

NON-MAGNETIC HIGH Q MULTI-LAYER CAPACITORS



These Multi-Layer capacitors have been sold around the world for two decades. Made from highly stable, low loss dielectric formulations, these traditional porcelain MLCs are known for their high RF power handling capability. Available in all industry common case sizes, Voltronics offers capacitors with exactly the size, capacitance value, and voltage rating that your application requires. The special silver-palladium termination and the proprietary ceramic formulations guarantee consistent non-magnetic performance. All MLCs in these series are RoHS compliant.

Chips are available either with standard termination or can be fitted with ribbon leads, depending on your application.

| Case Size Series | Dimensions inches | Working Voltage Range, Volts DC | Capacitance Range, pF |
|------------------|-------------------|---------------------------------|-----------------------|
| 5 | 0.055" x 0.055" | Up to 250V | 0.1 to 100 |
| 11 | 0.110" x 0.110" | Up to 1000V | 0.1 to 1000 |
| 25 | 0.220" x 0.250" | Up to 2500V | 1.0 to 2700 |
| 38 | 0.380" x 0.380" | Up to 7200V | 1.0 to 5100 |

| Codes | Capacitance Codes | Tolerance Codes | DC Working Voltage | Termination Codes | Material Codes | Lead Codes |
|----------------|--|---|---|---|---------------------------------------|--------------------------------------|
| 11 25 38 | 0R1 0.1pF 100 10pF 101 100pF 102 1000pF | A ± 0.05pF B ± 0.10pF C ± 0.25pF D ± 0.50pF F ± 1% G ± 2% J ± 5% K ± 10% | 50 100 200 300 500 600 1000 1500 2500 3600 7200 | M New Flexible Polymer/Ag Layer, 400-μ-in Cu barrier, 200-μ-in Sn plate. (RoHS) S Original Pd/Ag plate. W New Ag Layer, 400-500μ-in Cu barrier, 200-μ-in 90/10 Sn plate. (RoHS) | H AH + 90±20ppm/°C F CF 0±15ppm/°C | Blank = no leads R = Ribbon leads |

11 Series — **7R5** Capacitance Code — **B** Tolerance — **1000** DC Working Voltage — **M** Termination — **H** Material — **R** Lead

Consult Factory for Complete Catalog

FOR NMR PROBES AND MRI SURFACE COILS

Description

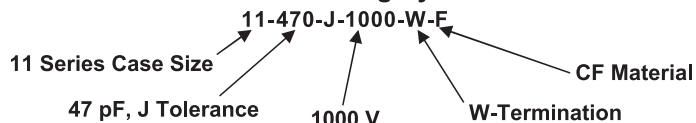
Porcelain Capacitors
Low ESR, High -Q
Capacitance Range 0.1 - 5100 pF
Zero TCC
Low Noise
High Self-resonance
Established reliability

Functional Applications

Impedance Matching
DC Blocking
Bypass
Coupling
Tuning
Feedback

0.1 pF Increments
0.1 pF Increments

Part Numbering System



Electrical Specifications

| | |
|---|--|
| Dissipation Factor | 0.05% @ 1 MHz max. |
| Dielectric Withstanding Voltage Voltage Rating (WVDC) DWV | Please see Chart 250% of rated WVDC for 5 sec. Unless specified in chart |
| Insulation Resistance @ 25 °C @ 125 °C | 10 ⁶ M min. 10 ⁵ M min. |
| Aging | None |
| Piezoeffects | None |
| Dielectric Absorption | None |
| Capacitance Tolerances | A, B, C, D below 10 pF F, G, J, and K, 10 pF and above |

Lead Types

| |
|----------------|
| Axial Ribbon* |
| Radial Ribbon* |
| Center Ribbon* |
| None |

