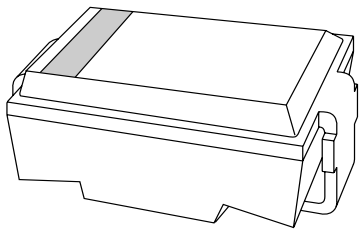


# DATA SHEET



## **PSMA5925B to PSMA5945B** Voltage regulator diodes

Product specification

1998 Dec 04

Voltage regulator diodes

PSMA5925B to PSMA5945B

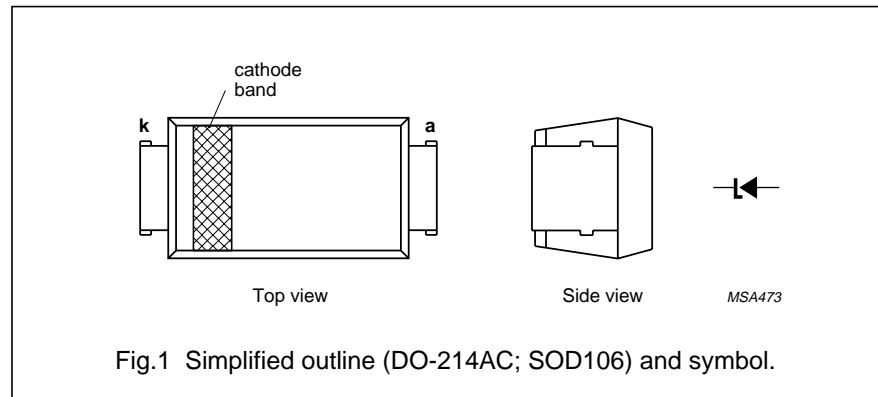
FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- UL 94V-O classified plastic package
- Zener working voltage range: 10 to 68 V for 21 types
- Supplied in 12 mm embossed tape.

DESCRIPTION

DO-214AC surface mountable package with glass passivated chip.

The well-defined void-free case is of a transfer-moulded thermo-setting plastic.



LIMITING VALUES

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

| SYMBOL           | PARAMETER                                     | CONDITIONS  | MIN. | MAX. | UNIT |
|------------------|---|---|------|------|------|
| P <sub>tot</sub> | total power dissipation                       | T <sub>tp</sub> = 75 °C; see Fig.2  | –    | 4.0  | W    |
|                  |   | T <sub>amb</sub> = 25 °C; see Fig.2; device mounted on an Al <sub>2</sub> O <sub>3</sub> printed-circuit board; see Fig.5 | –    | 1.5  | W    |
| P <sub>ZSM</sub> | non-repetitive peak reverse power dissipation | t <sub>p</sub> = 100 μs; square pulse; T <sub>j</sub> = 25 °C prior to surge; see Fig.3                                   | –    | 600  | W    |
| T <sub>stg</sub> | storage temperature                           |   | –65  | +175 | °C   |
| T <sub>j</sub>   | junction temperature                          |   | –65  | +175 | °C   |

## Voltage regulator diodes

## PSMA5925B to PSMA5945B

**ELECTRICAL CHARACTERISTICS****Total series**

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

| SYMBOL | PARAMETER       | CONDITIONS           | MAX. | UNIT |
|--------|-----------------|----------------------|------|------|
| $V_F$  | forward voltage | $I_F = 0.5\text{ A}$ | 1.2  | V    |

