

Voltage regulator diodes

1N5225B to 1N5267B

FEATURES

- Total power dissipation: max. 500 mW
- Tolerance series: $\pm 5\%$
- Working voltage range: nom. 3.0 to 75 V
- Non-repetitive peak reverse power dissipation: max. 40 W.

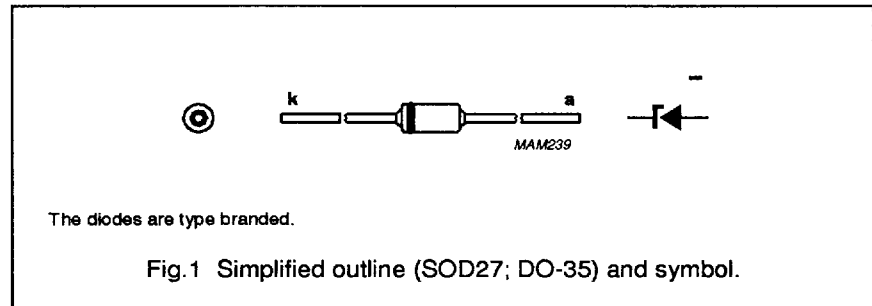
APPLICATIONS

- Low-power voltage stabilizers or voltage references.

DESCRIPTION

Low-power voltage regulator diodes in hermetically sealed leaded glass SOD27 (DO-35) packages.

The series consists of 43 types with nominal working voltages from 3.0 to 75 V.



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|---|---|----------------------|------|------------------|
| I_F | continuous forward current | | - | 250 | mA |
| I_{ZSM} | non-repetitive peak reverse current | $t_p = 100 \mu s$; square wave; $T_j = 25 \text{ }^\circ\text{C}$ prior to surge | see Table "Per type" | | |
| P_{tot} | total power dissipation | $T_{amb} = 50 \text{ }^\circ\text{C}$; lead length max.; note 1 | - | 400 | mW |
| | | Lead length 8 mm; note 2 | - | 500 | mW |
| P_{ZSM} | non-repetitive peak reverse power dissipation | $t_p = 100 \mu s$; square wave; $T_j = 25 \text{ }^\circ\text{C}$ prior to surge; see Fig.3 | - | 40 | W |
| | | $t_p = 8.3 \text{ ms}$; square wave; $T_j \leq 55 \text{ }^\circ\text{C}$ prior to surge | - | 10 | W |
| T_{stg} | storage temperature | | -65 | +200 | $^\circ\text{C}$ |
| T_j | junction temperature | | -65 | +200 | $^\circ\text{C}$ |

Notes

1. Device mounted on a printed circuit-board without metallization pad.
2. Tie-point temperature $\leq 75 \text{ }^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS

Table 1

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|--------|-----------------|------------------------------------|------|------|
| V_F | forward voltage | $I_F = 200 \text{ mA}$; see Fig.4 | 1.1 | V |

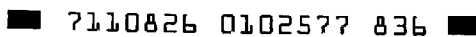
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Per type

T_J = 25 °C; unless otherwise specified.

