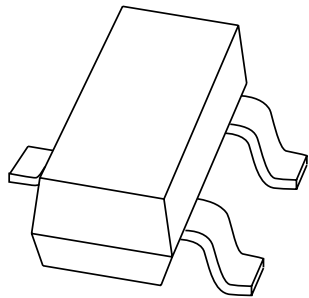


# DATA SHEET



## **PMBD2837; PMBD2838** High-speed double diodes

Product specification  
Supersedes data of April 1996

1996 Sep 18

# High-speed double diodes

# PMBD2837; PMBD2838

### FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 30 V and 50 V respectively
- Repetitive peak reverse voltage: max. 35 V and 75 V respectively
- Repetitive peak forward current: max. 450 mA.

### APPLICATIONS

- High-speed switching in e.g. surface mounted circuits.

### DESCRIPTION

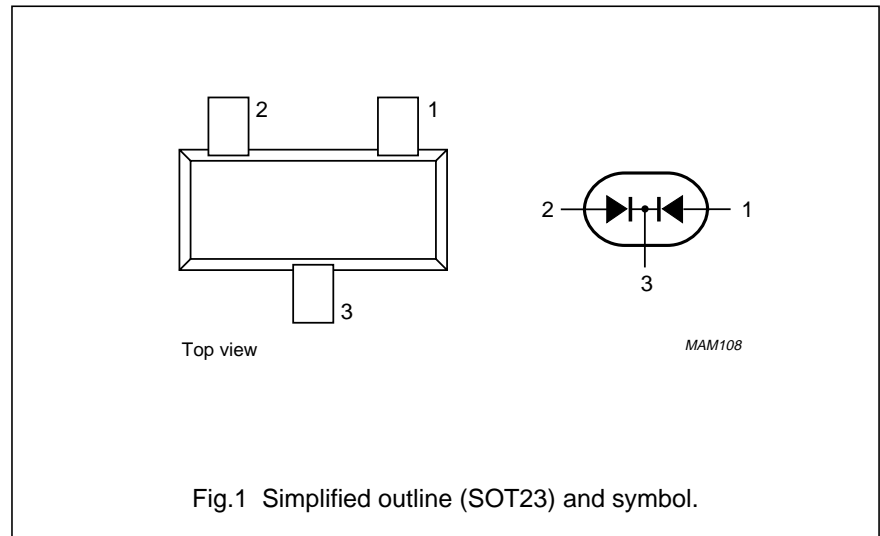
The PMD2837, PMD2838 consist of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in small plastic SMD SOT23 packages.

### MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PMBD2837    | pA5          |
| PMBD2838    | pA6          |

### PINNING

| PIN | DESCRIPTION    |
|-----|----------------|
| 1   | anode (a1)     |
| 2   | anode (a2)     |
| 3   | common cathode |



## High-speed double diodes

## PMBD2837; PMBD2838

**LIMITING VALUES**

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

| SYMBOL           | PARAMETER                           | CONDITIONS   | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|--|------|------|------|
| <b>Per diode</b> |                                     |  |      |      |      |
| V <sub>RRM</sub> | repetitive peak reverse voltage     |  |      |      |      |
|                  | PMBD2837                            |  | –    | 35   | V    |
|                  | PMBD2838                            |  | –    | 75   | V    |
| V <sub>R</sub>   | continuous reverse voltage          |  |      |      |      |
|                  | PMBD2837                            |  | –    | 30   | V    |
|                  | PMBD2838                            |  | –    | 50   | V    |
| I <sub>F</sub>   | continuous forward current          | single diode loaded; see Fig.2;<br>note 1                        | –    | 215  | mA   |
|                  |                                     | double diode loaded; see Fig.2;<br>note 1                        | –    | 125  | mA   |
| I <sub>FRM</sub> | repetitive peak forward current     |  |      | 450  | mA   |
| I <sub>FSM</sub> | non-repetitive peak forward current | square wave; T <sub>j</sub> = 25 °C prior to<br>surge; see Fig.4 |      |      |      |
|                  |                                     | t = 1 μs   | –    | 4    | A    |
|                  |                                     | t = 1 ms   | –    | 1    | A    |
|                  | t = 1 s                             | –  | 0.5  | A    |      |
| P <sub>tot</sub> | total power dissipation             | T <sub>amb</sub> = 25 °C; note 1                                 | –    | 250  | mW   |
| T <sub>stg</sub> | storage temperature                 |  | –65  | +150 | °C   |
| T <sub>j</sub>   | junction temperature                |  | –    | 150  | °C   |