*add -R and type of Ribbon to end of part number

Packaging

| Style | Package | Option |
|-----------|----------------------|--------------------------|
| 5 Series | Bulk in plastic bags | Tape & Reel - 3,500 pcs. |
| 11 Series | Bulk in plastic bags | Tape & Reel - 2,350 pcs. |
| 25 Series | Bulk in plastic bags | Tape & Reel - 500 pcs. |
| 38 Series | Bulk in plastic bags | Tape & Reel - 250 pcs. |

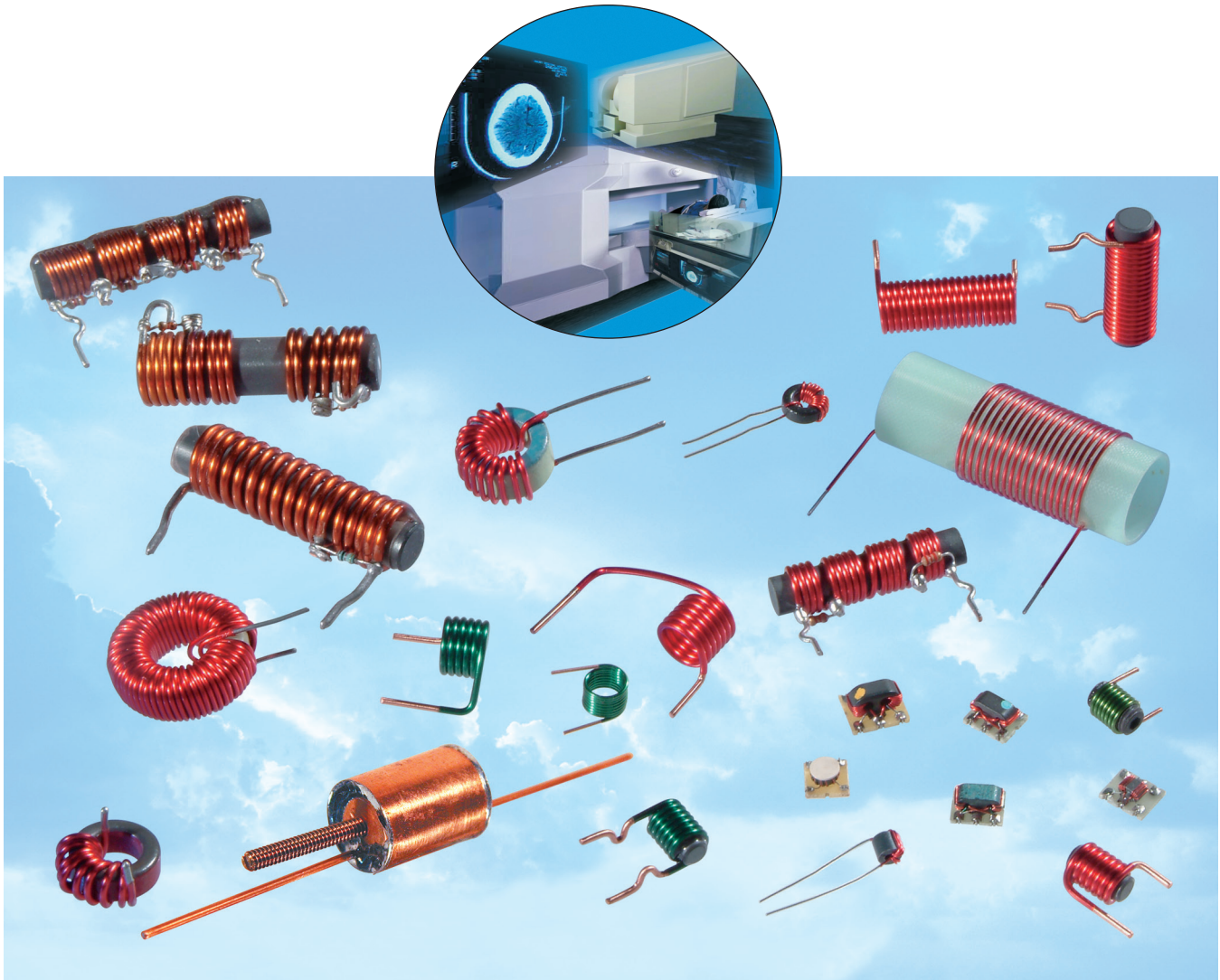
Tolerance Codes

| | |
|---|---------|
| A | ± .05pF |
| B | ± .1pF |
| C | ± .25pF |
| D | ± .5pF |
| F | ± 1% |
| G | ± 2% |
| J | ± 5% |
| K | ± 10% |

