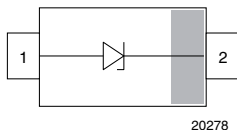
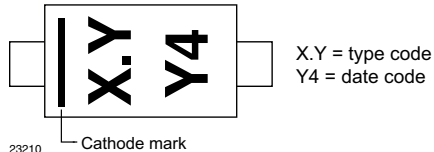


## Small Signal Zener Diodes



### MARKING (example only)



### FEATURES

- Silicon planar Zener diodes
- Standard Zener voltage tolerance is  $\pm 5\%$
- AEC-Q101 qualified available (part number on request)
- ESD capability according to AEC-Q101:  
Human body model > 8 kV  
Machine model > 800 V
- Base P/N-G3 - green, commercial grade
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### LINKS TO ADDITIONAL RESOURCES



### PRIMARY CHARACTERISTICS

| PARAMETER             | VALUE               | UNIT |
|-----------------------|---------------------|------|
| $V_Z$ range nom.      | 2.4 to 43           | V    |
| Test current $I_{ZT}$ | 0.05                | mA   |
| $V_Z$ specification   | Thermal equilibrium |      |
| Circuit configuration | Single              |      |

### ORDERING INFORMATION

| DEVICE NAME          | ORDERING CODE                    | TAPED UNITS PER REEL              | MINIMUM ORDER QUANTITY |
|----------------------|----------------------------------|-----------------------------------|------------------------|
| MMSZ4681 to MMSZ4717 | MMSZ4681-G3-08 to MMSZ4717-G3-08 | 3000<br>(8 mm tape on 7" reel)    | 15 000/box             |
|                      | MMSZ4681-G3-18 to MMSZ4717-G3-18 | 10 000<br>(8 mm tape on 13" reel) | 10 000/box             |

