

Microsemi Corp.

The diode experts

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MLL5913 thru MLL5956

DESCRIPTION/FEATURES

- LEADLESS PACKAGE FOR SURFACE MOUNT TECHNOLOGY
- IDEAL FOR HIGH DENSITY MOUNTING
- VOLTAGE RANGE—3.3 TO 200 VOLTS
- HERMETICALLY SEALED, DOUBLE-SLUG GLASS CONSTRUCTION
- METALLURGICALLY ENHANCED CONTACT CONSTRUCTION

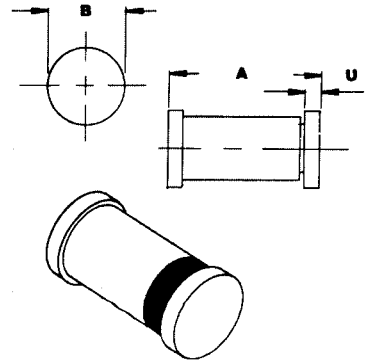
MAXIMUM RATINGS

1.50 Watts DC Power Rating (See Power Derating Curve)
-65°C to +200°C Operating and Storage Junction Temperature
Power Derating 10.0 mW/°C above 50°C

APPLICATION

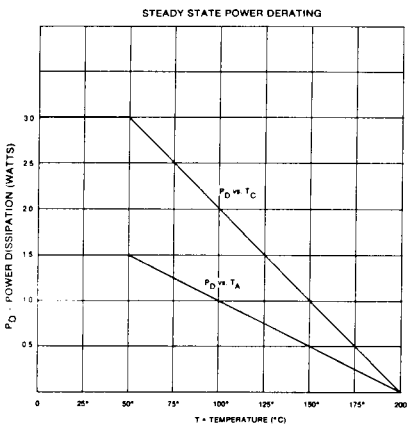
This surface mountable zener diode series is similar to the 1N5913 thru 1N5956 registration in the DO-41 equivalent package except that it meets the new JEDEC surface mount outline DO-213AB. It is an ideal selection for applications of high density and low parasitic requirements. Due to its glass hermetic qualities, it may also be considered for high reliability applications when required by a source control drawing (SCD).

LEADLESS GLASS ZENER DIODES



| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|--------|------|
| | MIN | MAX | MIN | MAX |
| A | 4.80 | 5.20 | .189 | .205 |
| B | 2.39 | 2.66 | .094 | .105 |
| U | .41 | .55 | .016 | .022 |

DO-213AB



MECHANICAL CHARACTERISTICS

CASE: Hermetically sealed glass with solder contact tabs at each end.

FINISH: All external surfaces are corrosion resistant, readily solderable.

POLARITY: Banded end is cathode.

THERMAL RESISTANCE: 50°C/Watt typical junction to contact (case) tabs. (See Power Derating Curve)

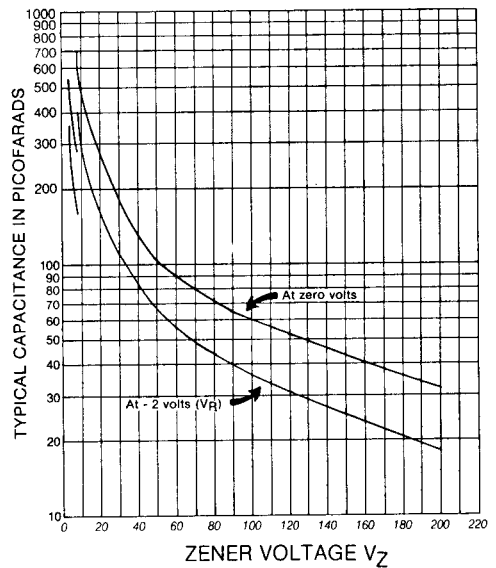
MOUNTING POSITION: Any.

