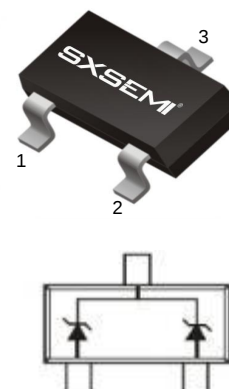


## SOT-23



## FEATURES

- | Dual zeners common cathode configuration
- | 300mW Power Dissipation
- | Ideally suited for automated insertion
- | Zener Voltages from 2.7V -51V
- | Ultra-Small Surface Mount Package Power dissipation

## Maximum Ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Characteristic                              | Symbol          | Value     | Unit                 |
|---------------------------------------------|-----------------|-----------|----------------------|
| Forward Voltage @ $I_F = 10\text{mA}$       | $V_F$           | 0.9       | V                    |
| Power Dissipation(Note 1)                   | $P_d$           | 300       | mW                   |
| Thermal Resistance, Junction to Ambient Air | $R_{\theta JA}$ | 417       | $^{\circ}\text{C/W}$ |
| Operating and Storage Temperature Range     | $T_J, T_{STG}$  | -55~ +150 | $^{\circ}\text{C}$   |

Notes: 1. Valid provided that device terminals are kept at ambient temperature.

**ELECTRICAL CHARACTERISTICS**
**T<sub>a</sub>=25℃ unless otherwise specified**

| Number   | Marking | Zener<br>Voltage Range    | Zener Impedance                           |                                           | Typical<br>Temperature<br>Coefficient | Reverse<br>Voltage       |
|----------|---------|---------------------------|-------------------------------------------|-------------------------------------------|---------------------------------------|--------------------------|
|          |         | @ I <sub>ZT</sub> = 5.0mA | Z <sub>ZT</sub> @ I <sub>ZT</sub> = 5.0mA | Z <sub>ZK</sub> @ I <sub>ZK</sub> = 1.0mA |                                       | @ I <sub>R</sub> = 0.1μA |
|          |         | V <sub>Z</sub> (Volts)    | Ohms                                      | Ohms                                      |                                       | V <sub>R</sub> (Volts)   |
| DZ23C2V7 | KV1     | 2.5-2.9                   | 83                                        | 500                                       | -0.065                                | —                        |
| DZ23C3V0 | KV2     | 2.8-3.2                   | 95                                        | 500                                       | -0.060                                | —                        |
| DZ23C3V3 | KV3     | 3.1-3.5                   | 95                                        | 500                                       | -0.055                                | —                        |
| DZ23C3V6 | KV4     | 3.4-3.8                   | 95                                        | 500                                       | -0.055                                | —                        |
| DZ23C3V9 | KV5     | 3.7-4.1                   | 95                                        | 500                                       | -0.050                                | —                        |
| DZ23C4V3 | KV6     | 4.0-4.6                   | 95                                        | 500                                       | -0.035                                | —                        |
| DZ23C4V7 | KV7     | 4.4-5.0                   | 78                                        | 500                                       | -0.015                                | —                        |
| DZ23C5V1 | KV8     | 4.8-5.4                   | 60                                        | 480                                       | +0.005                                | 0.8                      |
| DZ23C5V6 | KV9     | 5.2-6.0                   | 40                                        | 400                                       | +0.020                                | 1.0                      |
| DZ23C6V2 | KVA     | 5.8-6.6                   | 10                                        | 200                                       | +0.030                                | 2.0                      |
| DZ23C6V8 | KVB     | 6.4-7.2                   | 8.0                                       | 150                                       | +0.045                                | 3.0                      |
| DZ23C7V5 | KVC     | 7.0-7.9                   | 7.0                                       | 50                                        | +0.050                                | 5.0                      |
| DZ23C8V2 | KVD     | 7.7-8.7                   | 7.0                                       | 50                                        | +0.055                                | 6.0                      |
| DZ23C9V1 | KVE     | 8.5-9.6                   | 10                                        | 50                                        | +0.065                                | 7.0                      |
| DZ23C10  | KVF     | 9.4-10.6                  | 15                                        | 70                                        | +0.065                                | 7.5                      |
| DZ23C11  | KVG     | 10.4-11.6                 | 20                                        | 70                                        | +0.070                                | 8.5                      |
| DZ23C12  | KVH     | 11.4-12.7                 | 20                                        | 90                                        | +0.075                                | 9.0                      |
| DZ23C13  | KVI     | 12.4-14.1                 | 25                                        | 110                                       | +0.080                                | 10.0                     |
| DZ23C15  | KVJ     | 13.8-15.6                 | 30                                        | 110                                       | +0.080                                | 11.0                     |
| DZ23C16  | KVK     | 15.3-17.1                 | 40                                        | 170                                       | +0.090                                | 12.0                     |
| DZ23C18  | KVL     | 16.8-19.1                 | 50                                        | 170                                       | +0.090                                | 14.0                     |
| DZ23C20  | KVM     | 18.8-21.2                 | 50                                        | 220                                       | +0.090                                | 15.0                     |
| DZ23C22  | KVN     | 20.8-23.3                 | 55                                        | 220                                       | +0.090                                | 17.0                     |
| DZ23C24  | KVO     | 22.8-25.6                 | 80                                        | 220                                       | +0.090                                | 18.0                     |
| DZ23C27  | KVP     | 25.1-28.9                 | 80                                        | 250                                       | +0.090                                | 20.0                     |
| DZ23C30  | KVQ     | 28-32                     | 80                                        | 250                                       | +0.090                                | 22.5                     |
| DZ23C33  | KVR     | 31-35                     | 80                                        | 250                                       | +0.090                                | 25.0                     |
| DZ23C36  | KVS     | 34-38                     | 90                                        | 250                                       | +0.090                                | 27.0                     |
| DZ23C39  | KVT     | 37-41                     | 90                                        | 300                                       | +0.110                                | 29.0                     |
| DZ23C43  | KVU     | 40-46                     | 100                                       | 700                                       | +0.110                                | 32.0                     |
| DZ23C47  | KVV     | 44-50                     | 100                                       | 750                                       | +0.110                                | 35.0                     |
| DZ23C51  | KVW     | 48-54                     | 100                                       | 750                                       | +0.110                                | 38.0                     |

