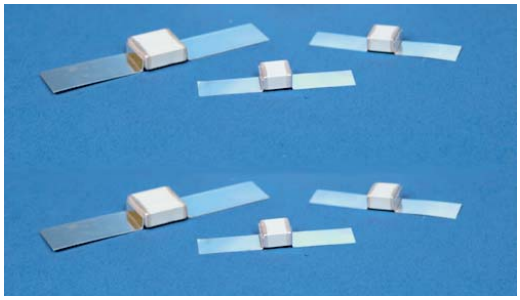
# Hi-Q® High RF Power Ribbon Leaded MLC Capacitors



Hi-Q®, High RF Power, Ribbon Leaded MLC Capacitors from AVX Corporation are characterized with ultra-low ESR and dissipation factor at high frequencies. The HQL-style parts are constructed using non-magnetic materials. They are designed to handle high power and high voltage levels for applications in RF power amplifiers, inductive heating, high magnetic field environments (MRI coils), medical and industrial electronics.

## HOW TO ORDER

| HQLC | A | A | 271 | J | A | A |
|---|---|---|---|---|---|---|
| **AVX Style**<br>HQLC<br>HQLE | **Voltage**<br>600V/630 = C<br>1000V = A<br>1500V = S<br>2000V = G<br>2500V = W<br>3000V = H<br>4000V = J<br>5000V = K<br>7200V = M | **Temperature Coefficient**<br>C0G = A | **Capacitance Code**<br>(2 significant digits + no. of zeros)<br>Examples:<br>4.7 pF = 4R7<br>10 pF = 100<br>100 pF = 101<br>1,000 pF = 102 | **Capacitance Tolerance**<br>C = ±0.25pF (<13pF)<br>D = ±0.50pF (<25pF)<br>F = ±1% (≥25pF)<br>G = ±2% (≥13pF)<br>J = ±5%<br>K = ±10%<br>M = ±20% | **Test Level**<br>A = Standard | **Lead Style**<br>A = Axial Ribbon<br>M = Microstrip |

### Capacitance Range (pF)

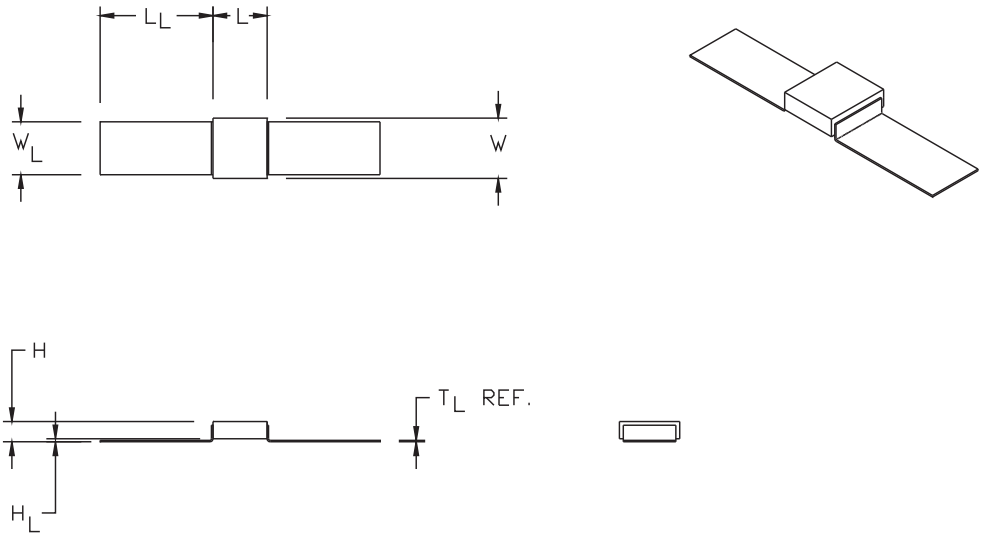
| Style | 600/630 WVDC min./max. | 1000 WVDC min./max. | 1500 WVDC min./max. | 2000 WVDC min./max. | 2500 WVDC min./max. | 3000 WVDC min./max. | 4000 WVDC min./max. | 5000 WVDC min./max. | 7200 WVDC min./max. |
|---|---|---|---|---|---|---|---|---|---|
| **HQLC** | 2200 - 2700 | 1500 - 1800 | 820 - 1200 | 470 - 680 | 330 - 390 | 3.3 - 270 | 3.3 - 6.8 | | |
| **HQLE** | 3.3 - 6800 | 3.3 - 4700 | 3.3 - 2700 | 3.3 - 1800 | 3.3 - 1000 | 3.3 - 680 | 3.3 - 390 | 3.3 - 180 | 3.3 - 100 |