MLL5913 thru MLL5956

ELECTRICAL CHARACTERISTICS @ $T_C = 30^\circ\text{C}$

| JEODEC TYPE NUMBER | ZENER VOLTAGE V_Z (Note 2) | TEST CURRENT I_{ZT} | DYNAMIC IMPEDANCE Z_{ZT} (Note 3) | KNEE CURRENT I_{ZK} | KNEE IMPEDANCE Z_{ZK} (Note 3) | REVERSE CURRENT I_R | REVERSE VOLTAGE V_R | MAX. DC CURRENT I_{ZM} |
|--------------------|------------------------------|-----------------------|-------------------------------------|-----------------------|----------------------------------|-----------------------|-----------------------|--------------------------|
| (/Note 1) | Volts | mA | Ω | mA | Ω | μA | Volts | mA |
| MLL5913 | 3.3 | 1136 | 10 | 1.0 | 500 | 100 | 1.0 | 454 |
| MLL5914 | 3.6 | 1042 | 9.0 | 1.0 | 500 | 75 | 1.0 | 416 |
| MLL5915 | 3.9 | 961 | 7.5 | 1.0 | 500 | 25 | 1.0 | 384 |
| MLL5916 | 4.3 | 812 | 6.0 | 1.0 | 500 | 5.0 | 1.0 | 348 |
| MLL5917 | 4.7 | 798 | 5.0 | 1.0 | 500 | 5.0 | 1.5 | 319 |
| MLL5918 | 5.1 | 735 | 4.0 | 1.0 | 350 | 5.0 | 2.0 | 294 |
| MLL5919 | 5.6 | 665 | 2.0 | 1.0 | 250 | 5.0 | 3.0 | 267 |
| MLL5920 | 6.2 | 605 | 2.0 | 1.0 | 200 | 5.0 | 4.0 | 241 |
| MLL5921 | 6.8 | 551 | 2.5 | 1.0 | 200 | 5.0 | 5.2 | 220 |
| MLL5922 | 7.5 | 50 | 3.0 | 0.5 | 400 | 5.0 | 6.0 | 200 |
| MLL5923 | 8.2 | 45.7 | 3.5 | 0.5 | 400 | 5.0 | 6.5 | 182 |
| MLL5924 | 9.1 | 41.2 | 4.0 | 0.5 | 500 | 5.0 | 7.0 | 164 |
| MLL5925 | 10 | 37.5 | 4.5 | 0.25 | 500 | 5.0 | 8.0 | 150 |
| MLL5926 | 11 | 34.1 | 5.5 | 0.25 | 5.0 | 10 | 8.4 | 138 |
| MLL5927 | 12 | 31.2 | 6.5 | 0.25 | 550 | 1.0 | 9.1 | 125 |
| MLL5928 | 13 | 28.8 | 7.0 | 0.25 | 550 | 1.0 | 9.9 | 115 |
| MLL5929 | 15 | 25 | 9.0 | 0.25 | 600 | 1.0 | 11.4 | 100 |
| MLL5930 | 16 | 23.4 | 10 | 0.25 | 600 | 1.0 | 12.2 | 93 |
| MLL5931 | 18 | 20.8 | 12 | 0.25 | 650 | 1.0 | 13.7 | 83 |
| MLL5932 | 20 | 18.7 | 14 | 0.25 | 650 | 1.0 | 15.2 | 75 |
| MLL5933 | 22 | 17 | 17.5 | 0.25 | 650 | 1.0 | 16.7 | 68 |
| MLL5934 | 24 | 15.6 | 19 | 0.25 | 700 | 1.0 | 18.2 | 62 |
| MLL5935 | 27 | 13.9 | 23 | 0.25 | 700 | 1.0 | 20.6 | 55 |
| MLL5936 | 30 | 12.5 | 28 | 0.25 | 750 | 1.0 | 22.9 | 50 |
| MLL5937 | 33 | 11.4 | 33 | 0.25 | 800 | 1.0 | 25.1 | 45 |
| MLL5938 | 36 | 10.4 | 38 | 0.25 | 850 | 1.0 | 27.4 | 41 |
| MLL5939 | 39 | 9.6 | 45 | 0.25 | 900 | 1.0 | 29.7 | 38 |
| MLL5940 | 43 | 8.7 | 53 | 0.25 | 950 | 1.0 | 32.7 | 34 |
| MLL5941 | 47 | 8.0 | 67 | 0.25 | 1000 | 1.0 | 35.8 | 31 |
| MLL5942 | 51 | 7.3 | 70 | 0.25 | 1100 | 1.0 | 38.8 | 29 |
| MLL5943 | 56 | 6.7 | 86 | 0.25 | 1300 | 1.0 | 42.6 | 26 |
| MLL5944 | 62 | 6.0 | 100 | 0.25 | 1500 | 1.0 | 47.1 | 24 |
| MLL5945 | 68 | 5.5 | 120 | 0.25 | 1700 | 1.0 | 51.2 | 22 |
| MLL5946 | 75 | 5.0 | 140 | 0.25 | 2000 | 1.0 | 56 | 20 |
| MLL5947 | 82 | 4.6 | 160 | 0.25 | 2500 | 1.0 | 62.2 | 18 |
| MLL5948 | 91 | 4.1 | 200 | 0.25 | 3000 | 1.0 | 69.2 | 16 |
| MLL5949 | 100 | 3.7 | 250 | 0.25 | 3100 | 1.0 | 76 | 15 |
| MLL5950 | 110 | 3.4 | 300 | 0.25 | 4000 | 1.0 | 83.6 | 13 |
| MLL5951 | 120 | 3.1 | 380 | 0.25 | 4500 | 1.0 | 91.2 | 12 |
| MLL5952 | 130 | 2.9 | 450 | 0.25 | 5000 | 1.0 | 98.9 | 11 |
| MLL5953 | 150 | 2.5 | 600 | 0.25 | 6000 | 1.0 | 114 | 10 |
| MLL5954 | 160 | 2.3 | 700 | 0.25 | 6500 | 1.0 | 121.6 | 9.0 |
| MLL5955 | 180 | 2.1 | 900 | 0.25 | 7000 | 1.0 | 136.8 | 8.0 |
| MLL5956 | 200 | 1.9 | 1200 | 0.25 | 8000 | 1.0 | 152 | 7.0 |

CAPACITANCE vs. V_Z CURVE



T_C Maintained at 30°C , $V_F = 1.2\text{ V max @ } I_F = 200\text{ mA}$ (all types)

NOTE 1: No suffix indicates a $\pm 20\%$ tolerance on nominal V_Z . The suffix A denotes $\pm 10\%$, B denotes $\pm 5\%$, C denotes $\pm 2\%$, and D denotes $\pm 1\%$ tolerance.

NOTE 2: Zener voltage (V_Z) is measured at $T_C = 30^\circ\text{C}$. Voltage measurement to be performed 90 seconds after application of DC current.

NOTE 3: The zener impedance is derived from the 60 Hz 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 on I_{ZT} or I_{ZK} .