

CP - High Power, High Q, RoHS

RF Power Capacitors

DESCRIPTION

Low ESR/ESL
 Porcelain Capacitors
 Excellent characteristics in current, voltage and power with high Q factor
 Highest working voltage in class – 7'000V



APPLICATIONS

- RF Power Amplifiers
- Industrial (Plasma Chamber)
- Medical (MRI Coils)

CIRCUIT APPLICATIONS

- DC Blocking
- Matching Networks
- Tuning and Coupling

I. ELECTRICAL SPECIFICATIONS

| Parameter | Value |
|---|---|
| Capacitance | 0.5 to 10'000 pF |
| Tolerances | B, C, D below 10 pF F, G, J, K, M above 10 pF |
| Working Voltage (WVDC) | see Capacitance Value chart |
| Temperature Coefficient | 100 +/-30ppm/°C, -55°C to +125°C |
| Insulation Resistance | 10 ⁵ MΩ min @ 25°C at rated WVDC 10 ⁴ MΩ min @ 125°C at rated WVDC |
| Dielectric Withstanding (test voltage applied for 5 seconds) | 2.0 x WVDC for WVDC ≤ 500V 1.5 x WVDC for 500V < WVDC ≤ 2'500V 1.3 x WVDC for WVDC > 2'500V |
| Aging | none |
| Piezo Effects | none |

II. MECHANICAL SPECIFICATIONS

| Parameter | Value | Comment |
|-----------|-------|---------|
| Case Size | X | 2225 |
| | E | 4040 |

For each case size, the recommended terminations are listed below.

NB:

- all the terminations are backward compatible and lead-free.
- the non-magnetic terminations are all Magnetism-free Rated.

MR certified®

ITAR Free®

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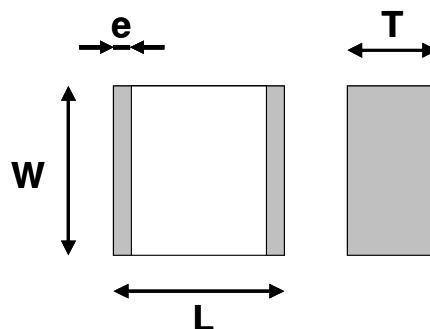
| Termination Type | Code | CPX | CPE |
|----------------------------------|------|-----------|-----------|
| Standard (tin-plated nickel) | S | AVAILABLE | AVAILABLE |
| Non-magnetic (tin-plated copper) | C | AVAILABLE | AVAILABLE |

III. ENVIRONMENTAL SPECIFICATIONS

| Parameter | Value |
|----------------------------|--|
| Life Test | 2'000 hours, +125 °C at 1.5 x WVDC (WVDC≤500V) at 1.3 x WVDC (500V<WVDC<1'250V) at 1.0 x WVDC (1'250V≤WVDC) |
| Moisture Resistance Test 1 | 240 hours, 85% relative humidity at +85 °C (ESA/SCC n°3009) |
| Moisture Resistance Test 2 | 56 days, 93% relative humidity at +40 °C 0V, 5V, 500V max. |

IV. OUTLINE DIMENSIONS

| Parameter | X (2225) | E (4040) |
|---------------|----------------|----------------|
| Length (L) | 6.20 ±0.50 mm | 10.50 ±0.50 mm |
| Width (W) | 6.60 ±0.50 mm | 9.50 ±0.50 mm |
| Thickness (T) | 3.80 mm (max.) | 4.50 mm (max.) |
| End-Band (e) | 0.80 ±0.60mm | 0.80 ±0.60mm |



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V. HOW TO ORDER

| | | | | | | | | | | |
|--|------------|-----------|---|---|--|--|--|--|---|--|
| 362 | CP | X | 100 | G | C | 1 | | L | | ROHS |
| | | | | | | | | | | |
| voltage | dielectric | case size | capacitance | tolerance code | termination code | mechanical code | coating code | marking code | tape and reel | |
| please refer to Volt. Code given in Capacitance Values chart | | X E | please refer to Cap. Code given in Capacitance Values chart | A=±0.05pF B=±0.1pF C=±0.25pF D=±0.5pF F=±1% G=±2% J=±5% K=±10% | please refer to Mechanical Termination chart | please refer to Mechanical Configuration chart | "H" means coating requested leave blank if no coating requested | "L" means marking requested leave blank if no marking requested | "E" means horizontal orientation "X" means vertical orientation leave blank if no tape and reel requested | the RoHS tag is not part of the reference tag added at the end of P/N for information |
| 201=200V 301=300V 501=500V 102=1KV 122=1.2KV 152=1.5KV 162=1.6KV 252=2.5KV 362=3.6KV 502=5KV 702=7KV | | | | | | | | | | |

NB: for capacitance values lower than 10pF, tolerances A, B, C and D apply. For capacitance values equal to or higher than 10pF, tolerances F, G, J and K apply.