## DIELECTRIC PERFORMANCE CHARACTERISTICS

| | |
|---|---|
| **Capacitance Range** | 3.3pF to 6,800pF<br>(25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤ 1000pF use 1MHz) |
| **Capacitance Tolerances** | ±0.25pF, ±0.50pF, ±1%, ±2%, ±5%, ±10%, ±20% |
| **Dissipation Factor** | 0.1% Max (+25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤ 1000pF use 1MHz) |
| **Operating Temperature Range** | -55°C to +125°C |
| **Temperature Characteristics** | C0G: 0 ± 30 ppm/°C (-55°C to +125°C) |
| **Voltage Ratings** | 600, 630, 1000, 1500, 2000, 2500, 3000, 4000, 5000, 7200VDC |
| **Insulation Resistance** | 100K MΩ min. @ +25°C and 500VDC<br>10K MΩ min. @ +125°C and 500VDC |
| **Dielectric Strength** | Minimum 120% of rated WVDC |

# Hi-Q® High RF Power Ribbon Leaded MLC Capacitors

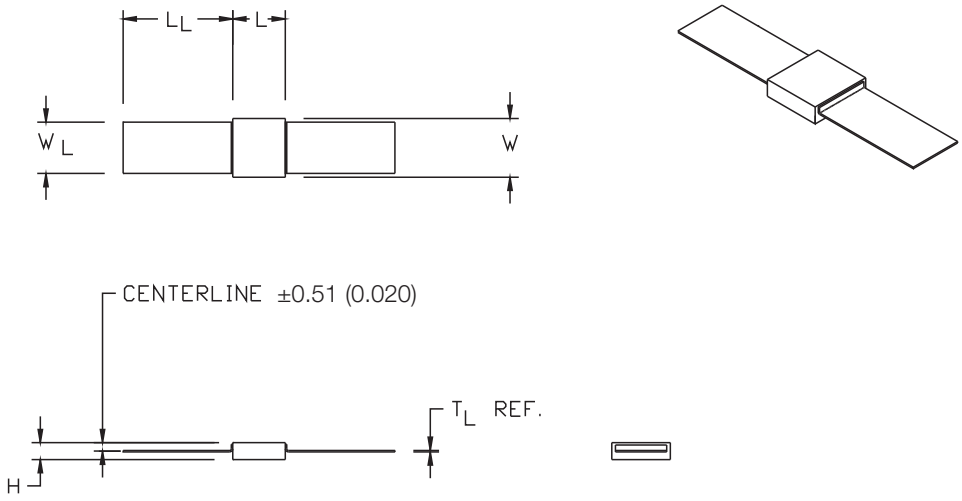
## Microstrip Leads (Lead Style "M")




| DIMENSIONS millimeters (inches) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Unit Size | L ±0.51 (0.020) | $L_L$ Min. | W ±0.64 (0.025) | $W_L$ ±0.38 (0.015) | H ±0.64 (0.025) | $H_L$ ±0.38 (0.015) | $T_L$ Ref. |
| HQLC | 5.72 (0.225) | 12.7 (0.500) | 6.35 (0.250) | 6.10 (0.240) | 3.68 (0.145) | 0.64 (0.025) | 0.10 (0.004) |
| HQLE | 9.40 (0.370) | 19.1 (0.750) | 10.2 (0.400) | 8.89 (0.350) | 3.68 (0.145) | 0.64 (0.025) | 0.25 (0.010) |

Note: Side to side lead alignment shall be within ±0.25 (0.010)