| TYPE No. | WORKING VOLTAGE V _Z (V) ⁽¹⁾ at I _{Ztest} | | DIFFERENTIAL RESISTANCE r _{diff} (Ω) at I _{Ztest} | TEMP. COEFF. S _Z (%/K) at I _Z ⁽²⁾ | TEST CURRENT I _{Ztest} (mA) | DIODE CAP. C _d (pF) at f = 1 MHz; at V _R = 0 V | REVERSE CURRENT at REVERSE VOLTAGE | | NON-REPETITIVE PEAK REVERSE CURRENT I _{ZSM} (A) t _p = 100 μs; T _{amb} = 25 °C |
|----------|---|------|---|--|--------------------------------------|--|------------------------------------|--------------------|--|
| | NOM. | MAX. | | | | | I _R (μA) | V _R (V) | |
| 1N5225B | 3.0 | 1600 | -0.075 | 20 | 450 | 50 | 1.0 | 6.0 | |
| 1N5226B | 3.3 | 1600 | -0.070 | 20 | 450 | 25 | 1.0 | 6.0 | |
| 1N5227B | 3.6 | 1700 | -0.065 | 20 | 450 | 15 | 1.0 | 6.0 | |
| 1N5228B | 3.9 | 1900 | -0.060 | 20 | 450 | 10 | 1.0 | 6.0 | |
| 1N5229B | 4.3 | 2000 | ±0.055 | 20 | 450 | 5 | 1.0 | 6.0 | |
| 1N5230B | 4.7 | 1900 | ±0.030 | 20 | 450 | 5 | 1.5 | 6.0 | |
| 1N5231B | 5.1 | 1600 | ±0.030 | 20 | 300 | 5 | 2.0 | 6.0 | |
| 1N5232B | 5.6 | 1600 | +0.038 | 20 | 300 | 5 | 3.0 | 6.0 | |
| 1N5233B | 6.0 | 1600 | +0.038 | 20 | 300 | 5 | 3.5 | 6.0 | |
| 1N5234B | 6.2 | 1000 | +0.045 | 20 | 200 | 5 | 4.0 | 6.0 | |
| 1N5235B | 6.8 | 750 | +0.050 | 20 | 200 | 3 | 5.0 | 6.0 | |
| 1N5236B | 7.5 | 500 | +0.058 | 20 | 150 | 3 | 6.0 | 4.0 | |
| 1N5237B | 8.2 | 500 | +0.062 | 20 | 150 | 3 | 6.5 | 4.0 | |
| 1N5238B | 8.7 | 600 | +0.065 | 20 | 150 | 3 | 6.5 | 3.5 | |
| 1N5239B | 9.1 | 600 | +0.068 | 20 | 150 | 3 | 7.0 | 3.0 | |
| 1N5240B | 10 | 600 | +0.075 | 20 | 90 | 3 | 8.0 | 3.0 | |
| 1N5241B | 11 | 600 | +0.076 | 20 | 85 | 2 | 8.4 | 2.5 | |
| 1N5242B | 12 | 600 | +0.077 | 20 | 85 | 1 | 9.1 | 2.5 | |
| 1N5243B | 13 | 600 | +0.079 | 9.5 | 80 | 0.5 | 9.9 | 2.5 | |
| 1N5244B | 14 | 600 | +0.082 | 9.0 | 80 | 0.1 | 10.0 | 2.0 | |
| 1N5245B | 15 | 600 | +0.082 | 8.5 | 75 | 0.1 | 11.0 | 2.0 | |
| 1N5246B | 16 | 600 | +0.083 | 7.8 | 75 | 0.1 | 12.0 | 1.5 | |
| 1N5247B | 17 | 600 | +0.084 | 7.4 | 75 | 0.1 | 13.0 | 1.5 | |
| 1N5248B | 18 | 600 | +0.085 | 7.0 | 70 | 0.1 | 14.0 | 1.5 | |
| 1N5249B | 19 | 600 | +0.086 | 6.6 | 70 | 0.1 | 14.0 | 1.5 | |
| 1N5250B | 20 | 600 | +0.086 | 6.2 | 60 | 0.1 | 15.0 | 1.5 | |



