

ZENER VOLTAGE REGULATOR DIODES

MMSZ4V7 - 56V



**SOD-123
PLASTIC PACKAGE**

For High Density Applications

Polarity: - Cathode indicated by polarity band

ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION | SYMBOL | VALUE | UNIT |
|--|----------------|--------------|----------------------|
| Power Dissipation on FR-5 Board at $T_L=75^\circ\text{C}$ (Note 1) Derated Above 75°C | P_D | 500 | mW |
| | | 6.7 | mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient (Note 2) | $R_{th(j-a)}$ | 340 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Lead (Note 2) | $R_{th(j-L)}$ | 150 | $^\circ\text{C/W}$ |
| Operating and Storage Junction Temperature Range | T_j, T_{stg} | - 55 to +150 | $^\circ\text{C}$ |

Note1. FR-5=3.5 x 1.5 inches

Note2. Thermal Resistance measured obtained via infrared Scan Method

Forward Voltage at $I_F=10\text{mA}$ <0.9V and <1.5V at 200mA

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

| Device | V_{Z1} (V) Notes 3 and 4 at $I_{ZT1}=5\text{mA}$ | | | Z_{ZT1} (Note5) (Ω) at $I_{ZT1}=5\text{mA}$ max | V_{Z2} (V) Notes 3 and 4 at $I_{ZT2}=1\text{mA}$ | | Z_{ZT2} (Note 5) (Ω) at $I_{ZT2}=1\text{mA}$ max | Max Reverse Current | | Marking |
|---------|--|-----|-------|---|--|------|--|-------------------------------|-----------|---------|
| | min | nom | max | | min | max | | I_R at μA Max | V_R (V) | |
| MMSZ4V7 | 4.47 | 4.7 | 4.94 | 80 | 3.7 | 4.7 | 500 | 3.0 | 2.0 | U3 |
| MMSZ5V1 | 4.85 | 5.1 | 5.36 | 60 | 4.2 | 5.3 | 480 | 2.0 | 2.0 | U4 |
| MMSZ5V6 | 5.32 | 5.6 | 5.88 | 40 | 4.8 | 6.0 | 400 | 1.0 | 2.0 | U5 |
| MMSZ6V2 | 5.89 | 6.2 | 6.51 | 10 | 5.6 | 6.6 | 150 | 3.0 | 4.0 | V1 |
| MMSZ6V8 | 6.46 | 6.8 | 7.14 | 15 | 6.3 | 7.2 | 80 | 2.0 | 4.0 | V2 |
| MMSZ7V5 | 7.13 | 7.5 | 7.88 | 15 | 6.9 | 7.9 | 80 | 1.0 | 5.0 | V3 |
| MMSZ8V2 | 7.79 | 8.2 | 8.61 | 15 | 7.6 | 8.7 | 80 | 0.7 | 5.0 | V4 |
| MMSZ9V1 | 8.65 | 9.1 | 9.56 | 15 | 8.4 | 9.6 | 100 | 0.5 | 6.0 | V5 |
| MMSZ10 | 9.50 | 10 | 10.50 | 20 | 9.3 | 10.6 | 150 | 0.2 | 7.0 | A1 |

Note3. Tolerance of +/- 5% on the nominal Zener Voltage

Note4. Tolerance and Voltage Designation: Zener Voltage (V_Z) is measured with the Zener Current Applied for $PW=1\text{ms}$

Note5. Z_{ZT} and Z_{ZK} are measured by dividing the AC Voltage drop across the device by the AC Current Applied

The specified limits are for $I_{Z(AC)}=0.1 I_{Z(DC)}$ with the AC frequency =1KHz

MMSZ4V7_56Rev_1 050506E



Forward Voltage at $I_F=10\text{mA}$ $<0.9\text{V}$ and $<1.5\text{V}$ at 200mA

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

| Device | V_{Z1} (V) Notes 3 and 4 at $I_{ZT1}=5\text{mA}$ | | | Z_{ZT1} (Note5) (Ω) at $I_{ZT1}=5\text{mA}$ | V_{Z2} (V) Notes 3 and 4 at $I_{ZT2}=1\text{mA}$ | | Z_{ZT2} (Note 5) (Ω) at $I_{ZT2}=1\text{mA}$ | Max Reverse Current | | Marking |
|--------|--|-----|-------|--|--|------|---|-------------------------------|-----------|---------|
| | min | nom | max | | min | max | | I_R at μA Max | V_R (V) | |
| MMSZ11 | 10.45 | 11 | 11.55 | 20 | 10.2 | 11.6 | 150 | 0.1 | 8.0 | A2 |
| MMSZ12 | 11.40 | 12 | 12.60 | 25 | 11.2 | 12.7 | 150 | 0.1 | 8.0 | A3 |
| MMSZ13 | 12.35 | 13 | 13.65 | 30 | 12.3 | 14.0 | 170 | 0.1 | 8.0 | A4 |
| MMSZ15 | 14.25 | 15 | 15.75 | 30 | 13.7 | 15.5 | 200 | 0.05 | 10.5 | A5 |
| MMSZ16 | 15.20 | 16 | 16.80 | 40 | 15.2 | 17.0 | 200 | 0.05 | 11.2 | X1 |
| MMSZ18 | 17.10 | 18 | 18.90 | 45 | 16.7 | 19.0 | 225 | 0.05 | 12.6 | X2 |
| MMSZ20 | 19.00 | 20 | 21.00 | 55 | 18.7 | 21.1 | 225 | 0.05 | 14 | X3 |
| MMSZ22 | 20.90 | 22 | 23.10 | 55 | 20.7 | 23.2 | 250 | 0.05 | 15.4 | X4 |
| MMSZ24 | 22.80 | 24 | 25.20 | 70 | 22.7 | 25.5 | 250 | 0.05 | 16.8 | X5 |

