

Important notice

Dear Customer,

On 7 February 2017 the former NXP Standard Product business became a new company with the tradename **Nexperia**. Nexperia is an industry leading supplier of Discrete, Logic and PowerMOS semiconductors with its focus on the automotive, industrial, computing, consumer and wearable application markets

In data sheets and application notes which still contain NXP or Philips Semiconductors references, use the references to Nexperia, as shown below.

Instead of <http://www.nxp.com>, <http://www.philips.com/> or <http://www.semiconductors.philips.com/>, use <http://www.nexperia.com>

Instead of sales.addresses@www.nxp.com or sales.addresses@www.semiconductors.philips.com, use salesaddresses@nexperia.com (email)

Replace the copyright notice at the bottom of each page or elsewhere in the document, depending on the version, as shown below:

- © NXP N.V. (year). All rights reserved or © Koninklijke Philips Electronics N.V. (year). All rights reserved

Should be replaced with:

- © **Nexperia B.V. (year). All rights reserved.**

If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia



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. ≤ 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 1N4749A ^[1]	-	hermetically sealed glass package; axial leaded; 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 Table 8	
I_{ZSM}	non-repetitive peak reverse current		-	see Table 8	
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

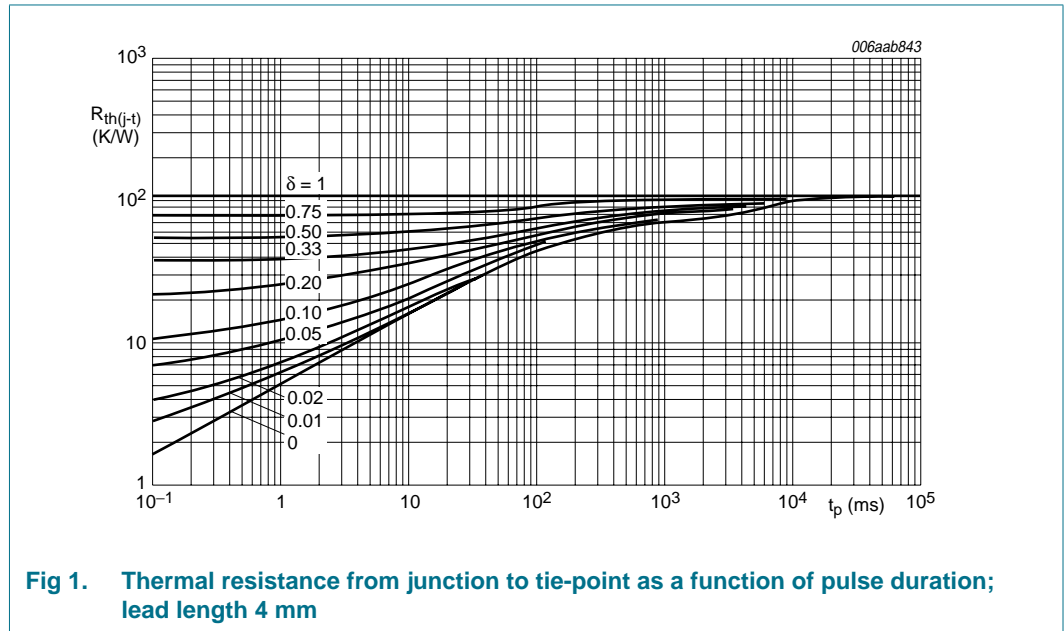


Fig 1. Thermal resistance from junction to tie-point as a function of pulse duration; lead length 4 mm

