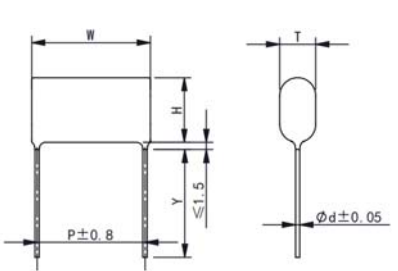


Version history

Current version	Date	Author	Change description

Metalized polyester film capacitor (Dipped)

■ Outline Drawing

Forming Lead Shapes	
I	II
III	IV
	
$P \geq F$	
$P < F$	
$0\text{mm} \leq P-F \leq 3\text{mm}$	$3\text{mm} < P-F \leq 8\text{mm}$
$3\text{mm} < F-P \leq 5\text{mm}$	$0\text{mm} < F-P \leq 3\text{mm}$
$F \pm 0.8\text{mm}; A \leq 5.0\text{mm}; B = 4.5 \pm 0.5\text{mm}$	

■ Features

- Metallized polyester film, non-inductive wound construction
- Wide capacitance range, small size and light weight
- Long life due to self-healing effect
- Flame retardation epoxy resin powder coated

■ Typical Applications

- Suitable for blocking, by-pass and coupling of DC and signals to VHF range
- Widely used in filter and low pulse circuits

■ Specifications

Reference Standard	IEC 60384-2					
Climatic Category	55/105/21					
Rated temperature	85°C					
Operating temperature range	-55°C~105°C (+85°C to +105°C: decreasing factor 1.25% per °C for U _R)					
Rated Voltage	50/63V, 100V, 250V, 400V, 630V, 1 000V, 1 250V					
Capacitance Range	0.010μ F ~ 10.0μ F					
Capacitance Tolerance	±5%(J), ±10%(K), ±20%(M)					
Voltage Proof	1.6U _R (5s)					
Dissipation Factor	≤ 1.0% (20°C,1kHz)					
Insulation Resistance	U _R ≤100V	R ≥ 3 750MΩ, C _N ≤0.33μF; RC _N ≥ 1 250s, C _N >0.33μF			(20°C,10V, 1min)	
	U _R >100V	R ≥ 30 000MΩ, C _N ≤0.33μF; RC _N ≥ 5 000s, C _N >0.33μF			(20°C, 100V,1min)	
Maximum Pulse Rise Time(dV/dt) If the working voltage(U) is lower than the rated voltage(U _R),the capacitor can be worked at a higher dV/dt. In this case, the maximum allowed dV/dt is obtain by multiplying the right value with U _R /U.	U _R (V)	dV/dt (V/μ s) for Pattern III				
		P=7.5	P=10.0	P=15.0	P=22.5	P=27.5
	50/63	7.5	6	3	2	--
	100	15	9	5	3	--
	250	30	20	12	8	5
	400	40	30	20	10	7
	630	--	40	25	12	10
	1 000	70	60	30	15	12
	1 250	80	70	40	18	14

■ Part number system

The 15 digits part number is formed as follow:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C	2	1												

Digit 1 to 3 Series code

C21= CL21

Digit 4 to 5 DC rated voltage

1H=50V 1J=63V 2A=100V

2E=250V 2G=400V 2J=630V

3A=1000V 3B=1250V

Digit 6 to 8 Rated capacitance value

For example: 103=10×10³pF=0.01μ F

Digit 9 Capacitance tolerance

J=±5%,K=±10%, M=±20%

Digit 10 Pitch

3=7.5mm 4=10.0mm 5=12.5mm

6=15.0mm 8=20.0mm 9=22.5mm

A=25.0mm B=27.5mm C=30.0mm

Digit 11 Internal use

A= Pattern III

B=Small size

Digit 12 to 15 Lead form and packaging code

Table 1 Lead form and packaging code

Digit 12		Digit 13		Digit 14		Digit 15	
code	explanation	code	explanation	code	explanation	code	explanation
A	ammo-pack	2	F=5.0mm	1	kinked	A	each cap. between two consecutive holes P3=12.7mm,H=20.0mm (For pitch=5.0/7.5mm)
		3	F=7.5mm			E	P3=25.4mm;H=20.0mm (For pitch=10.0/15mm)
F	lead kinked	4	F=10.0mm	0	B=4.5mm (The length of B)	0	B Length tolerance ±0.5mm
		6	F=15.0mm				
Y	straight lead " Y " in the figure above	code	explanation	5	B=3.5mm	0	Length tolerance ±0.5mm
		45	lead length 4.5mm	2	B=3.2mm		
		35	lead length 3.5mm				
		32	lead length 3.2mm				

Digit12-15 code "C000" means standard lead length (18mm ~ 30mm)

Note: Recommend short lead due to long lead could deform easily.