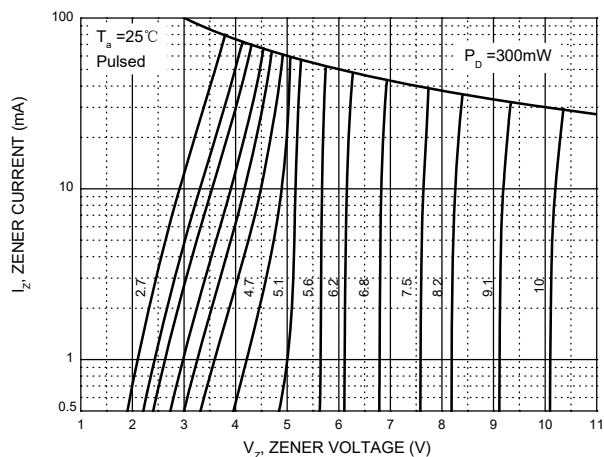
2. Short duration pulse test used to minimize self-heating effect.

3. f = 1KHz.

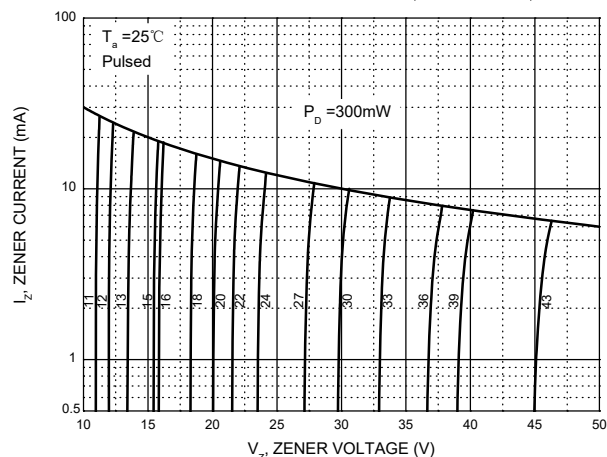
## Typical Characteristics

Notes: Our company currently provide 2.7V-43V products only

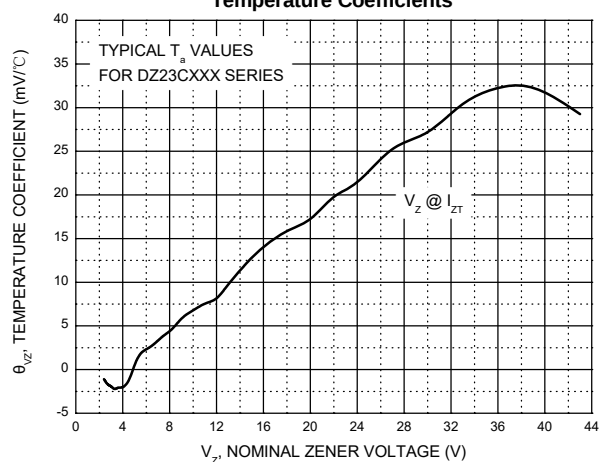
Zener Characteristics ( $V_z$  Up to 10 V)



