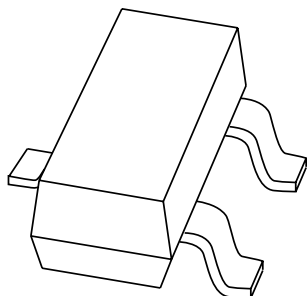


DATA SHEET



BAV199

Low-leakage double diode

Product specification
Supersedes data of 1999 May 11

2001 Oct 12

Low-leakage double diode

BAV199

FEATURES

- Plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8 μ s
- 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 connected in series.

MARKING

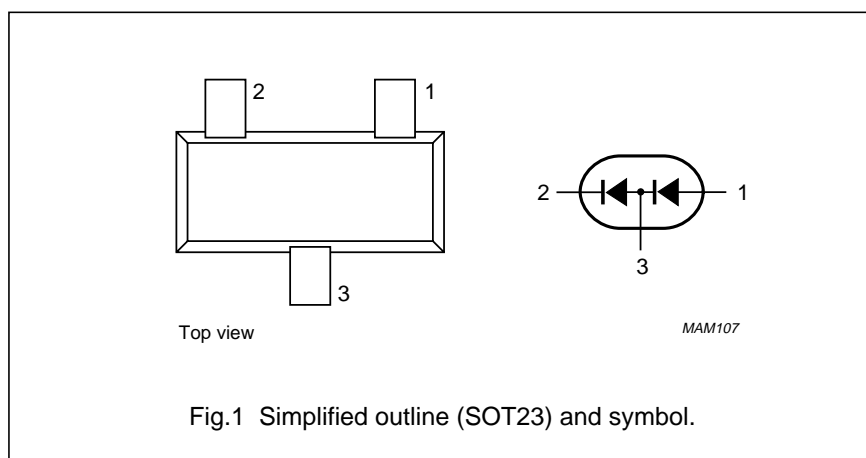
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| BAV199 | JY* |

Note

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

PINNING

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



LIMITING VALUES

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

| 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 | — | 160 | mA |
| | | double diode loaded; note 1; see Fig.2 | — | 140 | mA |
| I_{FRM} | repetitive peak forward current | | — | 500 | mA |
| I_{FSM} | non-repetitive peak forward current | square wave; $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge; see Fig.4 | | | |
| | | $t_p = 1\text{ }\mu\text{s}$ | — | 4 | A |
| | | $t_p = 1\text{ ms}$ | — | 1 | A |
| | | $t_p = 1\text{ s}$ | — | 0.5 | A |
| P_{tot} | total power dissipation | $T_{amb} = 25\text{ }^{\circ}\text{C}$; note 1 | — | 250 | mW |
| T_{stg} | storage temperature | | −65 | +150 | $^{\circ}\text{C}$ |
| T_j | junction temperature | | — | 150 | $^{\circ}\text{C}$ |

Note

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

Low-leakage double diode

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ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$ 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 |
| | | $V_R = 75\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ | 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 $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; 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 |

