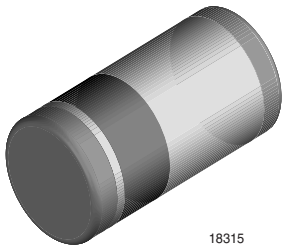
# Zener Diodes

## Features

- Silicon Planar Power Zener Diodes
- For use in stablilizing and clipping circuits with high power rating
- Standard Zener voltage tolerance is ± 5 %
- These diodes are also available in the DO-41 case with type designation 1N4728 A... 1N4764A
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC




## Mechanical Data

**Case:** MELF Glass case
**Weight:** approx. 135 mg
**Packaging Codes/Options:**
GS18 / 5 k per 13" reel (8 mm tape), 10 k/box
GS08 / 1.5 k per 7" reel (8 mm tape), 12 k/box

## Absolute Maximum Ratings

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Zener current (see Table "Characteristics") | | | | |
| Power dissipation | | $P_{tot}$ | 1.0 [1] | W |

[1] Valid provided that electrodes are kept at ambient temperature.

## Thermal Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Thermal resistance junction to ambient air | | $R_{thJA}$ | 170 [1] | K/W |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature | | $T_{stg}$ | - 65 to + 150 | °C |

[1] Valid provided that electrodes are kept at ambient temperature.

## Electrical Characteristics

| Partnumber | Nominal Zener Voltage[3] | Test Current | Maximum Zener Impedance[1] | | | Maximum Reverse Leakage Current | | Maximum Reverse Leakage Current[2] |
|---|---|---|---|---|---|---|---|---|
| | $V_Z$ at $I_{ZT}$ | $I_{ZT}$ | $Z_{ZT}$ at $I_{ZT}$ | $Z_{ZK}$ at $I_{ZK}$ | $I_{ZK}$ | $I_R$ | $V_R$ | $I_{ZM}$ |
| | V | mA | Ω | | mA | µA | V | µA |
| ZM4728A | 3.3 | 76 | 10 | 400 | 1 | 100 | 1 | 276 |
| ZM4729A | 3.6 | 69 | 10 | 400 | 1 | 100 | 1 | 252 |
| ZM4730A | 3.9 | 64 | 9 | 400 | 1 | 50 | 1 | 234 |
| ZM4731A | 4.3 | 58 | 9 | 400 | 1 | 10 | 1 | 217 |
| ZM4732A | 4.7 | 53 | 8 | 500 | 1 | 10 | 1 | 193 |
| ZM4733A | 5.1 | 49 | 7 | 550 | 1 | 10 | 1 | 178 |
| ZM4734A | 5.6 | 45 | 5 | 600 | 1 | 10 | 2 | 162 |
| ZM4735A | 6.2 | 41 | 2 | 700 | 1 | 10 | 3 | 146 |
| ZM4736A | 6.8 | 37 | 3.5 | 700 | 1 | 10 | 4 | 133 |
| ZM4737A | 7.5 | 34 | 4 | 700 | 0.5 | 10 | 5 | 121 |
| ZM4738A | 8.2 | 31 | 4.5 | 700 | 0.5 | 10 | 6 | 110 |
| ZM4739A | 9.1 | 28 | 5 | 700 | 0.5 | 10 | 7 | 100 |
| ZM4740A | 10 | 25 | 7 | 700 | 0.25 | 10 | 7.6 | 91 |
| ZM4741A | 11 | 23 | 8 | 700 | 0.25 | 5 | 8.4 | 83 |
| ZM4742A | 12 | 21 | 9 | 700 | 0.25 | 5 | 9.1 | 76 |
| ZM4743A | 13 | 19 | 10 | 700 | 0.25 | 5 | 9.9 | 69 |
| ZM4744A | 15 | 17 | 14 | 700 | 0.25 | 5 | 11.4 | 61 |
| ZM4745A | 16 | 15.5 | 16 | 700 | 0.25 | 5 | 12.2 | 57 |
| ZM4746A | 18 | 14 | 20 | 750 | 0.25 | 5 | 13.7 | 50 |
| ZM4747A | 20 | 12.5 | 22 | 750 | 0.25 | 5 | 15.2 | 45 |
| ZM4748A | 22 | 11.5 | 23 | 750 | 0.25 | 5 | 16.7 | 41 |
| ZM4749A | 24 | 10.5 | 25 | 750 | 0.25 | 5 | 18.2 | 38 |
| ZM4750A | 27 | 9.5 | 35 | 750 | 0.25 | 5 | 20.6 | 34 |
| ZM4751A | 30 | 8.5 | 40 | 1000 | 0.25 | 5 | 22.8 | 30 |
| ZM4752A | 33 | 7.5 | 45 | 1000 | 0.25 | 5 | 25.1 | 27 |
| ZM4753A | 36 | 7 | 50 | 1000 | 0.25 | 5 | 27.4 | 25 |
| ZM4754A | 39 | 6.5 | 60 | 1000 | 0.25 | 5 | 29.7 | 23 |
| ZM4755A | 43 | 6 | 70 | 1500 | 0.25 | 5 | 32.7 | 22 |
| ZM4756A | 47 | 5.5 | 80 | 1500 | 0.25 | 5 | 35.8 | 19 |
| ZM4757A | 51 | 5 | 95 | 1500 | 0.25 | 5 | 38.8 | 18 |
| ZM4758A | 56 | 4.5 | 110 | 2000 | 0.25 | 5 | 42.6 | 16 |
| ZM4759A | 62 | 4 | 125 | 2000 | 0.25 | 5 | 47.1 | 14 |
| ZM4760A | 68 | 3.7 | 150 | 2000 | 0.25 | 5 | 51.7 | 13 |
| ZM4761A | 75 | 3.3 | 175 | 2000 | 0.25 | 5 | 56 | 12 |
| ZM4762A | 82 | 3 | 200 | 3000 | 0.25 | 5 | 62.2 | 11 |
| ZM4763A | 91 | 2.8 | 250 | 3000 | 0.25 | 5 | 69.2 | 10 |
| ZM4764A | 100 | 2.5 | 350 | 3000 | 0.25 | 5 | 76 | 9 |

