

CL - High Power, High Q, NP0, RoHS

RF Power Capacitors, Ultra Stability

DESCRIPTION

Low ESR/ESL
 NP0 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	1 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	0 +/-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
	F	7065

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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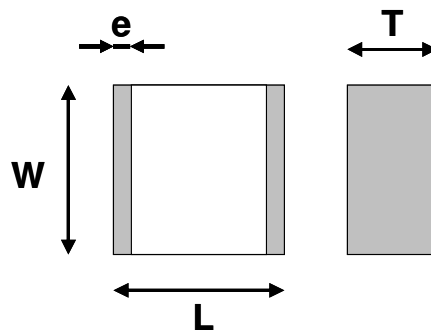
Termination Type	Code	CLX	CLE	CLF
Standard (tin-plated nickel)	S	AVAILABLE	AVAILABLE	AVAILABLE
Non-magnetic (silver-palladium)	A			AVAILABLE
Non-magnetic (tin-plated copper)	C	AVAILABLE	AVAILABLE	

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, WVDC

IV. OUTLINE DIMENSIONS

Parameter	X (2225)	E (4040)	F (7065)
Length (L)	6.20 ± 0.50 mm	10.50 ± 0.50 mm	17.80 ± 0.50 mm
Width (W)	6.60 ± 0.50 mm	9.50 ± 0.50 mm	16.00 ± 0.50 mm
Thickness (T)	3.80 mm (max.)	4.50 mm (max.)	4.00 mm (max.)
End-Band (e)	0.80 ± 0.60 mm	0.80 ± 0.60 mm	0.80 ± 0.60 mm



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V. HOW TO ORDER

362	CL	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 leave blank if no mechanical requested	"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.
- only CLX and CLE case size capacitor chips could be supply with tape and reel.

VI. TAPE AND REEL

The following chart gives the number of components per reel.

	CLX	CLE
Parts per Reel	500	700

NB: the vertical orientation of product (letter code X) is only available on CLE. 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)		F (7065)
		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	1R7					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									

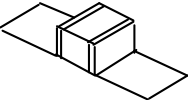
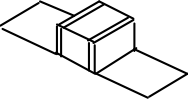
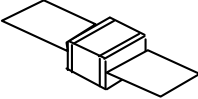
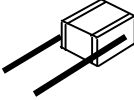
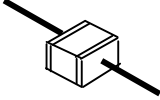
NB: special values, tolerances, higher WVDC and matching available, please consult factory.

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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 CLE 470 J1L
362 CLE 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>CLX</i>	<i>CLE</i>	<i>CLF</i>
Micro-strip Ribbon	1	AVAILABLE	AVAILABLE	AVAILABLE
Short Micro-strip Ribbon	1S		AVAILABLE	
Axial Ribbon	2		AVAILABLE ⁽¹⁾	
Radial Wire	6	AVAILABLE	AVAILABLE	AVAILABLE
Axial Wire	7	AVAILABLE	AVAILABLE	

(1): axial ribbon on CLE series is only available starting from 1.3pF inclusive.

VIII.3. Leads/Ribbons and Wires 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>CLX</i>	<i>CLE</i>	<i>CLF</i>
Micro-strip Ribbon	1	12.00 5.40	16.00 8.90	6.00 15.00
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	30.00 0.90
Axial Wire	7	30.00 0.60	30.00 0.90	

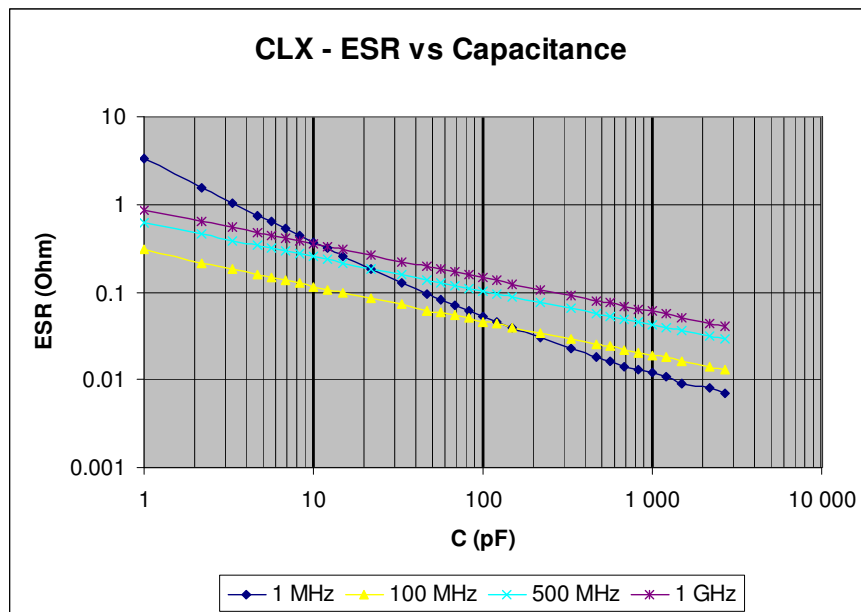
NB: dimensions are in mm.

