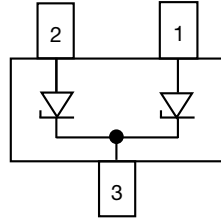
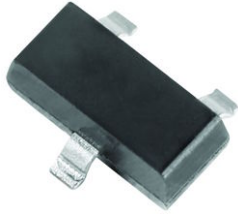


## Small Signal Zener Diodes



### FEATURES

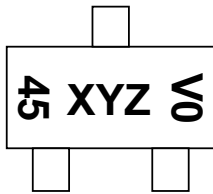
- Silicon planar Zener diodes
- The Zener voltages are graded according to the international E24 standard. Standard Zener voltage tolerance is  $\pm 5\%$
- AEC-Q101 qualified available (part number on request)
- ESD capability acc. to AEC-Q101: human body model:  $> 8\text{ kV}$ , machine model:  $>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



### LINKS TO ADDITIONAL RESOURCES



### MARKING (example only)



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

| 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 <sub>amb</sub> = 25 °C, unless otherwise specified) |              |                                    |      |       |                  |                  |                                  |      |                                    |                                     |                                     |      |
|---|--------------|------------------------------------|------|-------|------------------|------------------|----------------------------------|------|------------------------------------|-------------------------------------|-------------------------------------|------|
| PART NUMBER   | MARKING CODE | ZENER VOLTAGE RANGE                |      |       | TEST CURRENT     |                  | REVERSE LEAKAGE CURRENT          |      | DYNAMIC RESISTANCE<br>f = 1 kHz    |                                     | 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> | α <sub>VZ</sub> at I <sub>ZT1</sub> |      |
|   |              | V                                  |      |       | mA               |                  | μA                               | V    | W                                  |                                     | 10 <sup>-4</sup> /°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)

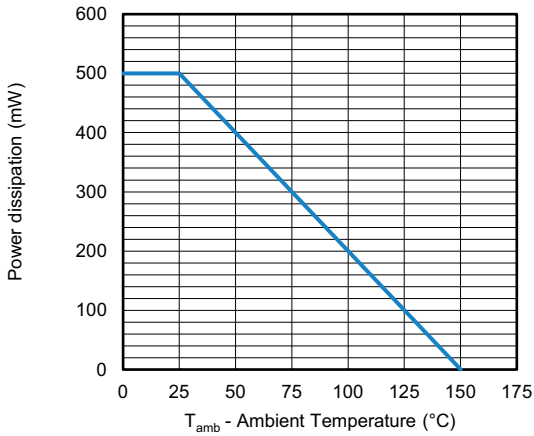


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

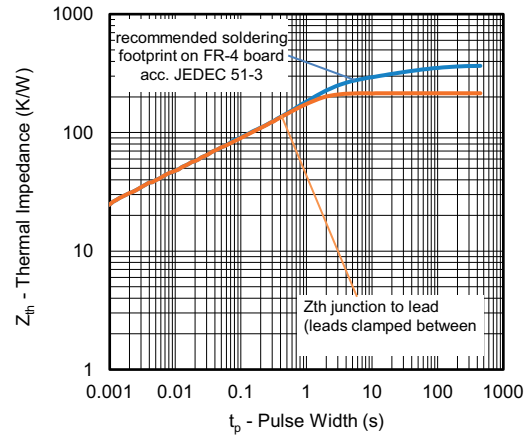
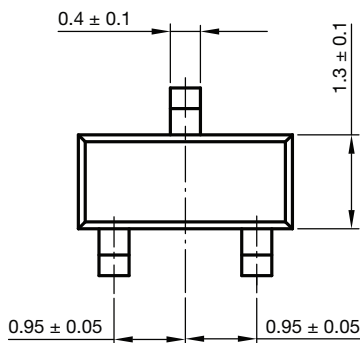
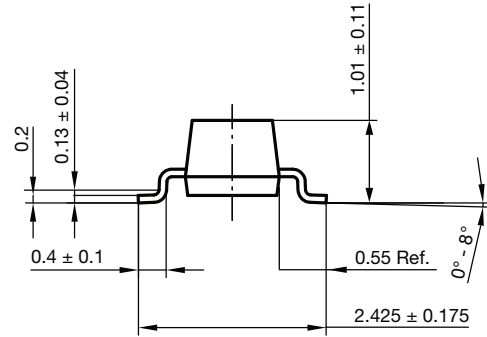
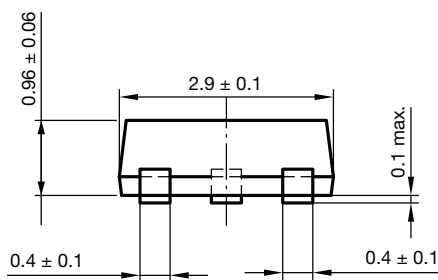
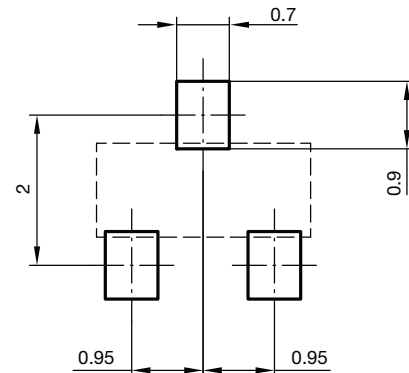