**Note**

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

## High-speed double diodes

## PMBD2837; PMBD2838

**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ }^\circ\text{C}$ ; unless otherwise specified.

| SYMBOL           | PARAMETER                                   | CONDITIONS  | MIN.             | MAX.                    | UNIT                                       |
|------------------|---|---|------------------|-------------------------|--|
| <b>Per diode</b> |   |   |                  |                         |  |
| $V_F$            | forward voltage                             | see Fig.3<br>$I_F = 1\text{ mA}$<br>$I_F = 10\text{ mA}$<br>$I_F = 50\text{ mA}$<br>$I_F = 150\text{ mA}$   | –<br>–<br>–<br>– | 715<br>855<br>1<br>1.25 | mV<br>mV<br>V<br>V                         |
| $I_R$            | reverse current<br>PMBD2837<br><br>PMBD2838 | see Fig.5<br>$V_R = 30\text{ V}$<br>$V_R = 30\text{ V}; T_j = 150\text{ }^\circ\text{C}$<br>$V_R = 50\text{ V}$<br>$V_R = 50\text{ V}; T_j = 150\text{ }^\circ\text{C}$ | –<br>–<br>–<br>– | 100<br>40<br>100<br>50  | nA<br>$\mu\text{A}$<br>nA<br>$\mu\text{A}$ |
| $C_d$            | diode capacitance                           | $f = 1\text{ MHz}; V_R = 0$ ; see Fig.6   | –                | 2.5                     | 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                                     | –                | 4                       | ns   |
| $V_{fr}$         | forward recovery voltage                    | when switched from $I_F = 10\text{ mA}$ ; $t_r = 20\text{ ns}$ ; see Fig.8  | –                | 1.75                    | V  |

