



Zener Diodes



FEATURES

- Silicon planar power Zener diodes
- For use in stabilizing and clipping circuits with high power rating
- The Zener voltages are graded according to the international E 12 standard.
- These diodes are also available in the MELF case with the type designation ZMY3V9 to ZMY100
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

| PRIMARY CHARACTERISTICS | | |
|------------------------------|---------------|------|
| PARAMETER | VALUE | UNIT |
| V _Z range nom. | 3.9 to 100 | V |
| Test current I _{ZT} | 5 to 100 | mA |
| V _Z specification | Pulse current | |
| Int. construction | Single | |

| ORDERING INFORMATION | | | |
|----------------------|-----------------------------|--------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| ZPY3V9 to ZPY100 | ZPY3V9 to ZPY100-series-TR | 5000 (52 mm tape on 13" reel) | 25 000/box |
| ZPY3V9 to ZPY100 | ZPY3V9 to ZPY100-series-TAP | 5000 per ammopack (52 mm tape) | 25 000/box |

| PACKAGE | | | | |
|--------------|--------|--------------------------------------|-----------------------------------|--------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| DO-41 | 310 mg | - | MSL level 1 (according J-STD-020) | 260 °C/10 s at terminals |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------|-------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Power dissipation | Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature | P _{tot} | 1300 | mW |
| Zener current | See table "Characteristics" | | | |
| Junction to ambient air | Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature | R _{thJA} | 110 | K/W |
| Junction temperature | | T _j | 175 | °C |
| Storage temperature range | | T _{stg} | -55 to +175 | °C |