■ Dimensions (mm) Small size

50Vdc (30Vac) /63Vdc (40Vac) #						
C _N (μ F)	W max	H max	T max	P	d	Part number
0.39	9.80	7.0	4.0	7.5	0.6	C211J394-3B****
0.47	9.80	7.7	4.1	7.5	0.6	C211J474-3B****
0.56	9.80	8.0	4.4	7.5	0.6	C211J564-3B****
0.68	9.80	8.3	4.7	7.5	0.6	C211J684-3B****
0.82	9.80	8.7	5.1	7.5	0.6	C211J824-3B****
1.0	12.3	8.4	4.8	10.	0.6	C211J105-4B****
1.2	12.3	8.8	5.1	10.	0.6	C211J125-4B****
1.5	12.3	9.3	5.6	10.	0.6	C211J155-4B****
1.8	12.3	9.7	6.1	10.	0.6	C211J185-4B****
2.2	17.5	9.6	5.9	15.	0.6	C211J225-6B****
2.7	17.5	10.0	6.4	15.	0.6	C211J275-6B****
3.3	17.5	10.6	6.9	15.	0.6	C211J335-6B****
3.9	17.5	11.6	7.5	15.	0.8	C211J395-6B****
4.7	25.2	11.9	6.2	22.	0.8	C211J475-9B****
5.6	25.2	12.4	6.7	22.	0.8	C211J565-9B****
6.8	25.2	13.0	7.3	22.	0.8	C211J685-9B****
8.2	25.2	13.6	8.4	22.	0.8	C211J825-9B****
10.0	25.2	14.4	9.2	22.	0.8	C211J106-9B****

100Vdc (63Vac)						
C _N (μ F)	W max	H max	T max	P	d	Part number
0.27	9.80	7.0	4.0	7.5	0.6	C212A274-3B****
0.33	9.80	7.7	4.1	7.5	0.6	C212A334-3B****
0.39	9.80	8.0	4.3	7.5	0.6	C212A394-3B****
0.47	9.80	8.3	4.6	7.5	0.6	C212A474-3B****
0.56	9.80	8.6	5.0	7.5	0.6	C212A564-3B****
0.68	9.80	9.0	5.4	7.5	0.6	C212A684-3B****
0.82	12.3	8.7	5.0	10.	0.6	C212A824-4B****
1.0	12.3	9.1	5.5	10.	0.6	C212A105-4B****
1.2	12.3	9.5	5.9	10.	0.6	C212A125-4B****
1.5	12.3	10.1	6.5	10.	0.6	C212A155-4B****
1.8	17.5	11.4	5.7	15.	0.6	C212A185-6B****
2.2	17.5	11.9	6.1	15.	0.6	C212A225-6B****
2.7	17.5	12.4	6.7	15.	0.6	C212A275-6B****
3.3	17.5	14.0	6.8	15.	0.6	C212A335-6B****
3.9	17.5	14.6	7.3	15.	0.8	C212A395-6B****
4.7	25.2	13.9	6.6	22.	0.8	C212A475-9B****
5.6	25.2	14.4	7.2	22.	0.8	C212A565-9B****
6.8	25.2	15.1	8.3	22.	0.8	C212A685-9B****
8.2	25.2	16.9	8.5	22.	0.8	C212A825-9B****
10.0	25.2	17.7	9.4	22.	0.8	C212A106-9B****

250Vdc(160Vac)						
C _N (μ F)	W max	H max	T max	P	d	Part number
0.022	9.80	7.0	4.0	7.5	0.5	C212E223-3B****
0.027	9.80	7.2	4.2	7.5	0.5	C212E273-3B****
0.033	9.80	6.7	3.7	7.5	0.6	C212E333-3B****
0.039	9.80	6.9	3.9	7.5	0.6	C212E393-3B****
0.047	9.80	7.1	4.1	7.5	0.6	C212E473-3B****
0.056	9.80	7.4	4.4	7.5	0.6	C212E563-3B****
0.068	9.80	6.7	3.7	7.5	0.6	C212E683-3B****
0.082	9.80	7.0	4.0	7.5	0.6	C212E823-3B****
0.10	9.80	7.7	4.0	7.5	0.6	C212E104-3B****
0.12	9.80	7.9	4.3	7.5	0.6	C212E124-3B****
0.15	9.80	8.3	4.7	7.5	0.6	C212E154-3B****
0.18	9.80	8.6	5.0	7.5	0.6	C212E184-3B****
0.22	12.3	8.4	4.7	10.	0.6	C212E224-4B****
0.27	12.3	8.8	5.1	10.	0.6	C212E274-4B****
0.33	12.3	9.7	5.3	10.	0.6	C212E334-4B****
0.39	17.5	9.6	5.1	15.	0.6	C212E394-6B****
0.47	17.5	9.9	5.5	15.	0.6	C212E474-6B****
0.56	17.5	10.8	5.6	15.	0.6	C212E564-6B****
0.68	17.5	11.3	6.1	15.	0.6	C212E684-6B****
0.82	17.5	12.3	6.6	15.	0.6	C212E824-6B****
1.0	17.5	12.9	7.2	15.	0.6	C212E105-6B****
1.2	17.5	13.5	7.8	15.	0.8	C212E125-6B****
1.5	17.5	15.3	8.5	15.	0.8	C212E155-6B****
1.8	17.5	16.0	9.2	15.	0.8	C212E185-6B****
2.2	25.2	15.2	8.4	22.	0.8	C212E225-9B****
2.7	25.2	15.5	8.7	22.	0.8	C212E275-9B****
3.3	25.2	16.9	10.1	22.	0.8	C212E335-9B****
3.9	25.2	18.6	10.3	22.	0.8	C212E395-9B****
4.7	25.2	19.6	11.3	22.	0.8	C212E475-9B****
5.6	30.2	19.3	10.9	27.	0.8	C212E565-BB****
6.8	30.2	20.4	12.1	27.	0.8	C212E685-BB****
8.2	30.2	21.6	13.2	27.	0.8	C212E825-BB****
10.0	30.2	23.0	14.6	27.	0.8	C212E106-BB****

