



Micro Commercial Components

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LSH2 Series THRU LSH36 Series

**500 mW
Zener Diode
1.9 to 37.2 Volts**

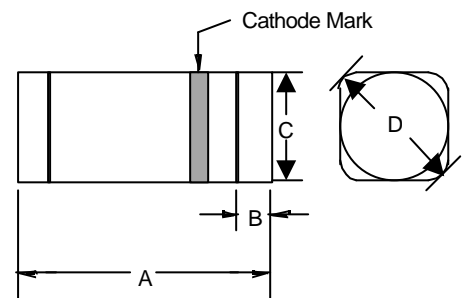
Features

- Low Leakage
- Low Zener Impedance
- High Reliability

Maximum Ratings

| Symbol | Rating | Rating | Unit |
|-----------|---------------------------|-------------|------|
| P_b | Power dissipation | 500 | W |
| T_j | Junction Temperature | -55 to +175 | °C |
| T_{STG} | Storage Temperature Range | -55 to +175 | °C |

Quadro MELF



| DIM | INCHES | | MM | | NOTE |
|-----|--------|------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .130 | .146 | 3.30 | 3.70 | |
| B | .008 | .016 | .20 | .40 | |
| C | .055 | .063 | 1.40 | 1.60 | ∅ |
| D | .067 | | 1.70 | | |

SUGGESTED SOLDER PAD LAYOUT

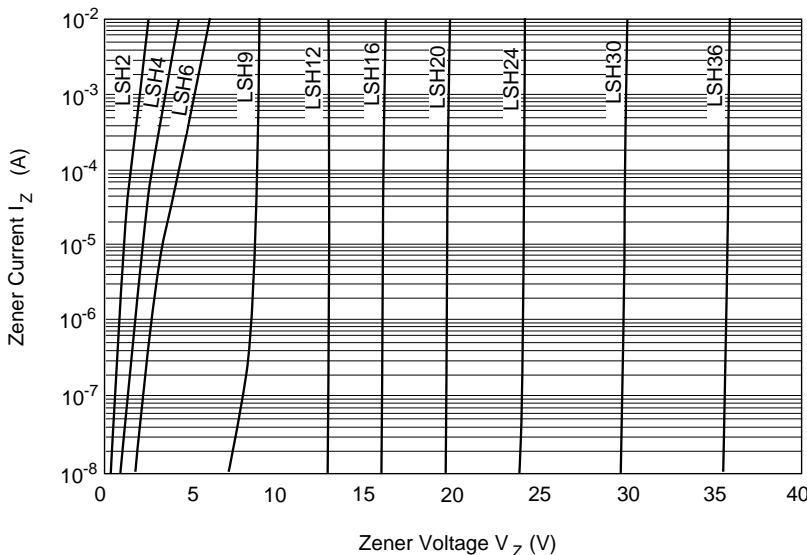
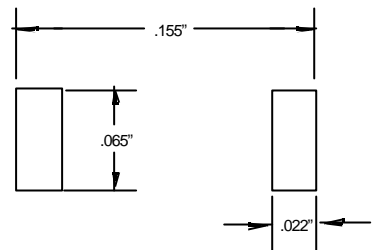


