



**THE DATASHEET OF  
1N4732A,133**





# 1N4728A to 1N4749A

## Voltage regulator diodes

Rev. 02 — 30 October 2009

Product data sheet

## 1. Product profile

### 1.1 General description

Low voltage regulator diodes in hermetically sealed small SOD66 (DO-41) glass packages.

The series consists of 22 types with nominal working voltages from 3.3 to 24 V.

### 1.2 Features

- Total power dissipation: max.  $\leq 1000$  mW
- Working voltage range: nom. 3.3 V to 24 V
- Tolerance series:  $\pm 5\%$
- Small hermetically sealed glass package

### 1.3 Applications

- Low voltage stabilizers


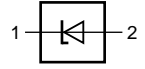
### 1.4 Quick reference data

Table 1. Quick reference data

| Symbol    | Parameter               | Conditions     | Min | Typ | Max  | Unit |
|-----------|-------------------------|----------------|-----|-----|------|------|
| $V_F$     | forward voltage         | $I_F = 200$ mA | -   | -   | 1.2  | V    |
| $P_{tot}$ | total power dissipation |                | -   | -   | 1000 | mW   |

## 2. Pinning information

Table 2. Pinning

| Pin | Description | Simplified outline   | Graphic symbol  |
|-----|-------------|--|---|
| 1   | cathode     |  |  |
| 2   | anode       |  |   |

[1] The marking band indicates the cathode.

### 3. Ordering information

**Table 3. Ordering information**

| Type number                          | Package |   | Version |
|--------------------------------------|---------|---|---------|
|                                      | Name    | Description   |         |
| 1N4728A to<br>1N4749A <sup>[1]</sup> | -       | hermetically sealed glass package; axial leaded;<br>2 leads | SOD66   |

[1] The series consists of 22 types with nominal working voltages from 3.3 V to 24 V.

### 4. Marking

**Table 4. Marking codes**

| Type number        | Marking code                 |
|--------------------|------------------------------|
| 1N4728A to 1N4749A | The diodes are type branded. |

### 5. Limiting values

**Table 5. Limiting values**

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

| Symbol    | Parameter                           | Conditions               | Min | Max                            | Unit |
|-----------|-------------------------------------|--------------------------|-----|--------------------------------|------|
| $I_F$     | forward current                     |                          | -   | 500                            | mA   |
| $I_Z$     | working current                     |                          | -   | see<br><a href="#">Table 8</a> |      |
| $I_{ZSM}$ | non-repetitive peak reverse current |                          | -   | see<br><a href="#">Table 8</a> |      |
| $P_{tot}$ | total power dissipation             | $T_{amb} = 50\text{ °C}$ | -   | 1000                           | mW   |
| $T_j$     | junction temperature                |                          | -65 | +200                           | °C   |
| $T_{stg}$ | storage temperature                 |                          | -65 | +200                           | °C   |

6. Thermal characteristics

Table 6. Thermal characteristics

| Symbol        | Parameter                                     | Conditions       | Min | Typ | Max | Unit |
|---------------|---|------------------|-----|-----|-----|------|
| $R_{th(j-t)}$ | thermal resistance from junction to tie-point | lead length 4 mm | -   | -   | 110 | K/W  |