VI. TAPE AND REEL

The following chart gives the number of components per reel.

| | CPX | CPE |
|----------------|-----|-----|
| Parts per Reel | 500 | 700 |

NB: the vertical orientation of product (letter code X) is only available on CPE. In this case, the quantity per reel is 350 pieces.

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VII. CAPACITANCE VALUES

| Value (pF) | Cap. Code | X (2225) | | E (4040) | | Value (pF) | Cap. Code | X (2225) | | E (4040) | |
|------------|-----------|-------------|----------|-------------|----------|------------|-----------|-------------|----------|-------------|----------|
| | | Standard | Extended | Standard | Extended | | | Standard | Extended | Standard | Extended |
| 1.0 | 1R0 | 2500V | 3600V | 3600V | 7000V | 56 | 560 | 2500V | 3600V | 3600V | 7000V |
| 1.1 | 1R1 | | | | | 62 | 620 | | | | |
| 1.2 | 1R2 | | | | | 68 | 680 | | | | |
| 1.3 | 1R3 | | | | | 75 | 750 | | | | |
| 1.4 | 1R4 | | | | | 82 | 820 | | | | |
| 1.5 | 1R5 | | | | | 91 | 910 | | | | |
| 1.6 | 1R6 | | | | | 100 | 101 | | | | |
| 1.7 | 17R | | | | | 110 | 111 | | | | |
| 1.8 | 1R8 | | | | | 120 | 121 | | | | |
| 1.9 | 1R9 | | | | | 130 | 131 | | | | |
| 2.0 | 2R0 | | | | | 150 | 151 | | | | |
| 2.1 | 2R1 | | | | | 160 | 161 | | | | |
| 2.2 | 2R2 | | | | | 180 | 181 | | | | |
| 2.4 | 2R4 | | | | | 200 | 201 | | | | |
| 2.7 | 2R7 | | | | | 220 | 221 | | | | |
| 3.0 | 3R0 | | | | | 240 | 241 | | | | |
| 3.3 | 3R3 | | | | | 270 | 271 | | | | |
| 3.6 | 3R6 | | | | | 300 | 301 | | | | |
| 3.9 | 3R9 | | | | | 330 | 331 | | | | |
| 4.3 | 4R3 | | | | | 360 | 361 | | | | |
| 4.7 | 4R7 | 390 | 391 | | | | | | | | |
| 5.1 | 5R1 | 430 | 431 | | | | | | | | |
| 5.6 | 5R6 | 470 | 471 | | | | | | | | |
| 6.2 | 6R2 | 510 | 511 | | | | | | | | |
| 6.8 | 6R8 | 560 | 561 | | | | | | | | |
| 7.5 | 7R5 | 620 | 621 | | | | | | | | |
| 8.2 | 8R2 | 680 | 681 | | | | | | | | |
| 9.1 | 9R1 | 750 | 751 | | | | | | | | |
| 10 | 100 | 820 | 821 | | | | | | | | |
| 11 | 110 | 910 | 911 | | | | | | | | |
| 12 | 120 | 1 000 | 102 | | | | | | | | |
| 13 | 130 | 1 100 | 112 | | | | | | | | |
| 15 | 150 | 1 200 | 122 | | | | | | | | |
| 16 | 160 | 1 500 | 152 | | | | | | | | |
| 18 | 180 | 1 800 | 182 | | | | | | | | |
| 20 | 200 | 2 200 | 222 | | | | | | | | |
| 22 | 220 | 2 700 | 272 | | | | | | | | |
| 24 | 240 | 3 000 | 302 | | | | | | | | |
| 27 | 270 | 3 300 | 332 | | | | | | | | |
| 30 | 300 | 3 900 | 392 | | | | | | | | |
| 33 | 330 | 4 700 | 472 | | | | | | | | |
| 36 | 360 | 5 100 | 512 | | | | | | | | |
| 39 | 390 | 5 600 | 562 | | | | | | | | |
| 43 | 430 | 6 800 | 682 | | | | | | | | |
| 47 | 470 | 8 200 | 822 | | | | | | | | |
| 51 | 510 | 10 000 | 103 | | | | | | | | |