**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  |

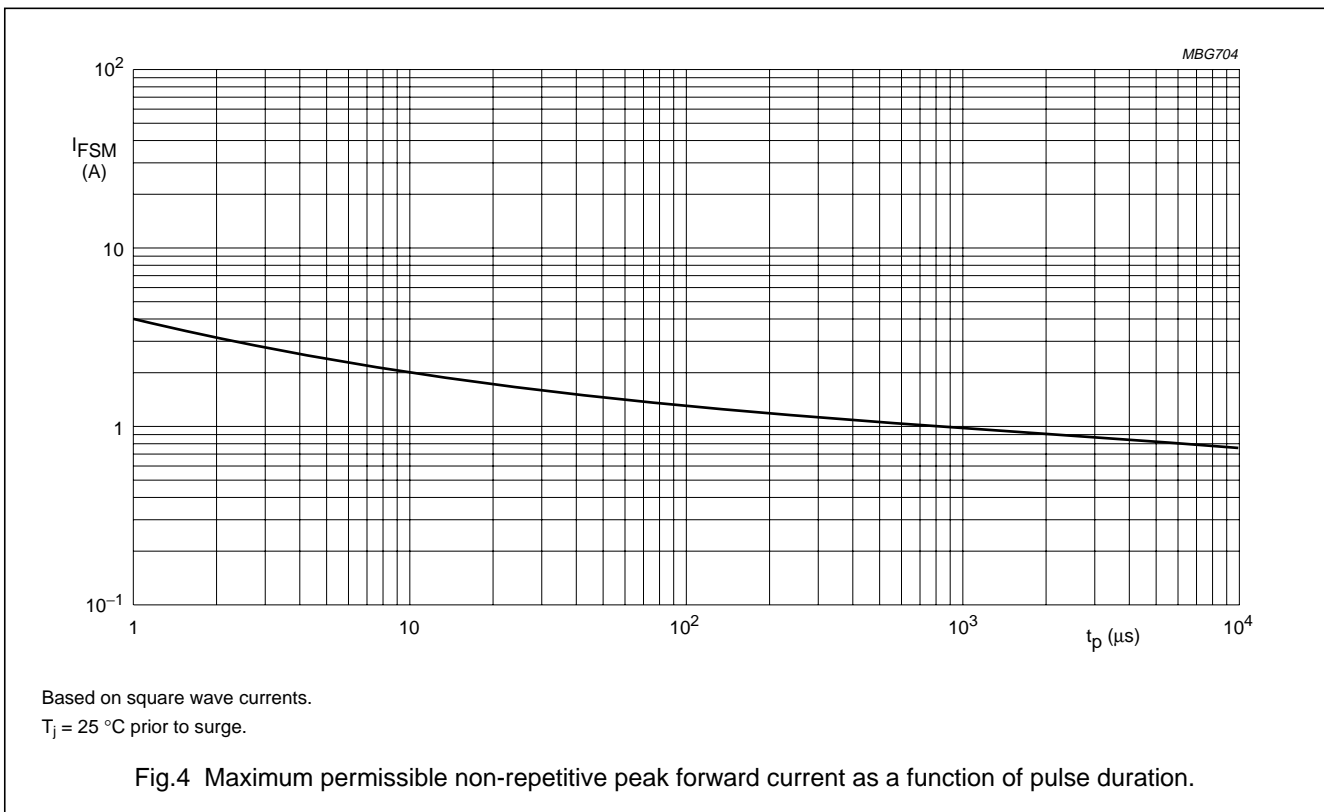
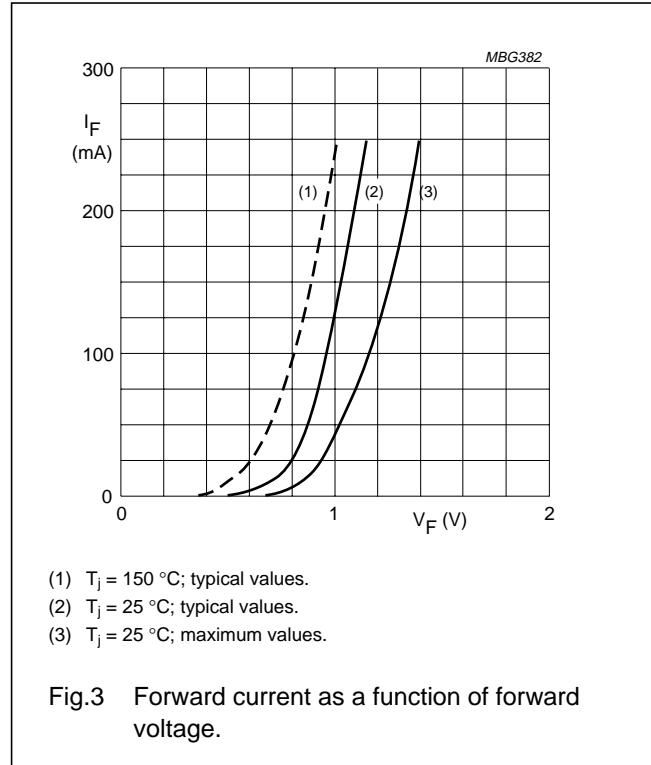
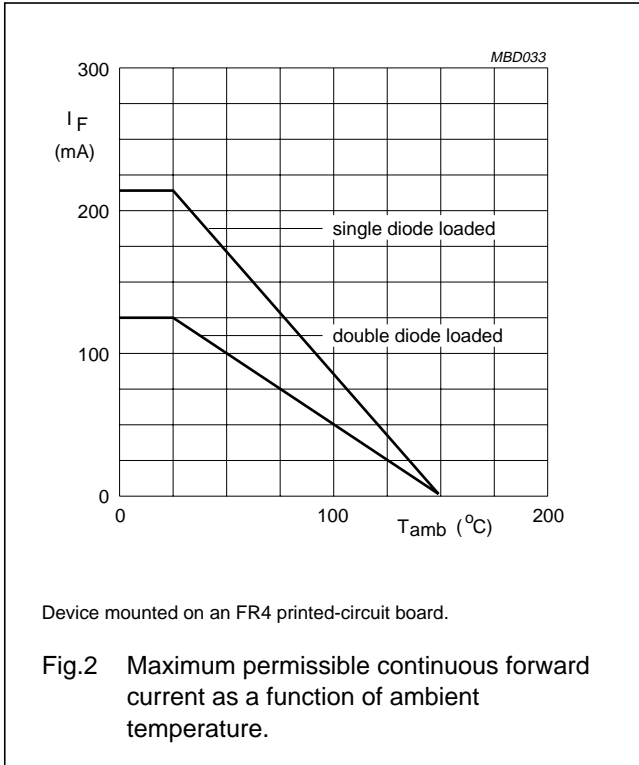
**Note**