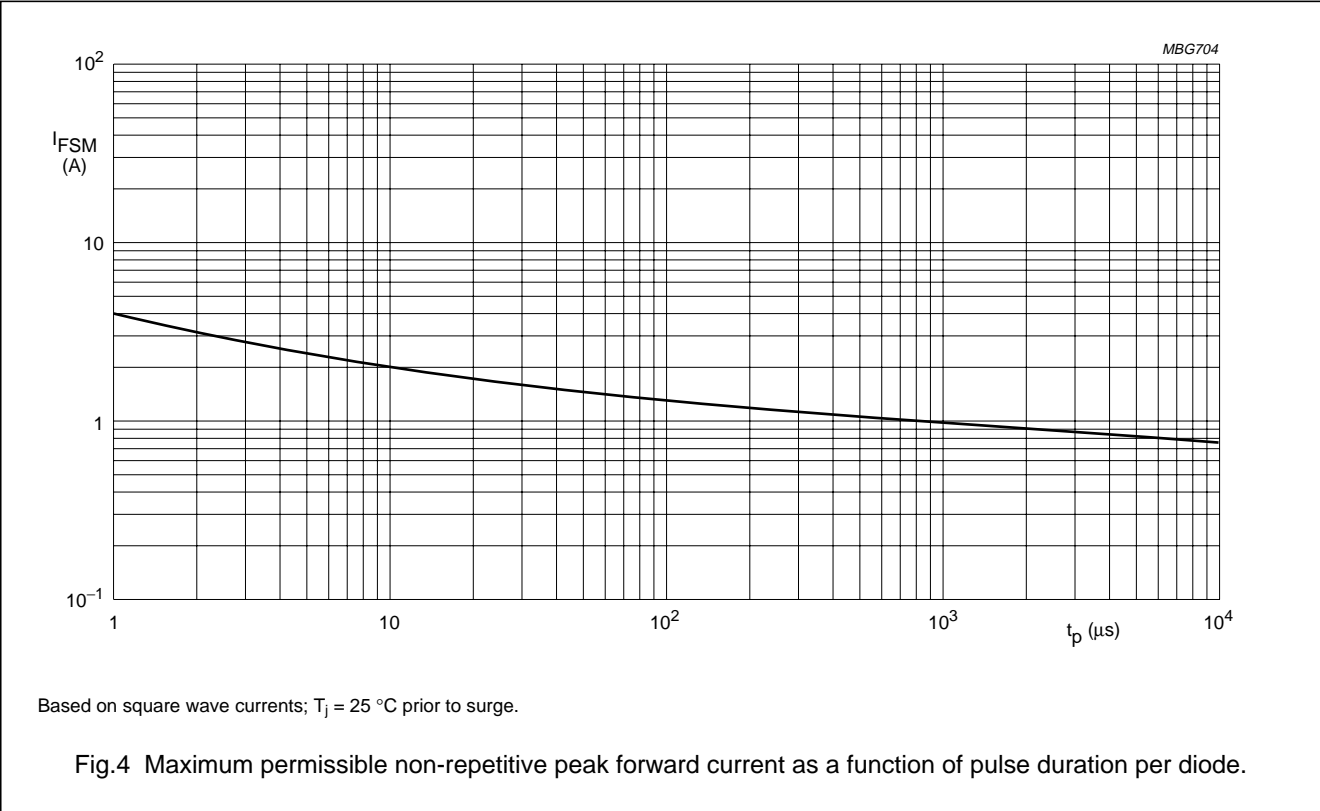
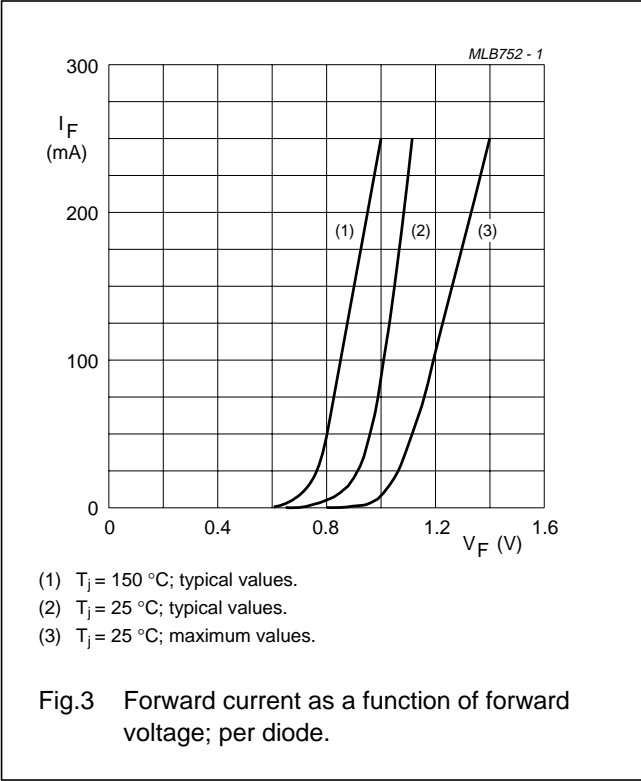
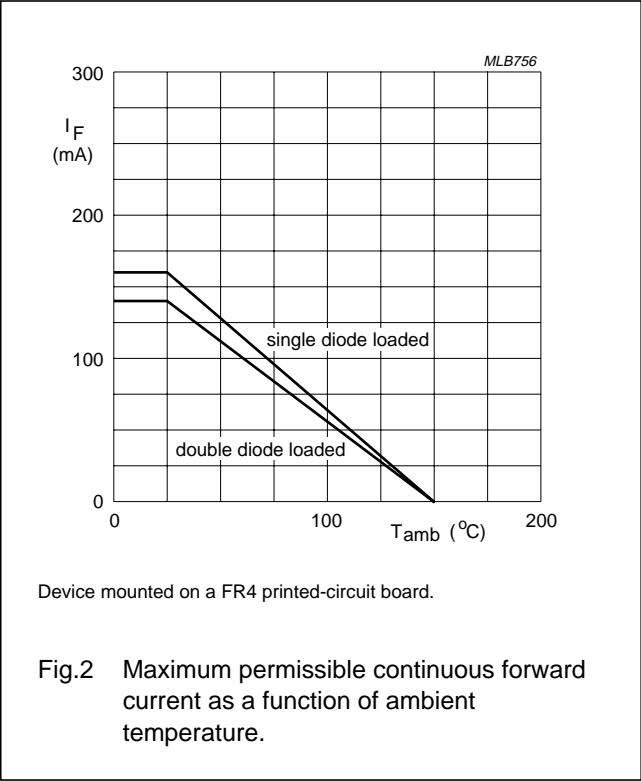
Note

