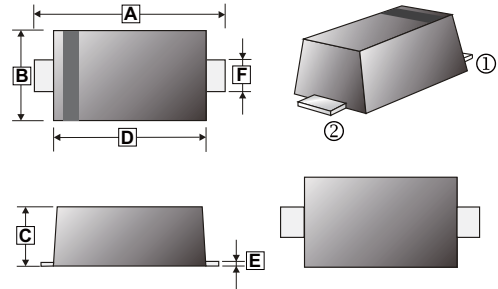


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

- Wide Zener Voltage Range Selection, 2.4V to 75V
- $V_Z$  Tolerance Selection of  $\pm 5\%$
- Flat Lead SOD-123LH Plastic Package
- Surface Device Type Mounting
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode

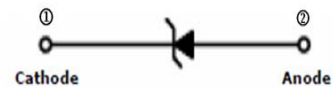
## SOD-123LH



## PACKAGE INFORMATION

| Package   | MPQ | Leader Size |
|-----------|-----|-------------|
| SOD-123LH | 3K  | 7 inch      |

| REF. | Millimeter |      | REF. | Millimeter |      |
|------|------------|------|------|------------|------|
|      | Min.       | Max. |      | Min.       | Max. |
| A    | 3.30       | 3.70 | D    | 2.50       | 2.70 |
| B    | 1.50       | 1.70 | E    | 0.05       | 0.20 |
| C    | 0.80       | 1.00 | F    | 0.50       | 0.70 |



## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter                               | Symbol         | Rating  | Unit             |
|---|----------------|---------|------------------|
| Power Dissipation                       | $P_D$          | 500     | mW               |
| Operating and Storage Temperature Range | $T_J, T_{STG}$ | -65~150 | $^\circ\text{C}$ |

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified,  $V_F=900\text{mV}$  Maximum @  $I_F=10\text{mA}$ )

| Type Number | Marking | Zener Voltage Range |        |        |          | Maximum Zener Impedance |                 |          | Maximum Reverse Leakage Current |     |
|-------------|---------|---------------------|--------|--------|----------|-------------------------|-----------------|----------|---------------------------------|-----|
|             |         | $V_Z@I_{ZT}$        |        |        | $I_{ZT}$ | $Z_{ZT}@I_{ZT}$         | $Z_{ZK}@I_{ZK}$ | $I_{ZK}$ | $I_R@V_R$                       |     |
|             |         | Min(V)              | Nom(V) | Max(V) | mA       | $\Omega$                | $\Omega$        | mA       | $\mu\text{A}$                   | V   |
| MTSZ5221BW  | Z2V4    | 2.28                | 2.4    | 2.52   | 20       | 30                      | 1200            | 0.25     | 100                             | 1   |
| MTSZ5222BW  | Z2V5    | 2.38                | 2.5    | 2.63   | 20       | 30                      | 1250            | 0.25     | 100                             | 1   |
| MTSZ5223BW  | Z2V7    | 2.57                | 2.7    | 2.84   | 20       | 30                      | 1300            | 0.25     | 75                              | 1   |
| MTSZ5224BW  | Z2V8    | 2.66                | 2.8    | 2.94   | 20       | 30                      | 1400            | 0.25     | 75                              | 1   |
| MTSZ5225BW  | Z3V0    | 2.85                | 3      | 3.15   | 20       | 29                      | 1600            | 0.25     | 50                              | 1   |
| MTSZ5226BW  | Z3V3    | 3.14                | 3.3    | 3.47   | 20       | 28                      | 1600            | 0.25     | 25                              | 1   |
| MTSZ5227BW  | Z3V6    | 3.42                | 3.6    | 3.78   | 20       | 24                      | 1700            | 0.25     | 15                              | 1   |
| MTSZ5228BW  | Z3V9    | 3.71                | 3.9    | 4.1    | 20       | 23                      | 1900            | 0.25     | 10                              | 1   |
| MTSZ5229BW  | Z4V3    | 4.09                | 4.3    | 4.52   | 20       | 22                      | 2000            | 0.25     | 5                               | 1   |
| MTSZ5230BW  | Z4V7    | 4.47                | 4.7    | 4.94   | 20       | 19                      | 1900            | 0.25     | 5                               | 2   |
| MTSZ5231BW  | Z5V1    | 4.85                | 5.1    | 5.36   | 20       | 17                      | 1600            | 0.25     | 5                               | 2   |
| MTSZ5232BW  | Z5V6    | 5.32                | 5.6    | 5.88   | 20       | 11                      | 1600            | 0.25     | 5                               | 3   |
| MTSZ5233BW  | Z6V0    | 5.7                 | 6      | 6.3    | 20       | 7                       | 1600            | 0.25     | 5                               | 3.5 |
| MTSZ5234BW  | Z6V2    | 5.89                | 6.2    | 6.51   | 20       | 7                       | 1000            | 0.25     | 5                               | 4   |
| MTSZ5235BW  | Z6V8    | 6.46                | 6.8    | 7.14   | 20       | 5                       | 750             | 0.25     | 3                               | 5   |
| MTSZ5236BW  | Z7V5    | 7.13                | 7.5    | 7.88   | 20       | 6                       | 500             | 0.25     | 3                               | 6   |
| MTSZ5237BW  | Z8V2    | 7.79                | 8.2    | 8.61   | 20       | 8                       | 500             | 0.25     | 3                               | 6.5 |
| MTSZ5238BW  | Z8V7    | 8.27                | 8.7    | 9.14   | 20       | 8                       | 600             | 0.25     | 3                               | 6.5 |
| MTSZ5239BW  | Z9V1    | 8.65                | 9.1    | 9.56   | 20       | 10                      | 600             | 0.25     | 3                               | 7   |
| MTSZ5240BW  | Z10V    | 9.5                 | 10     | 10.5   | 20       | 17                      | 600             | 0.25     | 3                               | 8   |
| MTSZ5241BW  | Z11V    | 10.45               | 11     | 11.55  | 20       | 22                      | 600             | 0.25     | 2                               | 8.4 |
| MTSZ5242BW  | Z12V    | 11.4                | 12     | 12.6   | 20       | 30                      | 600             | 0.25     | 1                               | 9.1 |
| MTSZ5243BW  | Z13V    | 12.35               | 13     | 13.65  | 9.5      | 13                      | 600             | 0.25     | 0.5                             | 9.9 |
| MTSZ5244BW  | Z14V    | 13.3                | 14     | 14.7   | 9        | 15                      | 600             | 0.25     | 0.1                             | 10  |
| MTSZ5245BW  | Z15V    | 14.25               | 15     | 15.75  | 8.5      | 16                      | 600             | 0.25     | 0.1                             | 11  |
| MTSZ5246BW  | Z16V    | 15.2                | 16     | 16.8   | 7.8      | 17                      | 600             | 0.25     | 0.1                             | 12  |
| MTSZ5247BW  | Z17V    | 16.15               | 17     | 17.85  | 7.4      | 19                      | 600             | 0.25     | 0.1                             | 13  |
| MTSZ5248BW  | Z18V    | 17.1                | 18     | 18.9   | 7        | 21                      | 600             | 0.25     | 0.1                             | 14  |
| MTSZ5249BW  | Z19V    | 18.05               | 19     | 19.95  | 6.6      | 23                      | 600             | 0.25     | 0.1                             | 14  |
| MTSZ5250BW  | Z20V    | 19                  | 20     | 21     | 6.2      | 25                      | 600             | 0.25     | 0.1                             | 15  |