**Per type**

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

| DEVICE<br>(note 1) | NOMINAL<br>ZENER<br>VOLTAGE | TEST<br>CURRENT  | ZENER IMPEDANCE<br>(max)          |                          |                  | REVERSE LEAKAGE CURRENT<br>(max) |              |   |
|--------------------|-----------------------------|------------------|-----------------------------------|--------------------------|------------------|----------------------------------|--------------|---|
|                    | $V_Z @ I_{ZT}$<br>(V)       | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ ) | $Z_{ZK}$<br>( $\Omega$ ) | $I_{ZK}$<br>(mA) | $I_R$<br>( $\mu\text{A}$ )       | $V_R$<br>(V) | Max DC<br>Zener<br>Current<br>$I_{ZM}$ (mAdc) |
| PSMA5925B          | 10                          | 37.5             | 4.5                               | 500                      | 0.25             | 10.0                             | 8.0          | 150   |
| PSMA5926B          | 11                          | 34.1             | 5.5                               | 550                      | 0.25             | 4.0                              | 8.4          | 136   |
| PSMA5927B          | 12                          | 31.2             | 6.5                               | 550                      | 0.25             | 3.0                              | 9.1          | 125   |
| PSMA5928B          | 13                          | 28.8             | 8.0                               | 600                      | 0.25             | 1.0                              | 9.9          | 115   |
| PSMA5929B          | 15                          | 25.0             | 9.0                               | 650                      | 0.25             | 0.5                              | 11.4         | 100   |
| PSMA5930B          | 16                          | 23.4             | 10                                | 650                      | 0.25             | 0.5                              | 12.2         | 94  |
| PSMA5931B          | 18                          | 20.8             | 12                                | 650                      | 0.25             | 0.5                              | 13.7         | 83  |
| PSMA5932B          | 20                          | 18.7             | 14                                | 650                      | 0.25             | 0.5                              | 15.2         | 75  |
| PSMA5933B          | 22                          | 17.0             | 17.5                              | 650                      | 0.25             | 0.5                              | 16.7         | 68  |
| PSMA5934B          | 24                          | 15.6             | 19                                | 700                      | 0.25             | 0.5                              | 18.2         | 63  |
| PSMA5935B          | 27                          | 13.9             | 23                                | 700                      | 0.25             | 0.5                              | 20.6         | 56  |
| PSMA5936B          | 30                          | 12.5             | 26                                | 750                      | 0.25             | 0.5                              | 22.8         | 50  |
| PSMA5937B          | 33                          | 11.4             | 33                                | 800                      | 0.25             | 0.5                              | 25.1         | 45  |
| PSMA5938B          | 36                          | 10.4             | 38                                | 850                      | 0.25             | 0.5                              | 27.4         | 42  |
| PSMA5939B          | 39                          | 9.6              | 45                                | 900                      | 0.25             | 0.5                              | 29.7         | 38  |
| PSMA5940B          | 43                          | 8.7              | 53                                | 950                      | 0.25             | 0.5                              | 32.7         | 35  |
| PSMA5941B          | 47                          | 8.0              | 67                                | 1000                     | 0.25             | 0.5                              | 35.8         | 32  |
| PSMA5942B          | 51                          | 7.3              | 70                                | 1100                     | 0.25             | 0.5                              | 38.8         | 29  |
| PSMA5943B          | 56                          | 6.7              | 86                                | 1300                     | 0.25             | 0.5                              | 42.6         | 27  |
| PSMA5944B          | 62                          | 6.0              | 100                               | 1500                     | 0.25             | 0.5                              | 47.1         | 24  |
| PSMA5945B          | 68                          | 5.5              | 120                               | 1700                     | 0.25             | 0.5                              | 51.7         | 22  |

**Note**

1. Tolerance and Voltage Designation: Tolerance designation - The type number listed indicates a tolerance of  $\pm 5\%$ .

## Voltage regulator diodes

## PSMA5925B to PSMA5945B

**THERMAL CHARACTERISTICS**

| SYMBOL         | PARAMETER                                     | CONDITIONS | VALUE | UNIT |
|----------------|---|------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point |            | 25    | K/W  |
| $R_{th\ j-a}$  | thermal resistance from junction to ambient   | note 1     | 100   | K/W  |
|                |   | note 2     | 150   | K/W  |