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

High-speed double diodes

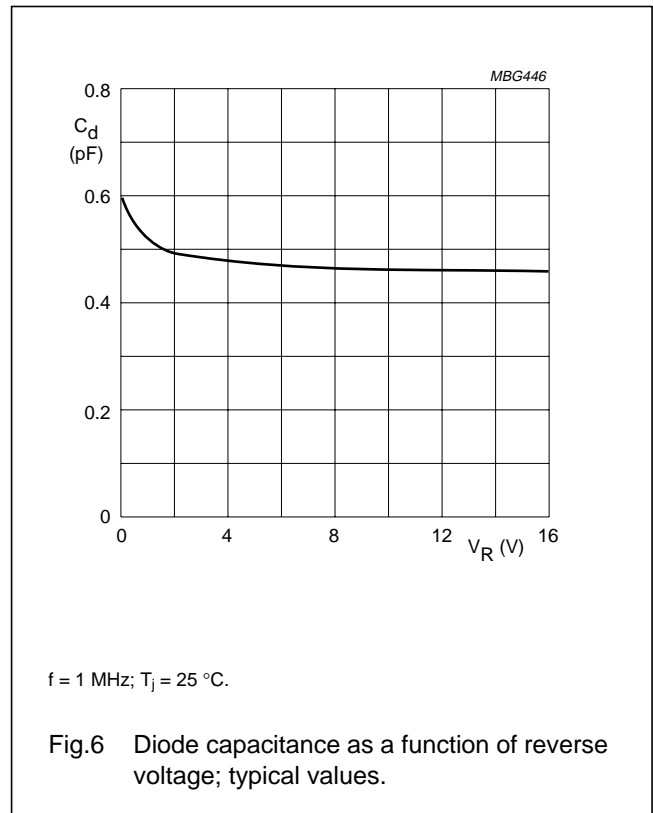
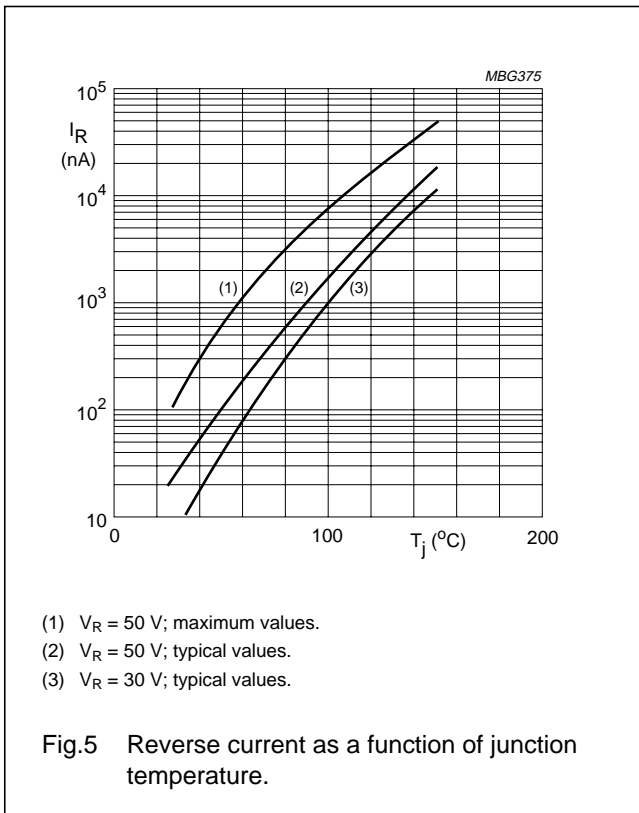
PMBD2837; PMBD2838