- Note: 1. "-" =capacitance tolerance code, M=±20%,K=±10%,J=±5%
 2. "****" =lead form and packing code (refer to table 1)
 3. "#" when the rated voltage is 50Vdc,the digit 4~5 is 1H.

■ Dimensions(mm) Small size

400Vdc(200Vac)							630Vdc(220Vac) ®						
C _N (μF)	W _{max}	H _{max}	T _{max}	P	d	Part number	C _N (μF)	W _{max}	H _{max}	T _{max}	P	d	Part number
0.022	9.80	7.0	4.0	7.5	0.6	C212G223-3B****	0.010	9.80	6.8	3.8	7.5	0.6	C212J103-3B****
0.027	9.80	7.2	4.2	7.5	0.5	C212G273-3B****	0.012	9.80	7.4	3.8	7.5	0.6	C212J123-3B****
0.033	9.80	7.3	4.3	7.5	0.5	C212G333-3B****	0.015	9.80	7.7	4.1	7.5	0.6	C212J153-3B****
0.039	9.80	7.5	4.4	7.5	0.6	C212G393-3B****	0.018	9.80	7.9	4.3	7.5	0.6	C212J183-3B****
0.047	9.80	8.2	4.5	7.5	0.6	C212G473-3B****	0.022	9.80	8.2	4.6	7.5	0.6	C212J223-3B****
0.056	9.80	8.5	4.8	7.5	0.6	C212G563-3B****	0.027	9.80	8.6	5.0	7.5	0.6	C212J273-3B****
0.068	12.3	8.2	4.5	10.0	0.6	C212G683-4B****	0.033	12.3	8.3	4.7	10.0	0.6	C212J333-4B****
0.082	12.3	8.5	4.8	10.0	0.6	C212G823-4B****	0.039	12.3	8.6	4.9	10.0	0.6	C212J393-4B****
0.10	12.3	9.4	5.0	10.0	0.6	C212G104-4B****	0.047	12.3	9.0	5.3	10.0	0.6	C212J473-4B****
0.12	12.3	9.8	5.3	10.0	0.6	C212G124-4B****	0.056	12.3	9.3	5.7	10.0	0.6	C212J563-4B****
0.15	17.5	9.6	5.2	15.0	0.6	C212G154-6B****	0.068	12.3	9.8	6.1	10.0	0.6	C212J683-4B****
0.18	17.5	9.9	5.5	15.0	0.6	C212G184-6B****	0.082	12.3	10.3	6.6	10.0	0.6	C212J823-4B****
0.22	17.5	10.4	5.9	15.0	0.6	C212G224-6B****	0.10	17.5	10.9	5.7	15.0	0.6	C212J104-6B****
0.27	17.5	10.9	6.4	15.0	0.6	C212G274-6B****	0.12	17.5	11.3	6.1	15.0	0.6	C212J124-6B****
0.33	17.5	11.9	6.7	15.0	0.6	C212G334-6B****	0.15	17.5	11.9	6.6	15.0	0.6	C212J154-6B****
0.39	17.5	12.9	7.2	15.0	0.8	C212G394-6B****	0.18	17.5	12.9	7.2	15.0	0.8	C212J184-6B****
0.47	17.5	13.5	8.3	15.0	0.8	C212G474-6B****	0.22	17.5	13.5	8.3	15.0	0.8	C212J224-6B****
0.56	17.5	14.1	8.9	15.0	0.8	C212G564-6B****	0.27	17.5	14.3	9.0	15.0	0.8	C212J274-6B****
0.68	17.5	14.9	9.7	15.0	0.8	C212G684-6B****	0.33	17.5	15.1	9.8	15.0	0.8	C212J334-6B****
0.82	17.5	15.7	10.5	15.0	0.8	C212G824-6B****	0.39	17.5	15.8	10.6	15.0	0.8	C212J394-6B****
1.0	25.2	16.6	8.2	22.5	0.8	C212G105-9B****	0.47	25.2	15.6	8.8	22.5	0.8	C212J474-9B****
1.2	25.2	17.3	9.0	22.5	0.8	C212G125-9B****	0.56	25.2	16.3	9.5	22.5	0.8	C212J564-9B****
1.5	25.2	18.3	9.9	22.5	0.8	C212G155-9B****	0.68	25.2	17.2	10.4	22.5	0.8	C212J684-9B****
1.8	30.2	18.1	9.7	27.5	0.8	C212G185-BB****	0.82	25.2	18.1	11.3	22.5	0.8	C212J824-9B****
2.2	30.2	20.0	10.1	27.5	0.8	C212G225-BB****	1.0	30.2	18.9	10.5	27.5	0.8	C212J105-BB****
2.7	30.2	21.1	11.2	27.5	0.8	C212G275-BB****	1.2	30.2	19.8	11.5	27.5	0.8	C212J125-BB****
3.3	30.2	22.3	12.4	27.5	0.8	C212G335-BB****	1.5	30.2	21.2	12.8	27.5	0.8	C212J155-BB****
3.5	30.2	22.7	12.8	27.5	0.8	C212G355-BB****	1.8	30.2	22.4	14.0	27.5	0.8	C212J185-BB****
3.9	30.2	23.5	13.5	27.5	0.8	C212G395-BB****	2.2	30.2	23.9	15.5	27.5	0.8	C212J225-BB****
4.7	30.2	24.8	14.9	27.5	0.8	C212G475-BB****							