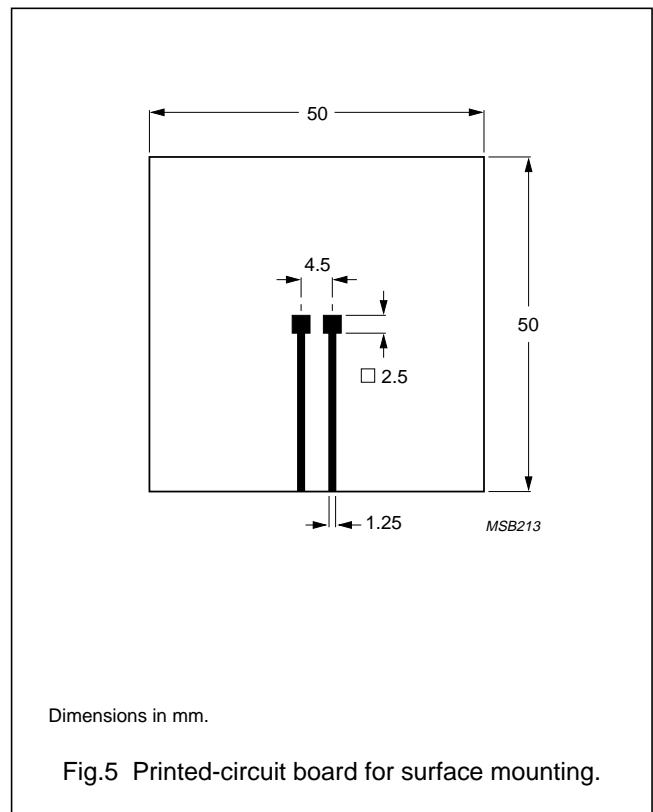
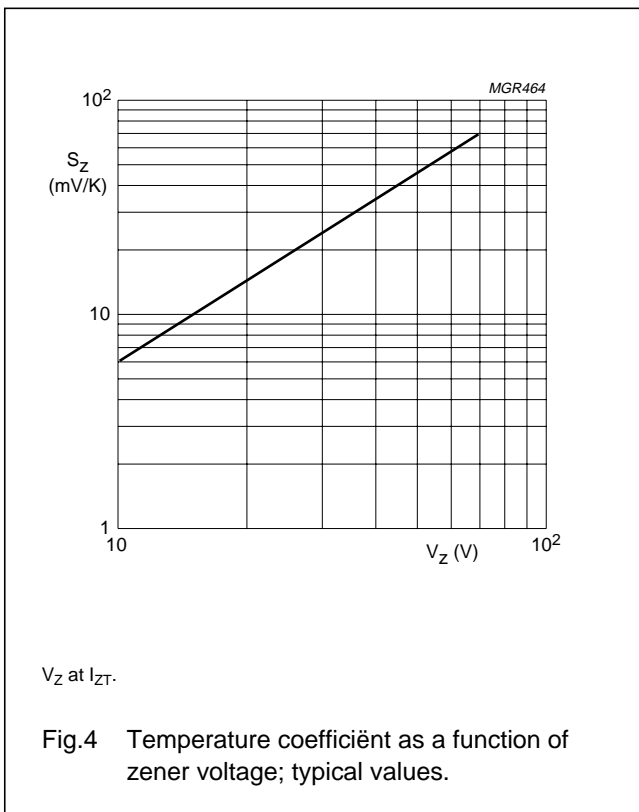
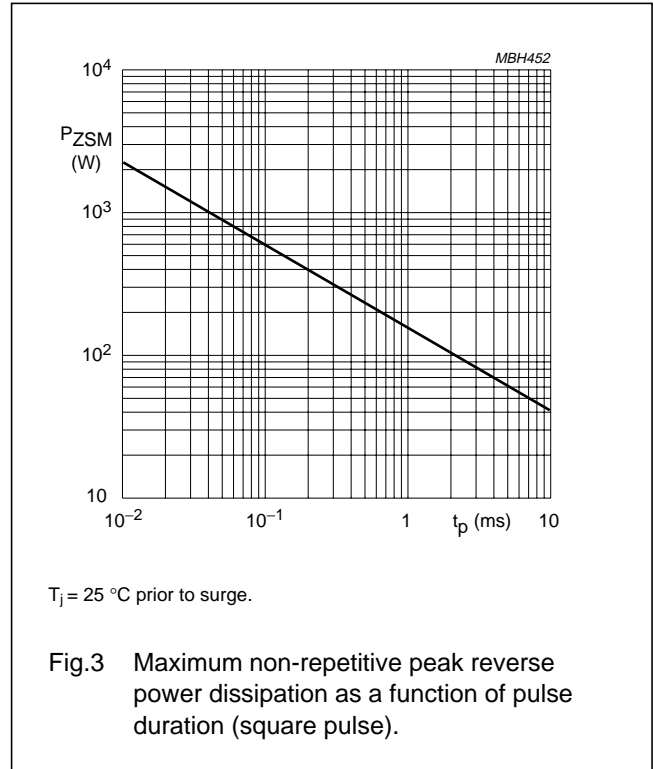
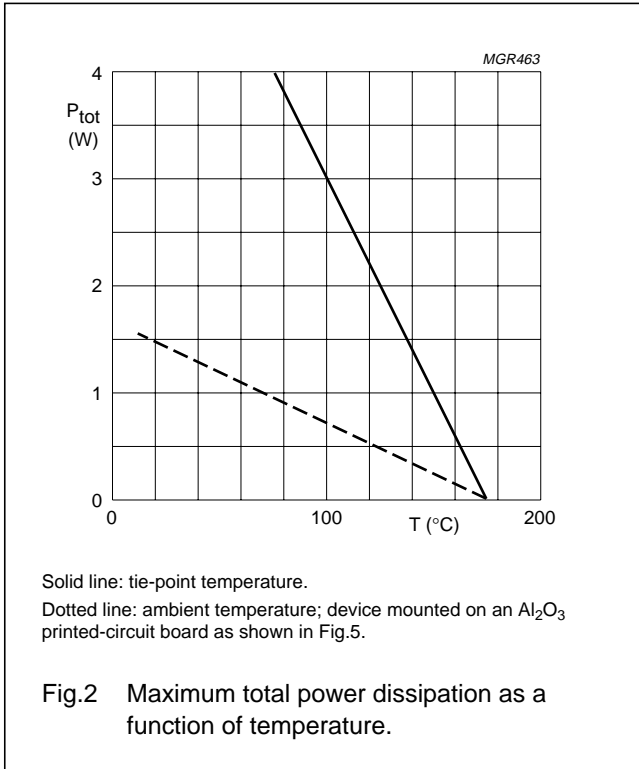
**Notes**

