

Small Signal Zener Diodes


DESIGN SUPPORT TOOLS
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| PRIMARY CHARACTERISTICS | | |
|------------------------------|---------------------|------|
| PARAMETER | VALUE | UNIT |
| V _Z range nom. | 2.4 to 75 | V |
| Test current I _{ZT} | 1.7 to 20 | mA |
| V _Z specification | Thermal equilibrium | |
| Circuit configuration | Single | |

FEATURES

- Very sharp reverse characteristic
- Very high stability
- Electrical data identical with the devices 1N5221B to 1N5267B
- Low reverse current level
- Standard Zener voltage tolerance $\pm 5\%$ with a "B" suffix in the ordering code (e.g.: TZM5221B), suffix "C" is $\pm 2\%$ tolerance
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

- Voltage stabilization

| ORDERING INFORMATION | | | |
|----------------------|----------------------------------|--------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| TZM5221B to TZM5267B | TZM5221B to TZM5267B-series-GS18 | 10 000 (8 mm tape on 13" reel) | 10 000/box |
| TZM5221C to TZM5267C | TZM5221C to TZM5267C-series-GS18 | | |
| TZM5221B to TZM5267B | TZM5221B to TZM5267B-series-GS08 | 2500 (8 mm tape on 7" reel) | 12 500/box |
| TZM5221C to TZM5267C | TZM5221C to TZM5267C-series-GS08 | | |

| PACKAGE | | | | |
|-----------------|--------|--------------------------------------|-----------------------------------|--------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| MiniMELF SOD-80 | 31 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 | R _{thJA} = < 300 K/W | P _{tot} | 500 | mW |
| Zener current | | I _Z | P _{tot} /V _Z | mA |
| Junction to ambient air | On PC board 50 mm x 50 mm x 1.6 mm | R _{thJA} | 500 | K/W |
| Junction temperature | | T _j | 175 | °C |
| Storage temperature range | | T _{stg} | -65 to +175 | °C |
| Forward voltage (max.) | I _F = 200 mA | V _F | 1.1 | V |