Fig.1 Zener current Vs. Zener voltage

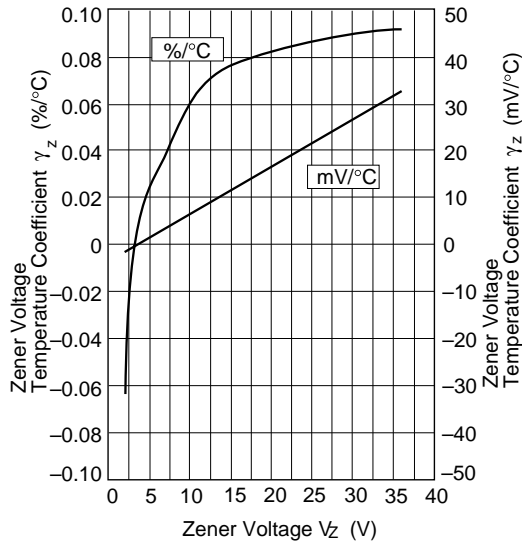


Fig.2 Temperature Coefficient Vs. Zener voltage

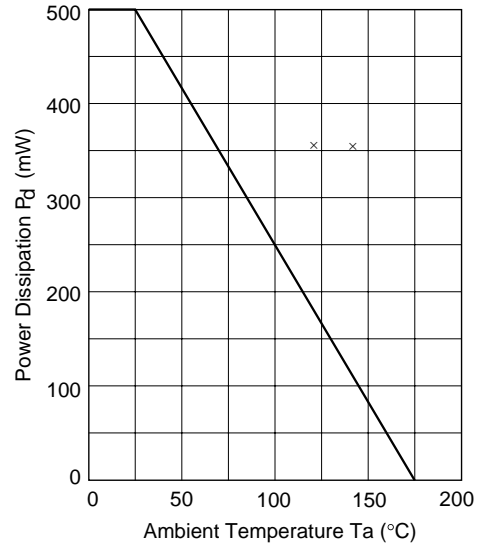


Fig.3 Power Dissipation Vs. Ambient Temperature

ELECTRICAL CHARACTERISTICS @25°C

| MCC PART NUMBER | | ZENER VOLTAGE V_z @ I_{zT} VOLTS | | TEST CURRENT I_{zT} | Dynamic Resistance r_d (Max) I_z | | REVERSE CURRENT I_R (Max) @ V_R | |
|-----------------|-------|--------------------------------------|-----|-----------------------|--------------------------------------|-----|-------------------------------------|-------|
| Type | Grade | Min | Max | mA | OHMS | mA | μ A | VOLTS |
| LSH2 | A3 | 1.8 | 2.0 | 5.0 | 100 | 5.0 | 25 | 0.5 |
| | B1 | 1.9 | 2.1 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | B2 | 2.0 | 2.2 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | B3 | 2.1 | 2.3 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | C1 | 2.2 | 2.4 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | C2 | 2.3 | 2.5 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| LSH3 | C3 | 2.4 | 2.6 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | A1 | 2.5 | 2.7 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | A2 | 2.6 | 2.8 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | A3 | 2.7 | 2.9 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | B1 | 2.8 | 3.0 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | B2 | 2.9 | 3.1 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| LSH4 | B3 | 3.0 | 3.2 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | C1 | 3.1 | 3.3 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | C2 | 3.2 | 3.4 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | C3 | 3.3 | 3.5 | 5.0 | 100 | 5.0 | 5.0 | 0.5 |
| | A1 | 3.4 | 3.6 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| | A2 | 3.5 | 3.7 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| | A3 | 3.6 | 3.8 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| | B1 | 3.7 | 3.9 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| LSH4 | B2 | 3.8 | 4.0 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| | B3 | 3.9 | 4.1 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| | C1 | 4.0 | 4.2 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |
| | C2 | 4.1 | 4.3 | 5.0 | 100 | 5.0 | 5.0 | 1.0 |

LSH2 Series thru LSH36 Series

ELECTRICAL CHARACTERISTICS @25°C

| MCC PART NUMBER | | ZENER VOLTAGE $V_Z @ I_{ZT}$ VOLTS | | TEST CURRENT I_{ZT} | Dynamic Resistance r_d (Max) I_Z | | REVERSE CURRENT I_R (Max) @ V_R | |
|-----------------|-------|--|------|--------------------------|---|-----|---|-------|
| Type | Grade | Min | Max | mA | OHMS | mA | μA | VOLTS |
| LSH5 | A1 | 4.3 | 4.5 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | A2 | 4.4 | 4.6 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | A3 | 4.5 | 4.7 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | B1 | 4.6 | 4.8 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | B2 | 4.7 | 4.9 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | B3 | 4.8 | 5.0 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | C1 | 4.9 | 5.1 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | C2 | 5.0 | 5.2 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| | C3 | 5.1 | 5.3 | 5.0 | 100 | 5.0 | 5.0 | 1.5 |
| LSH6 | A1 | 5.2 | 5.5 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | A2 | 5.3 | 5.6 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | A3 | 5.4 | 5.7 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | B1 | 5.5 | 5.8 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | B2 | 5.6 | 5.9 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | B3 | 5.7 | 6.0 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | C1 | 5.8 | 6.1 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | C2 | 6.0 | 6.3 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| | C3 | 6.1 | 6.4 | 5.0 | 40 | 5.0 | 5.0 | 2.0 |
| LSH7 | A1 | 6.3 | 6.6 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | A2 | 6.4 | 6.7 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | A3 | 6.6 | 6.9 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | B1 | 6.7 | 7.0 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | B2 | 6.9 | 7.2 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | B3 | 7.0 | 7.3 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | C1 | 7.2 | 7.6 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | C2 | 7.3 | 7.7 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| | C3 | 7.5 | 7.9 | 5.0 | 15 | 5.0 | 1.0 | 3.5 |
| LSH9 | A1 | 7.7 | 8.1 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | A2 | 7.9 | 8.3 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | A3 | 8.1 | 8.5 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | B1 | 8.3 | 8.7 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | B2 | 8.5 | 8.9 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | B3 | 8.7 | 9.1 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | C1 | 8.9 | 9.3 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | C2 | 9.1 | 9.5 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| | C3 | 9.3 | 9.7 | 5.0 | 20 | 5.0 | 1.0 | 5.0 |
| LSH11 | A1 | 9.5 | 9.9 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | A2 | 9.7 | 10.1 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | A3 | 9.9 | 10.3 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | B1 | 10.2 | 10.6 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | B2 | 10.4 | 10.8 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | B3 | 10.7 | 11.1 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | C1 | 10.9 | 11.3 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | C2 | 11.1 | 11.6 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| | C3 | 11.4 | 11.9 | 5.0 | 25 | 5.0 | 1.0 | 7.5 |
| LSH12 | A1 | 11.6 | 12.1 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | A2 | 11.9 | 12.4 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | A3 | 12.2 | 12.7 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | B1 | 12.4 | 12.9 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | B2 | 12.6 | 13.1 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | B3 | 12.9 | 13.4 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | C1 | 13.2 | 13.7 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | C2 | 13.5 | 14.0 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| | C3 | 13.8 | 14.3 | 5.0 | 35 | 5.0 | 1.0 | 9.5 |
| LSH15 | 1 | 14.1 | 14.7 | 5.0 | 40 | 5.0 | 1.0 | 11 |
| | 2 | 14.5 | 15.1 | 5.0 | 40 | 5.0 | 1.0 | 11 |
| | 3 | 14.9 | 15.5 | 5.0 | 40 | 5.0 | 1.0 | 11 |
| LSH16 | 1 | 15.3 | 15.9 | 5.0 | 45 | 5.0 | 1.0 | 12 |
| | 2 | 15.7 | 16.5 | 5.0 | 45 | 5.0 | 1.0 | 12 |
| | 3 | 16.3 | 17.1 | 5.0 | 45 | 5.0 | 1.0 | 12 |
| LSH18 | 1 | 16.9 | 17.7 | 5.0 | 55 | 5.0 | 1.0 | 13 |
| | 2 | 17.5 | 18.3 | 5.0 | 55 | 5.0 | 1.0 | 13 |
| | 3 | 18.1 | 19.0 | 5.0 | 55 | 5.0 | 1.0 | 13 |
| LSH20 | 1 | 18.8 | 19.7 | 2.0 | 60 | 2.0 | 1.0 | 15 |
| | 2 | 19.5 | 20.4 | 2.0 | 60 | 2.0 | 1.0 | 15 |
| | 3 | 20.2 | 21.1 | 2.0 | 60 | 2.0 | 1.0 | 15 |