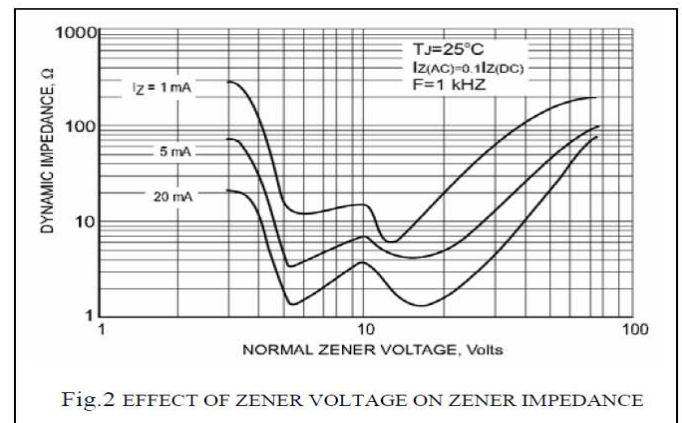
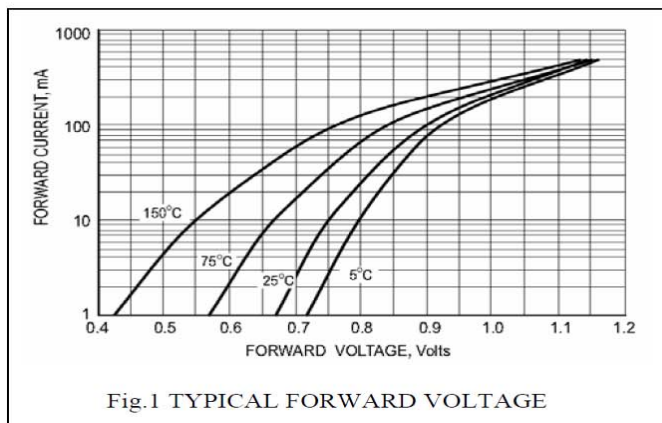
**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified,  $V_F=900\text{mV}$  Maximum @  $I_F=10\text{mA}$ )

