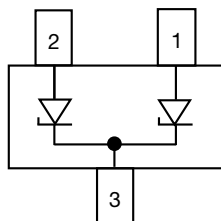


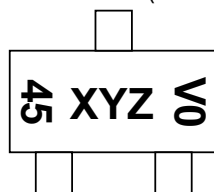
## Small Signal Zener Diodes



### LINKS TO ADDITIONAL RESOURCES



### MARKING (example only)



XYZ = type code  
45 = working week  
0 = year  
V = Vishay

### FEATURES

- Silicon planar Zener diodes
- The Zener voltages are graded according to the international E24 standard. Standard Zener voltage tolerance is  $\pm 5\%$
- AEC-Q101 qualified available (part number on request)
- ESD capability acc. to AEC-Q101: human body model:  $> 8\text{ kV}$ , machine model:  $> 800\text{ V}$
- 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)



### PRIMARY CHARACTERISTICS

| PARAMETER             | VALUE          | UNIT |
|-----------------------|----------------|------|
| $V_Z$ range nom.      | 2.2 to 75      | V    |
| Test current $I_{ZT}$ | 2; 5           | mA   |
| $V_Z$ specification   | Pulse current  |      |
| Circuit configuration | Common cathode |      |

### ORDERING INFORMATION

| DEVICE NAME   | ORDERING CODE                   | ZENER VOLTAGE TOLERANCE | AEC-Q101 QUALIFIED | TAPED UNITS PER REEL              | MINIMUM ORDER QUANTITY |
|---------------|---------------------------------|-------------------------|--------------------|-----------------------------------|------------------------|
| DZ23-G series | DZ23C2V4-G3-08 to DZ23C75-G3-08 | 5 %                     | no                 | 3000<br>(8 mm tape on 7" reel)    | 15 000                 |
|               | DZ23C2V4-G3-18 to DZ23C75-G3-18 | 5 %                     | no                 | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |

### PACKAGE

| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL           | SOLDERING CONDITIONS         |
|--------------|--------|--------------------------------------|--------------------------------------|------------------------------|
| SOT-23       | 9.2 mg | UL 94 V-0                            | MSL level 1<br>(according J-STD-020) | Peak temperature max. 260 °C |

### ABSOLUTE MAXIMUM RATINGS

| 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 | °C   |
| Operating temperature range            |                                                                             | $T_{op}$   | -55 to +150 | °C   |