| CAP CODE | CAP (pF) | 5 Series 0505 | 11 Series 1111 | 25 Series 2225 | 38 Series 3838 |
|----------|----------|---------------|----------------|----------------|----------------|
| 0R1 | 0.1 | | | | |
| 1R0 | 1 | | | | |
| 2R0 | 2 | | | | |
| 2R1 | 2.1 | | | | |
| 2R2 | 2.2 | | | | |
| 2R4 | 2.4 | | | | |
| 2R7 | 2.7 | | | | |
| 3R0 | 3.0 | | | | |
| 3R3 | 3.3 | | | | |
| 3R6 | 3.6 | | | | |
| 3R9 | 3.9 | | | | |
| 4R3 | 4.3 | | | | |
| 4R7 | 4.7 | | | | |
| 5R1 | 5.1 | | | | |
| 5R6 | 5.6 | | | | |
| 6R2 | 6.2 | | | | |
| 6R8 | 6.8 | | | | |
| 7R5 | 7.5 | | | | |
| 8R2 | 8.2 | | | | |
| 9R1 | 9.1 | | | | |
| 100 | 10 | | | | |
| 110 | 11 | | | | |
| 120 | 12 | | | | |
| 130 | 13 | | | | |
| 150 | 15 | | | | |
| 160 | 16 | | | | |
| 180 | 18 | | | | |
| 200 | 20 | | | | |
| 220 | 22 | | | | |
| 240 | 24 | | | | |
| 270 | 27 | | | | |
| 300 | 30 | | | | |
| 330 | 33 | | | | |
| 360 | 36 | | | | |
| 390 | 39 | | | | |
| 430 | 43 | | | | |
| 470 | 47 | | | | |
| 510 | 51 | | | | |
| 560 | 56 | | | | |
| 620 | 62 | | | | |
| 680 | 68 | | | | |
| 750 | 75 | | | | |
| 820 | 82 | | | | |
| 910 | 91 | | | | |
| 101 | 100 | | | | |
| 111 | 110 | | | | |
| 121 | 120 | | | | |
| 131 | 130 | | | | |
| 151 | 150 | | | | |
| 161 | 160 | | | | |
| 181 | 180 | | | | |
| 201 | 200 | | | | |
| 221 | 220 | | | | |
| 241 | 240 | | | | |
| 271 | 270 | | | | |
| 301 | 300 | | | | |
| 331 | 330 | | | | |
| 361 | 360 | | | | |
| 391 | 390 | | | | |
| 431 | 430 | | | | |
| 471 | 470 | | | | |
| 511 | 510 | | | | |
| 561 | 560 | | | | |
| 621 | 620 | | | | |
| 681 | 680 | | | | |
| 751 | 750 | | | | |
| 821 | 820 | | | | |
| 911 | 910 | | | | |
| 102 | 1000 | | | | |
| 122 | 1200 | | | | |
| 152 | 1500 | | | | |
| 182 | 1800 | | | | |
| 222 | 2200 | | | | |
| 272 | 2700 | | | | |
| 332 | 3300 | | | | |
| 392 | 3900 | | | | |
| 472 | 4700 | | | | |
| 512 | 5100 | | | | |
| Reel QTY | | 3500 | 2350 | 500 | 250 |