| 28Type Number | Marking | Zener Voltage Range |        |        |          | Maximum Zener Impedance |                 |          | Maximum Reverse Leakage Current |    |
|---------------|---------|---------------------|--------|--------|----------|-------------------------|-----------------|----------|---------------------------------|----|
|               |         | $V_Z@I_{ZT}$        |        |        | $I_{ZT}$ | $Z_{ZT}@I_{ZT}$         | $Z_{ZK}@I_{ZK}$ | $I_{ZK}$ | $I_R@V_R$                       |    |
|               |         | Min(V)              | Nom(V) | Max(V) | mA       | $\Omega$                | $\Omega$        | mA       | $\mu\text{A}$                   | V  |
| MTSZ5251BW    | Z22V    | 20.9                | 22     | 23.1   | 5.6      | 29                      | 600             | 0.25     | 0.1                             | 17 |
| MTSZ5252BW    | Z24V    | 22.8                | 24     | 25.2   | 5.2      | 33                      | 600             | 0.25     | 0.1                             | 18 |
| MTSZ5253BW    | Z25V    | 23.75               | 25     | 26.25  | 5        | 35                      | 600             | 0.25     | 0.1                             | 19 |
| MTSZ5254BW    | Z27V    | 25.65               | 27     | 28.35  | 4.6      | 41                      | 600             | 0.25     | 0.1                             | 21 |
| MTSZ5255BW    | Z28V    | 26.6                | 28     | 29.4   | 4.5      | 44                      | 600             | 0.25     | 0.1                             | 21 |
| MTSZ5256BW    | Z30V    | 28.5                | 30     | 31.5   | 4.2      | 49                      | 600             | 0.25     | 0.1                             | 23 |
| MTSZ5257BW    | Z33V    | 31.35               | 33     | 34.65  | 3.8      | 58                      | 700             | 0.25     | 0.1                             | 25 |
| MTSZ5258BW    | Z36V    | 34.2                | 36     | 37.8   | 3.4      | 70                      | 700             | 0.25     | 0.1                             | 27 |
| MTSZ5259BW    | Z39V    | 37.05               | 39     | 40.95  | 3.2      | 80                      | 800             | 0.25     | 0.1                             | 30 |
| MTSZ5260BW    | Z43V    | 40.85               | 43     | 45.15  | 3        | 93                      | 900             | 0.25     | 0.1                             | 33 |
| MTSZ5261BW    | Z47V    | 44.65               | 47     | 49.35  | 2.7      | 105                     | 1000            | 0.25     | 0.1                             | 36 |
| MTSZ5262BW    | Z51V    | 48.45               | 51     | 53.55  | 2.5      | 125                     | 1100            | 0.25     | 0.1                             | 39 |
| MTSZ5263BW    | Z56V    | 53.2                | 56     | 58.8   | 2.2      | 150                     | 1300            | 0.25     | 0.1                             | 43 |
| MTSZ5264BW    | Z60V    | 57                  | 60     | 63     | 2.1      | 170                     | 1400            | 0.25     | 0.1                             | 46 |
| MTSZ5265BW    | Z62V    | 58.9                | 62     | 65.1   | 2        | 185                     | 1400            | 0.25     | 0.1                             | 47 |
| MTSZ5266BW    | Z68V    | 64.6                | 68     | 71.4   | 1.8      | 230                     | 1600            | 0.25     | 0.1                             | 52 |
| MTSZ5267BW    | Z75V    | 71.25               | 75     | 78.75  | 1.7      | 270                     | 1700            | 0.25     | 0.1                             | 56 |

Notes:

1. The zener voltage ( $V_Z$ ) is tested under pulse condition of 1mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
3. 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  $I_{ZK}$ .

**CHARACTERISTIC CURVES**



**CHARACTERISTIC CURVES**

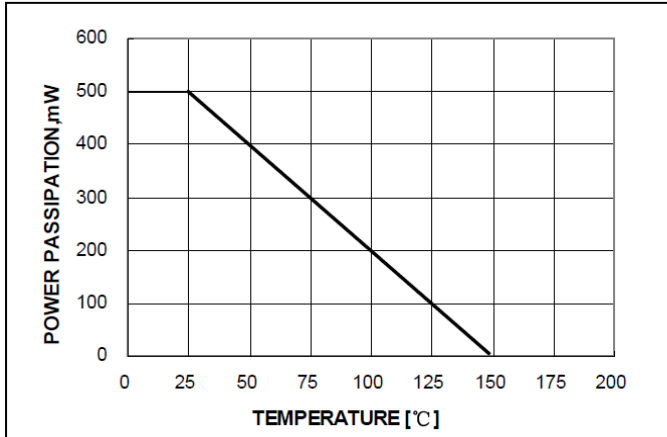


Fig.3 POWER DISSIPATION VS. AMBIENT TEMP.