### 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                      | $R_{thJA} = 250\text{ K/W}$                                                 | $P_{tot}$  | 500         | mW   |
|                                        | On FR-4 board with recommended soldering footprint                          | $P_{tot}$  | 300         | mW   |
| Thermal resistance junction to lead    |                                                                             | $R_{thJA}$ | 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 CURRENT |      |
|-------------|--------------|------------------------------------|------|------|--------------|-----------------|------|
|             |              | $V_Z$ at $I_{ZT1}$                 |      |      | $I_{ZT1}$    | $I_R$ at $V_R$  |      |
|             |              | V                                  |      |      | mA           | $\mu\text{A}$   | V    |
|             |              | MIN.                               | NOM. | max. |              | MAX.            |      |
| MMSZ4681-G  | TF           | 2.28                               | 2.4  | 2.52 | 0.05         | 2               | 1    |
| MMSZ4682-G  | TH           | 2.57                               | 2.7  | 2.84 | 0.05         | 1               | 1    |
| MMSZ4683-G  | TJ           | 2.85                               | 3    | 3.15 | 0.05         | 0.8             | 1    |
| MMSZ4684-G  | TK           | 3.14                               | 3.3  | 3.47 | 0.05         | 7.5             | 1.5  |
| MMSZ4685-G  | TM           | 3.42                               | 3.6  | 3.78 | 0.05         | 7.5             | 2    |
| MMSZ4686-G  | TN           | 3.71                               | 3.9  | 4.1  | 0.05         | 5               | 2    |
| MMSZ4687-G  | TP           | 4.09                               | 4.3  | 4.52 | 0.05         | 4               | 2    |
| MMSZ4688-G  | TT           | 4.47                               | 4.7  | 4.94 | 0.05         | 10              | 3    |
| MMSZ4689-G  | TU           | 4.85                               | 5.1  | 5.36 | 0.05         | 10              | 3    |
| MMSZ4690-G  | TV           | 5.32                               | 5.6  | 5.88 | 0.05         | 10              | 4    |
| MMSZ4691-G  | TA           | 5.89                               | 6.2  | 6.51 | 0.05         | 10              | 5    |
| MMSZ4692-G  | TX           | 6.46                               | 6.8  | 7.14 | 0.05         | 10              | 5.1  |
| MMSZ4693-G  | TY           | 7.13                               | 7.5  | 7.88 | 0.05         | 10              | 5.7  |
| MMSZ4694-G  | TZ           | 7.79                               | 8.2  | 8.61 | 0.05         | 1               | 6.2  |
| MMSZ4695-G  | UC           | 8.27                               | 8.7  | 9.14 | 0.05         | 1               | 6.6  |
| MMSZ4696-G  | UD           | 8.65                               | 9.1  | 9.56 | 0.05         | 1               | 6.9  |
| MMSZ4697-G  | UE           | 9.5                                | 10   | 10.5 | 0.05         | 1               | 7.6  |
| MMSZ4698-G  | UF           | 10.5                               | 11   | 11.6 | 0.05         | 0.05            | 8.4  |
| MMSZ4699-G  | UH           | 11.4                               | 12   | 12.6 | 0.05         | 0.05            | 9.1  |
| MMSZ4700-G  | UJ           | 12.4                               | 13   | 13.7 | 0.05         | 0.05            | 9.8  |
| MMSZ4701-G  | UK           | 13.3                               | 14   | 14.7 | 0.05         | 0.05            | 10.6 |
| MMSZ4702-G  | UM           | 14.3                               | 15   | 15.8 | 0.05         | 0.05            | 11.4 |
| MMSZ4703-G  | UN           | 15.2                               | 16   | 16.8 | 0.05         | 0.05            | 12.1 |
| MMSZ4704-G  | UP           | 16.2                               | 17   | 17.9 | 0.05         | 0.05            | 12.9 |
| MMSZ4705-G  | UT           | 17.1                               | 18   | 18.9 | 0.05         | 0.05            | 13.6 |
| MMSZ4706-G  | UU           | 18.1                               | 19   | 20   | 0.05         | 0.05            | 14.4 |
| MMSZ4707-G  | UV           | 19                                 | 20   | 21   | 0.05         | 0.01            | 15.2 |
| MMSZ4708-G  | UA           | 20.9                               | 22   | 23.1 | 0.05         | 0.01            | 16.7 |
| MMSZ4709-G  | UZ           | 22.8                               | 24   | 25.2 | 0.05         | 0.01            | 18.2 |
| MMSZ4710-G  | UY           | 23.8                               | 25   | 26.3 | 0.05         | 0.01            | 19   |
| MMSZ4711-G  | ZA           | 25.7                               | 27   | 28.4 | 0.05         | 0.01            | 20.4 |
| MMSZ4712-G  | ZC           | 26.6                               | 28   | 29.4 | 0.05         | 0.01            | 21.2 |
| MMSZ4713-G  | ZD           | 28.5                               | 30   | 31.5 | 0.05         | 0.01            | 22.8 |
| MMSZ4714-G  | ZE           | 31.4                               | 33   | 34.7 | 0.05         | 0.01            | 25   |
| MMSZ4715-G  | ZF           | 34.2                               | 36   | 37.8 | 0.05         | 0.01            | 27.3 |
| MMSZ4716-G  | ZH           | 37.1                               | 39   | 41   | 0.05         | 0.01            | 29.6 |
| MMSZ4717-G  | ZJ           | 40.9                               | 43   | 45.2 | 0.05         | 0.01            | 32.6 |

**Notes**

- Maximum  $V_F = 0.9\text{ V}$  at  $I_F = 10\text{ mA}$
- (1) Measured with device junction in thermal equilibrium typ.  $R_{thJA}$  of 370 K/W

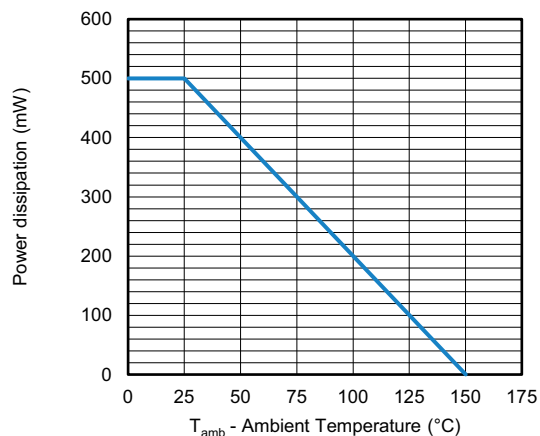
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

