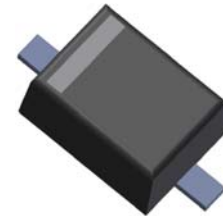


## 200mW SOD-323 SURFACE MOUNT Small Outline Flat Lead Plastic Package Zener Voltage Regulators

### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                   | Value       | Units            |
|-----------|-----------------------------|-------------|------------------|
| $P_D$     | Power Dissipation           | 200         | mW               |
| $T_{STG}$ | Storage Temperature Range   | -65 to +150 | $^\circ\text{C}$ |
| $T_{OPR}$ | Operating Temperature Range | -65 to +150 | $^\circ\text{C}$ |

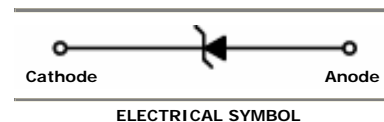
These ratings are limiting values above which the serviceability of the diode may be impaired.



SOD-323 Flat Lead

### Specification Features:

- Wide Zener Voltage Range Selection, 2.0V to 75V
- VZ Tolerance Selection of  $\pm 5\%$  (C Series)
- Flat Lead SOD-323 Small Outline Plastic Package
- Surface Device Type Mounting
- Moisture Sensitivity Level 1
- Clip Bonding Construction, Good Thermal Capability
- RoHS Compliant
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode



### Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

| Device Type | Device Marking | $V_Z @ I_{ZT}$<br>(Volts) |     |       | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ )<br>Max | $I_R @ V_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(Volts) |
|-------------|----------------|---------------------------|-----|-------|------------------|--|------------------|--|---|------------------|
|             |                | Min                       | Nom | Max   |                  |  |                  |  |   |                  |
| TC2V0C      | Z:             | 1.90                      | 2.0 | 2.10  | 5                | 100                                      | 1                | 600                                      | 120                                     | 0.5              |
| TC2V2C      | Z+             | 2.09                      | 2.2 | 2.31  | 5                | 100                                      | 1                | 600                                      | 120                                     | 0.7              |
| TC2V4C      | Z0             | 2.28                      | 2.4 | 2.52  | 5                | 100                                      | 1                | 564                                      | 45                                      | 1                |
| TC2V7C      | Z1             | 2.57                      | 2.7 | 2.84  | 5                | 100                                      | 1                | 564                                      | 18                                      | 1                |
| TC3V0C      | Z2             | 2.85                      | 3.0 | 3.15  | 5                | 100                                      | 1                | 564                                      | 9                                       | 1                |
| TC3V3C      | Z3             | 3.14                      | 3.3 | 3.47  | 5                | 95                                       | 1                | 564                                      | 4.5                                     | 1                |
| TC3V6C      | Z4             | 3.42                      | 3.6 | 3.78  | 5                | 90                                       | 1                | 564                                      | 4.5                                     | 1                |
| TC3V9C      | Z5             | 3.71                      | 3.9 | 4.10  | 5                | 90                                       | 1                | 564                                      | 2.7                                     | 1                |
| TC4V3C      | Z6             | 4.09                      | 4.3 | 4.52  | 5                | 90                                       | 1                | 564                                      | 2.7                                     | 1                |
| TC4V7C      | Z7             | 4.47                      | 4.7 | 4.94  | 5                | 80                                       | 1                | 470                                      | 2.7                                     | 2                |
| TC5V1C      | Z8             | 4.85                      | 5.1 | 5.36  | 5                | 60                                       | 1                | 451                                      | 1.8                                     | 2                |
| TC5V6C      | Z9             | 5.32                      | 5.6 | 5.88  | 5                | 40                                       | 1                | 376                                      | 0.9                                     | 2                |
| TC6V2C      | ZA             | 5.89                      | 6.2 | 6.51  | 5                | 10                                       | 1                | 141                                      | 2.7                                     | 4                |
| TC6V8C      | ZB             | 6.46                      | 6.8 | 7.14  | 5                | 15                                       | 1                | 75                                       | 1.8                                     | 4                |
| TC7V5C      | ZC             | 7.11                      | 7.5 | 7.86  | 5                | 15                                       | 1                | 75                                       | 0.9                                     | 5                |
| TC8V2C      | ZD             | 7.79                      | 8.2 | 8.61  | 5                | 15                                       | 1                | 75                                       | 0.63                                    | 5                |
| TC9V1C      | ZE             | 8.65                      | 9.1 | 9.56  | 5                | 15                                       | 1                | 94                                       | 0.45                                    | 6                |
| TC10VC      | ZF             | 9.50                      | 10  | 10.50 | 5                | 20                                       | 1                | 141                                      | 0.18                                    | 7                |
| TC11VC      | ZG             | 10.45                     | 11  | 11.55 | 5                | 20                                       | 1                | 141                                      | 0.09                                    | 8                |
| TC12VC      | ZH             | 11.40                     | 12  | 12.60 | 5                | 25                                       | 1                | 141                                      | 0.09                                    | 8                |
| TC13VC      | ZJ             | 12.35                     | 13  | 13.65 | 5                | 30                                       | 1                | 160                                      | 0.09                                    | 8                |
| TC15VC      | ZK             | 14.25                     | 15  | 15.75 | 5                | 30                                       | 1                | 188                                      | 0.045                                   | 10.5             |
| TC16VC      | ZL             | 15.20                     | 16  | 16.80 | 5                | 40                                       | 1                | 188                                      | 0.045                                   | 11.2             |