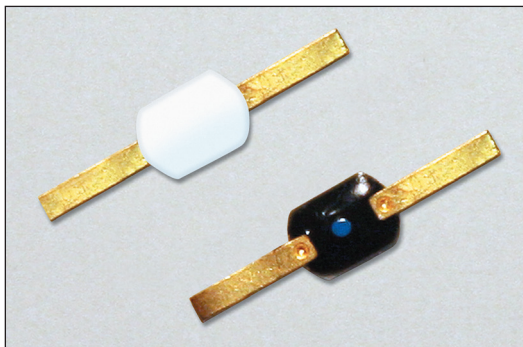
NON-MAGNETIC COILS

To further support our magnetic resonance customers around the world, Voltronics supplies a comprehensive line of totally non-magnetic air coil inductors and potted inductors. In concert with our ISO9001 approved partner, Voltronics can also supply your BALANCED UNbalanced transformer coil requirements. We understand that each application is unique. We ask that you provide us with your drawings or samples of your coils and we will provide a quote and samples in two weeks. When your application requires high performance non-magnetic components, think first of Voltronics.



Consult Factory for Specific Requirements

NON-MAGNETIC DIODES



In support of our magnetic resonance customers around the world, Voltronics now offers a comprehensive line of non-magnetic diodes. With our ISO9001 approved partner, Voltronics wants to be your diode design partner for your future unique needs and your reliable supplier of your current requirements. Our comprehensive capabilities include PIN diodes, dual diodes, Schottky diodes, and more. When your application requires high performance non-magnetic components, think first of Voltronics.

RF Actuated Diode Switch

The MX51363-145 is designed to be used as a surface coil blocking network. The part consists of four step recovery diodes, connected as two anti parallel pairs.

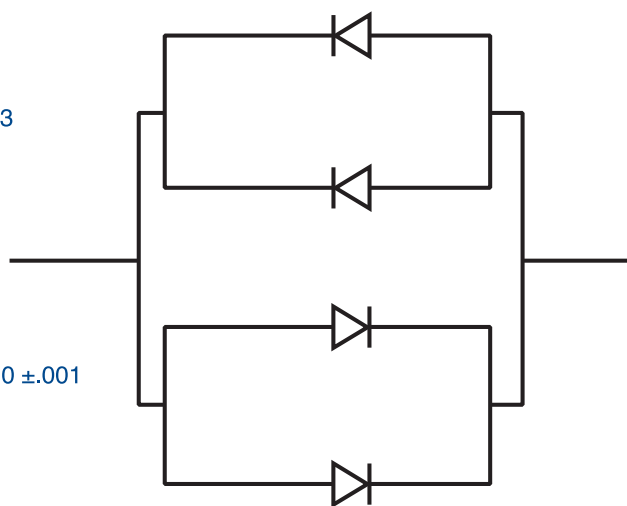
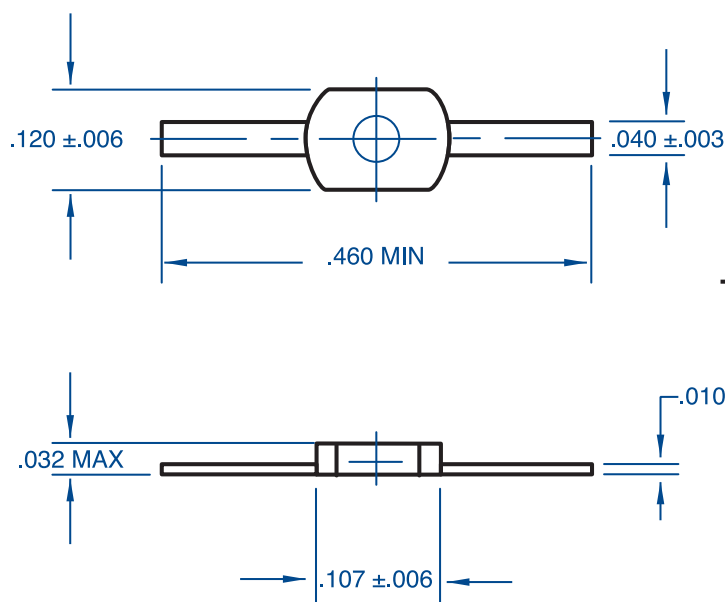
Specifications:

Total junction capacitance plus package capacitance, measured with an RF source voltage less than or equal to 71 mV RMS at 50 MHz and no DC bias, shall not exceed 3.5pF.