## Axial Ribbon Leads (Lead Style "A")

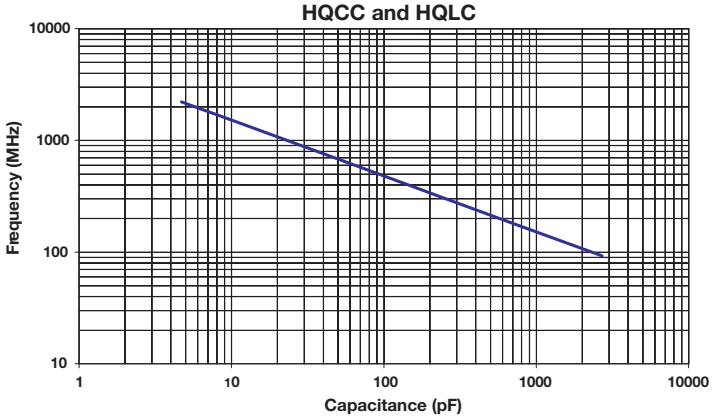



| DIMENSIONS millimeters (inches) | | | | | | |
|---|---|---|---|---|---|---|
| Unit Size | L ±0.51 (0.020) | $L_L$ Min. | W ±0.64 (0.025) | $W_L$ ±0.38 (0.015) | H ±0.64 (0.025) | $T_L$ Ref. |
| HQLC | 5.72 (0.225) | 12.7 (0.500) | 6.35 (0.250) | 6.10 (0.240) | 3.18 (0.125) | 0.10 (0.004) |
| HQLE | 9.40 (0.370) | 19.1 (0.750) | 10.2 (0.400) | 8.89 (0.350) | 3.18 (0.125) | 0.25 (0.010) |

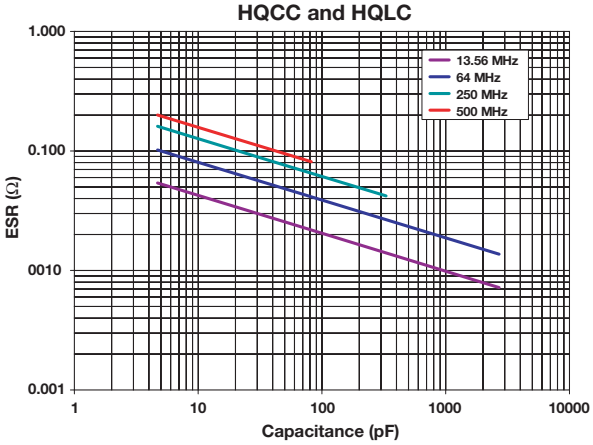
Note: Side to side lead alignment shall be within ±0.25 (0.010)

## PERFORMANCE CHARACTERISTICS

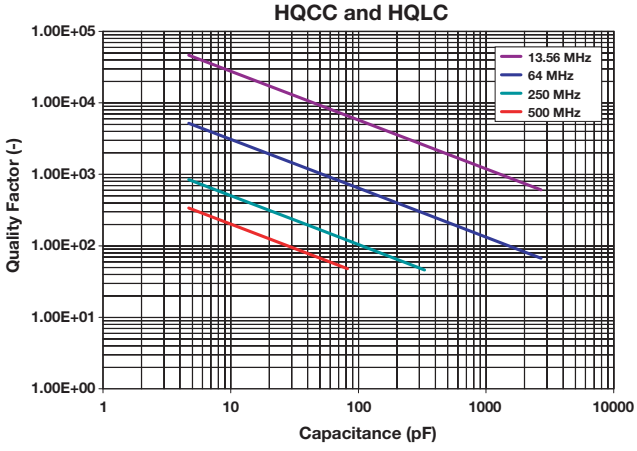
Typical Series Resonant Frequency vs. Capacitance
HQCC and HQLC