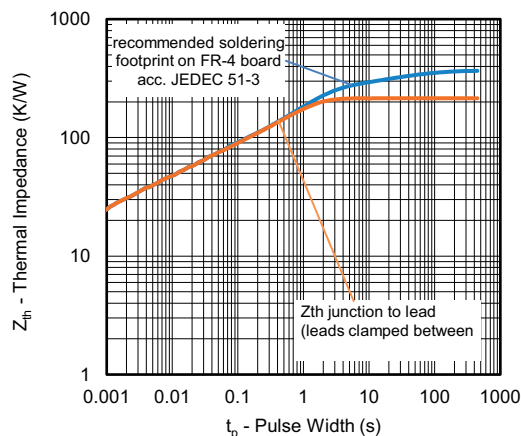
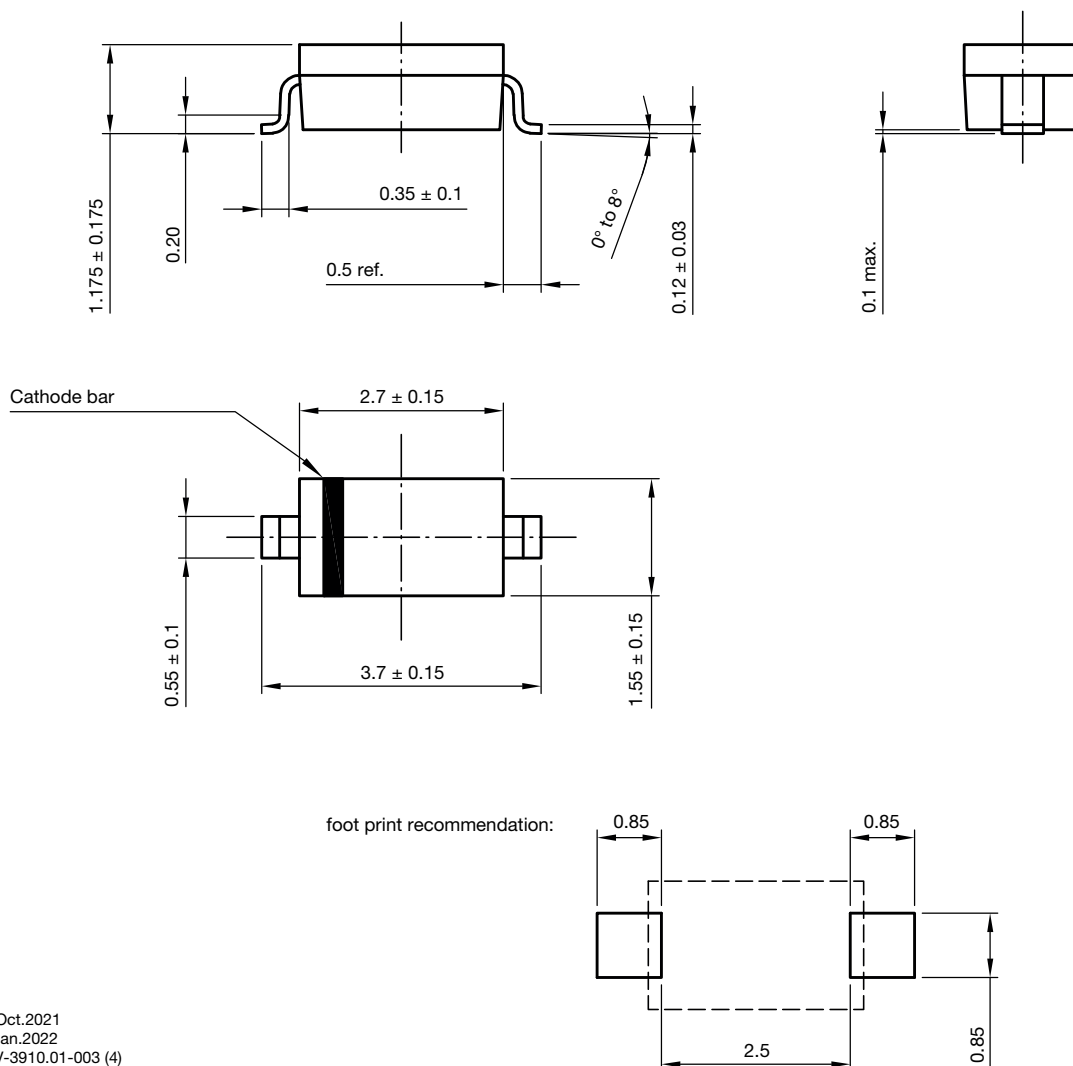
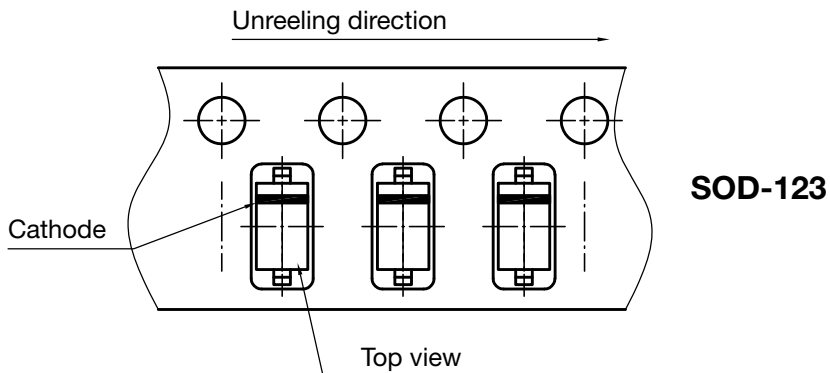


