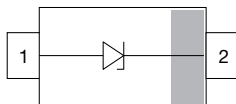
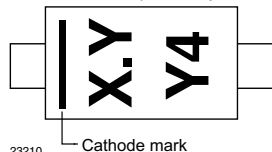


## Small Signal Zener Diodes



### MARKING (example only)



X.Y = type code  
Y4 = date code

23210

Cathode mark

### LINKS TO ADDITIONAL RESOURCES



### FEATURES

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is  $\pm 5\%$  with a "B" suffix (e.g.: MMSZ5225B), suffix "C" is  $\pm 2\%$  tolerance
- AEC-Q101 qualified available
- ESD capability according to AEC-Q101:  
Human body model  $> 8\text{ kV}$   
Machine model  $> 800\text{ V}$
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3\_A - RoHS-compliant, 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.      | 3.0 to 75           | V    |
| Test current $I_{ZT}$ | 1.7 to 20           | mA   |
| $V_Z$ specification   | Thermal equilibrium |      |
| Circuit configuration | Single              |      |

### ORDERING INFORMATION

| DEVICE NAME          | ORDERING CODE                            | ZENER VOLTAGE TOLERANCE | AEC-Q101 QUALIFIED | TAPED UNITS PER REEL              | MINIMUM ORDER QUANTITY |
|----------------------|------------------------------------------|-------------------------|--------------------|-----------------------------------|------------------------|
| MMSZ5225 to MMSZ5267 | MMSZ5225B-E3-08 to MMSZ5267B-E3-08       | 5 %                     | no                 | 3000<br>(8 mm tape on 7" reel)    | 15 000/box             |
|                      | MMSZ5225C-E3-08 to MMSZ5267C-E3-08       | 2 %                     | no                 |                                   |                        |
|                      | MMSZ5225B-HE3_A-08 to MMSZ5267B-HE3_A-08 | 5 %                     | yes                |                                   |                        |
|                      | MMSZ5225C-HE3_A-08 to MMSZ5267C-HE3_A-08 | 2 %                     | yes                |                                   |                        |
|                      | MMSZ5225B-E3-18 to MMSZ5267B-E3-18       | 5 %                     | no                 | 10 000<br>(8 mm tape on 13" reel) | 10 000/box             |
|                      | MMSZ5225C-E3-18 to MMSZ5267C-E3-18       | 2 %                     | no                 |                                   |                        |
|                      | MMSZ5225B-HE3_A-18 to MMSZ5267B-HE3_A-18 | 5 %                     | yes                |                                   |                        |
|                      | MMSZ5225C-HE3_A-18 to MMSZ5267C-HE3_A-18 | 2 %                     | yes                |                                   |                        |

### PACKAGE

| PACKAGE NAME | WEIGHT  | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL           | SOLDERING CONDITIONS         |
|--------------|---------|--------------------------------------|--------------------------------------|------------------------------|
| SOD-123      | 10.6 mg | UL 94 V-0                            | MSL level 1<br>(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                      | $R_{thJL} = 250\text{ K/W}$                                                 | $P_{tot}$  | 500         | mW   |
|                                        | On FR-4 board with recommended soldering footprint                          | $P_{tot}$  | 300         | mW   |
| Thermal resistance junction to lead    |                                                                             | $R_{thJL}$ | 250         | K/W  |
| Thermal resistance junction to ambient | According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint | $R_{thJA}$ | 420         | K/W  |
| Junction temperature                   |                                                                             | $T_j$      | 150         | °C   |
| Storage temperature range              |                                                                             | $T_{stg}$  | -65 to +150 |      |
| Operating temperature range            |                                                                             | $T_{op}$   | -55 to +150 |      |

