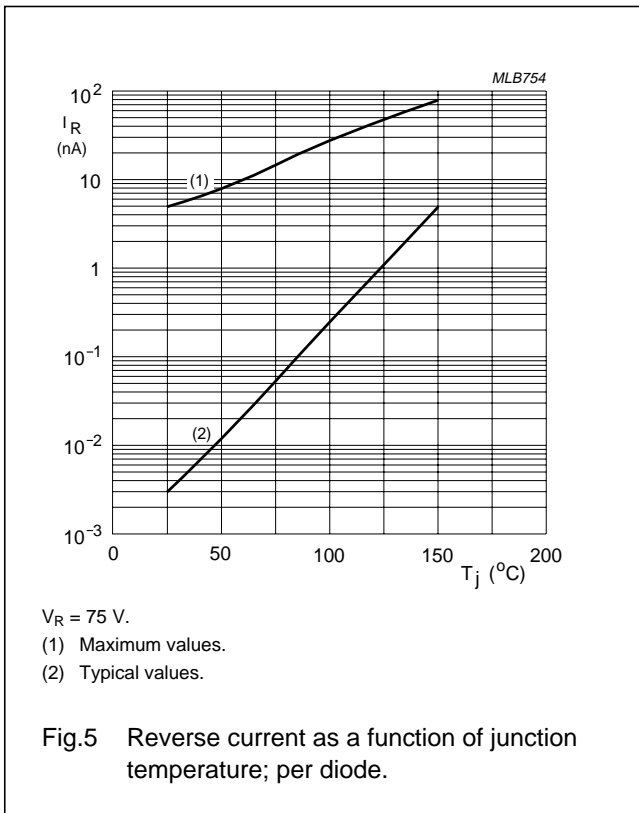
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GRAPHICAL DATA



Low-leakage double diode

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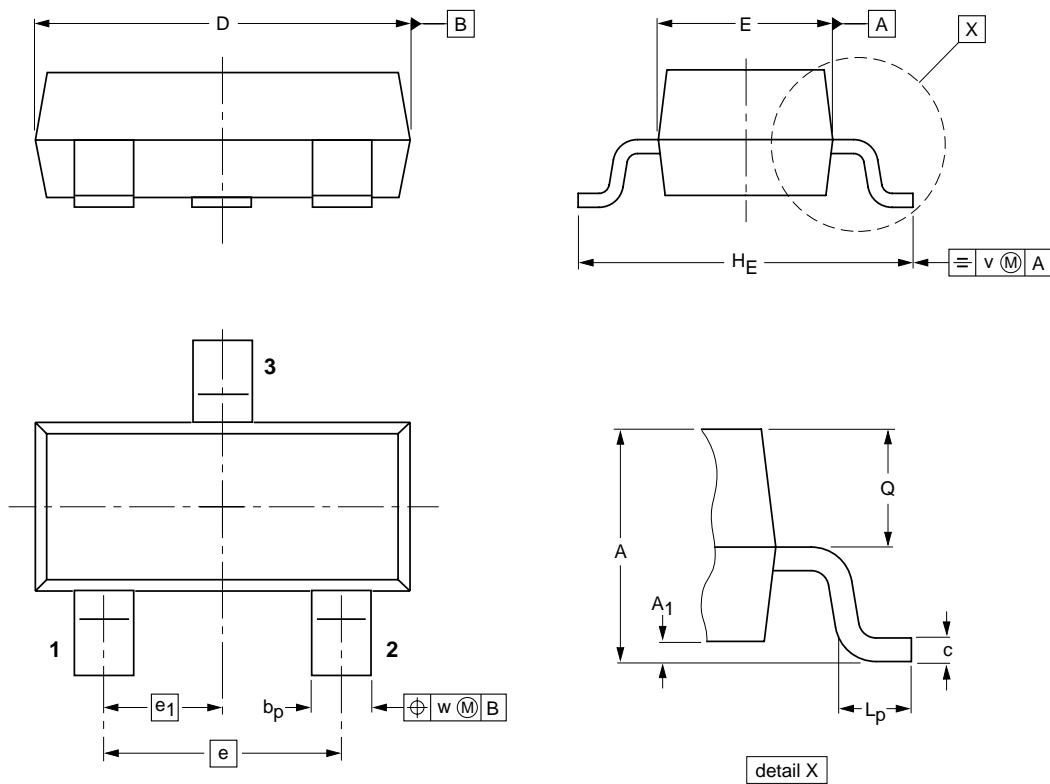
Low-leakage double diode

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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 | | | | | | 97-02-28 |

Low-leakage double diode

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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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