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 E F	2225 4040 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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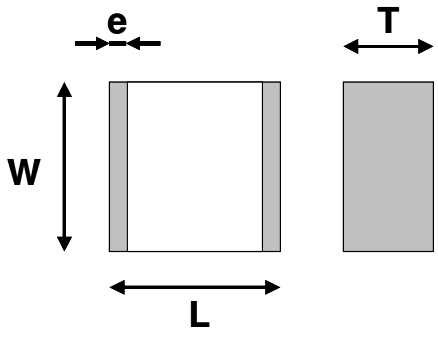
Termination Type	Code	CLX	CLE	CLF
Standard (tin-plated nickel)	S	AVAILABLE	AVAILABLE	AVAILABLE
Non-magnetic (silver-palladium)	A			AVAILABLE
Non-magnetic (tin-plated copper)	C	AVAILABLE	AVAILABLE	

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 ±0.60mm	0.80 ±0.60mm	0.80 ±0.60mm



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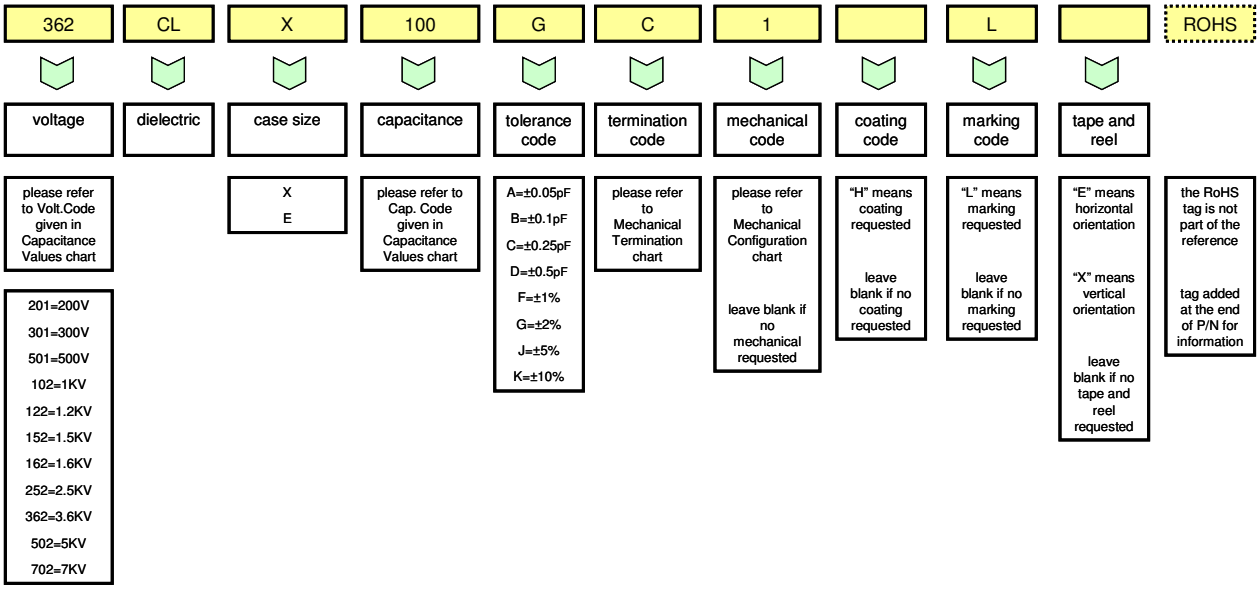
V. How to order



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	1000V
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	1500V				
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	1200V		2500V		
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			1600V		
12	120					1 000	102					
13	130					1 100	112					
15	150					1 200	122			1000V		
16	160					1 500	152	500V				
18	180					1 800	182					
20	200					2 200	222	300V				
22	220					2 700	272			500V		
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			200V		
43	430					6 800	682					
47	470					8 200	822					
51	510					10 000	103					500V

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

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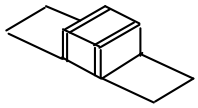
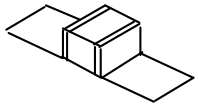
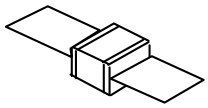
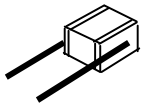
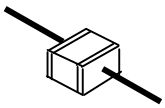
VIII. MECHANICAL CONFIGURATIONS

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 mentionned for $MR_{certified}$ types to ensure that only non-magnetic materials are used.

Examples : 362 CLE 470 J1L — any termination material could be used
362 CLE 470 JC1L — only non-magnetic termination materials could be used

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VIII.2. Lead/Ribbon and Wire Matrix

Termination Type	Code	CLX	CLE	CLF
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.