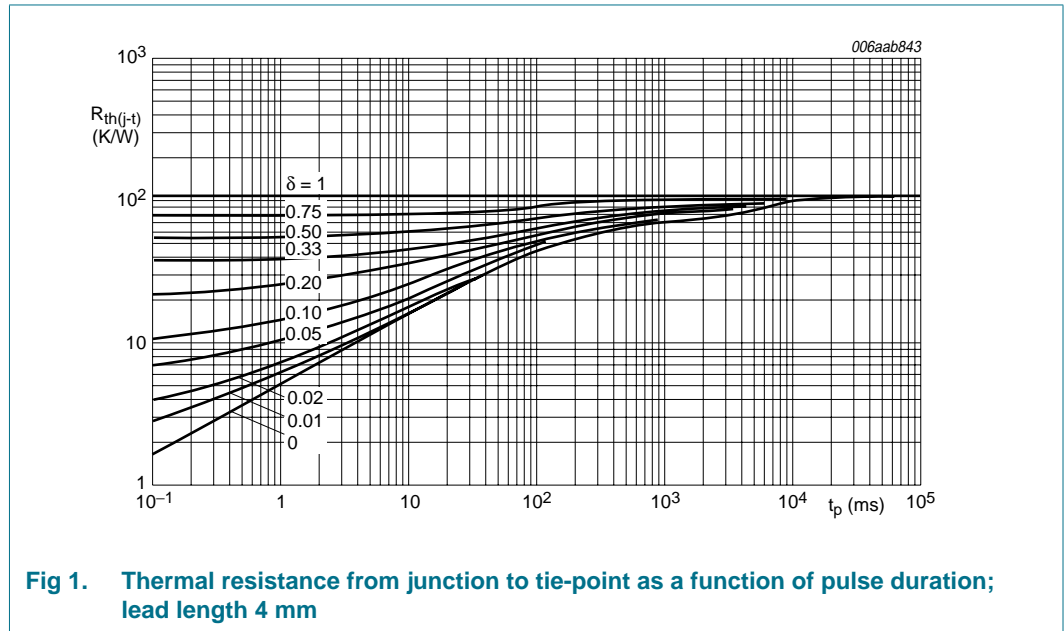


Fig 1. Thermal resistance from junction to tie-point as a function of pulse duration; lead length 4 mm

7. Characteristics

Table 7. Characteristics

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

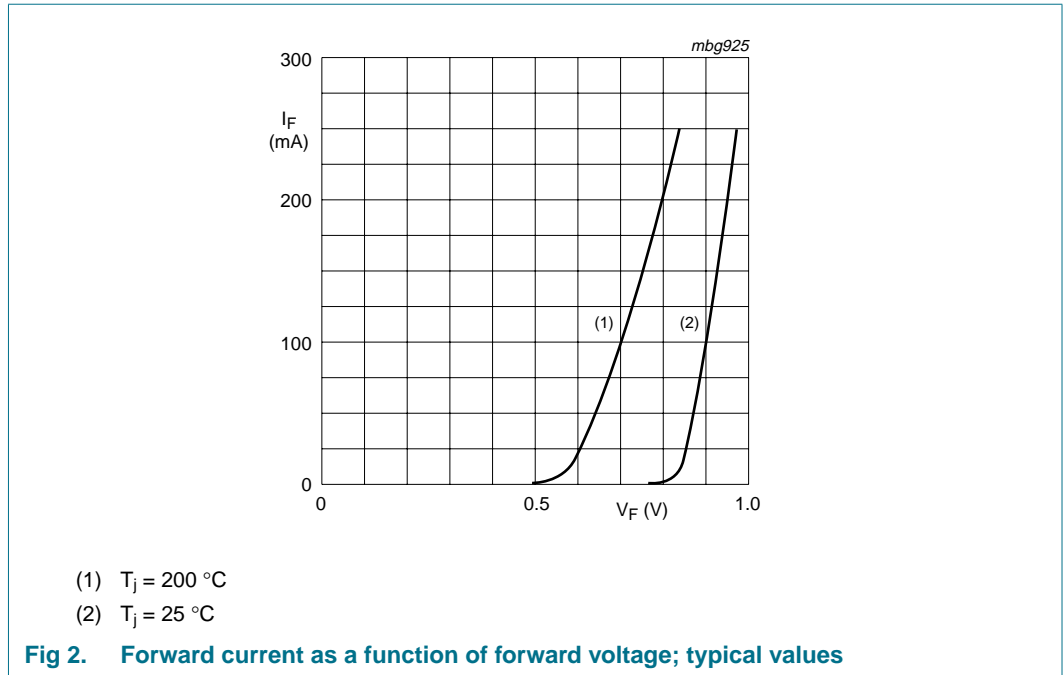
| Symbol | Parameter       | Conditions            | Min | Typ | Max | Unit |
|--------|-----------------|-----------------------|-----|-----|-----|------|
| $V_F$  | forward voltage | $I_F = 200\text{ mA}$ | -   | -   | 1.2 | V    |

