

Features

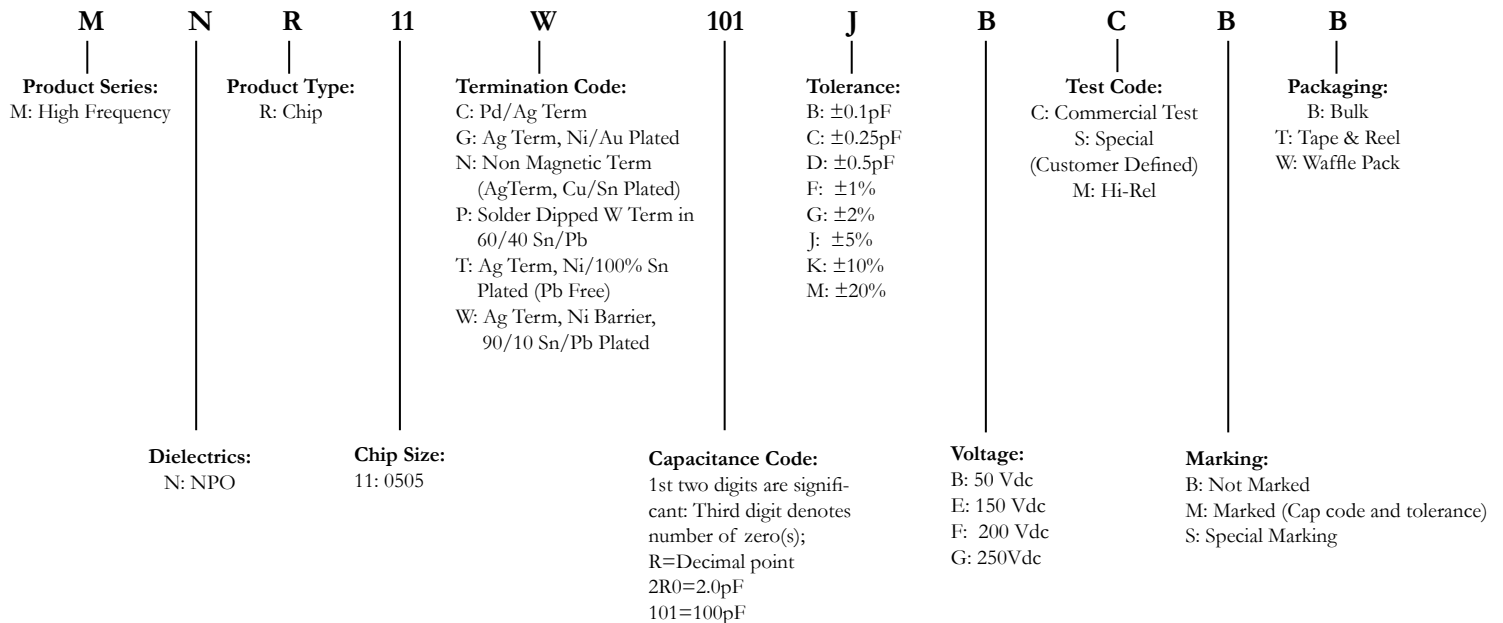
- Capacitance Range: 0.1pF to 1000pF
- High Q Low ESR/ESL
- High Power
- Ultra Stable Performance
- High Self-Resonance
- Operating Voltages
 - DC Voltage: 50V and 150V
- Extended WVDC up to 250VDC



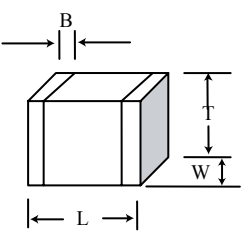
Applications

Typical Functional Applications: Bypass, Coupling, Tuning, Feedback, Impedance Matching and DC Blocking. Devices such as RF oscillators and precision timing circuits requiring a predictable temperature coefficient are examples of devices utilizing these capacitors.

AFM Part Number Code



Chip Dimensions and Termination Options

| AFM Series | Term Code | Type | MIL-PRF-55681 | Outlines | Body Dimensions Inches (mm) | | | Lead and Termination Dimensions and Materials | |
|------------|-----------|---|---------------|---|--|-------------------------|--------------------|---|--|
| | | | | | Length (L) | Width (W) | Thickness (T) | B | Materials |
| MPR11 | W | Solder Plate | CDR12BP |  | .055 +.015-.010 (1.40 +0.38-0.25) | .055±.015 (1.4±0.38) | .057 (1.45) max | .010 (0.38) ±.010 (0.25) max | Solder Plated Over Nickel Barrier Termination 90 Sn/10 Pb |
| | P | Pellet | CDR12BP | | | | | | W Termination with Sn/Pb Solder Dip |
| | T | Lead Free Solder Plated | N/A | | | | | | Lead-Free and RoHS Compliant Tin Plated Over Nickel Barrier Termination |
| | G | Gold Plated | CDR11BP | | | | | | Lead-Free and RoHS Compliant Gold Plated Over Nickel Barrier Termination |
| | C | Pd/Ag | CDR11BP | | | | | | Palladium/Silver Termination |
| | N | Non Magnetic Term.(Ag Term, Cu/Sn Plated) | N/A | | | | | | Cu/Sn Plated Over Silver Termination |