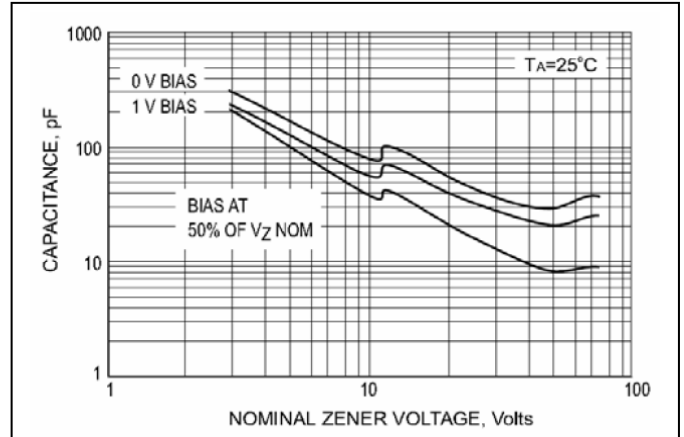


Fig.4 TYPICAL CAPACITANCE

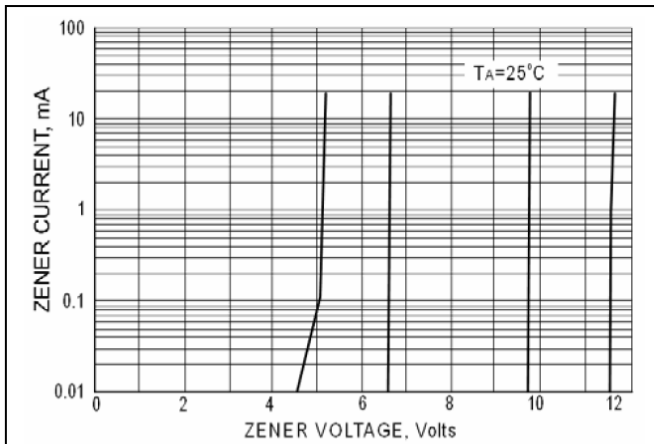


Fig.5 ZENER BREAKDOWN CHARACTERISTICS

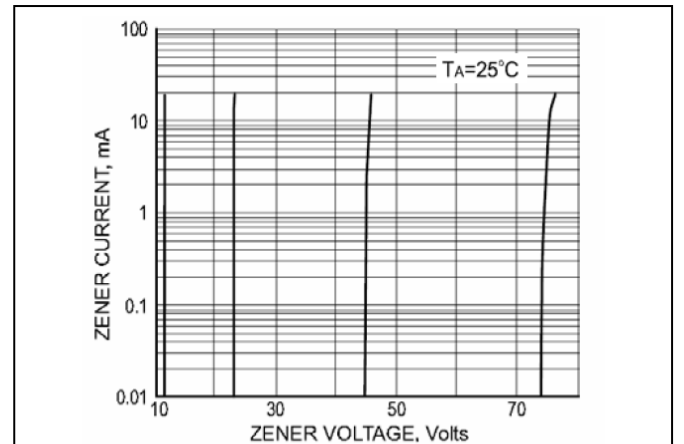


Fig.6 ZENER BREAKDOWN CHARACTERISTICS

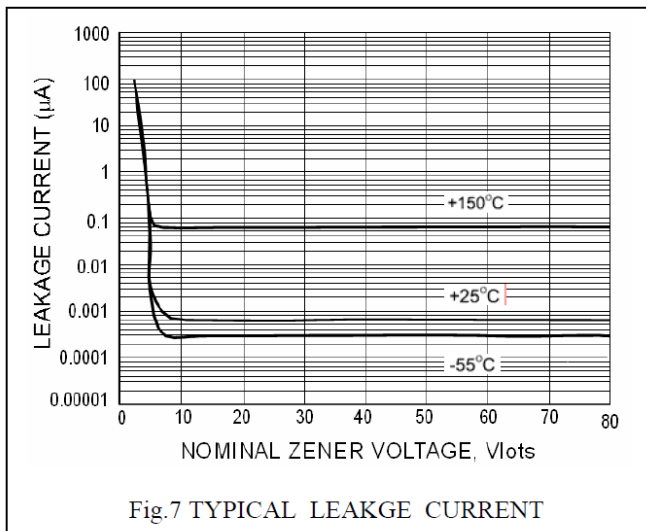


Fig.7 TYPICAL LEAKAGE CURRENT