



Small Signal Zener Diodes



DESIGN SUPPORT TOOLS

[click logo to get started](#)



FEATURES

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is $\pm 5\%$
- High temperature soldering guaranteed: 260 °C/4 x 10 s set terminals
- AEC-Q101 qualified available (part number on request)
- ESD capability according to AEC-Q101: Human body model > 8 kV Machine model > 800 V
- Base P/N-G3 - green, commercial grade
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



| PRIMARY CHARACTERISTICS | | |
|------------------------------|---------------------|------|
| PARAMETER | VALUE | UNIT |
| V _Z range nom. | 2.4 to 43 | V |
| Test current I _{ZT} | 0.05 | mA |
| V _Z specification | Thermal equilibrium | |
| Circuit configuration | Single | |

| ORDERING INFORMATION | | | |
|--------------------------|--------------------------------------|--------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| MMSZ4681-G to MMSZ4717-G | MMSZ4681-G3 to MMSZ4717-G3-series-08 | 3000 (8 mm tape on 7" reel) | 15 000/box |
| | MMSZ4681-G3 to MMSZ4717-G3-series-18 | 10 000 (8 mm tape on 13" reel) | 10 000/box |

| PACKAGE | | | | |
|--------------|--------|--------------------------------------|-----------------------------------|--------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| SOD-123 | 9.4 mg | UL 94 V-0 | 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 | T _L = 75 °C, on FR - 4 or FR - 5 board with minimum recommended solder pad layout | P _{tot} | 500 | mW |
| Zener current (see table "Characteristics") | | | | |
| Thermal resistance junction to ambient air | On FR - 4 or FR - 5 board with minimum recommended solder pad layout | R _{thJA} | 340 | K/W |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature range | | T _{stg} | -55 to +150 | °C |
| Operating temperature range | | T _{op} | -55 to +150 | °C |