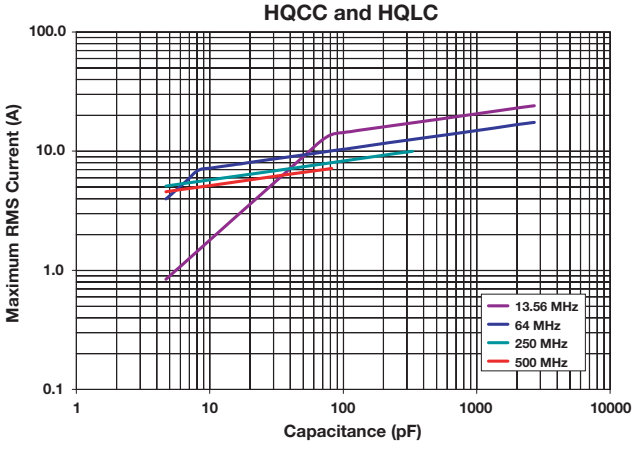

Typical ESR vs. Capacitance
HQCC and HQLC




Typical Quality Factor vs. Capacitance
HQCC and HQLC

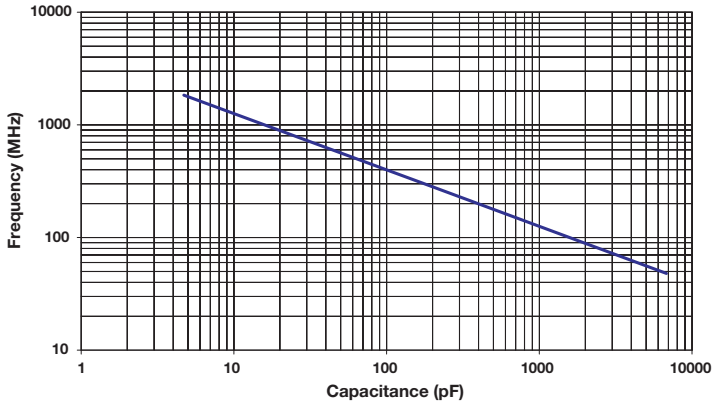



Maximum RMS Current vs. Capacitance
HQCC and HQLC

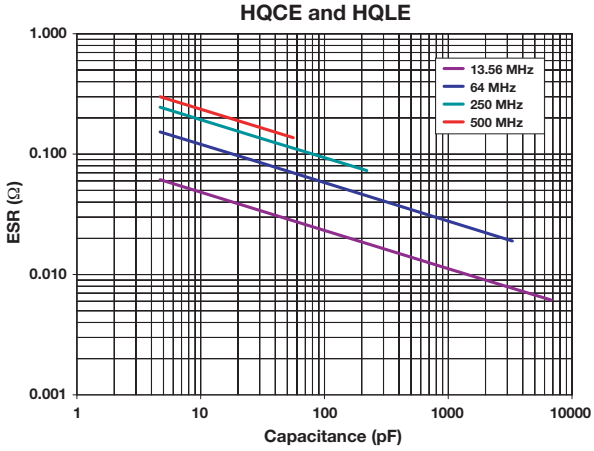


## PERFORMANCE CHARACTERISTICS

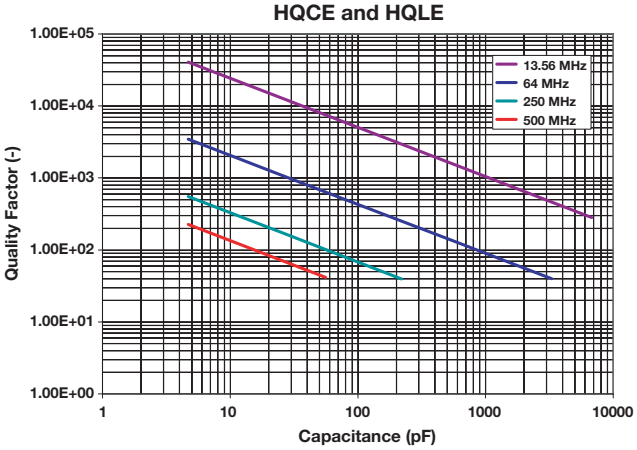
Typical Series Resonant Frequency vs. Capacitance
HQCE and HQLE




Typical ESR vs. Capacitance
HQCE and HQLE




Typical Quality Factor vs. Capacitance
HQCE and HQLE




Maximum RMS Current vs. Capacitance
HQCE and HQLE