- Note: 1. “-” =capacitance tolerance code, M=±20%,K=±10%,J=±5%
 2. “****” =lead form and packing code (refer to table 1)
 3. “@” Not suitable for across-the-line applications. Pls refer to Interference Suppression Capacitors.

**■ Dimensions(mm)**
Pattern III

50Vdc (30Vac) /63Vdc (40Vac) #							100Vdc (63Vac)							250Vdc(160Vac)						
C _N (μ F)	W max	H max	T max	P	d	Part number	C _N (μ F)	W max	H max	T max	P	d	Part number	C _N (μ F)	W max	H max	T max	P	d	Part number
0.12	9.8	7.0	4.0	7.5	0.6	C211J124-3A****	0.12	9.8	7.0	4.0	7.5	0.6	C212A124-3A****	0.010	9.8	6.5	3.5	7.5	0.6	C212E103-3A****
0.15	9.8	7.8	4.1	7.5	0.6	C211J154-3A****	0.15	9.8	7.8	4.1	7.5	0.6	C212A154-3A****	0.012	9.8	6.7	3.7	7.5	0.6	C212E123-3A****
0.18	9.8	7.5	3.9	7.5	0.6	C211J184-3A****	0.18	9.8	7.5	3.9	7.5	0.6	C212A184-3A****	0.015	9.8	7.4	3.8	7.5	0.6	C212E153-3A****
0.22	9.8	7.8	4.1	7.5	0.6	C211J224-3A****	0.22	9.8	7.8	4.1	7.5	0.6	C212A224-3A****	0.018	9.8	7.6	4.0	7.5	0.6	C212E183-3A****
0.27	9.8	8.1	4.5	7.5	0.6	C211J274-3A****	0.27	9.8	8.1	4.5	7.5	0.6	C212A274-3A****	0.022	9.8	7.4	3.8	7.5	0.6	C212E223-3A****
0.33	9.8	7.7	4.1	7.5	0.6	C211J334-3A****	0.33	9.8	8.5	4.8	7.5	0.6	C212A334-3A****	0.027	9.8	7.7	4.1	7.5	0.6	C212E273-3A****
0.39	9.8	8.0	4.3	7.5	0.6	C211J394-3A****	0.39	9.8	8.8	5.2	7.5	0.6	C212A394-3A****	0.033	9.8	7.3	3.7	7.5	0.6	C212E333-3A****
0.47	9.8	8.3	4.6	7.5	0.6	C211J474-3A****	0.47	9.8	9.2	5.6	7.5	0.6	C212A474-3A****	0.039	9.8	7.5	3.9	7.5	0.6	C212E393-3A****
0.56	9.8	8.6	5.0	7.5	0.6	C211J564-3A****	0.56	12.3	8.8	5.2	10.0	0.6	C212A564-4A****	0.047	9.8	7.8	4.1	7.5	0.6	C212E473-3A****
0.68	9.8	9.0	5.4	7.5	0.6	C211J684-3A****	0.68	12.3	9.3	5.6	10.0	0.6	C212A684-4A****	0.056	9.8	8.0	4.4	7.5	0.6	C212E563-3A****
0.82	12.3	8.6	5.0	10.0	0.6	C211J824-4A****	0.82	12.3	9.7	6.1	10.0	0.6	C212A824-4A****	0.068	9.8	7.5	3.9	7.5	0.6	C212E683-3A****
1.0	12.3	9.0	5.4	10.0	0.6	C211J105-4A****	1.0	12.3	10.3	6.6	10.0	0.6	C212A105-4A****	0.082	9.8	7.8	4.1	7.5	0.6	C212E823-3A****
1.2	12.3	9.5	5.9	10.0	0.6	C211J125-4A****	1.2	12.3	10.9	7.2	10.0	0.6	C212A125-4A****	0.10	9.8	8.1	4.4	7.5	0.6	C212E104-3A****
1.5	12.3	10.1	6.5	10.0	0.6	C211J155-4A****	1.5	12.3	11.6	8.0	10.0	0.6	C212A155-4A****	0.12	9.8	8.4	4.8	7.5	0.6	C212E124-3A****
1.8	12.3	10.7	7.1	10.0	0.6	C211J185-4A****	1.8	17.5	13.6	6.3	15.0	0.6	C212A185-6A****	0.15	9.8	8.8	5.2	7.5	0.6	C212E154-3A****
2.2	17.5	11.4	6.1	15.0	0.6	C211J225-6A****	2.2	17.5	14.2	6.9	15.0	0.8	C212A225-6A****	0.18	12.3	8.9	4.5	10.0	0.6	C212E184-4A****
2.7	17.5	11.9	6.7	15.0	0.6	C211J275-6A****	2.7	17.5	14.9	7.6	15.0	0.8	C212A275-6A****	0.22	12.3	9.3	4.8	10.0	0.6	C212E224-4A****
