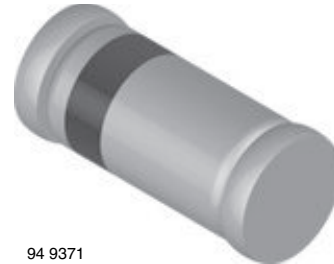


## Small Signal Zener Diodes

### 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



94 9371

### Applications

- Voltage stabilization

### Mechanical Data

**Case:** MiniMELF SOD-80

**Weight:** approx. 31 mg

**Packaging codes/ options:**

GS18 / 10 k per 13" reel (8 mm tape), 10 k/box

GS08 / 2.5 k per 7" reel (8 mm tape), 12.5 k/box

### Absolute Maximum Ratings

$T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified

| Parameter                 | Test condition              | Symbol    | Value         | Unit             |
|---------------------------|-----------------------------|-----------|---------------|------------------|
| Power dissipation         | $R_{thJA} < 300\text{ K/W}$ | $P_{tot}$ | 500           | mW               |
| Z-current                 |                             | $I_Z$     | $P_{tot}/V_Z$ | mA               |
| Junction temperature      |                             | $T_j$     | 175           | $^\circ\text{C}$ |
| Storage temperature range |                             | $T_{stg}$ | - 65 to + 175 | $^\circ\text{C}$ |

### Thermal Characteristics

$T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified

| Parameter               | Test condition                     | Symbol     | Value | Unit |
|-------------------------|------------------------------------|------------|-------|------|
| Junction to ambient air | On PC board 50 mm x 50 mm x 1.6 mm | $R_{thJA}$ | 500   | K/W  |

### Electrical Characteristics

$T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified

| Parameter       | Test condition        | Symbol | Min. | Typ. | Max. | Unit |
|-----------------|-----------------------|--------|------|------|------|------|
| Forward voltage | $I_F = 200\text{ mA}$ | $V_F$  |      |      | 1.1  | V    |