Fig. 2 - Thermal Impedance vs. Time

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



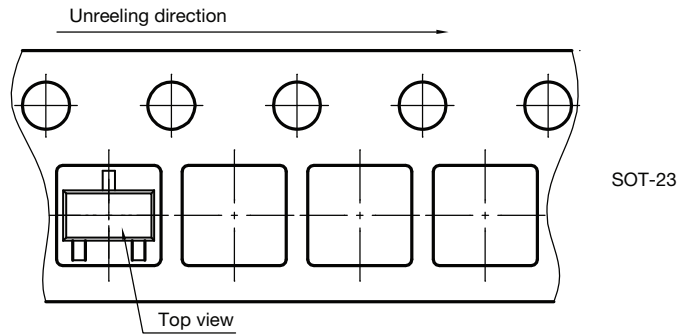
Foot print recommendation:



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Rev. 01 - Date: 18. Jan. 2022

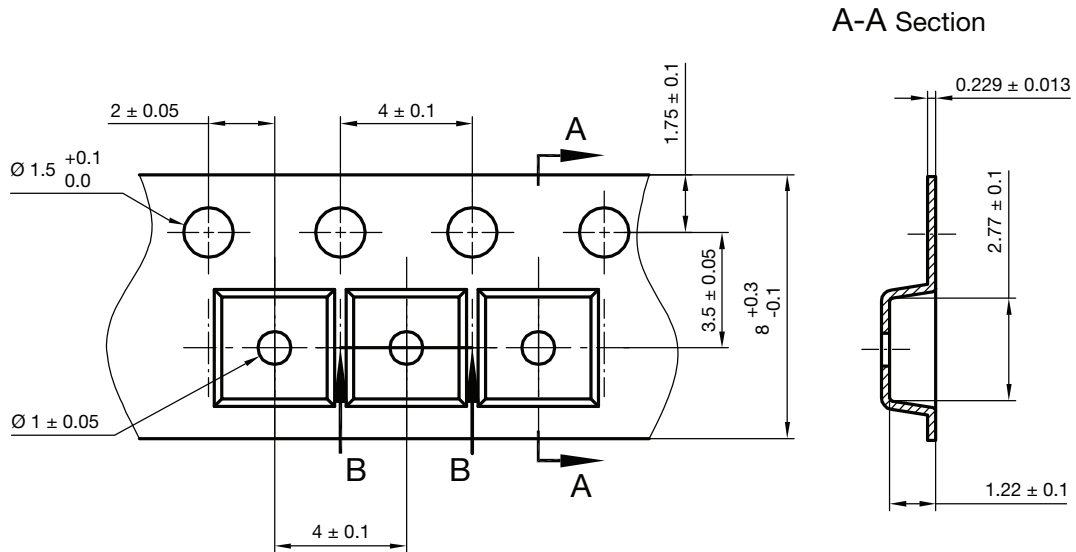


### ORIENTATION IN CARRIER TAPE

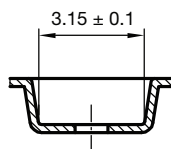


S8-V-3929.01-006 (4)  
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 Rev. 02 Date: 07.11.2022

### CARRIER TAPE



B-B Section



Document no.: S8-V-3929.01-005 (4)  
 Created - Date: 04. Feb. 2010



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