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

| PART NUMBER | MARKING CODE |           | ZENER VOLTAGE RANGE <sup>(1)</sup> | 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 $I_{ZT2}$ | $\alpha_{VZ}$           |
|             |              |           | V                                  | mA           |           | $\mu\text{A}$           | V   | $\Omega$           |                       | %/ $^{\circ}\text{C}$   |
|             | $\pm 2\%$    | $\pm 5\%$ | NOM.                               |              |           | MAX.                    |     | MAX.               | MAX.                  | TYP.                    |
| MMSZ5225    | C.0          | C0        | 3                                  | 20           | 0.25      | 50                      | 1   | 30                 | 1600                  | -0.06                   |
| MMSZ5226    | D.6          | D6        | 3.3                                | 20           | 0.25      | 25                      | 1   | 28                 | 1600                  | -0.057                  |
| MMSZ5227    | D.7          | D7        | 3.6                                | 20           | 0.25      | 15                      | 1   | 24                 | 1700                  | -0.056                  |
| MMSZ5228    | D.8          | D8        | 3.9                                | 20           | 0.25      | 10                      | 1   | 23                 | 1900                  | -0.045                  |
| MMSZ5229    | D.9          | D9        | 4.3                                | 20           | 0.25      | 5                       | 1   | 22                 | 2000                  | -0.029                  |
| MMSZ5230    | D.0          | D0        | 4.7                                | 20           | 0.25      | 5                       | 2   | 19                 | 1900                  | 0.00                    |
| MMSZ5231    | E.6          | E6        | 5.1                                | 20           | 0.25      | 5                       | 2   | 17                 | 1600                  | 0.00                    |
| MMSZ5232    | E.7          | E7        | 5.6                                | 20           | 0.25      | 5                       | 3   | 11                 | 1600                  | 0.032                   |
| MMSZ5233    | E.8          | E8        | 6                                  | 20           | 0.25      | 5                       | 3.5 | 7                  | 1600                  | 0.035                   |
| MMSZ5234    | E.9          | E9        | 6.2                                | 20           | 0.25      | 5                       | 4   | 7                  | 1000                  | 0.039                   |
| MMSZ5235    | E.0          | E0        | 6.8                                | 20           | 0.25      | 3                       | 5   | 5                  | 750                   | 0.045                   |
| MMSZ5236    | F.6          | F6        | 7.5                                | 20           | 0.25      | 3                       | 6   | 6                  | 500                   | 0.052                   |
| MMSZ5237    | F.7          | F7        | 8.2                                | 20           | 0.25      | 3                       | 6.5 | 8                  | 500                   | 0.056                   |
| MMSZ5238    | F.8          | F8        | 8.7                                | 20           | 0.25      | 3                       | 6.5 | 8                  | 600                   | 0.058                   |
| MMSZ5239    | F.9          | F9        | 9.1                                | 20           | 0.25      | 3                       | 7   | 10                 | 600                   | 0.060                   |
| MMSZ5240    | F.0          | F0        | 10                                 | 20           | 0.25      | 3                       | 8   | 17                 | 600                   | 0.064                   |
| MMSZ5241    | H.6          | H6        | 11                                 | 20           | 0.25      | 2                       | 8.4 | 22                 | 600                   | 0.067                   |
| MMSZ5242    | H.7          | H7        | 12                                 | 20           | 0.25      | 1                       | 9.1 | 30                 | 600                   | 0.070                   |
| MMSZ5243    | H.8          | H8        | 13                                 | 9.5          | 0.25      | 0.5                     | 9.9 | 13                 | 600                   | 0.073                   |
| MMSZ5244    | H.9          | H9        | 14                                 | 9            | 0.25      | 0.1                     | 10  | 15                 | 600                   | 0.076                   |
