

# CLE Series

## RF Power Capacitors, Ultra Stability

### DESCRIPTION

Low ESR/ESL  
 NP0 Porcelain Capacitors  
 Excellent characteristics in current, voltage  
 and power with high Q factor



### 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 <sup>5</sup> MΩ min @ 25°C at rated WVDC 10 <sup>4</sup> 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	E	4040

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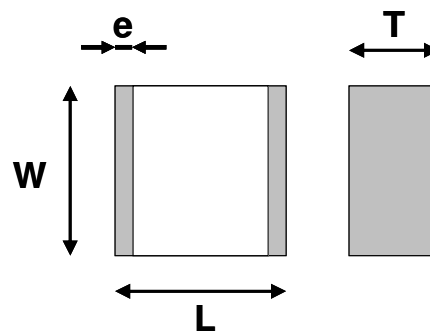
Termination Type	Code	CLE
Standard (tin-plated nickel)	S	AVAILABLE
Non-magnetic (tin-plated copper)	C	AVAILABLE

### 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	E (4040)
Length (L)	10.50 ± 0.50 mm
Width (W)	9.50 ± 0.50 mm
Thickness (T)	4.50 mm (max.)
End-Band (e)	0.80 ± 0.60 mm



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### V. HOW TO ORDER

362	CL	E	100	J	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			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 Specification chart	please refer to Mechanical Configuration chart leave blank if no mechanical requested	"H" means coating required leave blank if no coating requested	"L" means laser 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 501=500V 102=1KV 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.

	<b>CLE</b>
Parts per Reel	700

NB: in the case of vertical orientation (letter code X), the quantity per reel is 350 pieces.

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### VII. CAPACITANCE VALUES

Value (pF)	Cap. Code	E (4040)		Value (pF)	Cap. Code	E (4040)	
		Standard	Extended			Standard	Extended
1.0	1R0	3600V	7000V	56	560	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				

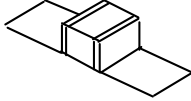
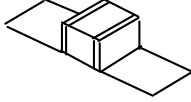
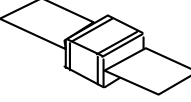
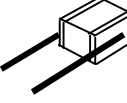
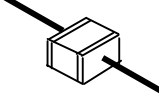
NB: special values, tolerances, higher WVDC and matching available, please consult factory.

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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<sub>certified</sub> 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>CLE</i>
Micro-strip Ribbon	1	AVAILABLE
Short Micro-strip Ribbon	1S	AVAILABLE
Axial Ribbon	2	AVAILABLE <sup>(1)</sup>
Radial Wire	6	AVAILABLE
Axial Wire	7	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>CLE</i>
Micro-strip Ribbon	1	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 0.90
Axial Wire	7	30.00 0.90

NB: dimensions are in mm.

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### IX. PERFORMANCE DATA

#### IX.1. Current Rating