7. Characteristics

Table 7. Characteristics

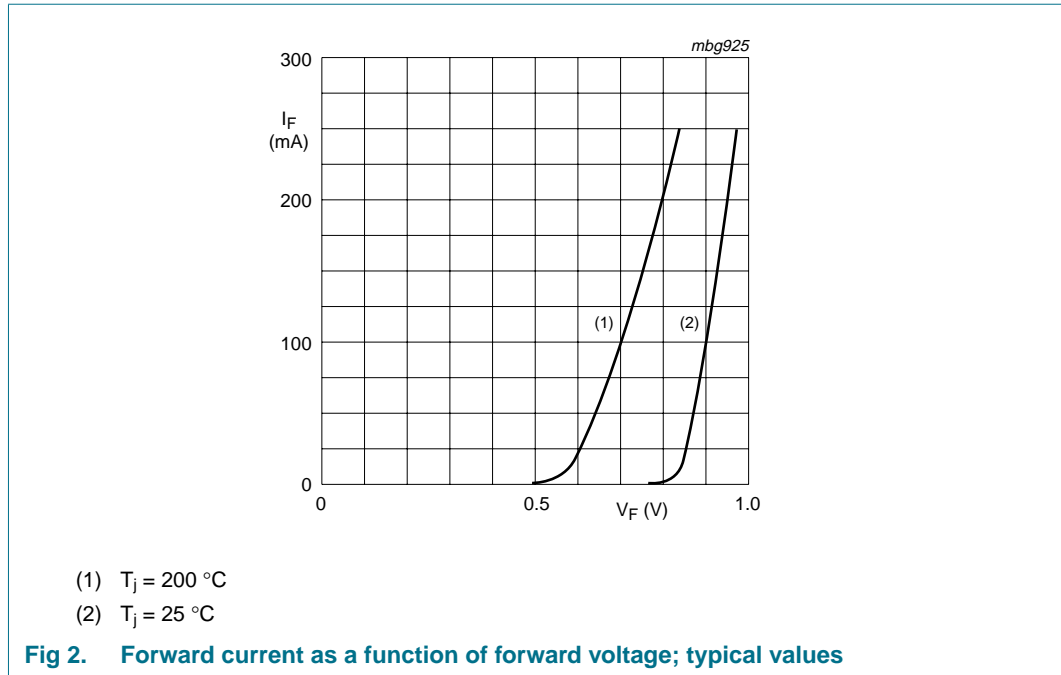
$T_j = 25^\circ C$ unless otherwise specified.

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 °C unless otherwise specified.*

Type number	Working voltage V _Z (V) ^[1] at I _{test}	Test current I _{test} (mA)	Differential resistance r _{diff} (Ω)			Reverse current I _R (μA)		Working current I _Z (mA)	Non-repetitive peak reverse current I _{ZSM} (mA) ^[2]
			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

