

## Small Signal Zener Diodes



### FEATURES

- Very sharp reverse characteristic
- Very high stability
- Electrical data identical with the devices 1N5221B to 1N5267B
- Low reverse current level
- $V_Z$  - tolerance  $\pm 5\%$
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

| 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 |      |
| Int. construction       | Single              |      |

### APPLICATIONS

- Voltage stabilization

| ORDERING INFORMATION |                                  |                                |                        |
|----------------------|----------------------------------|--------------------------------|------------------------|
| DEVICE NAME          | ORDERING CODE                    | TAPED UNITS PER REEL           | MINIMUM ORDER QUANTITY |
| TZM5521B to TZM5267B | TZM5521B to TZM5267B-series-GS18 | 10 000 (8 mm tape on 13" reel) | 10 000/box             |
| TZM5521B to TZM5267B | TZM5521B to TZM5267B-series-GS08 | 2500 (8 mm tape on 7" reel)    | 12 500/box             |

| 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 ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified) |                                    |            |               |      |
|---|------------------------------------|------------|---------------|------|
| PARAMETER   | TEST CONDITION                     | SYMBOL     | VALUE         | UNIT |
| Power dissipation   | $R_{thJA} = < 300\text{ K/W}$      | $P_{tot}$  | 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.)  | $I_F = 200\text{ mA}$              | $V_F$      | 1.1           | V    |



| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                                    |                  |                  |                                  |     |                                    |                                     |                         |
|---|------------------------------------|------------------|------------------|----------------------------------|-----|------------------------------------|-------------------------------------|-------------------------|
| PART NUMBER   | ZENER VOLTAGE RANGE <sup>(1)</sup> | TEST CURRENT     |                  | REVERSE LEAKAGE CURRENT          |     | DYNAMIC RESISTANCE                 |                                     | TEMPERATURE COEFFICIENT |
|   | 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> | TK <sub>VZ</sub>        |
|   | V                                  | mA               |                  | µA                               | V   | Ω                                  |                                     |                         |
|   | NOM.                               |                  |                  |                                  |     | TYP.                               | TYP.                                |                         |
| TZM5221B  | 2.4                                | 20               | 0.25             | < 100                            | 1   | < 30                               | < 1200                              | < - 0.085               |
| TZM5222B  | 2.5                                | 20               | 0.25             | < 100                            | 1   | < 30                               | < 1250                              | < - 0.085               |
| TZM5223B  | 2.7                                | 20               | 0.25             | < 75                             | 1   | < 30                               | < 1300                              | < - 0.080               |
| TZM5224B  | 2.8                                | 20               | 0.25             | < 75                             | 1   | < 30                               | < 1400                              | < - 0.080               |
| TZM5225B  | 3                                  | 20               | 0.25             | < 50                             | 1   | < 29                               | < 1600                              | < - 0.075               |
| TZM5226B  | 3.3                                | 20               | 0.25             | < 25                             | 1   | < 28                               | < 1600                              | < - 0.070               |
| TZM5227B  | 3.6                                | 20               | 0.25             | < 15                             | 1   | < 24                               | < 1700                              | < - 0.065               |
| TZM5228B  | 3.9                                | 20               | 0.25             | < 10                             | 1   | < 23                               | < 1900                              | < - 0.060               |
| TZM5229B  | 4.3                                | 20               | 0.25             | < 5                              | 1   | < 22                               | < 2000                              | < ± 0.055               |
| TZM5230B  | 4.7                                | 20               | 0.25             | < 5                              | 2   | < 19                               | < 1900                              | < ± 0.030               |
| TZM5231B  | 5.1                                | 20               | 0.25             | < 5                              | 2   | < 17                               | < 1600                              | < ± 0.030               |
| TZM5232B  | 5.6                                | 20               | 0.25             | < 5                              | 3   | < 11                               | < 1600                              | < + 0.038               |
| TZM5233B  | 6                                  | 20               | 0.25             | < 5                              | 3.5 | < 7                                | < 1600                              | < + 0.038               |
| TZM5234B  | 6.2                                | 20               | 0.25             | < 5                              | 4   | < 7                                | < 1000                              | < + 0.045               |
| TZM5235B  | 6.8                                | 20               | 0.25             | < 3                              | 5   | < 5                                | < 750                               | < + 0.050               |
| TZM5236B  | 7.5                                | 20               | 0.25             | < 3                              | 6   | < 6                                | < 500                               | < + 0.058               |
| TZM5237B  | 8.2                                | 20               | 0.25             | < 3                              | 6.5 | < 8                                | < 500                               | < + 0.062               |
| TZM5238B  | 8.7                                | 20               | 0.25             | < 3                              | 6.5 | < 8                                | < 600                               | < + 0.065               |
| TZM5239B  | 9.1                                | 20               | 0.25             | < 3                              | 7   | < 10                               | < 600                               | < + 0.068               |
| TZM5240B  | 10                                 | 20               | 0.25             | < 3                              | 8   | < 17                               | < 600                               | < + 0.075               |
| TZM5241B  | 11                                 | 20               | 0.25             | < 2                              | 8.4 | < 22                               | < 600                               | < + 0.076               |
| TZM5242B  | 12                                 | 20               | 0.25             | < 1                              | 9.1 | < 30                               | < 600                               | < + 0.077               |
| TZM5243B  | 13                                 | 9.5              | 0.25             | < 0.5                            | 9.9 | < 13                               | < 600                               | < + 0.079               |
| TZM5244B  | 14                                 | 9                | 0.25             | < 0.1                            | 10  | < 15                               | < 600                               | < + 0.082               |
| TZM5245B  | 15                                 | 8.5              | 0.25             | < 0.1                            | 11  | < 16                               | < 600                               | < + 0.082               |
| TZM5246B  | 16                                 | 7.8              | 0.25             | < 0.1                            | 12  | < 17                               | < 600                               | < + 0.083               |
| TZM5247B  | 17                                 | 7.4              | 0.25             | < 0.1                            | 13  | < 19                               | < 600                               | < + 0.084               |
| TZM5248B  | 18                                 | 7                | 0.25             | < 0.1                            | 14  | < 21                               | < 600                               | < + 0.085               |
| TZM5249B  | 19                                 | 6.6              | 0.25             | < 0.1                            | 14  | < 23                               | < 600                               | < + 0.086               |
| TZM5250B  | 20                                 | 6.2              | 0.25             | < 0.1                            | 15  | < 25                               | < 600                               | < + 0.086               |
| TZM5251B  | 22                                 | 5.6              | 0.25             | < 0.1                            | 17  | < 29                               | < 600                               | < + 0.087               |
| TZM5252B  | 24                                 | 5.2              | 0.25             | < 0.1                            | 18  | < 33                               | < 600                               | < + 0.088               |
| TZM5253B  | 25                                 | 5                | 0.25             | < 0.1                            | 19  | < 35                               | < 600                               | < + 0.089               |
| TZM5254B  | 27                                 | 4.6              | 0.25             | < 0.1                            | 21  | < 41                               | < 600                               | < + 0.090               |
| TZM5255B  | 28                                 | 4.5              | 0.25             | < 0.1                            | 21  | < 44                               | < 600                               | < + 0.091               |
| TZM5256B  | 30                                 | 4.2              | 0.25             | < 0.1                            | 23  | < 49                               | < 600                               | < + 0.091               |
| TZM5257B  | 33                                 | 3.8              | 0.25             | < 0.1                            | 25  | < 58                               | < 700                               | < + 0.092               |
| TZM5258B  | 36                                 | 3.4              | 0.25             | < 0.1                            | 27  | < 70                               | < 700                               | < + 0.093               |
| TZM5259B  | 39                                 | 3.2              | 0.25             | < 0.1                            | 30  | < 80                               | < 800                               | < + 0.094               |
| TZM5260B  | 43                                 | 3                | 0.25             | < 0.1                            | 33  | < 93                               | < 900                               | < + 0.095               |
| TZM5261B  | 47                                 | 2.7              | 0.25             | < 0.1                            | 36  | 105                                | < 1000                              | < + 0.095               |
| TZM5262B  | 51                                 | 2.5              | 0.25             | < 0.1                            | 39  | 125                                | < 1100                              | < + 0.096               |
| TZM5263B  | 56                                 | 2.2              | 0.25             | < 0.1                            | 43  | 150                                | < 1300                              | < + 0.096               |
| TZM5264B  | 60                                 | 2.1              | 0.25             | < 0.1                            | 46  | 170                                | < 1400                              | < + 0.097               |
| TZM5265B  | 62                                 | 2                | 0.25             | < 0.1                            | 47  | 185                                | < 1400                              | < + 0.097               |
| TZM5266B  | 68                                 | 1.8              | 0.25             | < 0.1                            | 52  | 230                                | < 1600                              | < + 0.097               |
| TZM5267B  | 75                                 | 1.7              | 0.25             | < 0.1                            | 56  | 270                                | < 1700                              | < + 0.098               |

**Note**

<sup>(1)</sup> 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



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