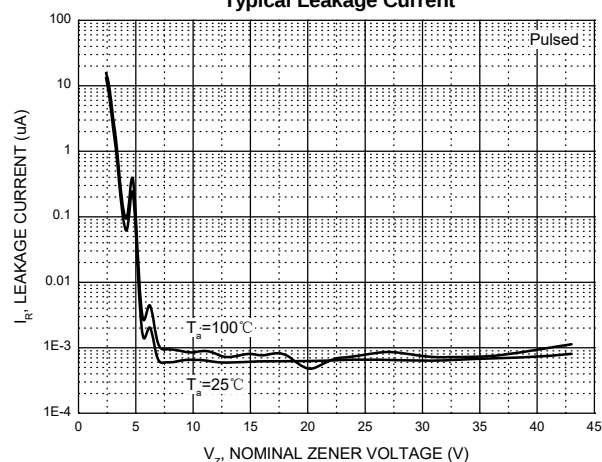
Zener Characteristics (11 V to 43 V)



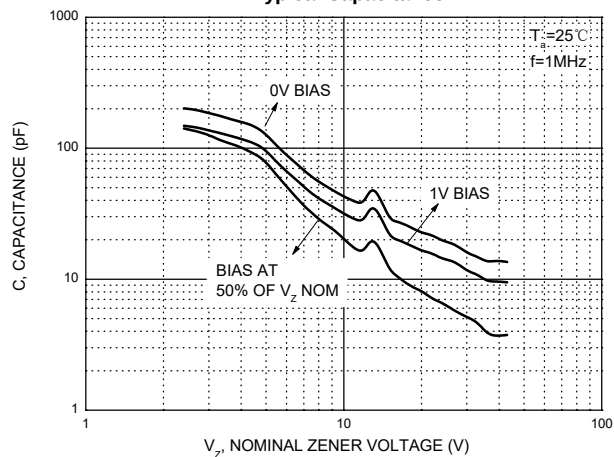
Temperature Coefficients



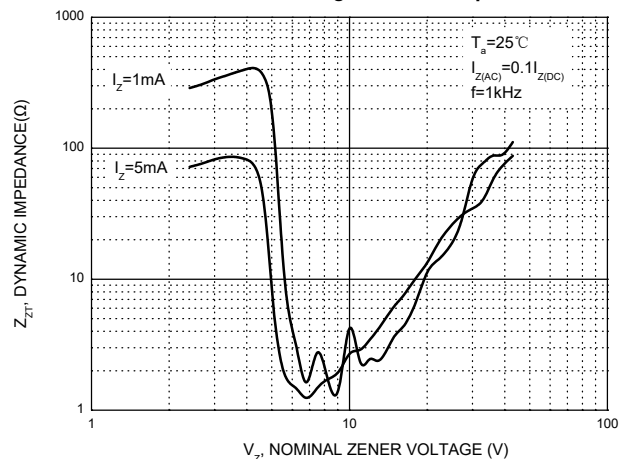
Typical Leakage Current



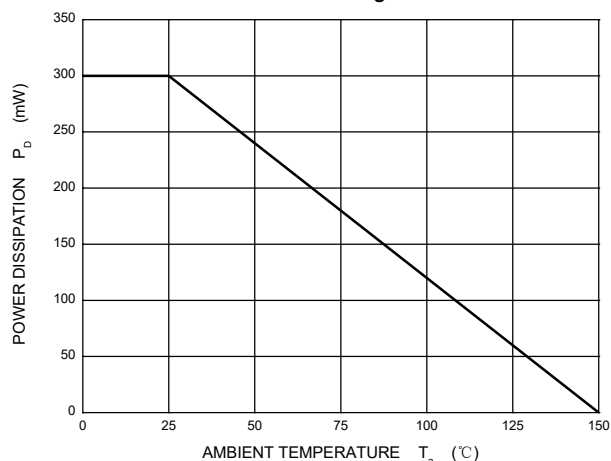
Typical Capacitance



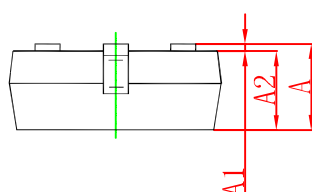
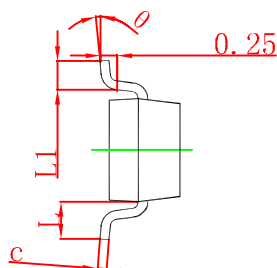
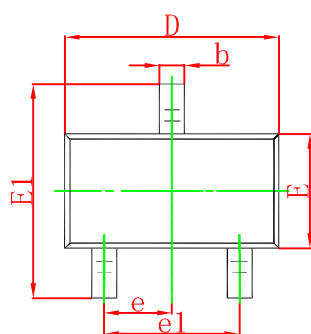
Effect of Zener Voltage on Zener Impedance



Power Derating Curve

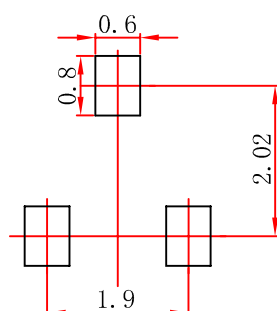


## SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-23 Suggested Pad Layout



### Note:

1. Controlling dimension in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.