**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

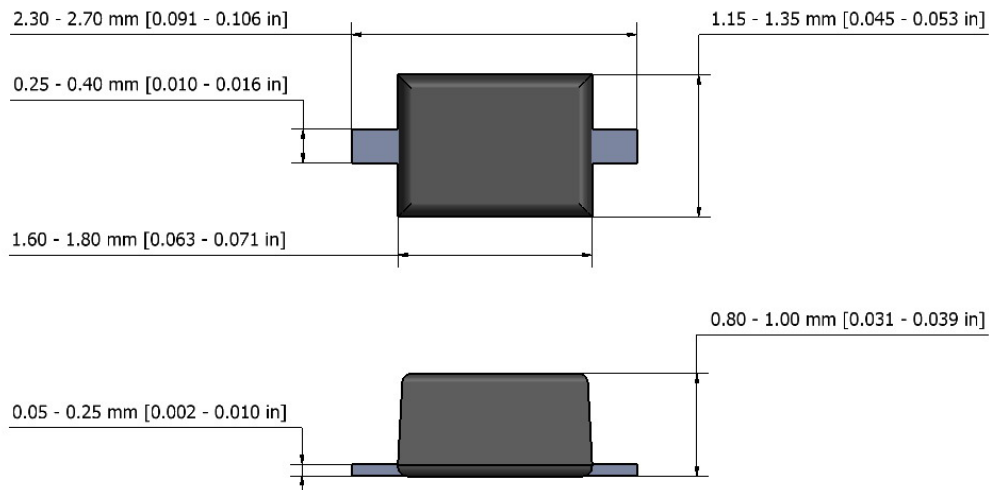
| Device Type | Device Marking | $V_Z @ I_{ZT}$ (Volts) |     |       | $I_{ZT}$ (mA) | $Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max | $I_{ZK}$ (mA) | $Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max | $I_R @ V_R$ ( $\mu\text{A}$ ) Max | $V_R$ (Volts) |
|-------------|----------------|------------------------|-----|-------|---------------|------------------------------------|---------------|------------------------------------|-----------------------------------|---------------|
|             |                | Min                    | Nom | Max   |               |                                    |               |                                    |                                   |               |
| TC18VC      | ZM             | 17.10                  | 18  | 18.90 | 5             | 45                                 | 1             | 212                                | 0.045                             | 12.6          |
| TC20VC      | ZN             | 19.00                  | 20  | 21.00 | 5             | 55                                 | 1             | 212                                | 0.045                             | 14.0          |
| TC22VC      | ZP             | 20.90                  | 22  | 23.10 | 5             | 55                                 | 1             | 235                                | 0.045                             | 15.4          |
| TC24VC      | ZR             | 22.80                  | 24  | 25.20 | 5             | 70                                 | 1             | 235                                | 0.045                             | 16.8          |
| TC27VC      | ZS             | 25.65                  | 27  | 28.35 | 5             | 80                                 | 0.5           | 282                                | 0.045                             | 18.9          |
| TC30VC      | ZT             | 28.50                  | 30  | 31.50 | 5             | 80                                 | 0.5           | 282                                | 0.045                             | 21.0          |
| TC33VC      | ZU             | 31.35                  | 33  | 34.65 | 5             | 80                                 | 0.5           | 306                                | 0.045                             | 23.0          |
| TC36VC      | ZV             | 34.20                  | 36  | 37.80 | 5             | 90                                 | 0.5           | 329                                | 0.045                             | 25.2          |
| TC39VC      | ZW             | 37.05                  | 39  | 40.95 | 5             | 130                                | 0.5           | 329                                | 0.045                             | 27.3          |
| TC43VC      | ZX             | 40.85                  | 43  | 45.15 | 5             | 150                                | 0.5           | 353                                | 0.045                             | 30.1          |
| TC47VC      | ZY             | 44.65                  | 47  | 49.35 | 5             | 170                                | 0.5           | 353                                | 0.045                             | 33.0          |
| TC51VC      | Z-             | 48.45                  | 51  | 53.55 | 5             | 180                                | 0.5           | 376                                | 0.045                             | 35.7          |
| TC56VC      | Z=             | 53.20                  | 56  | 58.80 | 5             | 200                                | 0.5           | 400                                | 0.045                             | 39.2          |
| TC62VC      | Z≡             | 58.90                  | 62  | 65.10 | 5             | 215                                | 0.5           | 423                                | 0.045                             | 43.4          |
| TC68VC      | Z>             | 64.60                  | 68  | 71.40 | 5             | 240                                | 0.5           | 447                                | 0.045                             | 47.6          |
| TC75VC      | Z<             | 71.25                  | 75  | 78.75 | 5             | 255                                | 0.5           | 470                                | 0.045                             | 52.5          |

$V_F$  Forward Voltage = 1 V Maximum @  $I_F = 100$  mA for all types

**Notes:**

1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
3. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Tak Cheong Electronics representative.
4. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

**SOD-323 Package Outline**




NOTE: The above package outline is similar to JEITA SC-90.

This datasheet presents technical data of Tak Cheong's Zener Diodes. Complete specifications for the individual devices are provided in the form of datasheets. A comprehensive Selector Guide is included to simplify the task of choosing the best set of components required for a specific application. For additional information, please visit our website <http://www.takcheong.com>.

Although information in this datasheet has been carefully checked, no responsibility for the inaccuracies can be assumed by Tak Cheong. Please consult your nearest Tak Cheong's sales office for further assistance.

Tak Cheong reserves the right to make changes without further notice to any products herein to further improve reliability, function or design, cost and productivity.

**TAK CHEONG**<sup>®</sup> and  are registered trademarks of Tak Cheong Electronics (Holdings) Co., Ltd.