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| TYPE No. | WORKING VOLTAGE V_Z (V) ⁽¹⁾ at I_{Ztest} | | DIFFERENTIAL RESISTANCE r_{diff} (Ω) at I_{Ztest} | | TEMP. COEFF. S_Z (%/K) at I_Z ⁽²⁾ | | TEST CURRENT I_{Ztest} (mA) | | DIODE CAP. C_d (pF) at $f = 1$ MHz; at $V_R = 0$ V | | REVERSE CURRENT at REVERSE VOLTAGE | | | NON-REPETITIVE PEAK REVERSE CURRENT I_{ZSM} (A) $t_p = 100 \mu s$; $T_{amb} = 25^\circ C$ | |
|----------|---|------|--|------|--|------|-------------------------------|------|--|-------------------|------------------------------------|------|------|--|--|
| | NOM. | MAX. | NOM. | MAX. | NOM. | MAX. | NOM. | MAX. | MAX. | I_R (μA) | V_R (V) | MAX. | MAX. | MAX. | |
| 1N5251B | 22 | 600 | 600 | 600 | +0.087 | MAX. | 5.6 | MAX. | 60 | 0.1 | 17.0 | 0.1 | 1.25 | | |
| 1N5252B | 24 | 600 | 600 | 600 | +0.088 | MAX. | 5.2 | MAX. | 55 | 0.1 | 18.0 | 0.1 | 1.25 | | |
| 1N5253B | 25 | 600 | 600 | 600 | +0.089 | MAX. | 5.0 | MAX. | 55 | 0.1 | 19.0 | 0.1 | 1.25 | | |
| 1N5254B | 27 | 600 | 600 | 600 | +0.090 | MAX. | 4.6 | MAX. | 50 | 0.1 | 21.0 | 0.1 | 1.0 | | |
| 1N5255B | 28 | 600 | 600 | 600 | +0.091 | MAX. | 4.5 | MAX. | 50 | 0.1 | 21.0 | 0.1 | 1.0 | | |
| 1N5256B | 30 | 600 | 600 | 600 | +0.091 | MAX. | 4.2 | MAX. | 50 | 0.1 | 23.0 | 0.1 | 1.0 | | |
| 1N5257B | 33 | 700 | 700 | 700 | +0.092 | MAX. | 3.8 | MAX. | 45 | 0.1 | 25.0 | 0.1 | 0.9 | | |
| 1N5258B | 36 | 700 | 700 | 700 | +0.093 | MAX. | 3.4 | MAX. | 45 | 0.1 | 27.0 | 0.1 | 0.8 | | |
| 1N5259B | 39 | 800 | 800 | 800 | +0.094 | MAX. | 3.2 | MAX. | 45 | 0.1 | 30.0 | 0.1 | 0.7 | | |
| 1N5260B | 43 | 900 | 900 | 900 | +0.095 | MAX. | 3.0 | MAX. | 40 | 0.1 | 33.0 | 0.1 | 0.6 | | |
| 1N5261B | 47 | 1000 | 1000 | 1000 | +0.095 | MAX. | 2.7 | MAX. | 40 | 0.1 | 36.0 | 0.1 | 0.5 | | |
| 1N5262B | 51 | 1100 | 1100 | 1100 | +0.096 | MAX. | 2.5 | MAX. | 40 | 0.1 | 39.0 | 0.1 | 0.4 | | |
| 1N5263B | 56 | 1300 | 1300 | 1300 | +0.096 | MAX. | 2.2 | MAX. | 40 | 0.1 | 43.0 | 0.1 | 0.3 | | |
| 1N5264B | 60 | 1400 | 1400 | 1400 | +0.097 | MAX. | 2.1 | MAX. | 40 | 0.1 | 46.0 | 0.1 | 0.3 | | |
| 1N5265B | 62 | 1400 | 1400 | 1400 | +0.097 | MAX. | 2.0 | MAX. | 35 | 0.1 | 47.0 | 0.1 | 0.3 | | |
| 1N5266B | 68 | 1600 | 1600 | 1600 | +0.097 | MAX. | 1.8 | MAX. | 35 | 0.1 | 52.0 | 0.1 | 0.25 | | |
| 1N5267B | 75 | 1700 | 1700 | 1700 | +0.098 | MAX. | 1.7 | MAX. | 35 | 0.1 | 56.0 | 0.1 | 0.2 | | |

Notes

- V_Z is measured with device at thermal equilibrium while held in clips at 10 mm from body in still air at 25 °C.
- For types 1N5225B to 1N5242B the I_Z current is 7.5 mA; for 1N5243B and higher $I_Z = I_{Ztest}$. S_Z values valid between 25 °C and 125 °C.

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THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|--------------|---|--|-------|------|
| R_{thj-tp} | thermal resistance from junction to tie-point | lead length 10 mm | 300 | K/W |
| R_{thj-a} | thermal resistance from junction to ambient | lead length max.; see Fig.2 and note 1 | 380 | K/W |

