



## Zener Diodes



### FEATURES

- Silicon planar power Zener diodes
- For use in stabilizing and clipping circuits with high power rating
- Standard Zener voltage tolerance is  $\pm 5\%$
- These diodes are also available in the DO-41 case with type designation 1N4728A to 1N4764A
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

| PRIMARY CHARACTERISTICS      |                     |      |
|------------------------------|---------------------|------|
| PARAMETER                    | VALUE               | UNIT |
| V <sub>Z</sub> range nom.    | 3.3 to 100          | V    |
| Test current I <sub>ZT</sub> | 2.5 to 76           | mA   |
| V <sub>Z</sub> specification | Thermal equilibrium |      |
| Int. construction            | Single              |      |

| ORDERING INFORMATION |                                |                                |                        |
|----------------------|--------------------------------|--------------------------------|------------------------|
| DEVICE NAME          | ORDERING CODE                  | TAPED UNITS PER REEL           | MINIMUM ORDER QUANTITY |
| ZM4728A to ZM4764A   | ZM4728A to ZM4764A-series-GS18 | 5 000 (12 mm tape on 13" reel) | 10 000/box             |
| ZM4728A to ZM4764A   | ZM4728A to ZM4764A-series-GS08 | 1 500 (12 mm tape on 7" reel)  | 12 000/box             |

| PACKAGE               |        |                                      |                                   |                          |
|-----------------------|--------|--------------------------------------|-----------------------------------|--------------------------|
| PACKAGE NAME          | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL        | SOLDERING CONDITIONS     |
| MELF DO-213AB (glass) | 135 mg | UL 94 V-0                            | MSL level 1 (according J-STD-020) | 260 °C/10 s at terminals |

| ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                                                                |                   |               |      |
|---------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------|---------------|------|
| PARAMETER                                                                       | TEST CONDITION                                                 | SYMBOL            | VALUE         | UNIT |
| Power dissipation                                                               | Valid provided that electrodes are kept at ambient temperature | P <sub>tot</sub>  | 1000          | mW   |
| Zener current                                                                   | See table "Characteristics"                                    |                   |               |      |
| Junction to ambient air                                                         | Valid provided that electrodes are kept at ambient temperature | R <sub>thJA</sub> | 170           | K/W  |
| Junction temperature                                                            |                                                                | T <sub>j</sub>    | 175           | °C   |
| Storage temperature range                                                       |                                                                | T <sub>stg</sub>  | - 65 to + 175 | °C   |