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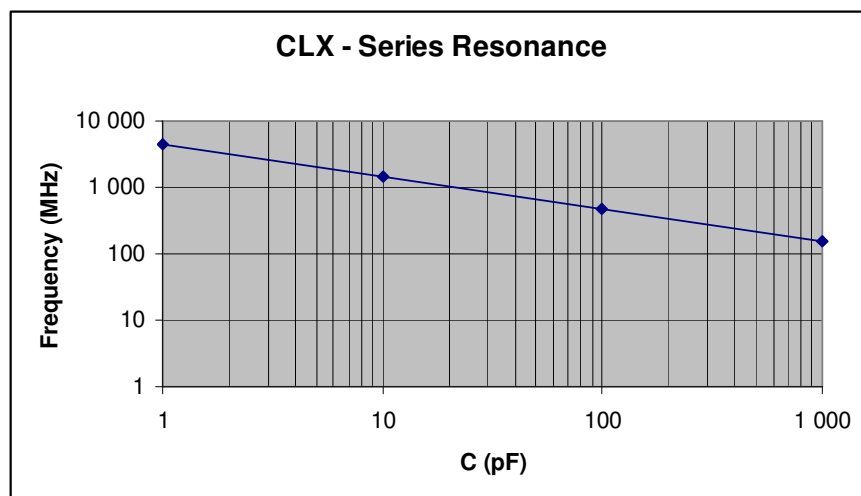
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IX. PERFORMANCE DATA

IX.1. ESR



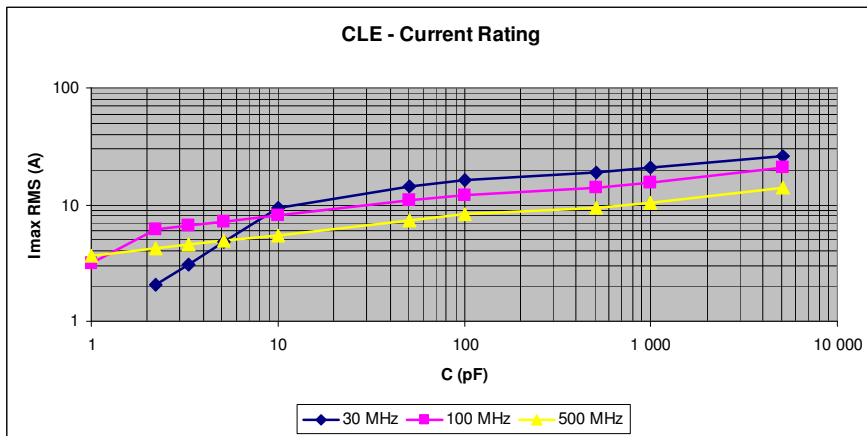
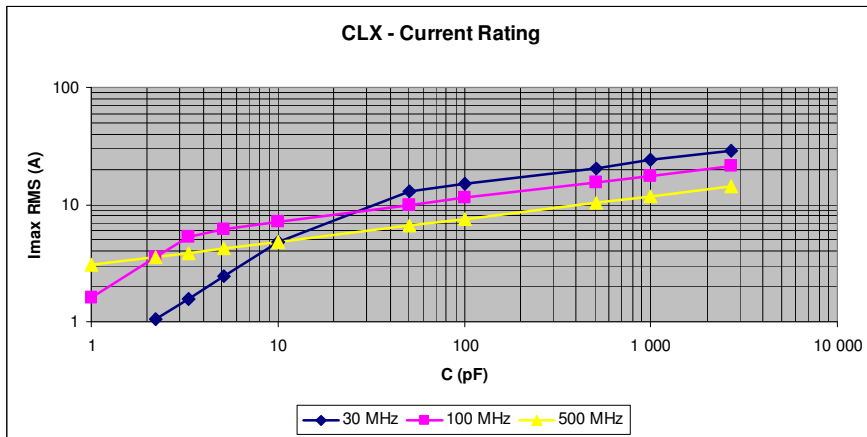
IX.2. Series Resonance Frequency



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IX.3. Current Rating



IX.4. Q Factor