**Table 8. Characteristics per type** $T_j = 25\text{ °C}$  unless otherwise specified.

| Type number | Working voltage $V_Z$ (V) <sup>[1]</sup><br>at $I_{test}$ | Test current $I_{test}$ (mA) | Differential resistance $r_{dif}$ ( $\Omega$ ) |          |            | Reverse current $I_R$ ( $\mu$ A) |           | Working current $I_Z$ (mA) | Non-repetitive peak reverse current $I_{ZSM}$ (mA) <sup>[2]</sup> |
|-------------|---|------------------------------|--|----------|------------|----------------------------------|-----------|----------------------------|---|
|             |   |                              | at $I_{test}$                                  | at $I_Z$ | $I_Z$ (mA) | Max                              | $V_R$ (V) |                            |   |
|             | Nom   |                              | Max  | Max      |            | Max                              |           | Max                        | Max   |
| 1N4728A     | 3.3   | 76                           | 10   | 400      | 1          | 100                              | 1         | 276                        | 1380  |
| 1N4729A     | 3.6   | 69                           | 10   | 400      | 1          | 100                              | 1         | 252                        | 1260  |
| 1N4730A     | 3.9   | 64                           | 9  | 400      | 1          | 50                               | 1         | 234                        | 1190  |
| 1N4731A     | 4.3   | 58                           | 9  | 400      | 1          | 10                               | 1         | 217                        | 1070  |
| 1N4732A     | 4.7   | 53                           | 8  | 500      | 1          | 10                               | 1         | 193                        | 970   |
| 1N4733A     | 5.1   | 49                           | 7  | 550      | 1          | 10                               | 1         | 178                        | 890   |
| 1N4734A     | 5.6   | 45                           | 5  | 600      | 1          | 10                               | 2         | 162                        | 810   |
| 1N4735A     | 6.2   | 41                           | 2  | 700      | 1          | 10                               | 3         | 146                        | 730   |
| 1N4736A     | 6.8   | 37                           | 3.5  | 700      | 1          | 10                               | 4         | 133                        | 660   |
| 1N4737A     | 7.5   | 34                           | 4  | 700      | 0.5        | 10                               | 5         | 121                        | 605   |
| 1N4738A     | 8.2   | 31                           | 4.5  | 700      | 0.5        | 10                               | 6         | 110                        | 550   |
| 1N4739A     | 9.1   | 28                           | 5  | 700      | 0.5        | 10                               | 7         | 100                        | 500   |
| 1N4740A     | 10  | 25                           | 7  | 700      | 0.25       | 10                               | 7.6       | 91                         | 454   |
| 1N4741A     | 11  | 23                           | 8  | 700      | 0.25       | 5                                | 8.4       | 83                         | 414   |
| 1N4742A     | 12  | 21                           | 9  | 700      | 0.25       | 5                                | 9.1       | 76                         | 380   |
| 1N4743A     | 13  | 19                           | 10   | 700      | 0.25       | 5                                | 9.9       | 69                         | 344   |
| 1N4744A     | 15  | 17                           | 14   | 700      | 0.25       | 5                                | 11.4      | 61                         | 304   |
| 1N4745A     | 16  | 15.5                         | 16   | 700      | 0.25       | 5                                | 12.2      | 57                         | 285   |
| 1N4746A     | 18  | 14                           | 20   | 750      | 0.25       | 5                                | 13.7      | 50                         | 250   |
| 1N4747A     | 20  | 12.5                         | 22   | 750      | 0.25       | 5                                | 15.2      | 45                         | 225   |
| 1N4748A     | 22  | 11.5                         | 23   | 750      | 0.25       | 5                                | 16.7      | 41                         | 205   |
| 1N4749A     | 24  | 10.5                         | 25   | 750      | 0.25       | 5                                | 18.2      | 38                         | 190   |

[1]  $V_Z$  is measured with device at thermal equilibrium while held in clips at 10 mm from body in still air at 25 °C.

[2] Half square wave or equivalent sine wave pulse 1/120 second duration superimposed on  $I_{test}$ .