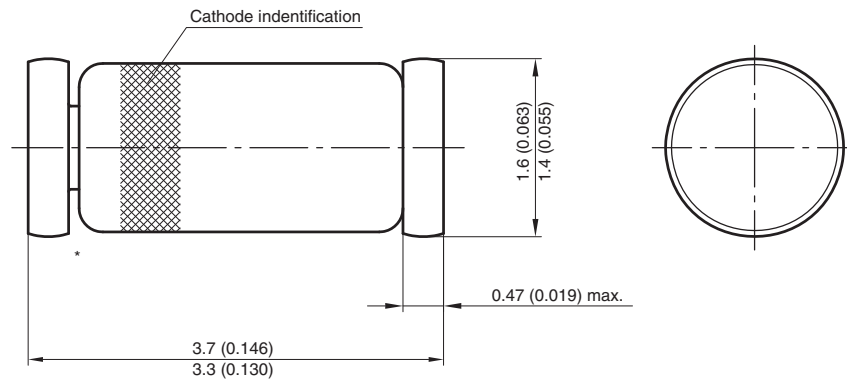
| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | | | |
|---|------------------------------------|------------------|------------------|----------------------------------|-----|------------------------------------|-------------------------------------|-------------------------|
| PART NUMBER | ZENER VOLTAGE RANGE ⁽¹⁾ | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE | | TEMPERATURE COEFFICIENT |
| | V _Z at I _{ZT1} | I _{ZT1} | I _{ZT2} | I _R at V _R | | Z _Z at I _{ZT1} | Z _{ZK} at I _{ZT2} | TK _{VZ} |
| | V | mA | | µA | V | Ω | | |
| | NOM. | | | | | TYP. | TYP. | |
| TZM5221 | 2.4 | 20 | 0.25 | < 100 | 1 | < 30 | < 1200 | < -0.085 |
| TZM5222 | 2.5 | 20 | 0.25 | < 100 | 1 | < 30 | < 1250 | < -0.085 |
| TZM5223 | 2.7 | 20 | 0.25 | < 75 | 1 | < 30 | < 1300 | < -0.080 |
| TZM5224 | 2.8 | 20 | 0.25 | < 75 | 1 | < 30 | < 1400 | < -0.080 |
| TZM5225 | 3 | 20 | 0.25 | < 50 | 1 | < 29 | < 1600 | < -0.075 |
| TZM5226 | 3.3 | 20 | 0.25 | < 25 | 1 | < 28 | < 1600 | < -0.070 |
| TZM5227 | 3.6 | 20 | 0.25 | < 15 | 1 | < 24 | < 1700 | < -0.065 |
| TZM5228 | 3.9 | 20 | 0.25 | < 10 | 1 | < 23 | < 1900 | < -0.060 |
| TZM5229 | 4.3 | 20 | 0.25 | < 5 | 1 | < 22 | < 2000 | < ± 0.055 |
| TZM5230 | 4.7 | 20 | 0.25 | < 5 | 2 | < 19 | < 1900 | < ± 0.030 |
| TZM5231 | 5.1 | 20 | 0.25 | < 5 | 2 | < 17 | < 1600 | < ± 0.030 |
| TZM5232 | 5.6 | 20 | 0.25 | < 5 | 3 | < 11 | < 1600 | < +0.038 |
| TZM5233 | 6 | 20 | 0.25 | < 5 | 3.5 | < 7 | < 1600 | < +0.038 |
| TZM5234 | 6.2 | 20 | 0.25 | < 5 | 4 | < 7 | < 1000 | < +0.045 |
| TZM5235 | 6.8 | 20 | 0.25 | < 3 | 5 | < 5 | < 750 | < +0.050 |
| TZM5236 | 7.5 | 20 | 0.25 | < 3 | 6 | < 6 | < 500 | < +0.058 |
| TZM5237 | 8.2 | 20 | 0.25 | < 3 | 6.5 | < 8 | < 500 | < +0.062 |
| TZM5238 | 8.7 | 20 | 0.25 | < 3 | 6.5 | < 8 | < 600 | < +0.065 |
| TZM5239 | 9.1 | 20 | 0.25 | < 3 | 7 | < 10 | < 600 | < +0.068 |
| TZM5240 | 10 | 20 | 0.25 | < 3 | 8 | < 17 | < 600 | < +0.075 |
| TZM5241 | 11 | 20 | 0.25 | < 2 | 8.4 | < 22 | < 600 | < +0.076 |
| TZM5242 | 12 | 20 | 0.25 | < 1 | 9.1 | < 30 | < 600 | < +0.077 |
| TZM5243 | 13 | 9.5 | 0.25 | < 0.5 | 9.9 | < 13 | < 600 | < +0.079 |
| TZM5244 | 14 | 9 | 0.25 | < 0.1 | 10 | < 15 | < 600 | < +0.082 |
| TZM5245 | 15 | 8.5 | 0.25 | < 0.1 | 11 | < 16 | < 600 | < +0.082 |
| TZM5246 | 16 | 7.8 | 0.25 | < 0.1 | 12 | < 17 | < 600 | < +0.083 |
| TZM5247 | 17 | 7.4 | 0.25 | < 0.1 | 13 | < 19 | < 600 | < +0.084 |
| TZM5248 | 18 | 7 | 0.25 | < 0.1 | 14 | < 21 | < 600 | < +0.085 |
| TZM5249 | 19 | 6.6 | 0.25 | < 0.1 | 14 | < 23 | < 600 | < +0.086 |
| TZM5250 | 20 | 6.2 | 0.25 | < 0.1 | 15 | < 25 | < 600 | < +0.086 |
| TZM5251 | 22 | 5.6 | 0.25 | < 0.1 | 17 | < 29 | < 600 | < +0.087 |
| TZM5252 | 24 | 5.2 | 0.25 | < 0.1 | 18 | < 33 | < 600 | < +0.088 |
| TZM5253 | 25 | 5 | 0.25 | < 0.1 | 19 | < 35 | < 600 | < +0.089 |
| TZM5254 | 27 | 4.6 | 0.25 | < 0.1 | 21 | < 41 | < 600 | < +0.090 |
| TZM5255 | 28 | 4.5 | 0.25 | < 0.1 | 21 | < 44 | < 600 | < +0.091 |
| TZM5256 | 30 | 4.2 | 0.25 | < 0.1 | 23 | < 49 | < 600 | < +0.091 |
| TZM5257 | 33 | 3.8 | 0.25 | < 0.1 | 25 | < 58 | < 700 | < +0.092 |
| TZM5258 | 36 | 3.4 | 0.25 | < 0.1 | 27 | < 70 | < 700 | < +0.093 |
| TZM5259 | 39 | 3.2 | 0.25 | < 0.1 | 30 | < 80 | < 800 | < +0.094 |
| TZM5260 | 43 | 3 | 0.25 | < 0.1 | 33 | < 93 | < 900 | < +0.095 |
| TZM5261 | 47 | 2.7 | 0.25 | < 0.1 | 36 | 105 | < 1000 | < +0.095 |
| TZM5262 | 51 | 2.5 | 0.25 | < 0.1 | 39 | 125 | < 1100 | < +0.096 |
| TZM5263 | 56 | 2.2 | 0.25 | < 0.1 | 43 | 150 | < 1300 | < +0.096 |
| TZM5264 | 60 | 2.1 | 0.25 | < 0.1 | 46 | 170 | < 1400 | < +0.097 |
| TZM5265 | 62 | 2 | 0.25 | < 0.1 | 47 | 185 | < 1400 | < +0.097 |
| TZM5266 | 68 | 1.8 | 0.25 | < 0.1 | 52 | 230 | < 1600 | < +0.097 |
| TZM5267 | 75 | 1.7 | 0.25 | < 0.1 | 56 | 270 | < 1700 | < +0.098 |