| MMSZ5245    | H.0          | H0        | 15                                 | 8.5          | 0.25      | 0.1                     | 11  | 16                 | 600                   | 0.078                   |
| MMSZ5246    | J.6          | J6        | 16                                 | 7.8          | 0.25      | 0.1                     | 12  | 17                 | 600                   | 0.080                   |
| MMSZ5247    | J.7          | J7        | 17                                 | 7.4          | 0.25      | 0.1                     | 13  | 19                 | 600                   | 0.081                   |
| MMSZ5248    | J.8          | J8        | 18                                 | 7            | 0.25      | 0.1                     | 14  | 21                 | 600                   | 0.082                   |
| MMSZ5249    | J.9          | J9        | 19                                 | 6.6          | 0.25      | 0.1                     | 14  | 23                 | 600                   | 0.083                   |
| MMSZ5250    | J.0          | J0        | 20                                 | 6.2          | 0.25      | 0.1                     | 15  | 25                 | 600                   | 0.084                   |
| MMSZ5251    | K.6          | K6        | 22                                 | 5.6          | 0.25      | 0.1                     | 17  | 29                 | 600                   | 0.085                   |
| MMSZ5252    | K.7          | K7        | 24                                 | 5.2          | 0.25      | 0.1                     | 18  | 33                 | 600                   | 0.087                   |
| MMSZ5253    | K.8          | K8        | 25                                 | 5            | 0.25      | 0.1                     | 19  | 35                 | 600                   | 0.088                   |
| MMSZ5254    | K.9          | K9        | 27                                 | 4.6          | 0.25      | 0.1                     | 21  | 41                 | 600                   | 0.09                    |
| MMSZ5255    | K.0          | K0        | 28                                 | 4.5          | 0.25      | 0.1                     | 21  | 44                 | 600                   | 0.091                   |
| MMSZ5256    | M.6          | M6        | 30                                 | 4.2          | 0.25      | 0.1                     | 23  | 49                 | 600                   | 0.092                   |
| MMSZ5257    | M.7          | M7        | 33                                 | 3.8          | 0.25      | 0.1                     | 25  | 58                 | 700                   | 0.092                   |
| MMSZ5258    | M.8          | M8        | 36                                 | 3.4          | 0.25      | 0.1                     | 27  | 70                 | 700                   | 0.093                   |
| MMSZ5259    | M.9          | M9        | 39                                 | 3.2          | 0.25      | 0.1                     | 30  | 80                 | 800                   | 0.094                   |
| MMSZ5260    | M.0          | M0        | 43                                 | 3            | 0.25      | 0.1                     | 33  | 93                 | 900                   | 0.095                   |
| MMSZ5261    | N.6          | N6        | 47                                 | 2.7          | 0.25      | 0.1                     | 36  | 105                | 1000                  | 0.095                   |
| MMSZ5262    | N.7          | N7        | 51                                 | 2.5          | 0.25      | 0.1                     | 39  | 125                | 1100                  | 0.096                   |
| MMSZ5263    | N.8          | N8        | 56                                 | 2.2          | 0.25      | 0.1                     | 43  | 150                | 1300                  | 0.096                   |
| MMSZ5264    | N.9          | N9        | 60                                 | 2.1          | 0.25      | 0.1                     | 46  | 170                | 1400                  | 0.097                   |
| MMSZ5265    | N.0          | N0        | 62                                 | 2            | 0.25      | 0.1                     | 47  | 185                | 1400                  | 0.097                   |
| MMSZ5266    | P.6          | P6        | 68                                 | 1.8          | 0.25      | 0.1                     | 52  | 230                | 1600                  | 0.097                   |
| MMSZ5267    | P.7          | P7        | 75                                 | 1.7          | 0.25      | 0.1                     | 56  | 270                | 1700                  | 0.098                   |

