

DATA SHEET



Datasheet.Live

1N4728A to 1N4749A Voltage regulator diodes

Product specification
Supersedes data of April 1992

1996 Apr 26

Voltage regulator diodes

1N4728A to 1N4749A

FEATURES

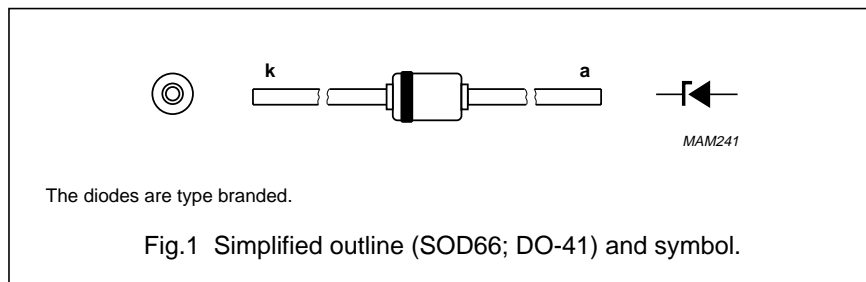
- Total power dissipation: max. 1000 mW
- Tolerance series: $\pm 5\%$
- Working voltage range: nom. 3.3 to 24 V.

APPLICATIONS

- Low voltage stabilizers.

DESCRIPTION

Low voltage regulator diodes in hermetically sealed SOD66 (DO-41) packages. The series consists of 22 types with nominal working voltages from 3.3 to 24 V.



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|--------------------------------------|----------------------|------|------------------|
| I_F | continuous forward current | | – | 500 | mA |
| I_{ZM} | working current | | see Table "Per type" | | |
| I_{ZSM} | non-repetitive peak reverse current | | see Table "Per type" | | |
| P_{tot} | total power dissipation | $T_{amb} = 50\text{ }^\circ\text{C}$ | – | 1000 | mW |
| T_{stg} | storage temperature | | –65 | +200 | $^\circ\text{C}$ |
| T_j | junction temperature | | –65 | +200 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS

Total series

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|--------|-----------------|-----------------------------------|------|------|------|
| V_F | forward voltage | $I_F = 200\text{ mA}$; see Fig.3 | – | 1.2 | V |

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Per type

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

| TYPE No. | WORKING VOLTAGE V_Z (V) ⁽¹⁾ at I_{Ztest} | TEST CURRENT I_{Ztest} (mA) | DIFFERENTIAL RESISTANCE | | | REVERSE CURRENT at REVERSE VOLTAGE | | WORKING CURRENT I_{ZM} (mA) | NON-REPETITIVE PEAK REVERSE CURRENT I_{ZSM} (mA) ⁽²⁾ |
|----------|---------------------------------------------------------|-------------------------------|---------------------------------------|---------------------------------|------------|------------------------------------|-----------|-------------------------------|-------------------------------------------------------------------|
| | | | r_{dif} (Ω) at I_{Ztest} | r_{dif} (Ω) at I_Z | I_Z (mA) | I_R (μ A) | V_R (V) | | |
| | 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 |

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.
- Half square wave or equivalent sinewave pulse $\frac{1}{120}$ second duration superimposed on I_{Ztest} .