## 8. Package outline

Hermetically sealed glass package; axial leaded; 2 leads

SOD66

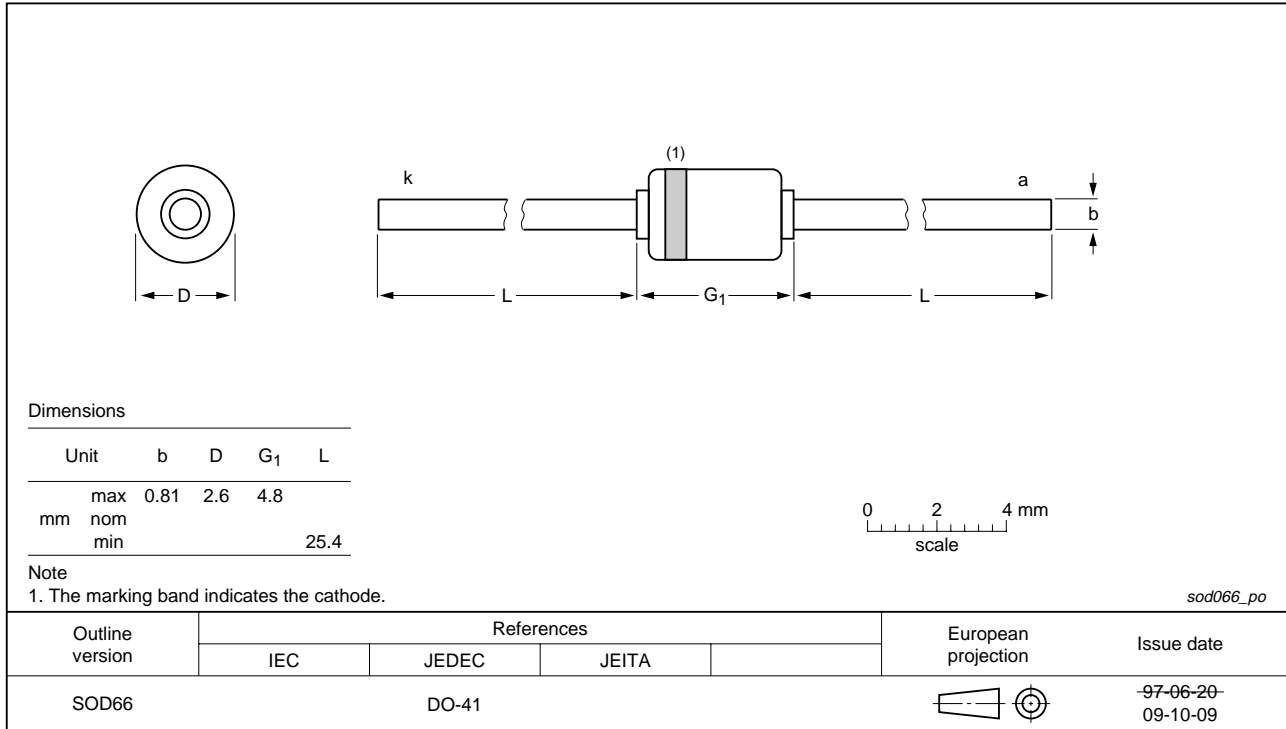


Fig 3. Package outline SOD66 (DO-41)

## 9. Packing information

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Please refer to packing information on [www.nexperia.com](http://www.nexperia.com).

## 10. Revision history

**Table 10. Revision history**

| Document ID    | Release date  | Data sheet status  | Change notice | Supersedes |
|----------------|---|--------------------|---------------|------------|
| 1N4728A_SER_2  | 20091030  | Product data sheet | -             | 1N4728A_1  |
| Modifications: | <ul style="list-style-type: none"> <li>• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li> <li>• Legal texts have been adapted to the new company name where appropriate.</li> <li>• <a href="#">Table 5 “Limiting values”</a>: <math>I_{ZM}</math> redefined to <math>I_Z</math> working current</li> <li>• <a href="#">Table 6</a>: <math>R_{th(j-tp)}</math> redefined to <math>R_{th(j-t)}</math> thermal resistance from junction to tie-point</li> <li>• <a href="#">Figure 1</a>: <math>R_{th(j-tp)}</math> redefined to <math>R_{th(j-t)}</math> thermal resistance from junction to tie-point</li> <li>• <a href="#">Table 8 “Characteristics per type”</a>: <math>I_{Ztest}</math> redefined to <math>I_{test}</math> test current</li> <li>• <a href="#">Figure 3 “Package outline SOD66 (DO-41)”</a>: updated</li> </ul> |                    |               |            |
| 1N4728A_1      | 19960426  | Product data sheet | -             | -          |

## 11. Legal information

### 11.1 Data sheet status

| Document status <sup>[1][2]</sup> | Product status <sup>[3]</sup> | Definition  |
|-----------------------------------|-------------------------------|---|
| Objective [short] data sheet      | Development                   | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet    | Qualification                 | This document contains data from the preliminary specification.                       |
| Product [short] data sheet        | Production                    | This document contains the product specification.                                     |

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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