3.3	17.5	12.5	7.3	15.0	0.6	C211J335-6A****	3.3	17.5	15.7	8.4	15.0	0.8	C212A335-6A****	0.27	12.3	9.7	5.3	10.0	0.6	C212E274-4A****
3.9	17.5	13.6	7.9	15.0	0.8	C211J395-6A****	3.9	17.5	16.4	9.1	15.0	0.8	C212A395-6A****	0.33	12.3	10.7	5.5	10.0	0.6	C212E334-4A****
4.7	25.2	14.4	7.6	22.5	0.8	C211J475-9A****	4.7	25.2	17.0	8.1	22.5	0.8	C212A475-9A****	0.39	17.5	10.4	5.2	15.0	0.6	C212E394-6A****
5.6	25.2	14.9	7.7	22.5	0.8	C211J565-9A****	5.6	25.2	17.7	8.8	22.5	0.8	C212A565-9A****	0.47	17.5	10.8	5.6	15.0	0.6	C212E474-6A****
6.8	25.2	15.6	8.3	22.5	0.8	C211J685-9A****	6.8	25.2	18.5	10.2	22.5	0.8	C212A685-9A****	0.56	17.5	12.3	5.5	15.0	0.6	C212E564-6A****
8.2	25.2	16.4	9.6	22.5	0.8	C211J 825-9A****	8.2	25.2	19.5	11.1	22.5	0.8	C212A825-9A****	0.68	17.5	12.8	6.0	15.0	0.6	C212E684-6A****
10.0	25.2	17.2	10.5	22.5	0.8	C211J106-9A****	10.0	25.2	21.5	11.6	22.5	0.8	C212A106-9A****	0.82	17.5	13.8	6.5	15.0	0.6	C212E824-6A****
400Vdc(200Vac)							400Vdc(200Vac)							400Vdc(200Vac)						
C _N (μ F)	W max	H max	T max	P	d	Part number	C _N (μ F)	W max	H max	T max	P	d	Part number	C _N (μ F)	W max	H max	T max	P	d	Part number
0.010	9.8	6.9	3.9	7.5	0.6	C212G103-3A****	0.082	12.3	9.4	5.0	10.0	0.6	C212G823-4A****	0.68	17.5	16.0	10.8	15.0	0.8	C212G684-6A****
0.012	9.8	7.1	4.1	7.5	0.6	C212G123-3A****	0.10	12.3	9.9	5.4	10.0	0.6	C212G104-4A****	0.82	17.5	17.0	11.8	15.0	0.8	C212G824-6A****
0.015	9.8	7.5	4.4	7.5	0.6	C212G153-3A****	0.12	12.3	10.3	5.9	10.0	0.6	C212G124-4A****	1.0	25.2	17.5	9.1	22.5	0.8	C212G105-9A****
0.018	9.8	7.3	3.7	7.5	0.6	C212G183-3A****	0.15	17.5	10.6	5.4	15.0	0.6	C212G154-6A****	1.2	25.2	18.3	9.9	22.5	0.8	C212G125-9A****
0.022	9.8	7.5	3.9	7.5	0.6	C212G223-3A****	0.18	17.5	11.0	5.8	15.0	0.6	C212G184-6A****	1.5	25.2	19.4	11.0	22.5	0.8	C212G155-9A****
0.027	9.8	7.8	4.2	7.5	0.6	C212G273-3A****	0.22	17.5	11.5	6.3	15.0	0.6	C212G224-6A****	1.8	30.2	19.1	10.8	27.5	0.8	C212G185-9A****
0.033	9.8	8.1	4.5	7.5	0.6	C212G333-3A****	0.27	17.5	12.0	6.8	15.0	0.6	C212G274-6A****	2.2	30.2	21.2	11.3	27.5	0.8	C212G225-9A****
0.039	9.8	8.2	4.6	7.5	0.6	C212G393-3A****	0.33	17.5	12.7	7.4	15.0	0.6	C212G334-6A****	2.7	30.2	22.4	12.5	27.5	0.8	C212G275-9A****
0.047	9.8	8.6	4.9	7.5	0.6	C212G473-3A****	0.39	17.5	13.7	8.0	15.0	0.8	C212G394-6A****	3.3	30.2	23.8	13.9	27.5	0.8	C212G335-9A****
0.056	12.3	8.8	4.3	10.0	0.6	C212G563-4A****	0.47	17.5	14.4	9.2	15.0	0.8	C212G474-6A****	3.9	30.2	25.1	15.1	27.5	0.8	C212G395-9A****
0.068	12.3	9.1	4.7	10.0	0.6	C212G683-4A****	0.56	17.5	15.1	9.9	15.0	0.8	C212G564-6A****	4.7	30.2	26.6	16.7	27.5	0.8	C212G475-9A****