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------|------------------------------------|------|------|--------------|-----------------|---------------|------------------------------------------|-----------------------------------------|------------------------------------------|------|
| PART NUMBER | ZENER VOLTAGE RANGE ⁽²⁾ | | | TEST CURRENT | REVERSE VOLTAGE | | DYNAMIC RESISTANCE $f = 1\text{ kHz}$ | ADMISSIBLE ZENER CURRENT ⁽¹⁾ | TEMPERATURE COEFFICIENT OF ZENER VOLTAGE | |
| | V_Z at I_{ZT1} | | | I_{ZT1} | V_R at I_R | | Z_Z at I_{ZT1} | I_Z | TC_{VZ} at I_{ZT1} | |
| | V | | | mA | V | μA | Ω | mA | $10^{-4}/^{\circ}\text{C}$ | |
| | MIN. | NOM. | MAX. | | | | TYP. | | MIN. | MAX. |
| ZPY3V9 | 3.7 | 3.9 | 4.1 | 100 | - | 0.5 | 4 (< 7) | 290 | - 7 | 2 |
| ZPY4V3 | 4 | 4.3 | 4.6 | 100 | - | 0.5 | 4 (< 7) | 260 | - 7 | 3 |
| ZPY4V7 | 4.4 | 4.7 | 5 | 100 | - | 0.5 | 4 (< 7) | 235 | - 7 | 4 |
| ZPY5V1 | 4.8 | 5.1 | 5.4 | 100 | > 0.7 | 0.5 | 2 (< 5) | 215 | - 6 | 5 |
| ZPY5V6 | 5.2 | 5.6 | 6 | 100 | > 1.5 | 0.5 | 1 (< 2) | 193 | - 3 | 5 |
| ZPY6V2 | 5.8 | 6.2 | 6.6 | 100 | > 2.0 | 0.5 | 1 (< 2) | 183 | - 1 | 6 |
| ZPY6V8 | 6.4 | 6.8 | 7.2 | 100 | > 3.0 | 0.5 | 1 (< 2) | 157 | 0 | 7 |
| ZPY7V5 | 7 | 7.5 | 7.9 | 100 | > 5.0 | 0.5 | 1 (< 2) | 143 | 0 | 7 |
| ZPY8V2 | 7.7 | 8.2 | 8.7 | 100 | > 6.0 | 0.5 | 1 (< 2) | 127 | 3 | 8 |
| ZPY9V1 | 8.5 | 9.1 | 9.6 | 50 | > 7.0 | 0.5 | 2 (< 4) | 117 | 3 | 8 |
| ZPY10 | 9.4 | 10 | 10.6 | 50 | > 7.5 | 0.5 | 2 (< 4) | 105 | 5 | 9 |
| ZPY11 | 10.4 | 11 | 11.6 | 50 | > 8.5 | 0.5 | 3 (< 7) | 94 | 5 | 10 |
| ZPY12 | 11.4 | 12 | 12.7 | 50 | > 9.0 | 0.5 | 3 (< 7) | 85 | 5 | 10 |
| ZPY13 | 12.4 | 13 | 14.1 | 50 | > 10 | 0.5 | 4 (< 9) | 78 | 5 | 10 |
| ZPY15 | 13.8 | 15 | 15.8 | 50 | > 11 | 0.5 | 4 (< 9) | 70 | 5 | 10 |
| ZPY16 | 15.3 | 16 | 17.1 | 25 | > 12 | 0.5 | 5 (< 10) | 63 | 7 | 11 |
| ZPY18 | 16.8 | 18 | 19.1 | 25 | > 14 | 0.5 | 5 (< 11) | 57 | 7 | 11 |
| ZPY20 | 18.8 | 20 | 21.2 | 25 | > 15 | 0.5 | 6 (< 12) | 52 | 7 | 11 |
| ZPY22 | 20.8 | 22 | 23.3 | 25 | > 17 | 0.5 | 7 (< 13) | 48 | 7 | 11 |
| ZPY24 | 22.8 | 24 | 25.6 | 25 | > 18 | 0.5 | 8 (< 14) | 42 | 7 | 12 |
| ZPY27 | 25.1 | 27 | 28.9 | 25 | > 20 | 0.5 | 9 (< 15) | 38 | 7 | 12 |
| ZPY30 | 28 | 30 | 32 | 25 | > 22.5 | 0.5 | 10 (< 20) | 35 | 7 | 12 |
| ZPY33 | 31 | 33 | 35 | 25 | > 25 | 0.5 | 11 (< 20) | 31 | 7 | 12 |
| ZPY36 | 34 | 36 | 38 | 10 | > 27 | 0.5 | 25 (< 60) | 29 | 7 | 12 |
| ZPY39 | 37 | 39 | 41 | 10 | > 29 | 0.5 | 30 (< 60) | 26 | 8 | 12 |
| ZPY43 | 40 | 43 | 46 | 10 | > 32 | 0.5 | 35 (< 80) | 24 | 8 | 13 |
| ZPY47 | 44 | 47 | 50 | 10 | > 35 | 0.5 | 40 (< 80) | 22 | 8 | 13 |
| ZPY51 | 48 | 51 | 54 | 10 | > 38 | 0.5 | 45 (< 100) | 20 | 8 | 13 |
| ZPY56 | 52 | 56 | 60 | 10 | > 42 | 0.5 | 50 (< 100) | 18 | 8 | 13 |
| ZPY62 | 58 | 62 | 66 | 10 | > 47 | 0.5 | 60 (< 130) | 16 | 8 | 13 |
| ZPY68 | 64 | 68 | 72 | 10 | > 51 | 0.5 | 65 (< 130) | 14 | 8 | 13 |
| ZPY75 | 70 | 75 | 79 | 10 | > 56 | 0.5 | 70 (< 160) | 13 | 8 | 13 |
| ZPY82 | 77 | 82 | 88 | 10 | > 61 | 0.5 | 80 (< 160) | 12 | 8 | 13 |
| ZPY91 | 85 | 91 | 96 | 5 | > 68 | 0.5 | 120 (< 250) | 11 | 9 | 13 |
| ZPY100 | 94 | 100 | 106 | 5 | > 75 | 0.5 | 130 (< 250) | 10 | 9 | 13 |

Notes

⁽¹⁾ Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case

⁽²⁾ Tested with pulses $t_p = 5\text{ ms}$

BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)



Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature



Fig. 4 - Dynamic Resistance vs. Zener Current

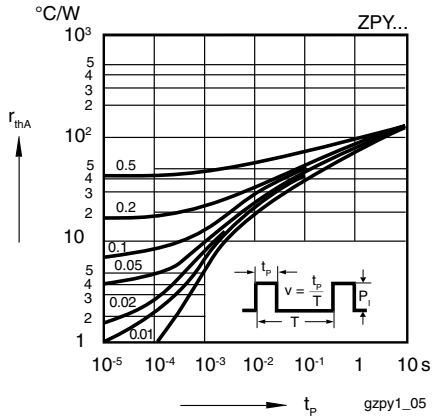


Fig. 2 - Pulse Thermal Resistance vs. Pulse Duration



Fig. 5 - Dynamic Resistance vs. Zener Current



Fig. 3 - Dynamic Resistance vs. Zener Current



Fig. 6 - Thermal Resistance vs. Lead Length



Fig. 7 - Breakdown Characteristics



Fig. 9 - Breakdown Characteristics



Fig. 8 - Breakdown Characteristics

PACKAGE DIMENSIONS in millimeters (inches): **DO-41**



Document no.:6.561-5001.02-4
 Rev. 3 - Date: 09 February 2005
 94 9368



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9