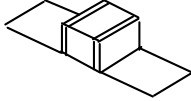
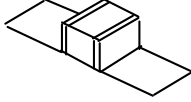
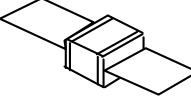
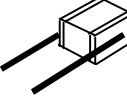
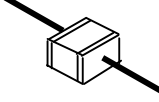
NB: special values, tolerances, higher WVDC and matching available, please consult factory.

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VIII. MECHANICAL CONFIGURATIONS

VIII.1. Lead/Ribbon and Wire Types

| Configuration Type | Code | Description |
|---|------|--------------------|
|  | 1 | Micro-strip Ribbon |
|  | 1S | Short-strip Ribbon |
|  | 2 | Axial Ribbon |
|  | 6 | Radial Wire |
|  | 7 | Axial Wire |

NB: when coding ribbons or wires for the description of the part, the termination has to be mentioned for MR_{certified} types to ensure that only non-magnetic materials are used.

Examples : 362 CPE 470 J1L
362 CPE 470 JC1L

any termination material could be used
only non-magnetic termination materials could be used

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VIII.2. Lead/Ribbon and Wire Matrix

| <i>Termination Type</i> | <i>Code</i> | <i>CPX</i> | <i>CPE</i> |
|--------------------------|-------------|------------|------------|
| Micro-strip Ribbon | 1 | AVAILABLE | AVAILABLE |
| Short Micro-strip Ribbon | 1S | | AVAILABLE |
| Axial Ribbon | 2 | | AVAILABLE |
| Radial Wire | 6 | AVAILABLE | AVAILABLE |
| Axial Wire | 7 | AVAILABLE | AVAILABLE |

VIII.3. Lead/Ribbon and Wire Dimensions

Within each cell, first the length and then the width/diameter of any single ribbon or wire are given.

| <i>Termination Type</i> | <i>Code</i> | <i>CPX</i> | <i>CPE</i> |
|--------------------------|-------------|---------------|---------------|
| Micro-strip Ribbon | 1 | 12.00 5.40 | 16.00 8.90 |
| Short Micro-strip Ribbon | 1S | | 8.50 8.90 |
| Axial Ribbon | 2 | | 16.00 8.90 |
| Radial Wire | 6 | 30.00 0.60 | 30.00 0.90 |
| Axial Wire | 7 | 30.00 0.60 | 30.00 0.90 |

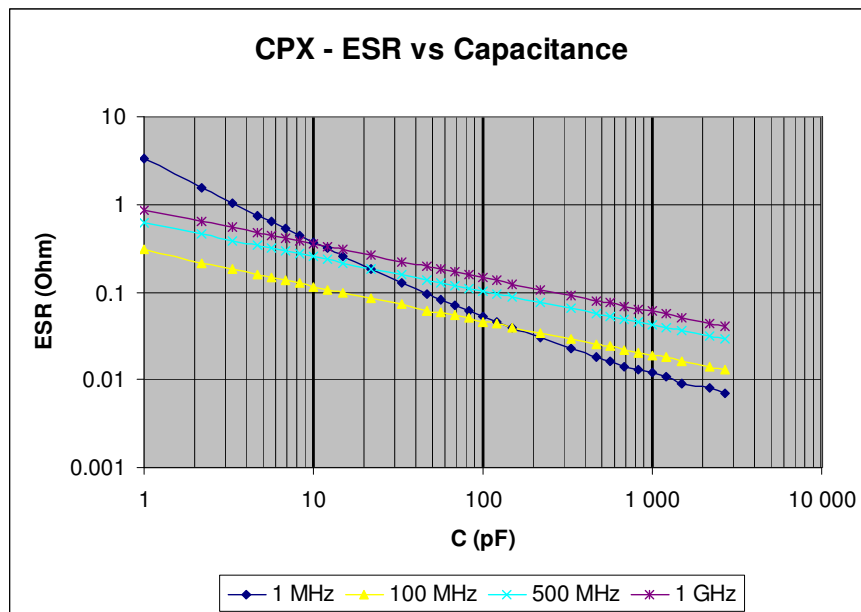
NB: dimensions are in mm.