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

| Device | V_{Z1} (V) Notes 3 and 4 at $I_{ZT1}=2\text{mA}$ | | | Z_{ZT1} (Note 5) (Ω) at $I_{ZT1}=2\text{mA}$ | V_{Z2} (V) Notes 3 and 4 at $I_{ZT2}=0.1\text{mA}$ | | Z_{ZT2} (Note 5) (Ω) at $I_{ZT2}=0.5\text{mA}$ | Max Reverse Current | | Marking |
|--------|--|-----|-------|---|--|------|---|-------------------------------|-----------|---------|
| | min | nom | max | | min | max | | I_R at μA Max | V_R (V) | |
| MMSZ27 | 25.65 | 27 | 28.35 | 80 | 25.0 | 28.9 | 300 | 0.05 | 18.9 | Y1 |
| MMSZ30 | 28.50 | 30 | 31.50 | 80 | 27.8 | 32.0 | 300 | 0.05 | 21.0 | Y2 |
| MMSZ33 | 31.35 | 33 | 34.65 | 80 | 30.8 | 35.0 | 325 | 0.05 | 23.1 | Y3 |
| MMSZ36 | 34.20 | 36 | 37.80 | 90 | 33.8 | 38.0 | 350 | 0.05 | 25.2 | Y4 |
| MMSZ39 | 37.05 | 39 | 40.95 | 130 | 36.7 | 41.0 | 350 | 0.05 | 27.3 | Y5 |
| MMSZ43 | 40.85 | 43 | 45.15 | 150 | 39.7 | 46.0 | 375 | 0.05 | 30.1 | Z1 |
| MMSZ47 | 44.65 | 47 | 49.35 | 170 | 43.7 | 50.0 | 375 | 0.05 | 32.9 | Z2 |
| MMSZ51 | 48.45 | 51 | 53.55 | 180 | 47.6 | 54.0 | 400 | 0.05 | 35.7 | Z3 |
| MMSZ56 | 53.20 | 56 | 58.80 | 200 | 51.5 | 60.0 | 425 | 0.05 | 39.2 | Z4 |

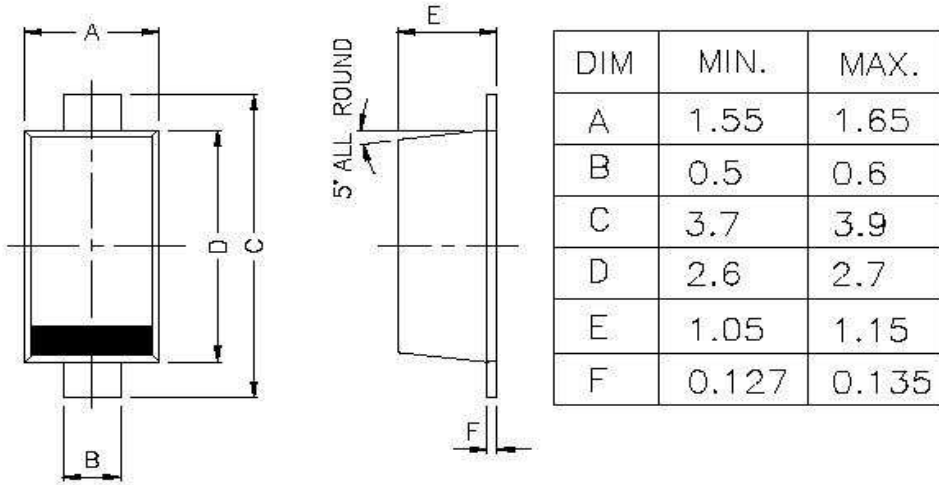
Note3. Tolerance of +/- 5% on the nominal Zener Voltage

Note4. Tolerance and Voltage Designation: Zener Voltage (V_Z) is measured with the Zener Current Applied for $PW=1\text{ms}$

Note5. Z_{ZT} and Z_{ZK} are measured by dividing the AC Voltage drop across the device by the AC Current Applied

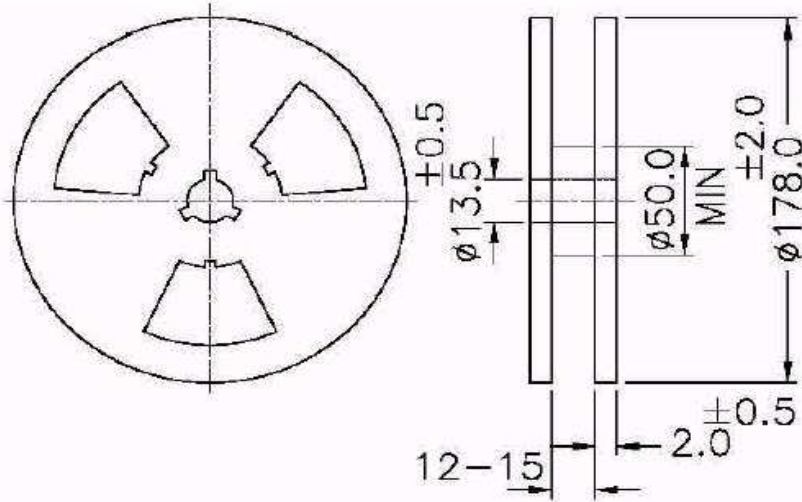
The specified limits are for $I_{Z(AC)}=0.1 I_{Z(DC)}$ with the AC frequency =1KHz

PACKAGE SOD-123 FL



All dimensions are in mm

CATHODE IS MARKED BY BAND



ALL DIMENSIONS ARE IN mm
REEL ϕ 178 mm (7")
3000 Pcs / REEL

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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