GRAPHICAL DATA



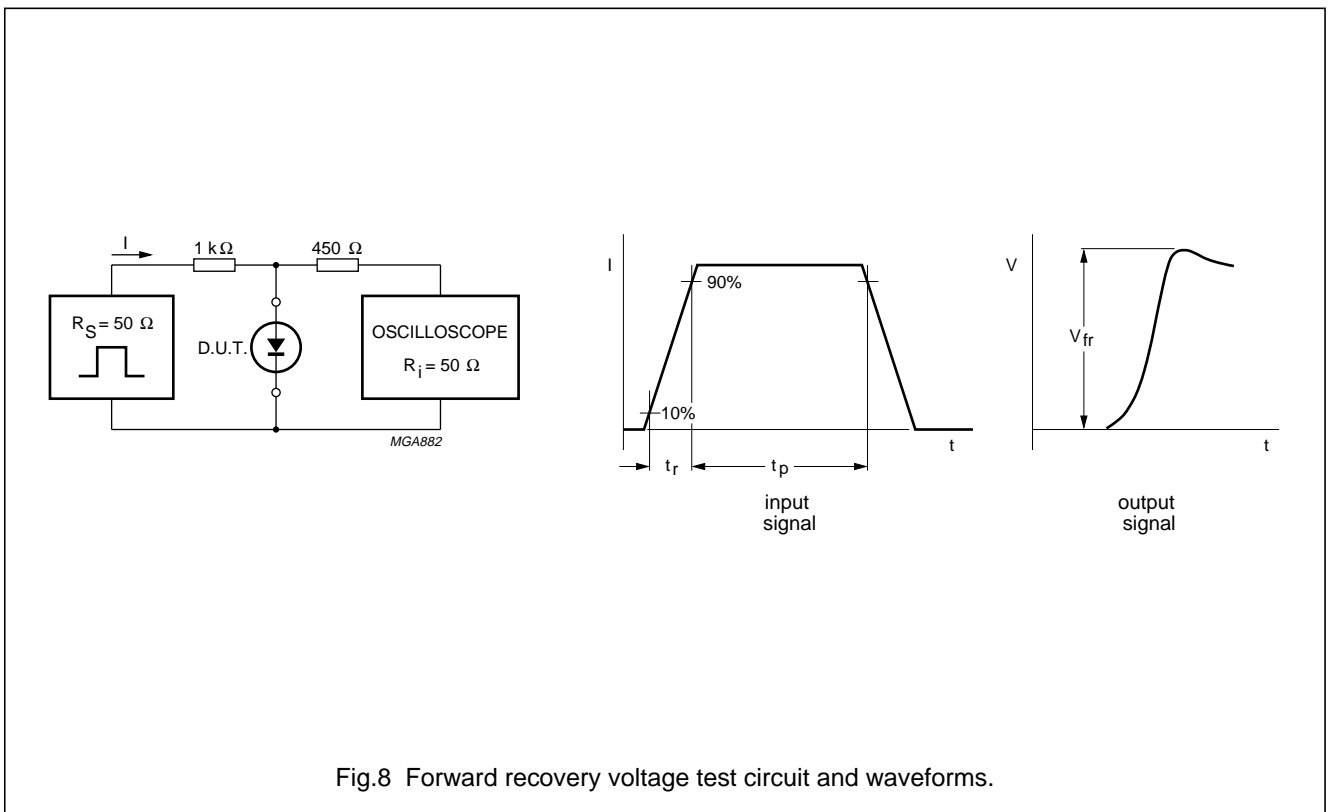