# TZM5221B to TZM5267B



Vishay Semiconductors

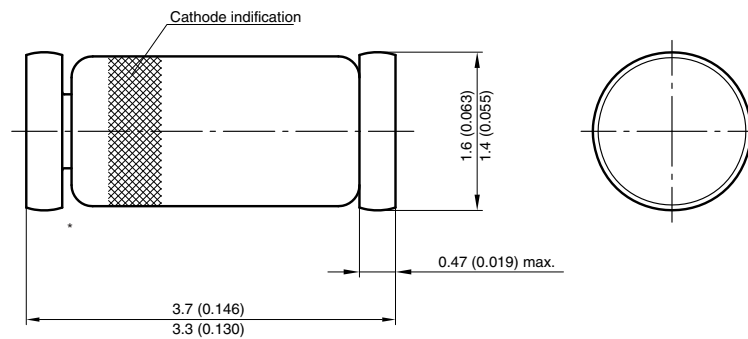
## Electrical Characteristics

| Part number | Zener voltage range <sup>1)</sup> | Dynamic resistance                 |                                    | Test current    |                 | Reverse leakage current          |     | Temperature coefficient |
|-------------|-----------------------------------|------------------------------------|------------------------------------|-----------------|-----------------|----------------------------------|-----|-------------------------|
|             | V <sub>Z</sub>                    | r <sub>zT</sub> at I <sub>ZT</sub> | r <sub>zK</sub> at I <sub>ZK</sub> | I <sub>ZT</sub> | I <sub>ZK</sub> | I <sub>R</sub> at V <sub>R</sub> |     | TK <sub>VZ</sub>        |
|             | V                                 | Ω                                  | Ω                                  | mA              | mA              | μA                               | V   | %/K                     |
|             | typ.                              | typ.                               | typ.                               |                 |                 |                                  |     |                         |
| TZM5221B    | 2.4                               | < 30                               | < 1200                             | 20              | 0.25            | < 100                            | 1   | < - 0.085               |
| TZM5222B    | 2.5                               | < 30                               | < 1250                             | 20              | 0.25            | < 100                            | 1   | < - 0.085               |
| TZM5223B    | 2.7                               | < 30                               | < 1300                             | 20              | 0.25            | < 75                             | 1   | < - 0.080               |
| TZM5224B    | 2.8                               | < 30                               | < 1400                             | 20              | 0.25            | < 75                             | 1   | < - 0.080               |
| TZM5225B    | 3                                 | < 29                               | < 1600                             | 20              | 0.25            | < 50                             | 1   | < - 0.075               |
| TZM5226B    | 3.3                               | < 28                               | < 1600                             | 20              | 0.25            | < 25                             | 1   | < - 0.070               |
| TZM5227B    | 3.6                               | < 24                               | < 1700                             | 20              | 0.25            | < 15                             | 1   | < - 0.065               |
| TZM5228B    | 3.9                               | < 23                               | < 1900                             | 20              | 0.25            | < 10                             | 1   | < - 0.060               |
| TZM5229B    | 4.3                               | < 22                               | < 2000                             | 20              | 0.25            | < 5                              | 1   | < ± 0.055               |
| TZM5230B    | 4.7                               | < 19                               | < 1900                             | 20              | 0.25            | < 5                              | 2   | < ± 0.030               |
| TZM5231B    | 5.1                               | < 17                               | < 1600                             | 20              | 0.25            | < 5                              | 2   | < ± 0.030               |
| TZM5232B    | 5.6                               | < 11                               | < 1600                             | 20              | 0.25            | < 5                              | 3   | < + 0.038               |
| TZM5233B    | 6                                 | < 7                                | < 1600                             | 20              | 0.25            | < 5                              | 3.5 | < + 0.038               |
| TZM5234B    | 6.2                               | < 7                                | < 1000                             | 20              | 0.25            | < 5                              | 4   | < + 0.045               |
| TZM5235B    | 6.8                               | < 5                                | < 750                              | 20              | 0.25            | < 3                              | 5   | < + 0.050               |
| TZM5236B    | 7.5                               | < 6                                | < 500                              | 20              | 0.25            | < 3                              | 6   | < + 0.058               |
| TZM5237B    | 8.2                               | < 8                                | < 500                              | 20              | 0.25            | < 3                              | 6.5 | < + 0.062               |
| TZM5238B    | 8.7                               | < 8                                | < 600                              | 20              | 0.25            | < 3                              | 6.5 | < + 0.065               |
| TZM5239B    | 9.1                               | < 10                               | < 600                              | 20              | 0.25            | < 3                              | 7   | < + 0.068               |
| TZM5240B    | 10                                | < 17                               | < 600                              | 20              | 0.25            | < 3                              | 8   | < + 0.075               |
| TZM5241B    | 11                                | < 22                               | < 600                              | 20              | 0.25            | < 2                              | 8.4 | < + 0.076               |
| TZM5242B    | 12                                | < 30                               | < 600                              | 20              | 0.25            | < 1                              | 9.1 | < + 0.077               |
| TZM5243B    | 13                                | < 13                               | < 600                              | 9.5             | 0.25            | < 0.5                            | 9.9 | < + 0.079               |
| TZM5244B    | 14                                | < 15                               | < 600                              | 9               | 0.25            | < 0.1                            | 10  | < + 0.082               |
| TZM5245B    | 15                                | < 16                               | < 600                              | 8.5             | 0.25            | < 0.1                            | 11  | < + 0.082               |
| TZM5246B    | 16                                | < 17                               | < 600                              | 7.8             | 0.25            | < 0.1                            | 12  | < + 0.083               |
| TZM5247B    | 17                                | < 19                               | < 600                              | 7.4             | 0.25            | < 0.1                            | 13  | < + 0.084               |
| TZM5248B    | 18                                | < 21                               | < 600                              | 7               | 0.25            | < 0.1                            | 14  | < + 0.085               |
| TZM5249B    | 19                                | < 23                               | < 600                              | 6.6             | 0.25            | < 0.1                            | 14  | < + 0.086               |
| TZM5250B    | 20                                | < 25                               | < 600                              | 6.2             | 0.25            | < 0.1                            | 15  | < + 0.086               |
| TZM5251B    | 22                                | < 29                               | < 600                              | 5.6             | 0.25            | < 0.1                            | 17  | < + 0.087               |
| TZM5252B    | 24                                | < 33                               | < 600                              | 5.2             | 0.25            | < 0.1                            | 18  | < + 0.088               |
| TZM5253B    | 25                                | < 35                               | < 600                              | 5               | 0.25            | < 0.1                            | 19  | < + 0.089               |
| TZM5254B    | 27                                | < 41                               | < 600                              | 4.6             | 0.25            | < 0.1                            | 21  | < + 0.090               |
| TZM5255B    | 28                                | < 44                               | < 600                              | 4.5             | 0.25            | < 0.1                            | 21  | < + 0.091               |
| TZM5256B    | 30                                | < 49                               | < 600                              | 4.2             | 0.25            | < 0.1                            | 23  | < + 0.091               |
| TZM5257B    | 33                                | < 58                               | < 700                              | 3.8             | 0.25            | < 0.1                            | 25  | < + 0.092               |
| TZM5258B    | 36                                | < 70                               | < 700                              | 3.4             | 0.25            | < 0.1                            | 27  | < + 0.093               |
| TZM5259B    | 39                                | < 80                               | < 800                              | 3.2             | 0.25            | < 0.1                            | 30  | < + 0.094               |
| TZM5260B    | 43                                | < 93                               | < 900                              | 3               | 0.25            | < 0.1                            | 33  | < + 0.095               |
| TZM5261B    | 47                                | 105                                | < 1000                             | 2.7             | 0.25            | < 0.1                            | 36  | < + 0.095               |
| TZM5262B    | 51                                | 125                                | < 1100                             | 2.5             | 0.25            | < 0.1                            | 39  | < + 0.096               |
| TZM5263B    | 56                                | 150                                | < 1300                             | 2.2             | 0.25            | < 0.1                            | 43  | < + 0.096               |
| TZM5264B    | 60                                | 170                                | < 1400                             | 2.1             | 0.25            | < 0.1                            | 46  | < + 0.097               |