Standard Capacitance Values

*STD.: Standard Voltage; EXT.: Extended Voltage

| CAP CODE | CAP (pF) | TOL | RATED WVdc | | CAP CODE | CAP (pF) | TOL | RATED WVdc | | CAP CODE | CAP (pF) | TOL | RATED WVdc | | | |
|----------|----------|---------|------------|-------|----------|----------|---------|------------|------|----------|----------|---------------|------------|------|-----|-----|
| | | | STD.* | EXT.* | | | | STD. | EXT. | | | | STD. | EXT. | | |
| 0R1 | 0.1 | B | 150 | 250 | 2R4 | 2.4 | B, C, D | 150 | 250 | 200 | 20 | F, G, J, K, M | 150 | 200 | 151 | 150 |
| 0R2 | 0.2 | | | | 2R7 | 2.7 | | | | 220 | 22 | | | | 161 | 160 |
| 0R3 | 0.3 | B, C | | | 3R0 | 3.0 | | | | 240 | 24 | | | | 181 | 180 |
| 0R4 | 0.4 | | | | 3R3 | 3.3 | | | | 270 | 27 | | | | 201 | 200 |
| 0R5 | 0.5 | B, C, D | | | 3R6 | 3.6 | | | | 300 | 30 | | | | 221 | 220 |
| 0R6 | 0.6 | | | | 3R9 | 3.9 | | | | 330 | 33 | | | | 241 | 240 |
| 0R7 | 0.7 | | | | 4R3 | 4.3 | | | | 360 | 36 | | | | 271 | 270 |
| 0R8 | 0.8 | | | | 4R7 | 4.7 | | | | 390 | 39 | | | | 301 | 300 |
| 0R9 | 0.9 | | | | 5R1 | 5.1 | | | | 430 | 43 | | | | 331 | 330 |
| 1R0 | 1.0 | | | | 5R6 | 5.6 | | | | 470 | 47 | | | | 361 | 360 |
| 1R1 | 1.1 | | | | 6R2 | 6.2 | | | | 510 | 51 | | | | 391 | 390 |
| 1R2 | 1.2 | | | | 6R8 | 6.8 | | | | 560 | 56 | | | | 431 | 430 |
| 1R3 | 1.3 | | 7R5 | 7.5 | 620 | 62 | 471 | 470 | | | | | | | | |
| 1R4 | 1.4 | | B, C, D | 8R2 | 8.2 | 680 | 68 | 511 | 510 | | | | | | | |
| 1R5 | 1.5 | | | 9R1 | 9.1 | 750 | 75 | 561 | 560 | | | | | | | |
| 1R6 | 1.6 | | B, C, D | 100 | 10 | 820 | 82 | 621 | 620 | | | | | | | |
| 1R7 | 1.7 | 110 | | 11 | 910 | 91 | 681 | 680 | | | | | | | | |
| 1R8 | 1.8 | B, C, D | 120 | 12 | 101 | 100 | 751 | 750 | | | | | | | | |
| 1R9 | 1.9 | | 130 | 13 | 111 | 110 | 821 | 820 | | | | | | | | |
| 2R0 | 2.0 | B, C, D | 150 | 15 | 121 | 120 | 911 | 910 | | | | | | | | |
| 2R1 | 2.1 | | 160 | 16 | 131 | 130 | 102 | 1000 | | | | | | | | |
| 2R2 | 2.2 | | 180 | 18 | | | | | | | | | | | | |

Specification and Performance

| | |
|---|--|
| Piezoelectric and Aging Effect: | None |
| Temperature Range: | -55°C to +125°C |
| Temperature Coefficient of Capacitance: | 0±30ppm/°C |
| Quality Factor (Q) : | >10,000 (0.1pF~100pF) at 1MHz >2000 (110pF~1000pF) at 1MHz |
| Insulation Resistance (IR, at Rated Voltage): | 0.1pF~470pF: 10 ⁶ MΩ min. at +25°C at rated WVDC 10 ⁵ MΩ min. at +125°C at rated WVDC 510pF~1000pF:10 ⁵ MΩ min. at +25°C at rated WVDC 10 ⁴ MΩ min. at +125°C at rated WVDC |
| Dielectric Withstand Voltage (DWV): | 250% of rated WVDC for 5 secs |
| Capacitance Drift: | ±0.02% or ±0.02pF, whichever is greater |