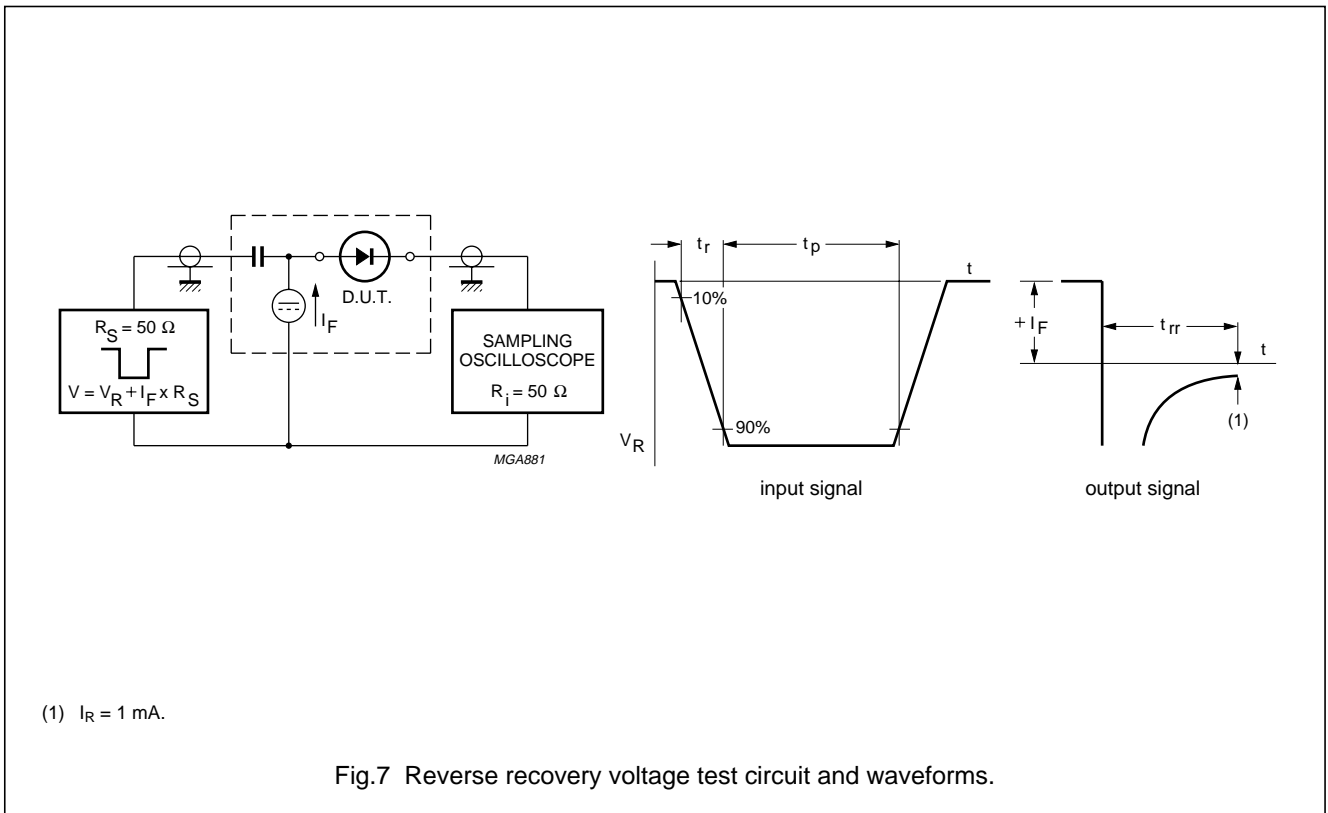
High-speed double diodes