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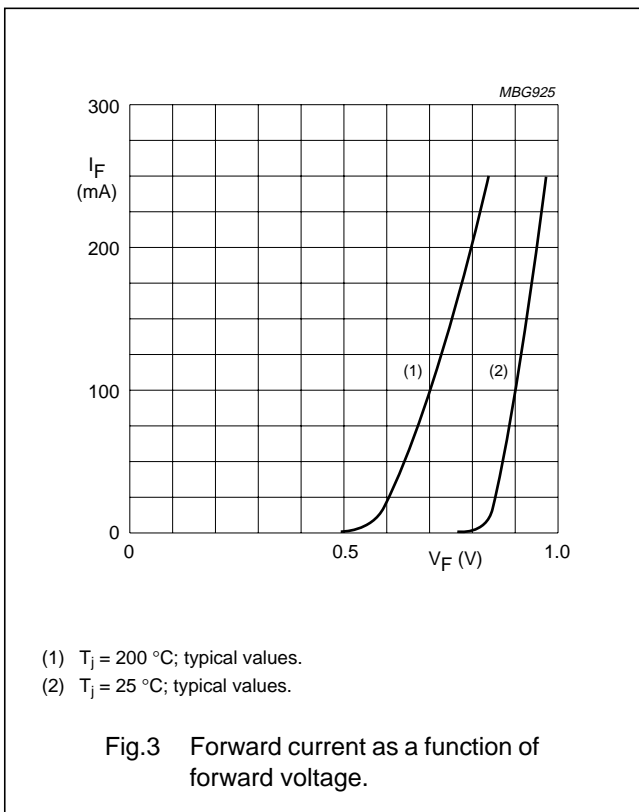
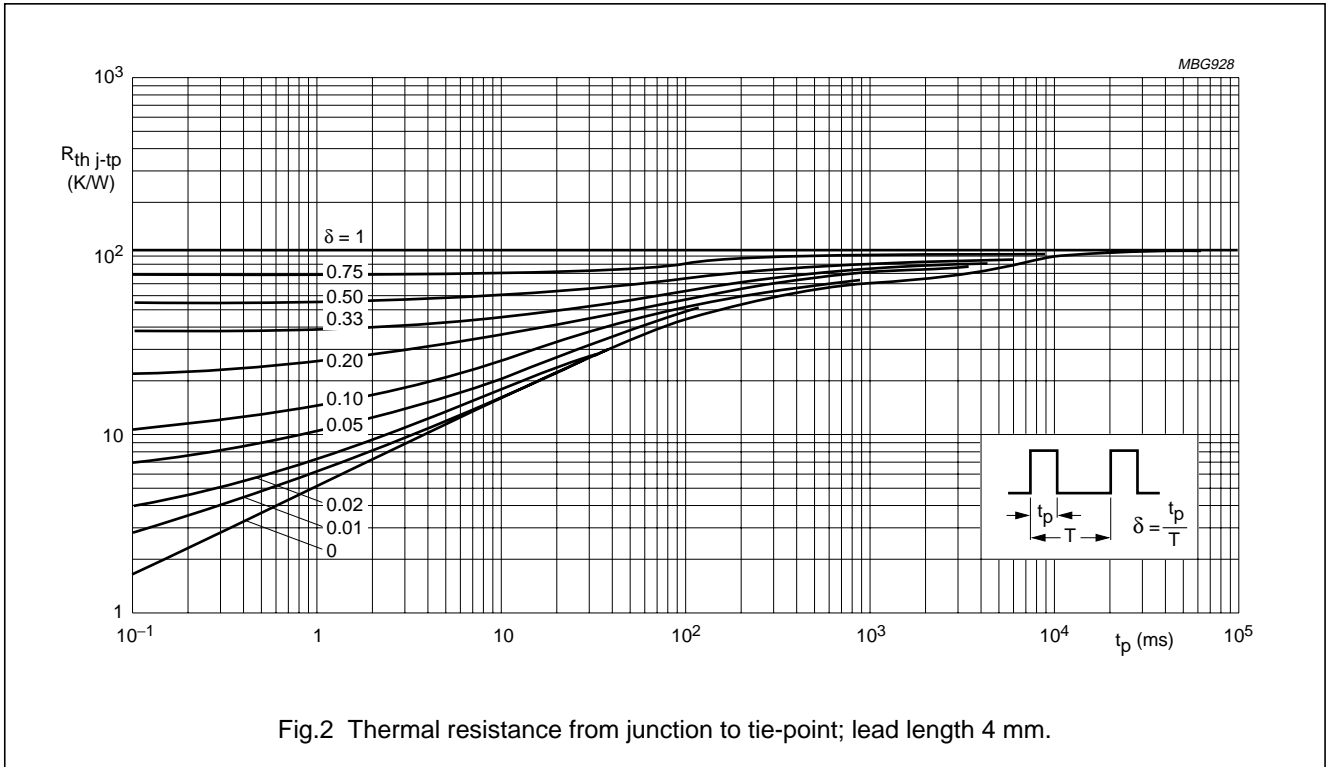
THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|-----------------------------------------------|-----------------------------|--------------|-------------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | lead length 4 mm; see Fig.2 | 110 | K/W |