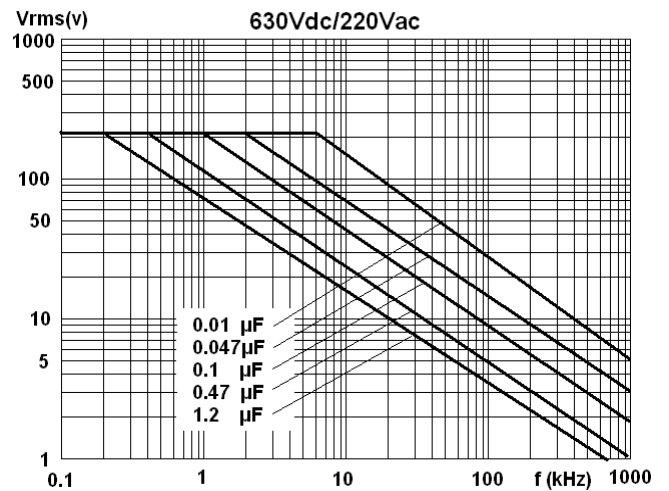
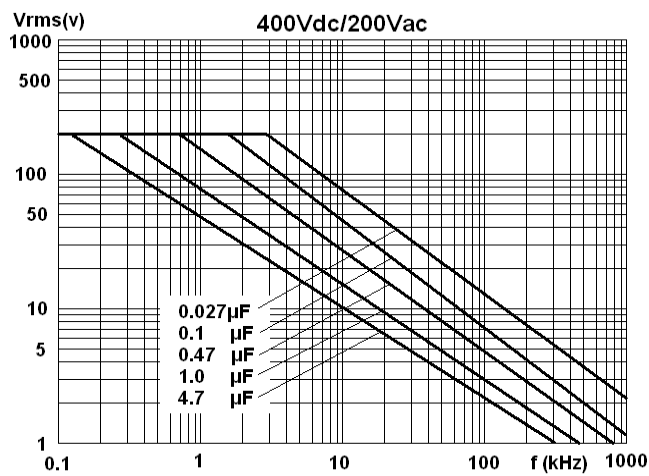
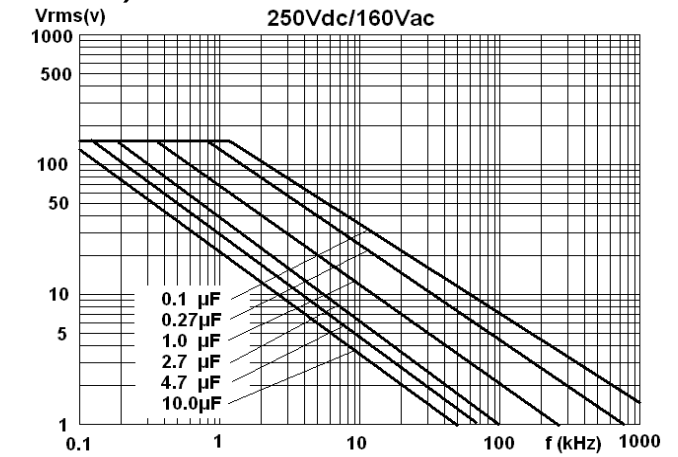
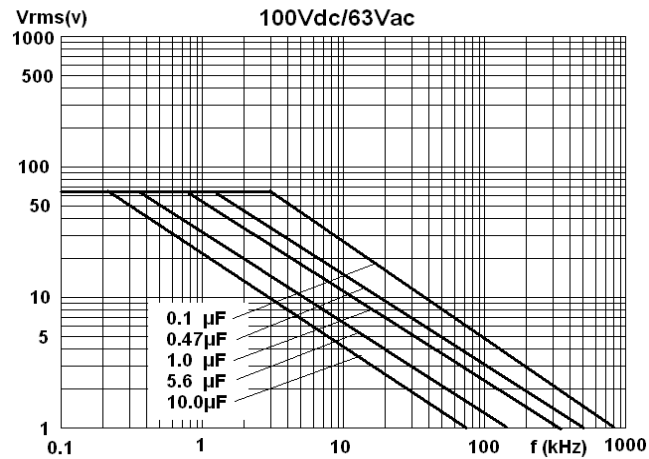
Note: 1. “-” =capacitance tolerance code, M=±20%,K=±10%,J=±5%
2. “****” =lead form and packing code (refer to table 1)
3. “#” when the rated voltage is 50Vdc,the digit 4~5 is 1H.