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

| PART NUMBER | MARKING CODE | ZENER VOLTAGE RANGE |      |       | TEST CURRENT |           | REVERSE LEAKAGE CURRENT |      | DYNAMIC RESISTANCE<br>$f = 1\text{ kHz}$ |                       | TEMPERATURE COEFFICIENT    |      |
|-------------|--------------|---------------------|------|-------|--------------|-----------|-------------------------|------|------------------------------------------|-----------------------|----------------------------|------|
|             |              | $V_Z$ at $I_{ZT1}$  |      |       | $I_{ZT1}$    | $I_{ZT2}$ | $I_R$ at $V_R$          |      | $Z_Z$ at $I_{ZT1}$                       | $Z_{ZK}$ at $I_{ZT2}$ | $\alpha_{VZ}$ at $I_{ZT1}$ |      |
|             |              | V                   |      |       | mA           |           | $\mu\text{A}$           | V    | W                                        |                       | $10^{-4}/^{\circ}\text{C}$ |      |
|             |              | MIN.                | NOM. | MAX.  |              |           | MAX.                    |      | MAX.                                     | MAX.                  | MIN.                       | MAX. |
| DZ23C2V2-G  | V77          | 2.09                | 2.2  | 2.31  | 5            | 1         | 100                     | 1    | 120                                      | 600                   | -9                         | -4   |
| DZ23C2V4-G  | V78          | 2.28                | 2.4  | 2.52  | 5            | 1         | 50                      | 1    | 100                                      | 600                   | -9                         | -4   |
| DZ23C2V7-G  | V41          | 2.57                | 2.7  | 2.84  | 5            | 1         | 20                      | 1    | 83                                       | 500                   | -9                         | -4   |
| DZ23C3V0-G  | V42          | 2.85                | 3.0  | 3.15  | 5            | 1         | 10                      | 1    | 95                                       | 500                   | -9                         | -3   |
| DZ23C3V3-G  | V43          | 3.14                | 3.3  | 3.47  | 5            | 1         | 5                       | 1    | 95                                       | 500                   | -8                         | -3   |
| DZ23C3V6-G  | V44          | 3.42                | 3.6  | 3.78  | 5            | 1         | 5                       | 1    | 90                                       | 500                   | -8                         | -3   |
| DZ23C3V9-G  | V45          | 3.71                | 3.9  | 4.10  | 5            | 1         | 3                       | 1    | 90                                       | 500                   | -7                         | -3   |
| DZ23C4V3-G  | V46          | 4.09                | 4.3  | 4.52  | 5            | 1         | 3                       | 1    | 90                                       | 500                   | -6                         | -1   |
| DZ23C4V7-G  | V47          | 4.47                | 4.7  | 4.94  | 5            | 1         | 3                       | 2    | 78                                       | 500                   | -5                         | 2    |
| DZ23C5V1-G  | V48          | 4.85                | 5.1  | 5.36  | 5            | 1         | 2                       | 2    | 60                                       | 480                   | -3                         | 4    |
|             |              |                     |      |       |              |           | 0.1                     | 0.8  |                                          |                       |                            |      |
| DZ23C5V6-G  | V49          | 5.32                | 5.6  | 5.88  | 5            | 1         | 1                       | 2    | 40                                       | 400                   | -2                         | 6    |
|             |              |                     |      |       |              |           | 0.1                     | 1    |                                          |                       |                            |      |
| DZ23C6V2-G  | V50          | 5.89                | 6.2  | 6.51  | 5            | 1         | 3                       | 4    | 10                                       | 150                   | -1                         | 7    |
|             |              |                     |      |       |              |           | 0.1                     | 2    |                                          |                       |                            |      |
| DZ23C6V8-G  | V51          | 6.46                | 6.8  | 7.14  | 5            | 1         | 2                       | 4    | 8                                        | 80                    | 2                          | 7    |
|             |              |                     |      |       |              |           | 0.1                     | 3    |                                          |                       |                            |      |
| DZ23C7V5-G  | V52          | 7.13                | 7.5  | 7.88  | 5            | 1         | 0.1                     | 5    | 7                                        | 50                    | 3                          | 7    |