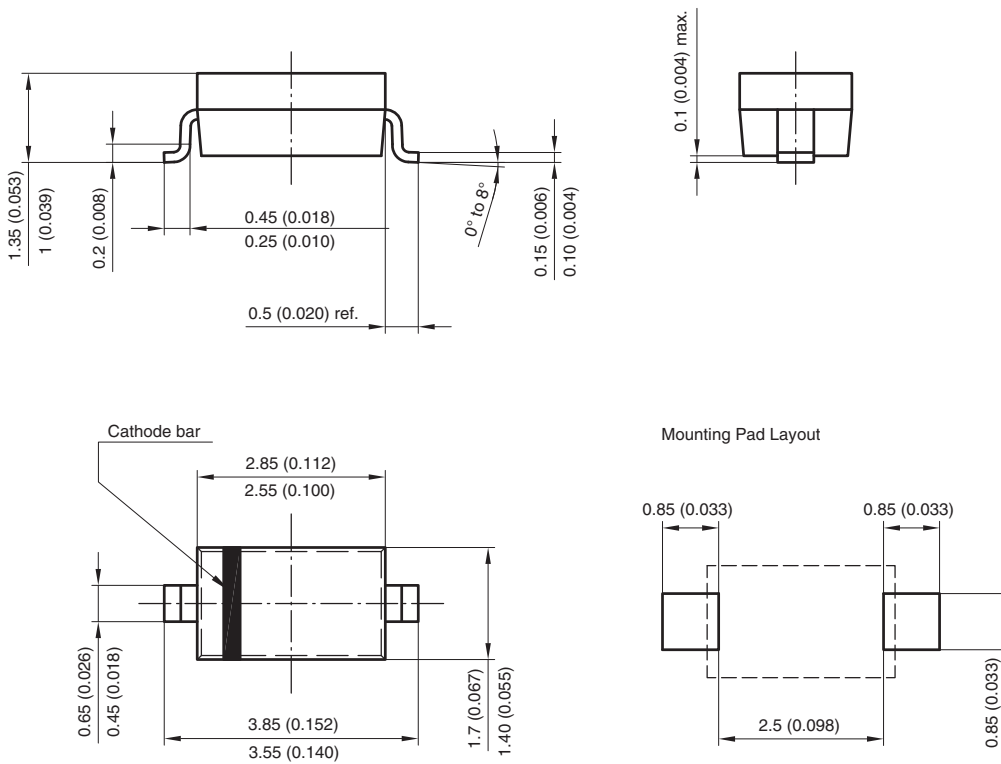
| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|---|--------------|------------------------------------|------|------|--------------|-----------------|------|
| PART NUMBER | MARKING CODE | ZENER VOLTAGE RANGE ⁽¹⁾ | | | TEST CURRENT | REVERSE CURRENT | |
| | | V_Z at I_{ZT1} | | | I_{ZT1} | I_R at V_R | |
| | | V | | | mA | μA | V |
| | | MIN. | NOM. | MAX. | | MAX. | |
| MMSZ4681-G | TF | 2.28 | 2.4 | 2.52 | 0.05 | 2 | 1 |
| MMSZ4682-G | TH | 2.57 | 2.7 | 2.84 | 0.05 | 1 | 1 |
| MMSZ4683-G | TJ | 2.85 | 3 | 3.15 | 0.05 | 0.8 | 1 |
| MMSZ4684-G | TK | 3.14 | 3.3 | 3.47 | 0.05 | 7.5 | 1.5 |
| MMSZ4685-G | TM | 3.42 | 3.6 | 3.78 | 0.05 | 7.5 | 2 |
| MMSZ4686-G | TN | 3.71 | 3.9 | 4.1 | 0.05 | 5 | 2 |
| MMSZ4687-G | TP | 4.09 | 4.3 | 4.52 | 0.05 | 4 | 2 |
| MMSZ4688-G | TT | 4.47 | 4.7 | 4.94 | 0.05 | 10 | 3 |
| MMSZ4689-G | TU | 4.85 | 5.1 | 5.36 | 0.05 | 10 | 3 |
| MMSZ4690-G | TV | 5.32 | 5.6 | 5.88 | 0.05 | 10 | 4 |
| MMSZ4691-G | TA | 5.89 | 6.2 | 6.51 | 0.05 | 10 | 5 |
| MMSZ4692-G | TX | 6.46 | 6.8 | 7.14 | 0.05 | 10 | 5.1 |
| MMSZ4693-G | TY | 7.13 | 7.5 | 7.88 | 0.05 | 10 | 5.7 |
| MMSZ4694-G | TZ | 7.79 | 8.2 | 8.61 | 0.05 | 1 | 6.2 |
| MMSZ4695-G | UC | 8.27 | 8.7 | 9.14 | 0.05 | 1 | 6.6 |
| MMSZ4696-G | UD | 8.65 | 9.1 | 9.56 | 0.05 | 1 | 6.9 |
| MMSZ4697-G | UE | 9.5 | 10 | 10.5 | 0.05 | 1 | 7.6 |
| MMSZ4698-G | UF | 10.5 | 11 | 11.6 | 0.05 | 0.05 | 8.4 |
| MMSZ4699-G | UH | 11.4 | 12 | 12.6 | 0.05 | 0.05 | 9.1 |
| MMSZ4700-G | UJ | 12.4 | 13 | 13.7 | 0.05 | 0.05 | 9.8 |
| MMSZ4701-G | UK | 13.3 | 14 | 14.7 | 0.05 | 0.05 | 10.6 |
| MMSZ4702-G | UM | 14.3 | 15 | 15.8 | 0.05 | 0.05 | 11.4 |
| MMSZ4703-G | UN | 15.2 | 16 | 16.8 | 0.05 | 0.05 | 12.1 |
| MMSZ4704-G | UP | 16.2 | 17 | 17.9 | 0.05 | 0.05 | 12.9 |
| MMSZ4705-G | UT | 17.1 | 18 | 18.9 | 0.05 | 0.05 | 13.6 |
| MMSZ4706-G | UU | 18.1 | 19 | 20 | 0.05 | 0.05 | 14.4 |
| MMSZ4707-G | UV | 19 | 20 | 21 | 0.05 | 0.01 | 15.2 |
| MMSZ4708-G | UA | 20.9 | 22 | 23.1 | 0.05 | 0.01 | 16.7 |
| MMSZ4709-G | UZ | 22.8 | 24 | 25.2 | 0.05 | 0.01 | 18.2 |
| MMSZ4710-G | UY | 23.8 | 25 | 26.3 | 0.05 | 0.01 | 19 |
| MMSZ4711-G | ZA | 25.7 | 27 | 28.4 | 0.05 | 0.01 | 20.4 |
| MMSZ4712-G | ZC | 26.6 | 28 | 29.4 | 0.05 | 0.01 | 21.2 |
| MMSZ4713-G | ZD | 28.5 | 30 | 31.5 | 0.05 | 0.01 | 22.8 |
| MMSZ4714-G | ZE | 31.4 | 33 | 34.7 | 0.05 | 0.01 | 25 |
| MMSZ4715-G | ZF | 34.2 | 36 | 37.8 | 0.05 | 0.01 | 27.3 |
| MMSZ4716-G | ZH | 37.1 | 39 | 41 | 0.05 | 0.01 | 29.6 |
| MMSZ4717-G | ZJ | 40.9 | 43 | 45.2 | 0.05 | 0.01 | 32.6 |

Notes

- Maximum $V_F = 0.9\text{ V}$ at $I_F = 10\text{ mA}$
- ⁽¹⁾ Measured with device junction in thermal equilibrium



PACKAGE DIMENSIONS in millimeters (inches): SOD-123



Rev. 4 - Date: 24. Sep. 2009
 Document no.: S8-V-3910.01-001 (4)
 17432



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.