Note

⁽¹⁾ Based on DC measurement at thermal equilibrium; case temperature maintained at 30 °C ± 2 °C

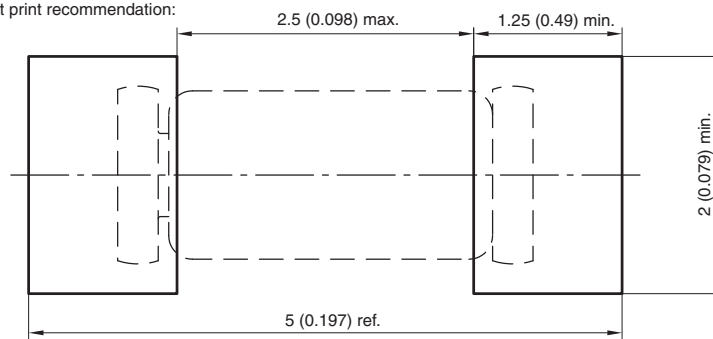


PACKAGE DIMENSIONS in millimeters (inches): MiniMELF SOD-80



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

Foot print recommendation:



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| <u>TZM5245B-GS08</u> | <u>TZM5262B-GS08</u> | <u>TZM5236B-GS08</u> | <u>TZM5246B-GS08</u> | <u>TZM5251B-GS08</u> | <u>TZM5264B-GS08</u> |
| <u>TZM5224B-GS08</u> | <u>TZM5225B-GS08</u> | <u>TZM5254B-GS08</u> | <u>TZM5260B-GS08</u> | <u>TZM5259B-GS08</u> | <u>TZM5255B-GS08</u> |
| <u>TZM5226B-GS08</u> | <u>TZM5239B-GS08</u> | <u>TZM5247B-GS08</u> | <u>TZM5228B-GS08</u> | <u>TZM5243B-GS08</u> | <u>TZM5250B-GS08</u> |
| <u>TZM5229B-GS08</u> | <u>TZM5230B-GS08</u> | <u>TZM5227B-GS08</u> | <u>TZM5263B-GS08</u> | <u>TZM5233B-GS08</u> | <u>TZM5253B-GS08</u> |
| <u>TZM5244B-GS08</u> | <u>TZM5266B-GS08</u> | <u>TZM5231B-GS08</u> | <u>TZM5234B-GS08</u> | <u>TZM5237B-GS08</u> | <u>TZM5240B-GS08</u> |
| <u>TZM5242B-GS08</u> | <u>TZM5248B-GS08</u> | <u>TZM5231B-GS18</u> | <u>TZM5235B-GS08</u> | <u>TZM5265B-GS08</u> | <u>TZM5257B-GS08</u> |
| <u>TZM5238B-GS08</u> | <u>TZM5256B-GS08</u> | <u>TZM5222B-GS08</u> | <u>TZM5267B-GS08</u> | <u>TZM5261B-GS08</u> | <u>TZM5258B-GS08</u> |
| <u>TZM5249B-GS08</u> | <u>TZM5241B-GS08</u> | <u>TZM5223B-GS08</u> | <u>TZM5221B-GS08</u> | <u>TZM5232B-GS08</u> | <u>TZM5252B-GS08</u> |
| <u>TZM5221B-GS18</u> | <u>TZM5222B-GS18</u> | <u>TZM5223B-GS18</u> | <u>TZM5224B-GS18</u> | <u>TZM5225B-GS18</u> | <u>TZM5226B-GS18</u> |
| <u>TZM5227B-GS18</u> | <u>TZM5228B-GS18</u> | <u>TZM5229B-GS18</u> | <u>TZM5230B-GS18</u> | <u>TZM5232B-GS18</u> | <u>TZM5233B-GS18</u> |
| <u>TZM5234B-GS18</u> | <u>TZM5235B-GS18</u> | <u>TZM5236B-GS18</u> | <u>TZM5237B-GS18</u> | <u>TZM5238B-GS18</u> | <u>TZM5239B-GS18</u> |
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| <u>TZM5264B-GS18</u> | <u>TZM5265B-GS18</u> | <u>TZM5266B-GS18</u> | <u>TZM5267B-GS18</u> | | |