| Part number | Zener voltage range <sup>1)</sup> | Dynamic resistance    |                       | Test current |          | Reverse leakage current |    | Temperature coefficient |
|-------------|-----------------------------------|-----------------------|-----------------------|--------------|----------|-------------------------|----|-------------------------|
|             | $V_Z$                             | $r_{zjT}$ at $I_{ZT}$ | $r_{zjK}$ at $I_{ZK}$ | $I_{ZT}$     | $I_{ZK}$ | $I_R$ at $V_R$          |    | $TK_{VZ}$               |
|             | V                                 | $\Omega$              | $\Omega$              | mA           | mA       | $\mu A$                 | V  | %/K                     |
|             | typ.                              | typ.                  | typ.                  |              |          |                         |    |                         |
| TZM5265B    | 62                                | 185                   | < 1400                | 2            | 0.25     | < 0.1                   | 47 | < + 0.097               |
| TZM5266B    | 68                                | 230                   | < 1600                | 1.8          | 0.25     | < 0.1                   | 52 | < + 0.097               |
| TZM5267B    | 75                                | 270                   | < 1700                | 1.7          | 0.25     | < 0.1                   | 56 | < + 0.098               |

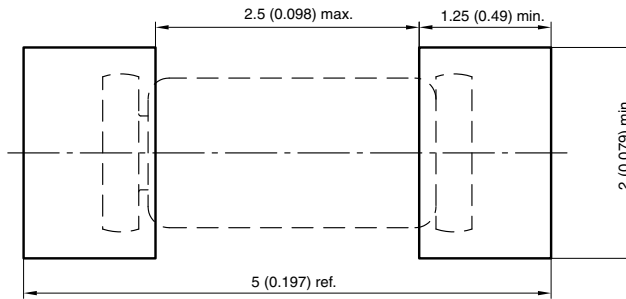
<sup>1)</sup> Based on dc-measurement at thermal equilibrium; case temperature maintained at  $30\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$ .

## 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:



Document no.: 6.560-5005.01-4  
 Rev. 8 - Date: 07.June.2006  
 96 12070



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