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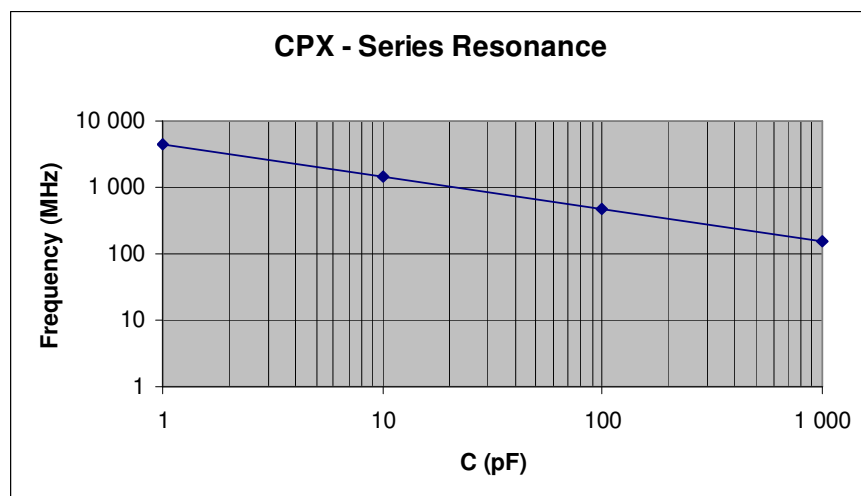
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IX. PERFORMANCE DATA

IX.1. ESR



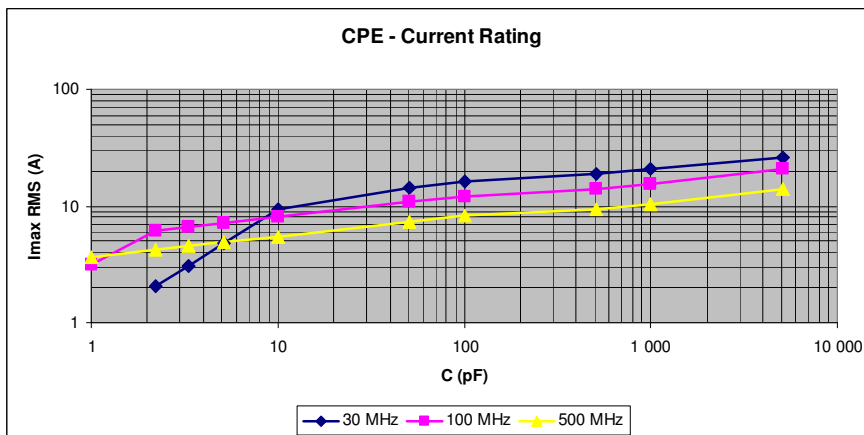
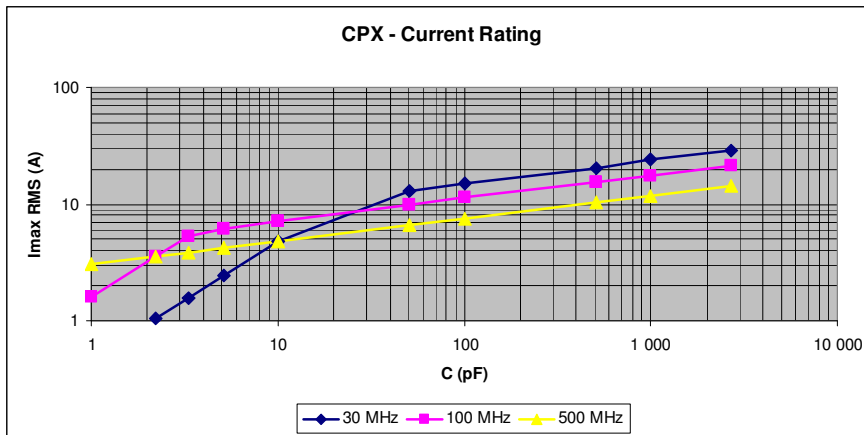
IX.2. Series Resonance Frequency



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IX.3. Current Rating



IX.4. Q Factor