[1] The Zener impedance is derived from the 1 $KH_Z$ AC voltage which results when an AC current having an RMS value equal to 10 % of the Zener current ($I_{ZT}$ or $I_{ZK}$) is superimposed on $I_{ZT}$ or $I_{ZK}$. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units

[2] Valid provided that electrodes at a distance of 10 mm from case are kept at ambient temperature

[3] Measured under thermal equilibrium and DC test conditions.

## Typical Characteristics (Tamb = 25 °C unless otherwise specified)

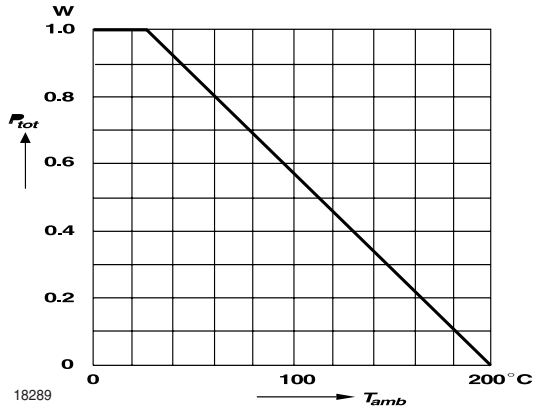
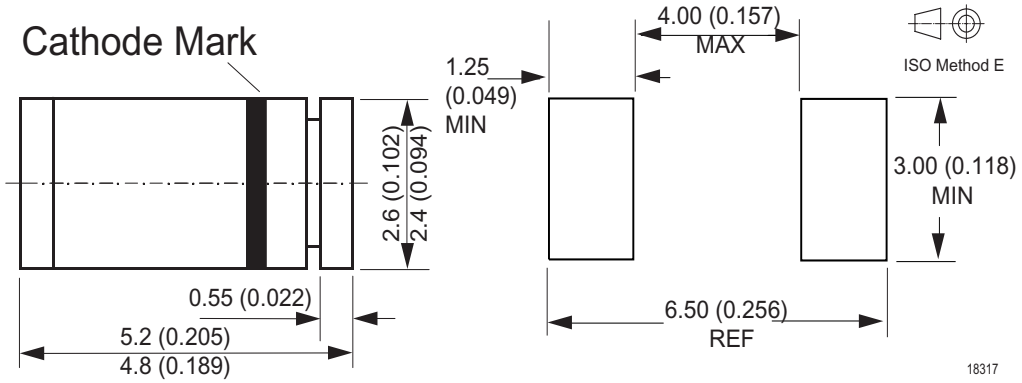



Figure 1. Admissible Power Dissipation vs. Ambient Temperature

## Package Dimensions in mm (Inches)



## Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.



Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

# Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.