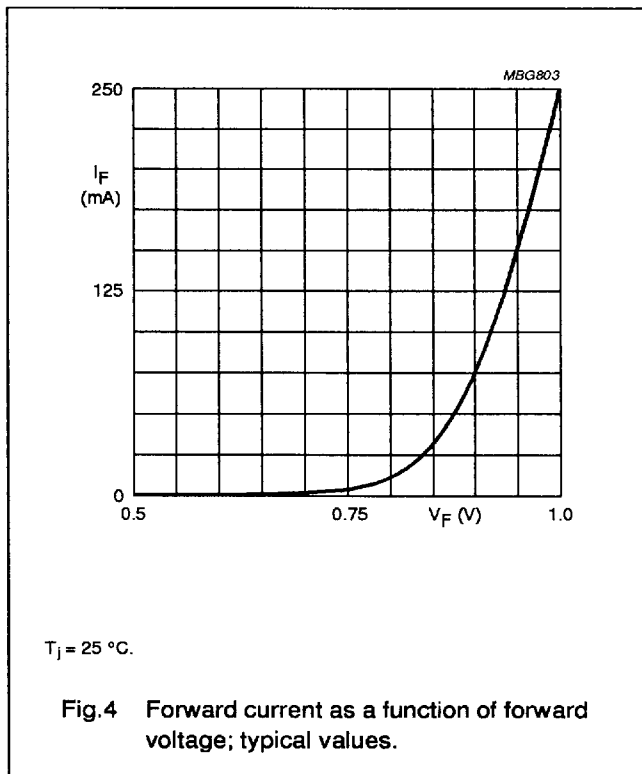
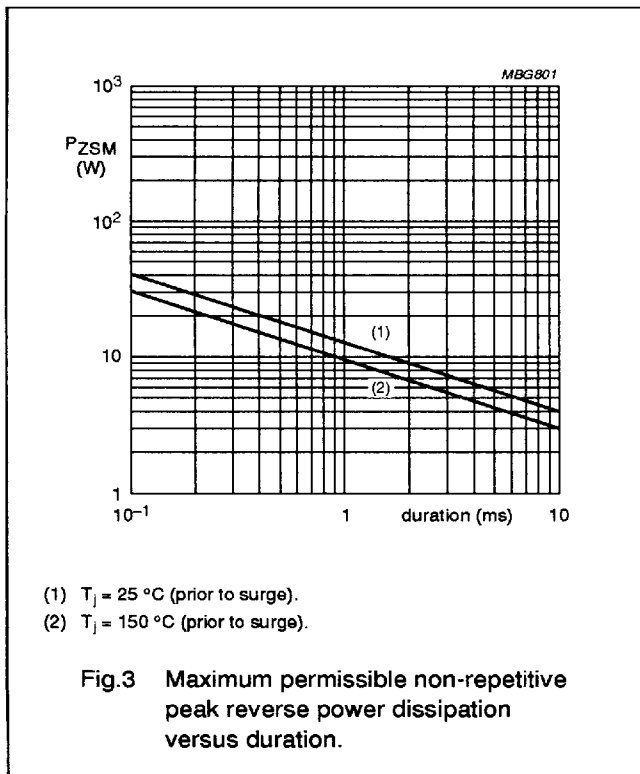
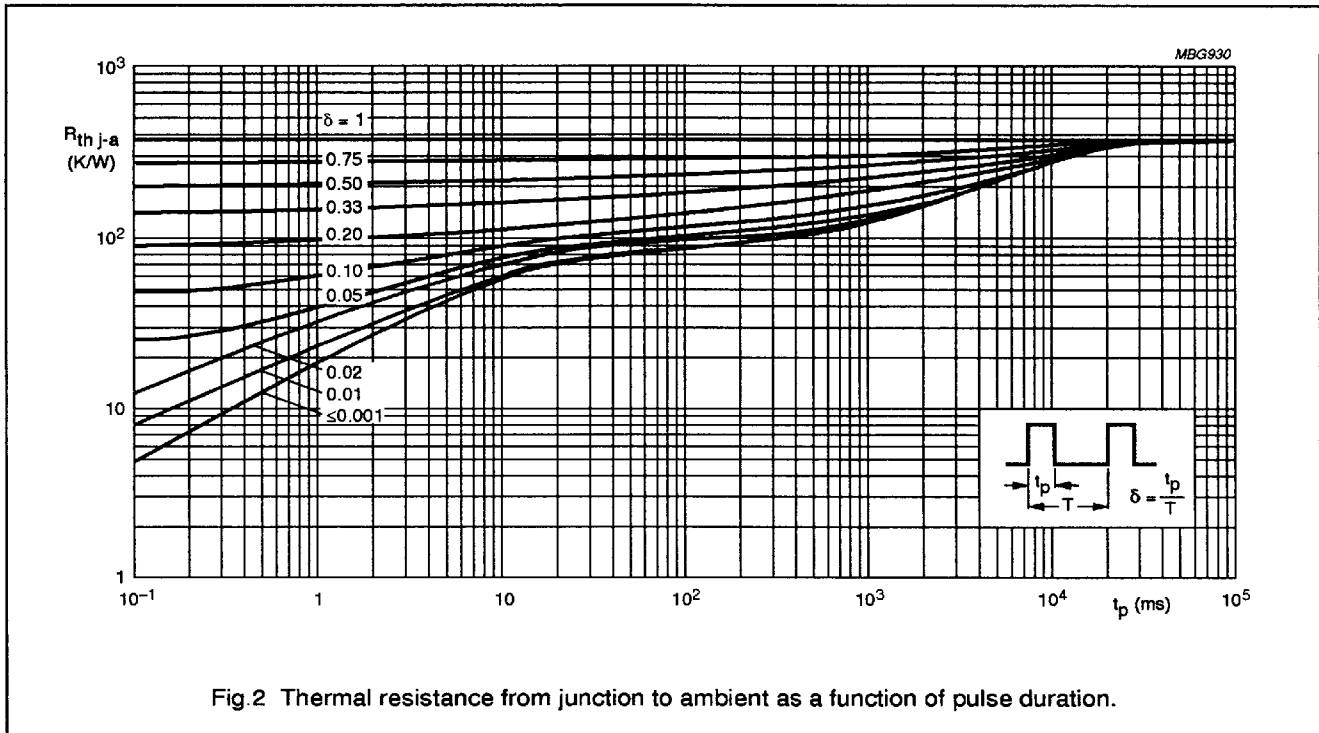
Note