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

Low-leakage double diode

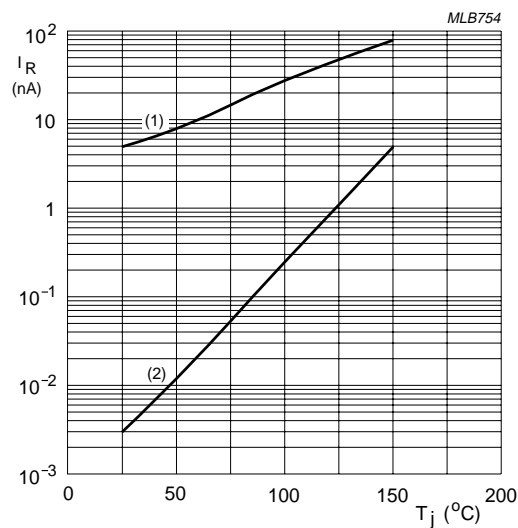
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GRAPHICAL DATA



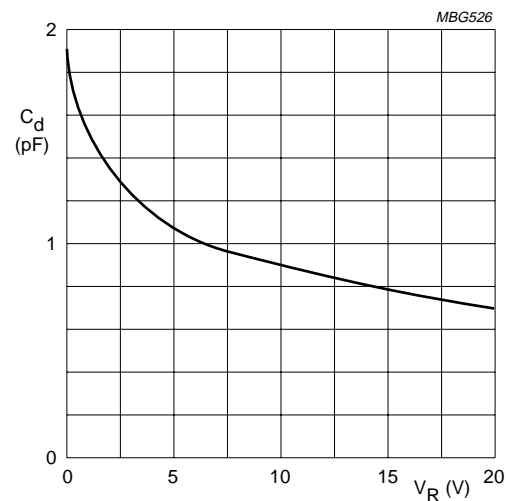
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$V_R = 75$ V.
(1) Maximum values.
(2) Typical values.

Fig.5 Reverse current as a function of junction temperature; per diode.



$f = 1$ MHz; $T_j = 25$ °C.

Fig.6 Diode capacitance as a function of reverse voltage; per diode; typical values.