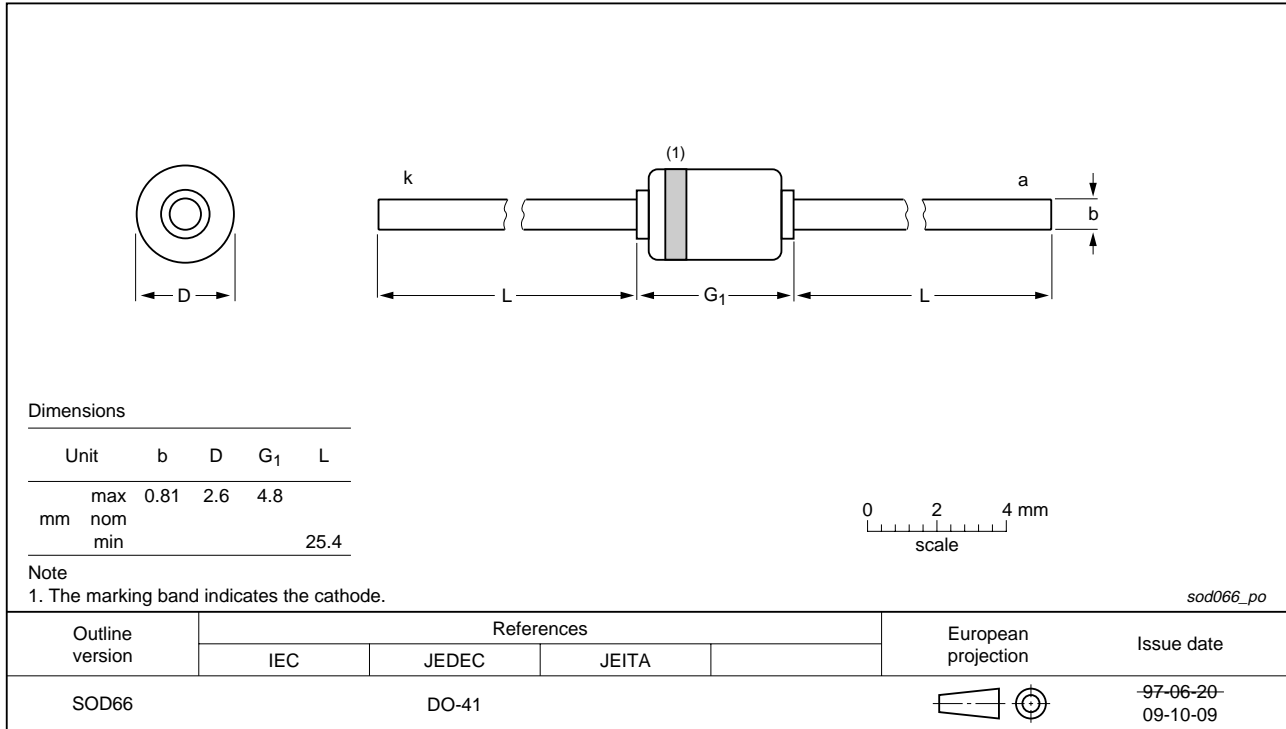


Fig 3. Package outline SOD66 (DO-41)

9. Packing information

Table 9. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.^[1]

Type number	Package	Description	Packing quantity
			10000
1N4728A to 1N4749A ^[2]	SOD66	52 mm tape ammopack, axial	-133
		52 mm reel pack, axial	-113

[1] For further information and the availability of packing methods, see [Section 11](#).

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

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"> • The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Table 5 "Limiting values": I_{ZM} redefined to I_Z working current • Table 6: $R_{th(j-t)}$ redefined to $R_{th(j-t)}$ thermal resistance from junction to tie-point • Figure 1: $R_{th(j-t)}$ redefined to $R_{th(j-t)}$ thermal resistance from junction to tie-point • Table 8 "Characteristics per type": I_{Ztest} redefined to I_{test} test current • Figure 3 "Package outline SOD66 (DO-41)": updated 			
1N4728A_1	19960426	Product data sheet	-	-

11. Legal information

11.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

11.2 Definitions

Draft — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

Short data sheet — A short data sheet is an extract from a full data sheet with the same product type number(s) and title. A short data sheet is intended for quick reference only and should not be relied upon to contain detailed and full information. For detailed and full information see the relevant full data sheet, which is available on request via the local NXP Semiconductors sales office. In case of any inconsistency or conflict with the short data sheet, the full data sheet shall prevail.

11.3 Disclaimers

General — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in medical, military, aircraft, space or life support equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental

damage. NXP Semiconductors accepts no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) may cause permanent damage to the device. Limiting values are stress ratings only and operation of the device at these or any other conditions above those given in the Characteristics sections of this document is not implied. Exposure to limiting values for extended periods may affect device reliability.

Terms and conditions of sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at <http://www.nxp.com/profile/terms>, including those pertaining to warranty, intellectual property rights infringement and limitation of liability, unless explicitly otherwise agreed to in writing by NXP Semiconductors. In case of any inconsistency or conflict between information in this document and such terms and conditions, the latter will prevail.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from national authorities.

Quick reference data — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

11.4 Trademarks

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

12. Contact information

For more information, please visit: <http://www.nxp.com>

For sales office addresses, please send an email to: salesaddresses@nxp.com

13. Contents

1 **Product profile** 1

1.1 General description 1

1.2 Features 1

1.3 Applications 1

1.4 Quick reference data 1

2 **Pinning information** 1

3 **Ordering information** 2

4 **Marking** 2

5 **Limiting values** 2

6 **Thermal characteristics** 3

7 **Characteristics** 3

8 **Package outline** 6

9 **Packing information** 7

10 **Revision history** 8

11 **Legal information** 9

11.1 Data sheet status 9

11.2 Definitions 9

11.3 Disclaimers 9

11.4 Trademarks 9

12 **Contact information** 9

13 **Contents** 10

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.



© NXP B.V. 2009.

All rights reserved.

For more information, please visit: <http://www.nxp.com>

For sales office addresses, please send an email to: salesaddresses@nxp.com

Date of release: 30 October 2009

Document identifier: 1N4728A_SER_2