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

| PART NUMBER | ZENER VOLTAGE RANGE <sup>(3)</sup> | TEST CURRENT     |                  | REVERSE LEAKAGE CURRENT          |      | DYNAMIC RESISTANCE <sup>(1)</sup><br>f = 1 kHz |                                     | SURGE CURRENT <sup>(4)</sup> | REGULATOR CURRENT <sup>(2)</sup> |
|-------------|------------------------------------|------------------|------------------|----------------------------------|------|------------------------------------------------|-------------------------------------|------------------------------|----------------------------------|
|             | V <sub>Z</sub> at I <sub>ZT1</sub> | I <sub>ZT1</sub> | I <sub>ZT2</sub> | I <sub>R</sub> at V <sub>R</sub> |      | Z <sub>Z</sub> at I <sub>ZT1</sub>             | Z <sub>ZK</sub> at I <sub>ZT2</sub> | I <sub>ZSM</sub>             | I <sub>ZM</sub>                  |
|             | V                                  | mA               |                  | μA                               | V    | Ω                                              |                                     | mA                           | mA                               |
|             | NOM.                               |                  |                  | MAX.                             |      | MAX.                                           | MAX.                                |                              | MAX.                             |
| ZM4728A     | 3.3                                | 76               | 1                | 100                              | 1    | 10                                             | 400                                 | 1380                         | 276                              |
| ZM4729A     | 3.6                                | 69               | 1                | 100                              | 1    | 10                                             | 400                                 | 1260                         | 252                              |
| ZM4730A     | 3.9                                | 64               | 1                | 50                               | 1    | 9                                              | 400                                 | 1190                         | 234                              |
| ZM4731A     | 4.3                                | 58               | 1                | 10                               | 1    | 9                                              | 400                                 | 1070                         | 217                              |
| ZM4732A     | 4.7                                | 53               | 1                | 10                               | 1    | 8                                              | 500                                 | 970                          | 193                              |
| ZM4733A     | 5.1                                | 49               | 1                | 10                               | 1    | 7                                              | 550                                 | 890                          | 178                              |
| ZM4734A     | 5.6                                | 45               | 1                | 10                               | 2    | 5                                              | 600                                 | 810                          | 162                              |
| ZM4735A     | 6.2                                | 41               | 1                | 10                               | 3    | 2                                              | 700                                 | 730                          | 146                              |
| ZM4736A     | 6.8                                | 37               | 1                | 10                               | 4    | 3.5                                            | 700                                 | 660                          | 133                              |
| ZM4737A     | 7.5                                | 34               | 0.5              | 10                               | 5    | 4                                              | 700                                 | 605                          | 121                              |
| ZM4738A     | 8.2                                | 31               | 0.5              | 10                               | 6    | 4.5                                            | 700                                 | 550                          | 110                              |
| ZM4739A     | 9.1                                | 28               | 0.5              | 10                               | 7    | 5                                              | 700                                 | 500                          | 100                              |
| ZM4740A     | 10                                 | 25               | 0.25             | 10                               | 7.6  | 7                                              | 700                                 | 454                          | 91                               |
| ZM4741A     | 11                                 | 23               | 0.25             | 5                                | 8.4  | 8                                              | 700                                 | 414                          | 83                               |
| ZM4742A     | 12                                 | 21               | 0.25             | 5                                | 9.1  | 9                                              | 700                                 | 380                          | 76                               |
| ZM4743A     | 13                                 | 19               | 0.25             | 5                                | 9.9  | 10                                             | 700                                 | 344                          | 69                               |
| ZM4744A     | 15                                 | 17               | 0.25             | 5                                | 11.4 | 14                                             | 700                                 | 304                          | 61                               |
| ZM4745A     | 16                                 | 15.5             | 0.25             | 5                                | 12.2 | 16                                             | 700                                 | 285                          | 57                               |
| ZM4746A     | 18                                 | 14               | 0.25             | 5                                | 13.7 | 20                                             | 750                                 | 250                          | 50                               |
| ZM4747A     | 20                                 | 12.5             | 0.25             | 5                                | 15.2 | 22                                             | 750                                 | 225                          | 45                               |
| ZM4748A     | 22                                 | 11.5             | 0.25             | 5                                | 16.7 | 23                                             | 750                                 | 205                          | 41                               |
| ZM4749A     | 24                                 | 10.5             | 0.25             | 5                                | 18.2 | 25                                             | 750                                 | 190                          | 38                               |
| ZM4750A     | 27                                 | 9.5              | 0.25             | 5                                | 20.6 | 35                                             | 750                                 | 170                          | 34                               |
| ZM4751A     | 30                                 | 8.5              | 0.25             | 5                                | 22.8 | 40                                             | 1000                                | 150                          | 30                               |
| ZM4752A     | 33                                 | 7.5              | 0.25             | 5                                | 25.1 | 45                                             | 1000                                | 135                          | 27                               |
| ZM4753A     | 36                                 | 7                | 0.25             | 5                                | 27.4 | 50                                             | 1000                                | 125                          | 25                               |
| ZM4754A     | 39                                 | 6.5              | 0.25             | 5                                | 29.7 | 60                                             | 1000                                | 115                          | 23                               |
| ZM4755A     | 43                                 | 6                | 0.25             | 5                                | 32.7 | 70                                             | 1500                                | 110                          | 22                               |
| ZM4756A     | 47                                 | 5.5              | 0.25             | 5                                | 35.8 | 80                                             | 1500                                | 95                           | 19                               |
| ZM4757A     | 51                                 | 5                | 0.25             | 5                                | 38.8 | 95                                             | 1500                                | 90                           | 18                               |
| ZM4758A     | 56                                 | 4.5              | 0.25             | 5                                | 42.6 | 110                                            | 2000                                | 80                           | 16                               |
| ZM4759A     | 62                                 | 4                | 0.25             | 5                                | 47.1 | 125                                            | 2000                                | 70                           | 14                               |
| ZM4760A     | 68                                 | 3.7              | 0.25             | 5                                | 51.7 | 150                                            | 2000                                | 65                           | 13                               |
| ZM4761A     | 75                                 | 3.3              | 0.25             | 5                                | 56   | 175                                            | 2000                                | 60                           | 12                               |
| ZM4762A     | 82                                 | 3                | 0.25             | 5                                | 62.2 | 200                                            | 3000                                | 55                           | 11                               |
| ZM4763A     | 91                                 | 2.8              | 0.25             | 5                                | 69.2 | 250                                            | 3000                                | 50                           | 10                               |
| ZM4764A     | 100                                | 2.5              | 0.25             | 5                                | 76   | 350                                            | 3000                                | 45                           | 9                                |