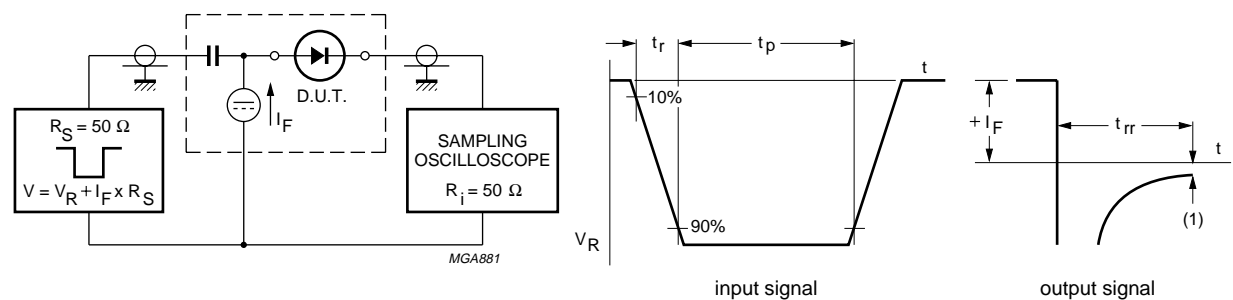


Fig.7 Reverse recovery time test circuit and waveforms.

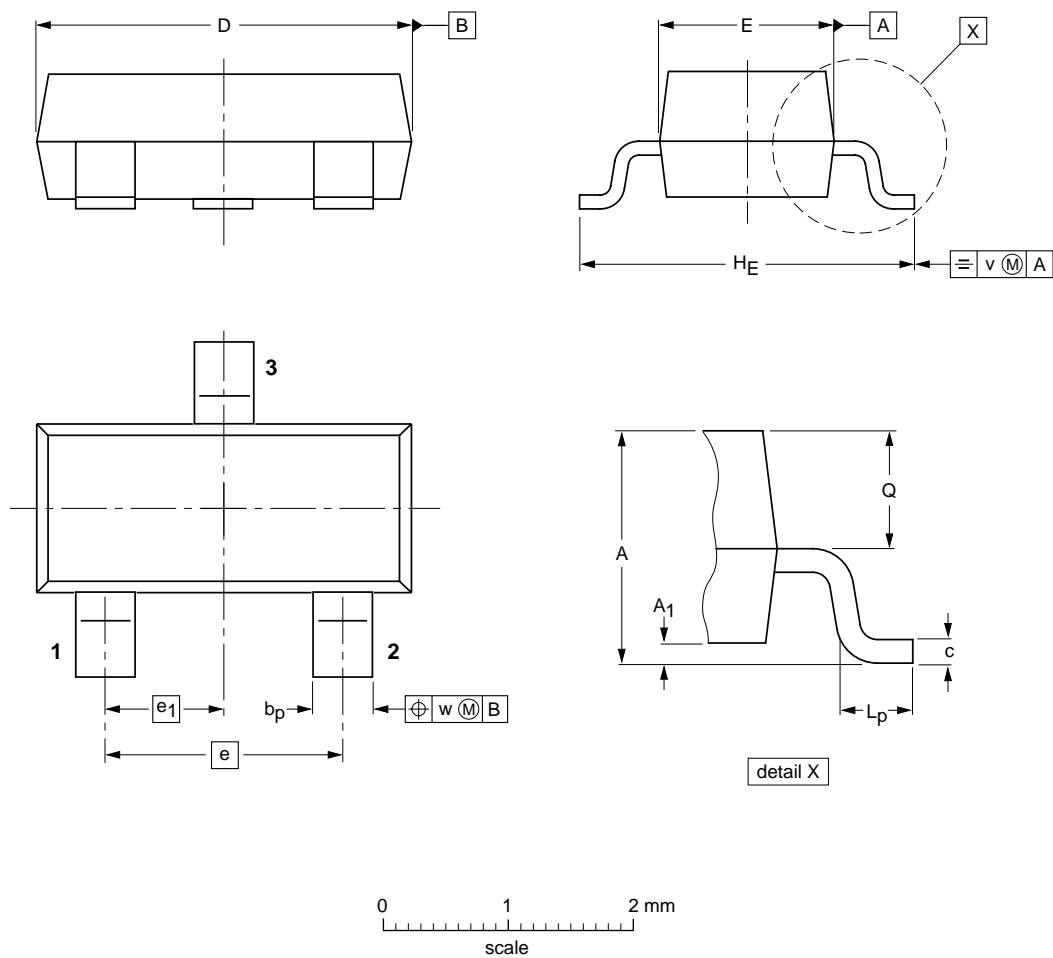
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PACKAGE OUTLINE

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 | | TO-236AB | | | | 97-02-28 99-09-13 |

Low-leakage double diode

BAV199

DATA SHEET STATUS

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