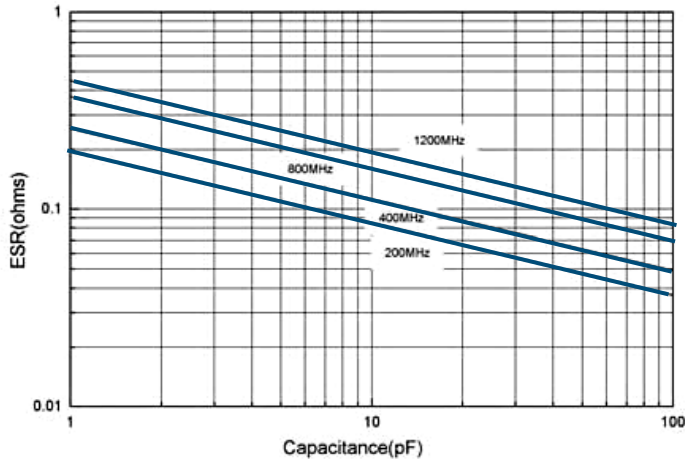
Environmental Tests

MNR11 Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.

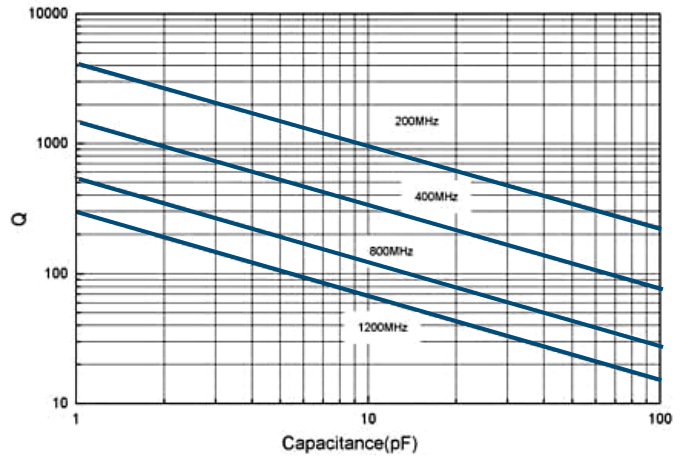
| Item | Specifications | Method |
|-------------------------|--|--|
| Thermal Shock | DWV: the initial value IR: shall be not less than 30% the initial value Capacitance Change: no more than 0.5% or 0.5pF | MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and +125°C) stay 30 minutes, the time of removing shall be not more than 3 minutes. Perform the five cycles. |
| Moisture Resistance | | MIL-STD-202, Method 106 |
| Humidity (steady state) | DWV: the initial value IR: the initial value Capacitance Change: no more than 0.3% or 0.3pF | MIL-STD-202, Method 103, Condition A, with 1.5 volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours min. |
| Life | IR: shall be not less than 30% the initial value Capacitance Change: no more than 0.2% | MIL-STD-202, Method 108, for 2000 hours, at 125°C. 200% Rated Voltage D.C. applied. |

Performance Curve

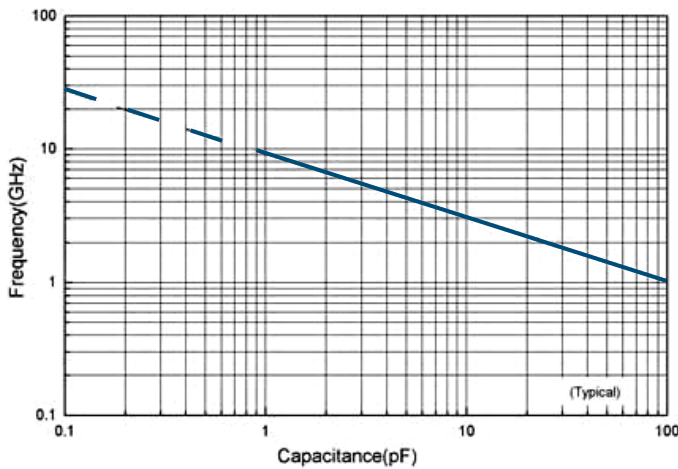
ESR vs.Capacitance



Q vs.Capacitance



Resonance vs.Capacitance



Current Rating vs. Capacitance