■ Dimensions(mm) Pattern III

630Vdc (220Vac)®							1 000Vdc (250Vac)®							1 250Vdc(250Vac)®						
C _N (μ F)	W max	H max	T max	P	d	Part number	C _N (μ F)	W max	H max	T max	P	d	Part number	C _N (μ F)	W max	H max	T max	P	d	Part number
0.010	12.3	7.4	3.8	10.0	0.6	C212J103-4A****	0.0010	9.8	8.5	4.0	7.5	0.6	C213A102-3A****	0.0010	9.8	8.5	4.0	7.5	0.6	C213B102-3A****
0.012	12.3	7.6	4.0	10.0	0.6	C212J123-4A****	0.0012	9.8	8.7	4.3	7.5	0.6	C213A122-3A****	0.0012	9.8	8.7	4.3	7.5	0.6	C213B122-3A****
0.015	12.3	7.7	4.0	10.0	0.6	C212J153-4A****	0.0015	9.8	8.5	4.1	7.5	0.6	C213A152-3A****	0.0015	9.8	8.5	4.1	7.5	0.6	C213B152-3A****
0.018	12.3	7.9	4.2	10.0	0.6	C212J183-4A****	0.0018	9.8	8.7	4.3	7.5	0.6	C213A182-3A****	0.0018	9.8	8.7	4.3	7.5	0.6	C213B182-3A****
0.022	12.3	8.2	4.5	10.0	0.6	C212J223-4A****	0.0022	9.8	8.5	4.1	7.5	0.6	C213A222-3A****	0.0022	9.8	8.5	4.1	7.5	0.6	C213B222-3A****
0.027	12.3	8.5	4.9	10.0	0.6	C212J273-4A****	0.0027	9.8	8.8	4.4	7.5	0.6	C213A272-3A****	0.0027	9.8	8.8	4.4	7.5	0.6	C213B272-3A****
0.033	12.3	8.9	5.2	10.0	0.6	C212J333-4A****	0.0033	9.8	8.7	4.3	7.5	0.6	C213A332-3A****	0.0033	9.8	9.1	4.7	7.5	0.6	C213B332-3A****
0.039	12.3	9.2	5.6	10.0	0.6	C212J393-4A****	0.0039	9.8	8.9	4.5	7.5	0.6	C213A392-3A****	0.0039	9.8	9.4	5.0	7.5	0.6	C213B392-3A****
0.047	12.3	9.7	6.0	10.0	0.6	C212J473-4A****	0.0047	9.8	9.3	4.8	7.5	0.6	C213A472-3A****	0.0047	12.3	8.7	4.2	10.0	0.6	C213B472-4A****
0.056	12.3	10.1	6.5	10.0	0.6	C212J563-4A****	0.0056	12.3	8.5	4.1	10.0	0.6	C213A562-4A****	0.0056	12.3	8.9	4.5	10.0	0.6	C213B562-4A****
0.068	12.3	10.7	7.0	10.0	0.6	C212J683-4A****	0.0068	12.3	8.8	4.4	10.0	0.6	C213A682-4A****	0.0068	12.3	9.2	4.8	10.0	0.6	C213B682-4A****
0.082	12.3	11.3	7.6	10.0	0.6	C212J823-4A****	0.0082	12.3	9.1	4.7	10.0	0.6	C213A822-4A****	0.0082	17.5	9.0	4.6	15.0	0.6	C213B822-6A****
0.10	17.5	11.5	6.3	15.0	0.6	C212J104-6A****	0.010	12.3	9.4	5.0	10.0	0.6	C213A103-4A****	0.010	17.5	9.4	5.0	15.0	0.6	C213B103-6A****
0.12	17.5	12.0	6.8	15.0	0.6	C212J124-6A****	0.012	12.3	9.8	5.4	10.0	0.6	C213A123-4A****	0.012	17.5	9.1	4.7	15.0	0.6	C213B123-6A****
0.15	17.5	12.7	7.5	15.0	0.8	C212J154-6A****	0.015	12.3	10.8	5.6	10.0	0.6	C213A153-4A****	0.015	17.5	9.5	5.1	15.0	0.6	C213B153-6A****
0.18	17.5	13.8	8.1	15.0	0.8	C212J184-6A****	0.018	12.3	11.3	6.1	10.0	0.6	C213A183-4A****	0.018	17.5	9.9	5.4	15.0	0.6	C213B183-6A****
0.22	17.5	14.5	9.3	15.0	0.8	C212J224-6A****	0.022	12.3	11.9	6.7	10.0	0.6	C213A223-4A****	0.022	17.5	10.3	5.9	15.0	0.6	C213B223-6A****
0.27	17.5	15.4	10.2	15.0	0.8	C212J274-6A****	0.027	17.5	11.8	5.0	15.0	0.6	C213A273-6A****	0.027	25.2	9.7	5.2	22.5	0.6	C213B273-9A****
0.33	17.5	16.3	11.1	15.0	0.8	C212J334-6A****	0.033	17.5	12.3	5.5	15.0	0.6	C213A333-6A****	0.033	25.2	10.1	5.7	22.5	0.6	C213B333-9A****
0.39	17.5	17.2	12.0	15.0	0.8	C212J394-6A****	0.039	17.5	12.7	5.9	15.0	0.6	C213A393-6A****	0.039	25.2	10.5	6.1	22.5	0.8	C213B393-9A****
0.47	25.2	16.4	9.7	22.5	0.8	C212J474-9A****	0.047	17.5	13.2	6.5	15.0	0.8	C213A473-6A****	0.047	25.2	11.0	6.6	22.5	0.8	C213B473-9A****
0.56	25.2	17.2	10.5	22.5	0.8	C212J564-9A****	0.056	17.5	13.8	7.0	15.0	0.8	C213A563-6A****	0.056	30.2	11.4	6.2	27.5	0.8	C213B563-BA****
0.68	25.2	18.2	11.4	22.5	0.8	C212J684-9A****	0.068	17.5	14.5	7.7	15.0	0.8	C213A683-6A****	0.068	30.2	12.0	6.7	27.5	0.8	C213B683-BA****
0.82	25.2	19.3	12.5	22.5	0.8	C212J824-9A****	0.082	17.5	15.2	8.5	15.0	0.8	C213A823-6A****	0.082	30.2	12.6	7.3	27.5	0.8	C213B823-BA****
1.0	30.2	19.9	11.6	27.5	0.8	C212J105-BA****	0.10	17.5	16.6	9.7	15.0	0.8	C213A104-6A****	0.10	30.2	14.8	7.8	27.5	0.8	C213B104-BA****
1.2	30.2	22.0	12.6	27.5	0.8	C212J125-BA****	0.12	25.2	15.3	8.3	22.5	0.8	C213A124-9A****	0.12	30.2	15.4	8.5	27.5	0.8	C213B124-BA****
1.5	30.2	22.5	14.1	27.5	0.8	C212J155-BA****	0.15	25.2	16.2	9.2	22.5	0.8	C213A154-9A****	0.15	30.2	16.4	9.4	27.5	0.8	C213B154-BA****
1.8	30.2	23.8	15.5	27.5	0.8	C212J185-BA****	0.18	25.2	17.1	10.1	22.5	0.8	C213A184-9A****	0.18	30.2	18.3	9.7	27.5	0.8	C213B184-BA****
2.2	30.2	25.5	17.1	27.5	0.8	C212J225-BA****	0.22	25.2	18.1	11.1	22.5	0.8	C213A224-9A****	0.22	30.2	19.3	10.7	27.5	0.8	C213B224-BA****
							0.27	25.2	20.2	11.7	22.5	0.8	C213A274-9A****							
							0.33	30.2	20.1	11.6	27.5	0.8	C213A334-BA****							
							0.39	30.2	21.2	12.6	27.5	0.8	C213A394-BA****							