PMBD2837; PMBD2838



High-speed double diodes

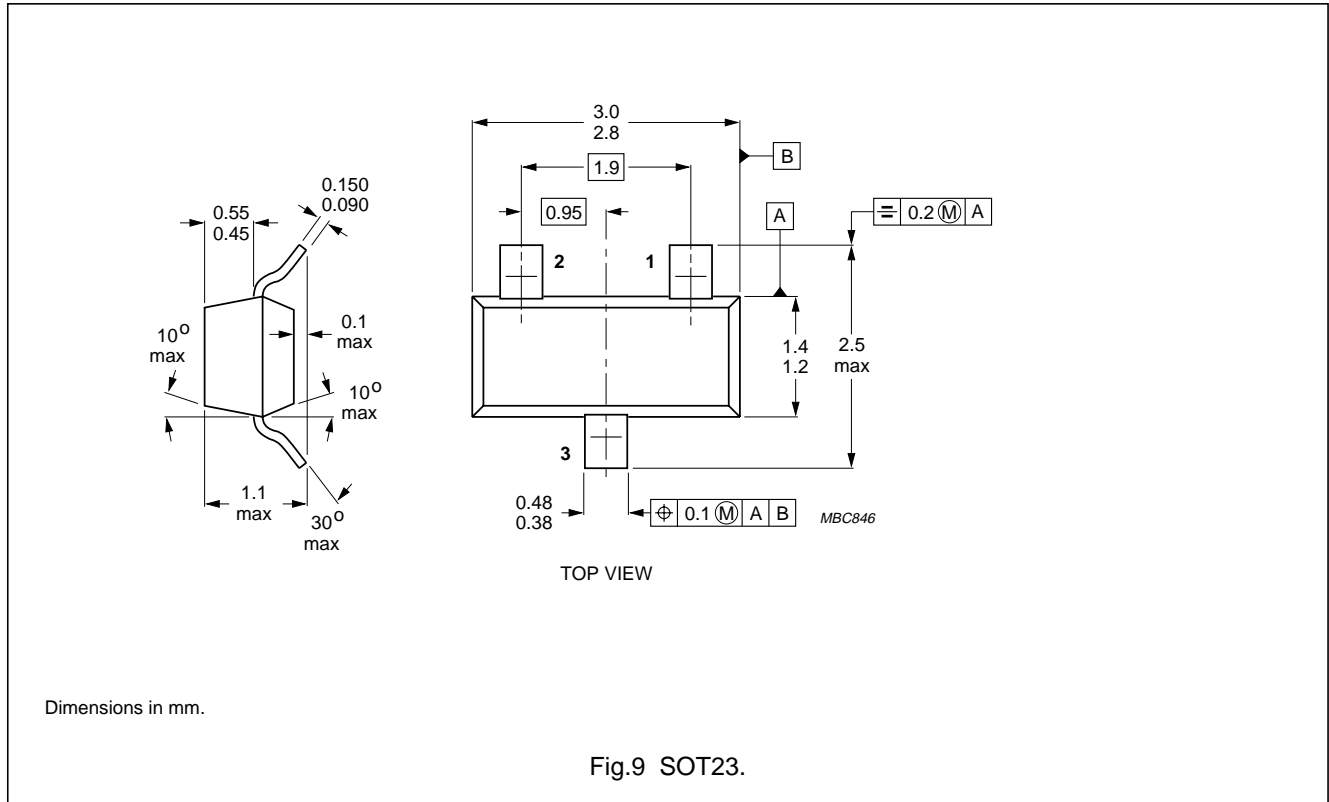
PMBD2837; PMBD2838



High-speed double diodes

PMBD2837; PMBD2838

PACKAGE OUTLINE



DEFINITIONS

|   |   |
|---|---|
| <b>Data Sheet Status</b>  |   |
| 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.                                |
| <b>Limiting values</b>  |   |
| 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. |   |
| <b>Application information</b>  |   |
| Where application information is given, it is advisory and does not form part of the specification.   |   |

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.