Q equal to or greater than 1,000.

Thermal resistance not to exceed 60 °C / Watt

Maximum junction operating temperature shall be 125°C



IRMS
Saturation Current
Minority Carrier Lifetime

100 milliamps maximum
Less Than 50 milliamps
24 nanoseconds (nominal)

NON-MAGNETIC HARDWARE



Due to the severe non-magnetism requirements in the magnetic resonance industries, we use only high purity metals that exhibit no measurable magnetism. Commercial brass is simply not acceptable for these applications. Our strict traceability and testing regimes insure this essential parameter.

We can offer sizes, styles, and lengths beyond those shown in the tables on these pages – such as Cheese Head, Round Head, and set screws. We also offer flat washers to complete your needs.

| PAN HEAD | |
|------------|---------|
| Voltronics | Length |
| P/N | 2-56 |
| 48-109 | 5/64" |
| 48-107 | 3/32" |
| 48-105 | 3/16" |
| 48-100 | 1/25" |
| 48-106 | 5/16" |
| 48-101 | 3/8" |
| 48-102 | 1/2" |
| 48-101 | 5/8" |
| 48-104 | 3/4" |
| 48-108 | 1" |
| 48-500 | Hex Nut |

| PAN HEAD 4-40 | |
|---------------|---------|
| 48-115 | 3/16" |
| 48-110 | 1/4" |
| 48-116 | 5/16" |
| 48-111 | 3/8" |
| 48-112 | 1/2" |
| 48-117 | 5/8" |
| 48-113 | 3/4" |
| 48-114 | 1" |
| 48-118 | 2" |
| 48-501 | Hex Nut |

| PAN HEAD 6-32 | |
|---------------|---------|
| 48-120 | 1/4" |
| 48-124 | 3/16" |
| 48-121 | 3/8" |
| 48-122 | 1/2" |
| 48-123 | 3/4" |
| 48-125 | 1" |
| 48-502 | Hex Nut |

| PAN HEAD 10-32 | |
|----------------|---------|
| 48-140 | 1/4" |
| 48-141 | 3/8" |
| 48-142 | 1/2" |
| 48-143 | 5/8" |
| 48-144 | 3/4" |
| 48-145 | 1" |
| 48-505 | Hex Nut |

| PAN HEAD 8-32 | |
|---------------|---------|
| 48-130 | 1/4" |
| 48-131 | 3/8" |
| 48-132 | 1/2" |
| 48-133 | 3/4" |
| 48-503 | Hex Nut |

| PAN HEAD 1/4-20 | |
|-----------------|---------|
| 48-150 | 3/8" |
| 48-152 | 1/2" |
| 48-151 | 1" |
| 48-153 | 1-1/4" |
| 48-506 | Hex Nut |

| PAN HEAD M2.5 x .45 | |
|---------------------|---------|
| 48-310 | 8 |
| 48-601 | Hex Nut |

| PAN HEAD – Metric | |
|-------------------|-------------|
| Voltronics | Length (mm) |
| P/N | M2 x .4 |
| 48-300 | 6 |
| 48-301 | 12 |
| 48-302 | 16 |
| 48-600 | Hex Nut |

| PAN HEAD M3 x .5 | |
|------------------|---------|
| 48-320 | 5 |
| 48-321 | 6 |
| 48-322 | 7.5 |
| 48-323 | 8 |
| 48-324 | 10 |
| 48-325 | 12 |
| 48-326 | 16 |
| 48-327 | 20 |
| 48-602 | Hex Nut |

| PAN HEAD M4 x .7 | |
|------------------|---------|
| 48-330 | 8 |
| 48-331 | 10 |
| 48-332 | 12 |
| 48-333 | 16 |
| 48-334 | 20 |
| 48-335 | 25 |
| 48-603 | Hex Nut |

| PAN HEAD M5 x .8 | |
|------------------|---------|
| 48-340 | 8 |
| 48-341 | 10 |
| 48-342 | 12 |
| 48-343 | 16 |
| 48-344 | 20 |
| 48-345 | 25 |
| 48-604 | Hex Nut |