1. Device mounted on an  $Al_2O_3$  printed-circuit board, 0.7 mm thick; thickness of Cu-layer  $\geq 35\ \mu m$ , see Fig.5.
2. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer  $\geq 40\ \mu m$ , see Fig.5.  
For more information please refer to the '*General part of the associated handbook*'.

Voltage regulator diodes

PSMA5925B to PSMA5945B

GRAPHICAL DATA



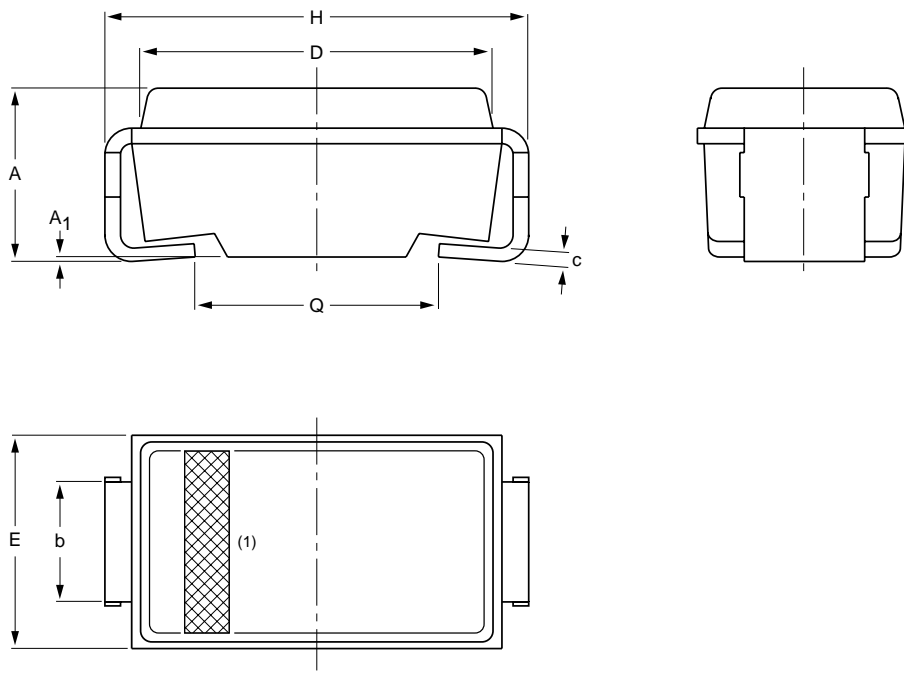
Voltage regulator diodes

PSMA5925B to PSMA5945B

PACKAGE OUTLINE

Transfer-moulded thermo-setting plastic small rectangular surface mounted package;  
2 connectors

SOD106



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | A <sub>1</sub> | b          | c   | D          | E          | H          | Q          |
|------|------------|----------------|------------|-----|------------|------------|------------|------------|
| mm   | 2.3<br>2.0 | 0.05           | 1.6<br>1.4 | 0.2 | 4.5<br>4.3 | 2.8<br>2.4 | 5.5<br>5.1 | 3.3<br>2.7 |

Note

1. The marking band indicates the cathode.

| OUTLINE VERSION | REFERENCES |          |      | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|----------|------|---------------------|------------|
|                 | IEC        | JEDEC    | EIAJ |                     |            |
| SOD106          |            | DO-214AC |      |                     | 97-06-09   |

## Voltage regulator diodes

## PSMA5925B to PSMA5945B

**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.   |   |

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