

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 1N4761A
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | | |
|-------------------------|---------------------|------|
| PARAMETER | VALUE | UNIT |
| V_Z range nom. | 3.3 to 75 | V |
| Test current I_{ZT} | 3.3 to 76 | mA |
| V_Z specification | Thermal equilibrium | |
| Circuit configuration | Single | |

| ORDERING INFORMATION | | | |
|----------------------|--------------------------------|--------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| ZM4728A to ZM4761A | ZM4728A to ZM4761A-series-GS18 | 5 000 (12 mm tape on 13" reel) | 10 000/box |
| ZM4728A to ZM4761A | ZM4728A to ZM4761A-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 | approx. 135 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |

| ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ °C}$, unless otherwise specified) | | | | |
|---|--|------------|-------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Power dissipation | Valid provided that electrodes are kept at ambient temperature | P_{tot} | 1000 | mW |
| Zener current | See table "Characteristics" | | | |
| Junction to ambient air | Valid provided that electrodes are kept at ambient temperature | R_{thJA} | 170 | K/W |
| Junction temperature | | T_j | 175 | °C |
| Storage temperature range | | T_{stg} | -65 to +175 | °C |



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | | | |
|--|------------------------------------|--------------|-----------|-------------------------|------|--|-----------------------|------------------------------|----------------------------------|
| PART NUMBER | ZENER VOLTAGE RANGE ⁽³⁾ | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE ⁽¹⁾ f = 1 kHz | | SURGE CURRENT ⁽⁴⁾ | REGULATOR CURRENT ⁽²⁾ |
| | V_Z at I_{ZT1} | I_{ZT1} | I_{ZT2} | I_R at V_R | | Z_Z at I_{ZT1} | Z_{ZK} at I_{ZT2} | I_{ZSM} | I_{ZM} |
| | 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 |

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_{ZT1} or I_{ZT2}) is superimposed on I_{ZT1} or I_{ZT2} . 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_{amb} = 25 °C, unless otherwise specified)

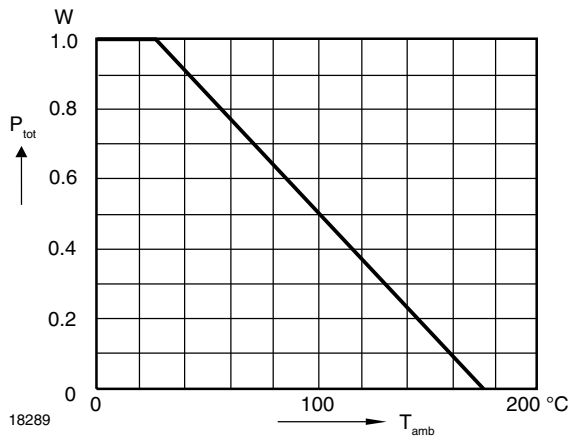


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

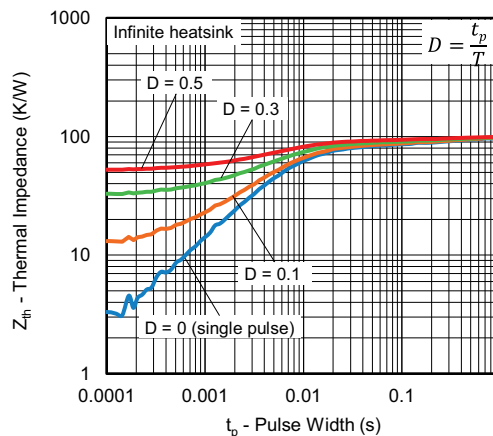


Fig. 2 - Thermal Impedance vs. Time

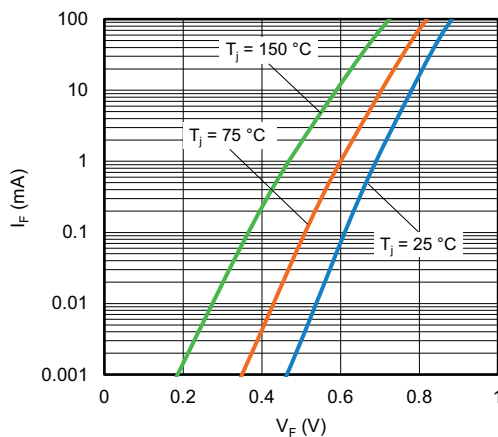
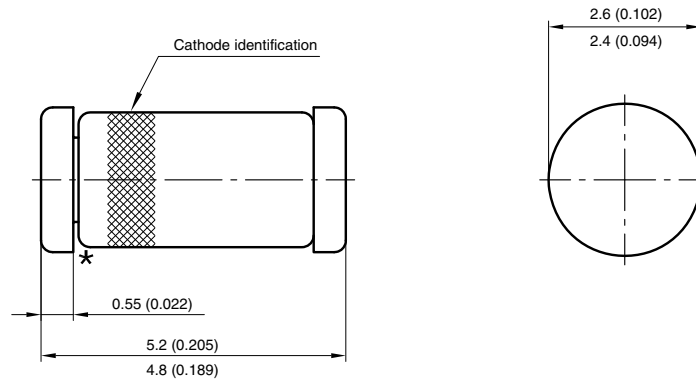


Fig. 3 - Typical Forward Current I_F vs. Forward Voltage V_F

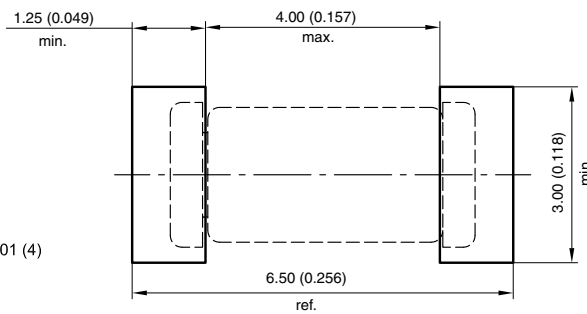


PACKAGE DIMENSIONS in millimeters (inches): MELF DO-213AB (glass)



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

Foot print recommendation:



Document no.:S8-V-3453.02-001 (4)
Rev. 3 - Date: 07 June 2006
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