**Notes**

- Maximum  $V_F = 0.9\text{ V}$ , at  $I_F = 10\text{ mA}$

<sup>(1)</sup> Measured with device junction in thermal equilibrium with typ.  $R_{thJA}$  of 370 K/W



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

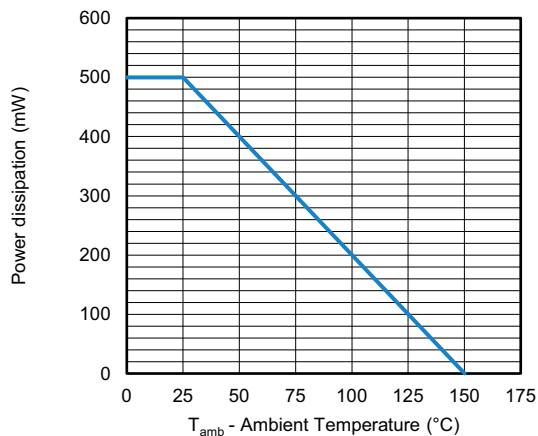


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

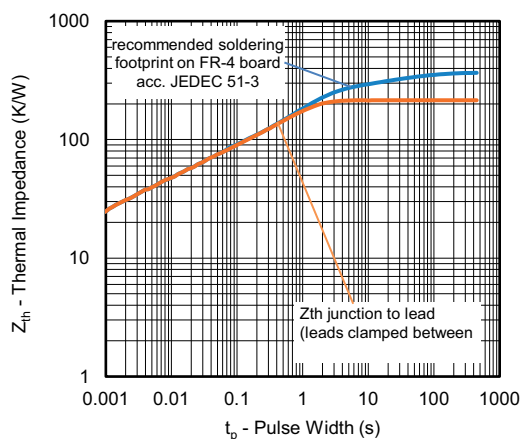
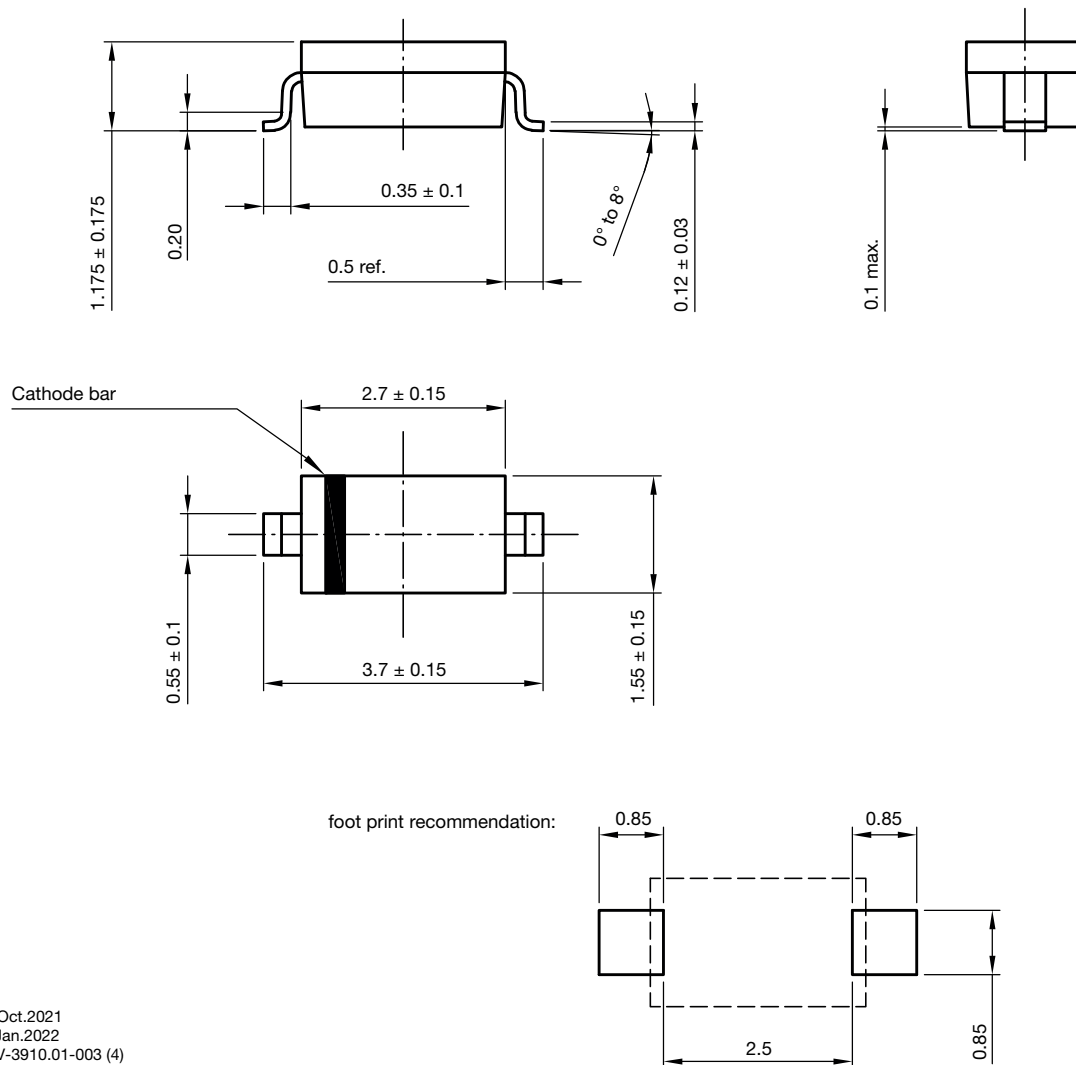