Termination Type	Code	CLX	CLE	CLF
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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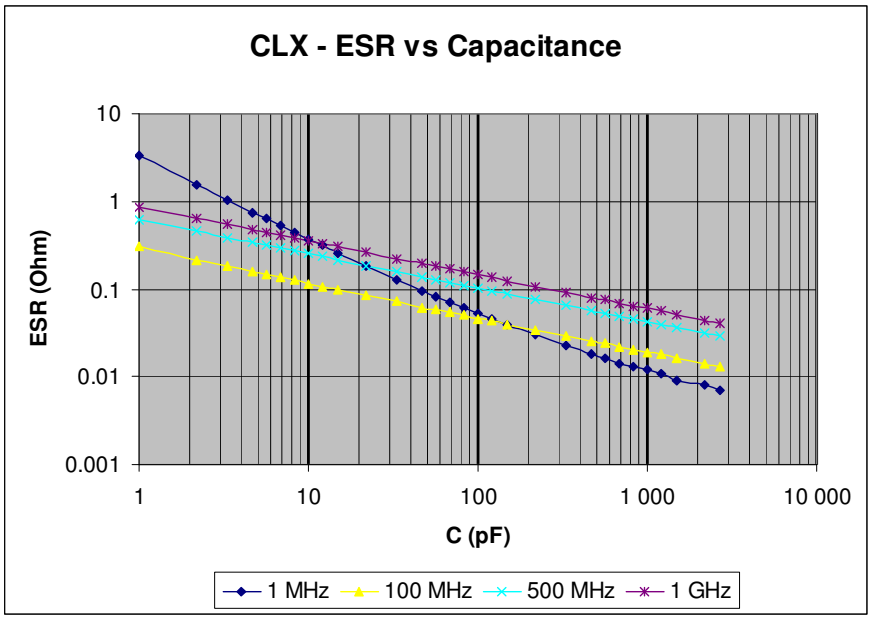
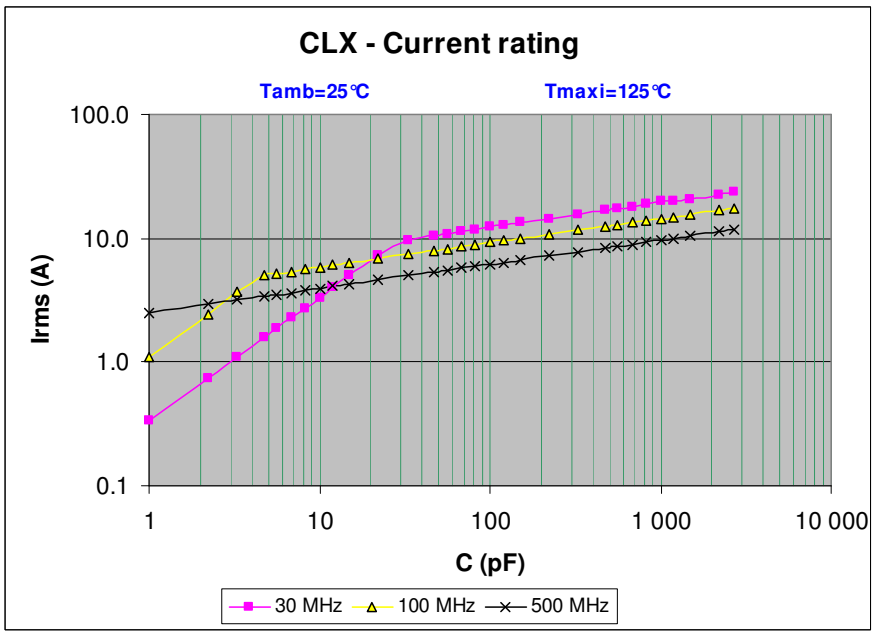
IX. Performance Data

IX.1. ESR



IX.2. Current Rating



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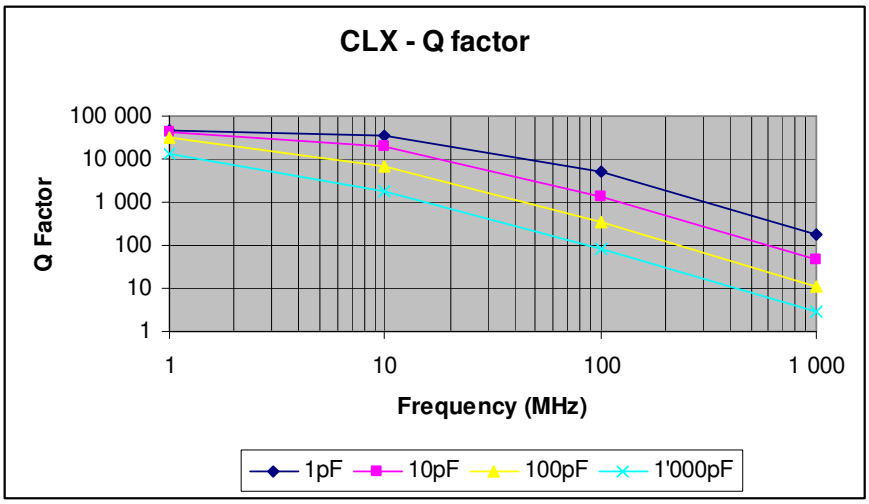
IX.3. Q Factor



IX.4. Series Resonance Frequency