**Every NMR and MRI Environment
Depends on Non-Magnetic Materials**

**Voltronics Guarantees Totally Non-Magnetic Materials,
Delivered on Time, Everytime!**

NON-MAGNETIC HARDWARE



| FLAT HEAD | |
|------------|---------|
| Voltronics | Length |
| P/N | 2-56 |
| 48-205 | 9/64" |
| 48-203 | 3/16" |
| 48-200 | 1/4" |
| 48-204 | 3/8" |
| 48-201 | 1/2" |
| 48-202 | 1" |
| 48-500 | Hex Nut |

| FLAT HEAD 4-40 | |
|----------------|---------|
| 48-210 | 1/4" |
| 48-216 | 5/16" |
| 48-211 | 3/8" |
| 48-212 | 1/2" |
| 48-213 | 3/4" |
| 48-214 | 1" |
| 48-215 | 1-1/4" |
| 48-501 | Hex Nut |

| FLAT HEAD 6-32 | |
|----------------|---------|
| 48-220 | 1/4" |
| 48-221 | 3/8" |
| 48-228 | 7/16" |
| 48-222 | 1/2" |
| 48-223 | 3/4" |
| 48-224 | 1" |
| 48-225 | 1-1/4" |
| 48-229 | 1-3/8" |
| 48-226 | 1-1/2" |
| 48-227 | 1-3/4" |
| 48-502 | Hex Nut |

| FLAT HEAD 8-32 | |
|----------------|---------|
| 48-230 | 3/8" |
| 48-231 | 1/2" |
| 48-232 | 5/8" |
| 48-233 | 3/4" |
| 48-503 | Hex Nut |

| FLAT HEAD 10-32 | |
|-----------------|---------|
| 48-240 | 3/8" |
| 48-241 | 1/2" |
| 48-242 | 5/8" |
| 48-243 | 3/4" |
| 48-244 | 1" |
| 48-245 | 1-1/4" |
| 48-505 | Hex Nut |

| FLAT HEAD 1/4-20 | |
|------------------|---------|
| 48-250 | 3/4" |
| 48-506 | Hex Nut |

| FLAT HEAD – Metric | |
|--------------------|-------------|
| Voltronics | Length (mm) |
| P/N | M2 x .4 |
| 48-400 | 5 |
| 48-401 | 10 |
| 48-600 | Hex Nut |

| FLAT HEAD M3 x .5 | |
|-------------------|---------|
| 48-415 | 6 |
| 48-410 | 8 |
| 48-411 | 10 |
| 48-412 | 12 |
| 48-413 | 16 |
| 48-414 | 20 |
| 48-602 | Hex Nut |

| FLAT HEAD M4 x .7 | |
|-------------------|---------|
| 48-420 | 8 |
| 48-421 | 10 |
| 48-422 | 12 |
| 48-423 | 16 |
| 48-424 | 20 |
| 48-603 | Hex Nut |

| FLAT HEAD M5 x .8 | |
|-------------------|---------|
| 48-430 | 8 |
| 48-431 | 10 |
| 48-432 | 12 |
| 48-433 | 16 |
| 48-434 | 20 |
| 48-435 | 25 |
| 48-604 | Hex Nut |

Coils also require inserts, pins, and other special shapes that are custom-designed to satisfy the specific requirements of the coil designer. The ability to quickly and precisely supply custom designs is part of our heritage and we are eager to sample our high quality hardware based on your requirements. As with the screws, washers, and nuts on this and the preceding page, we use only high purity metals that exhibit no measurable magnetism.