Fig. 2 - Thermal Impedance vs. Time



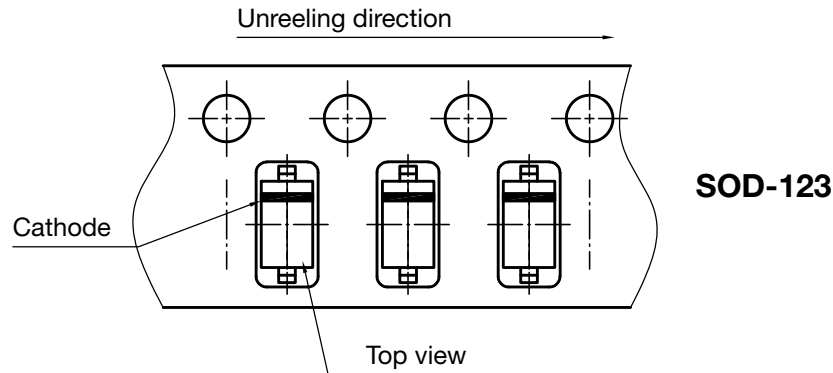
**PACKAGE DIMENSIONS** in millimeters (inches): **SOD-123**



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Document no.: S8-V-3910.01-003 (4)



## ORIENTATION IN CARRIER TAPE

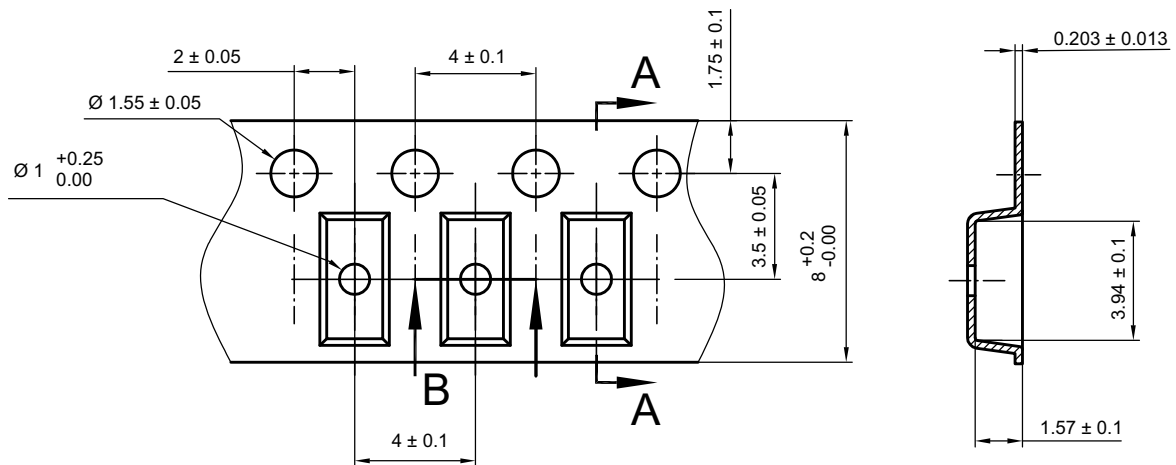


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## CARRIER TAPE



Created - Date: 07. Feb. 2013

Rev. 01 - Date: 01. Mar. 2014

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