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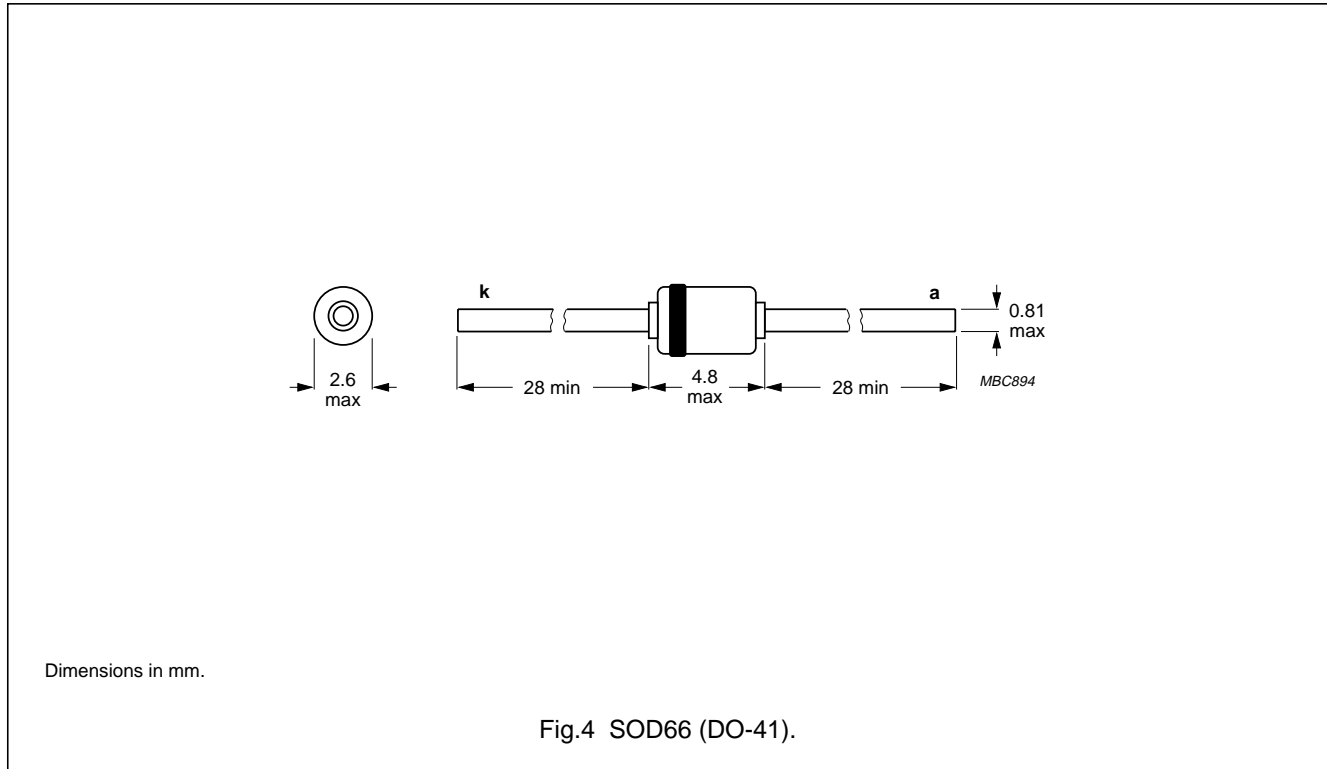
GRAPHICAL DATA



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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

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.