LSH2 Series thru LSH36 Series

ELECTRICAL CHARACTERISTICS @25°C

| MCC PART NUMBER | | ZENER VOLTAGE $V_Z @ I_{ZT}$ VOLTS | | TEST CURRENT I_{ZT} | Dynamic Resistance $r_d(\text{Max})$ I_Z | | REVERSE CURRENT $I_R(\text{Max}) @ V_R$ | |
|-----------------|-------|--|------|--------------------------|---|-----|--|-------|
| Type | Grade | Min | Max | mA | OHMS | mA | μA | VOLTS |
| LSH22 | 1 | 20.9 | 21.9 | 2.0 | 65 | 2.0 | 1.0 | 17 |
| | 2 | 21.6 | 22.6 | 2.0 | 65 | 2.0 | 1.0 | 17 |
| | 3 | 22.3 | 23.3 | 2.0 | 65 | 2.0 | 1.0 | 17 |
| LSH24 | 1 | 22.9 | 24.0 | 2.0 | 70 | 2.0 | 1.0 | 19 |
| | 2 | 23.6 | 24.7 | 2.0 | 70 | 2.0 | 1.0 | 19 |
| | 3 | 24.3 | 25.5 | 2.0 | 70 | 2.0 | 1.0 | 19 |
| LSH27 | 1 | 25.2 | 26.6 | 2.0 | 80 | 2.0 | 1.0 | 21.0 |
| | 2 | 26.2 | 27.6 | 2.0 | 80 | 2.0 | 1.0 | 21.0 |
| | 3 | 27.2 | 28.6 | 2.0 | 80 | 2.0 | 1.0 | 21.0 |
| LSH30 | 1 | 28.2 | 29.6 | 2.0 | 100 | 2.0 | 1.0 | 23.0 |
| | 2 | 29.2 | 30.6 | 2.0 | 100 | 2.0 | 1.0 | 23.0 |
| | 3 | 30.2 | 31.6 | 2.0 | 100 | 2.0 | 1.0 | 23.0 |
| LSH33 | 1 | 31.2 | 32.6 | 2.0 | 120 | 2.0 | 1.0 | 25.0 |
| | 2 | 32.2 | 33.6 | 2.0 | 120 | 2.0 | 1.0 | 25.0 |
| | 3 | 33.2 | 34.6 | 2.0 | 120 | 2.0 | 1.0 | 25.0 |
| LSH36 | 1 | 34.2 | 35.7 | 2.0 | 140 | 2.0 | 1.0 | 27.0 |
| | 2 | 35.3 | 36.8 | 2.0 | 140 | 2.0 | 1.0 | 27.0 |
| | 3 | 36.4 | 38.0 | 2.0 | 140 | 2.0 | 1.0 | 27.0 |



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