| DZ23C8V2-G  | V53          | 7.79                | 8.2  | 8.61  | 5            | 1         | 0.1                     | 6    | 7                                        | 50                    | 4                          | 7    |
| DZ23C9V1-G  | V54          | 8.65                | 9.1  | 9.56  | 5            | 1         | 0.1                     | 7    | 10                                       | 50                    | 5                          | 8    |
| DZ23C10-G   | V55          | 9.50                | 10   | 10.50 | 5            | 1         | 0.1                     | 7.5  | 15                                       | 70                    | 5                          | 8    |
| DZ23C11-G   | V56          | 10.45               | 11   | 11.55 | 5            | 1         | 0.1                     | 8.5  | 20                                       | 70                    | 5                          | 9    |
| DZ23C12-G   | V57          | 11.40               | 12   | 12.60 | 5            | 1         | 0.1                     | 9    | 20                                       | 90                    | 6                          | 9    |
| DZ23C13-G   | V58          | 12.40               | 13   | 13.65 | 5            | 1         | 0.1                     | 10   | 25                                       | 110                   | 7                          | 9    |
| DZ23C15-G   | V59          | 14.25               | 15   | 15.60 | 5            | 1         | 0.05                    | 11   | 30                                       | 110                   | 7                          | 9    |
| DZ23C16-G   | V60          | 15.30               | 16   | 16.80 | 5            | 1         | 0.05                    | 12   | 40                                       | 170                   | 8                          | 9.5  |
| DZ23C18-G   | V61          | 17.10               | 18   | 18.90 | 5            | 1         | 0.05                    | 14   | 45                                       | 170                   | 8                          | 9.5  |
| DZ23C20-G   | V62          | 19.00               | 20   | 21.00 | 5            | 1         | 0.05                    | 15   | 50                                       | 220                   | 8                          | 10   |
| DZ23C22-G   | V63          | 20.90               | 22   | 23.10 | 5            | 1         | 0.05                    | 17   | 55                                       | 220                   | 8                          | 10   |
| DZ23C24-G   | V64          | 22.80               | 24   | 25.20 | 5            | 1         | 0.05                    | 18   | 70                                       | 220                   | 8                          | 10   |
| DZ23C27-G   | V65          | 25.65               | 27   | 28.35 | 2            | 0.5       | 0.05                    | 20   | 80                                       | 250                   | 8                          | 10   |
| DZ23C30-G   | V66          | 28.50               | 30   | 31.50 | 2            | 0.5       | 0.05                    | 22.5 | 80                                       | 250                   | 8                          | 10   |
| DZ23C33-G   | V67          | 31.35               | 33   | 34.65 | 2            | 0.5       | 0.05                    | 25   | 80                                       | 250                   | 8                          | 10   |
| DZ23C36-G   | V68          | 34.20               | 36   | 37.80 | 2            | 0.5       | 0.05                    | 27   | 87                                       | 250                   | 8                          | 10   |
| DZ23C39-G   | V69          | 37.05               | 39   | 40.95 | 2            | 0.5       | 0.05                    | 29   | 87                                       | 300                   | 10                         | 12   |
| DZ23C43-G   | V70          | 40.85               | 43   | 45.15 | 2            | 0.5       | 0.05                    | 32   | 97                                       | 375                   | 10                         | 12   |
| DZ23C47-G   | V71          | 44.65               | 47   | 49.35 | 2            | 0.5       | 0.05                    | 35   | 97                                       | 375                   | 10                         | 12   |
| DZ23C51-G   | V72          | 48.45               | 51   | 53.55 | 2            | 0.5       | 0.05                    | 38   | 100                                      | 400                   | 10                         | 12   |
| DZ23C56-G   | V73          | 53.20               | 56   | 58.80 | 2            | 0.5       | 0.05                    | 42   | 135                                      | 425                   | 9                          | 11   |
| DZ23C62-G   | V74          | 58.90               | 62   | 65.10 | 2            | 0.5       | 0.05                    | 46.5 | 150                                      | 450                   | 9                          | 12   |
| DZ23C68-G   | V75          | 64.60               | 68   | 71.40 | 2            | 0.5       | 0.05                    | 51   | 200                                      | 475                   | 10                         | 12   |
| DZ23C75-G   | V76          | 71.25               | 75   | 78.75 | 2            | 0.5       | 0.05                    | 56   | 250                                      | 500                   | 10                         | 12   |