1. Device mounted on a printed circuit-board without metallization pad.

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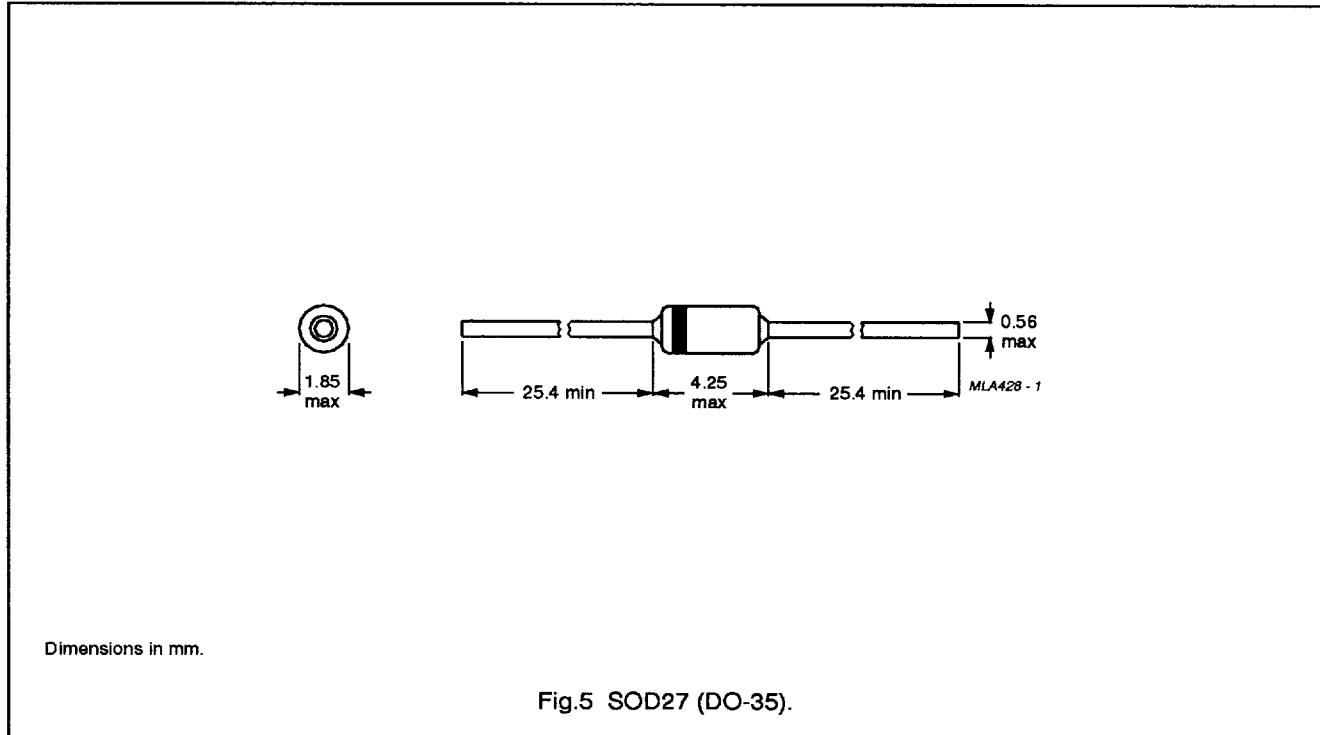
GRAPHICAL DATA



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PACKAGE OUTLINE



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. | |

LIFE SUPPORT APPLICATIONS

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