Fig. 2 - Thermal Impedance vs. Time

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


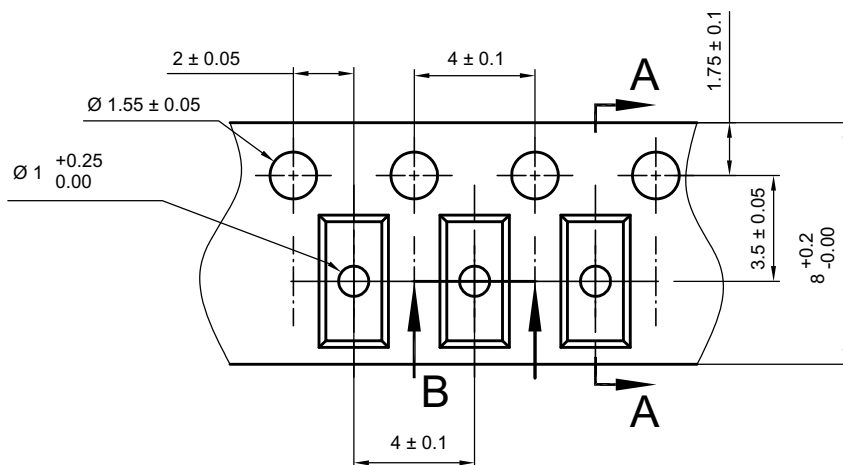


## ORIENTATION IN CARRIER TAPE

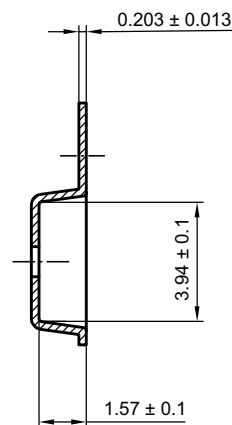


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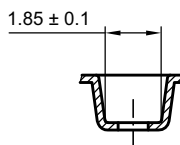
## CARRIER TAPE



## A-A Section



## B-B Section



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