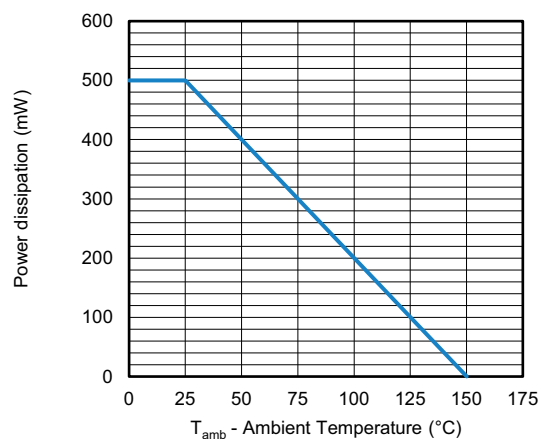
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

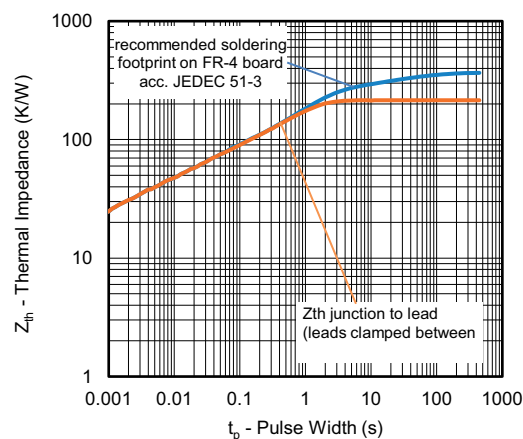
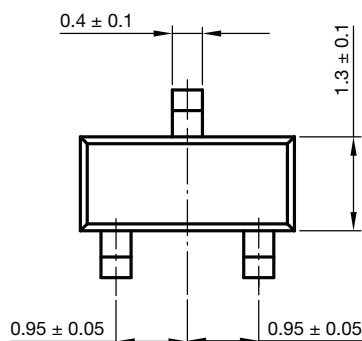
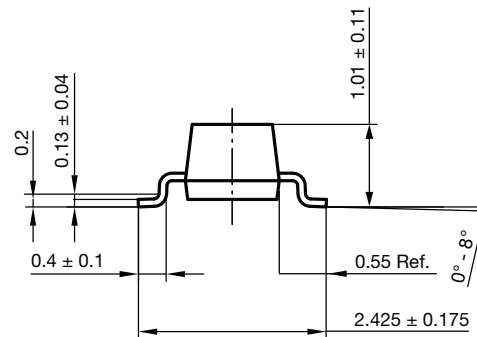
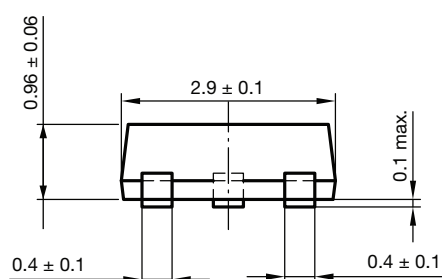
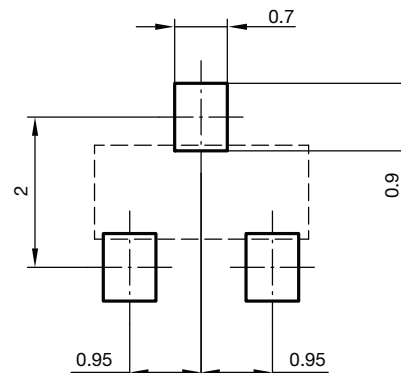


Fig. 2 - Thermal Impedance vs. Time

**PACKAGE DIMENSIONS** in millimeters (inches): **SOT-23**


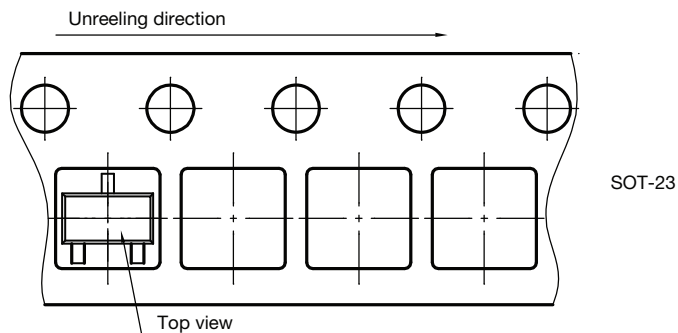
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Rev. 01 - Date: 18. Jan. 2022

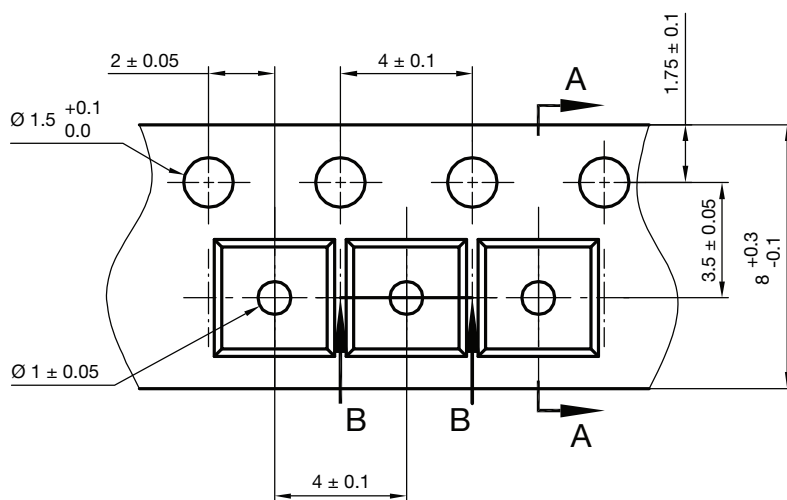


## ORIENTATION IN CARRIER TAPE

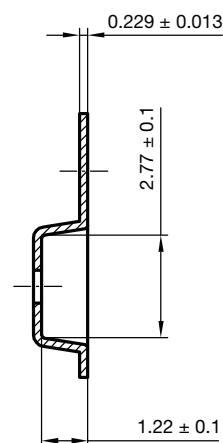


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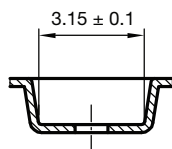
## CARRIER TAPE



A-A Section



B-B Section



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