**Notes**

- (1) The Zener impedance is derived from the 1 kHz AC voltage which results when an AC current having an RMS value equal to 10 % of the zener current (I<sub>ZT1</sub> or I<sub>ZT2</sub>) is superimposed on I<sub>ZT1</sub> or I<sub>ZT2</sub>. 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 are kept at ambient temperature
- (3) Measured under thermal equilibrium and DC test conditions
- (4) Width of the test pulse is 8.3 ms

## BASIC CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

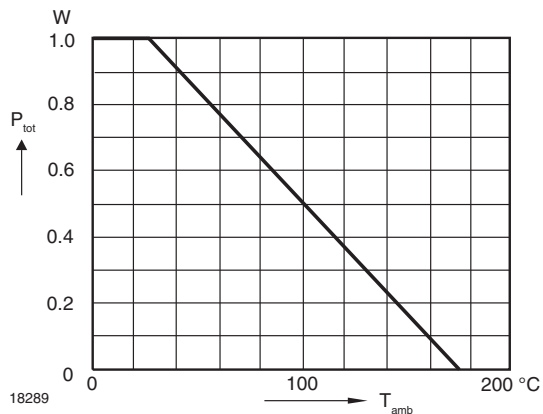
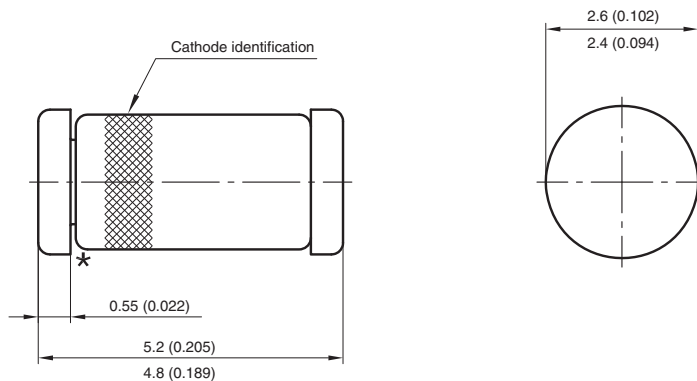


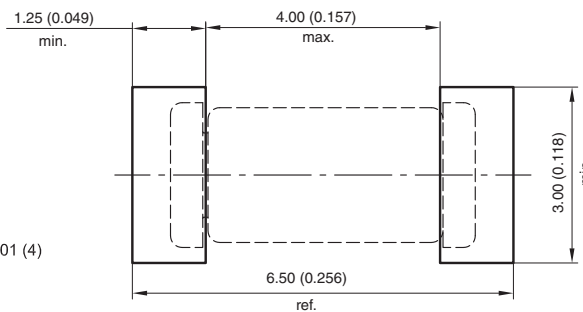
Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

## PACKAGE DIMENSIONS in millimeters (inches): MELF DO-213AB (glass)



★ The gap between plug and glass can be either on cathode or anode side

Foot print recommendation:



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Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)