- Note: 1. “-” =capacitance tolerance code, M=±20%,K=±10%,J=±5%
 2. “****” =lead form and packing code (refer to table 1)
 3. “@” Not suitable for across-the-line applications.Pls refer to Interference Suppression Capacitors.

■ MAX. VOLTAGE(Vr.m.s) VERSUS FREQUENCY (Pattern III)



Note: sinusoidal wave-form, environment temperature $\leq 85^{\circ}\text{C}$, internal temperature rise $\Delta T = 15^{\circ}\text{C}$, p (pitch) in mm.

■ Test Method And Performance

No.	Item		Performance	Test method (IEC60384-2)
1	Solderability		Good quality of tinning	Solder temperature: 245°C±5°C Immersion time: 2.0s±0.5s
2	Initial measurement		Capacitance Tanδ: 1kHz, C>1.0μF 10kHz, C≤1.0μF	
	Terminal Strength (straight lead)		There shall be no visible damage	Ref. item 4.3 Tension: 0.6≤φd≤0.8mm, 10N φd=1.0mm, 20N Bend: 0.6≤φd≤0.8mm, 5N φd=1.0mm, 10N The terminals shall be bent 2 times in each direction.
	Resistance to solder heat		There shall be no visible damage	Solder temperature: 260°C±5°C Immersion time: 10s±1s
	Final measurement		ΔC/C ≤±2%(relative to the initial value) Increase of tanδ: ≤0.005 (10kHz, C≤1.0μF) ≤0.003 (1kHz, C>1.0μF)	
3	Initial measurement		Capacitance Tanδ: 1kHz, C>1.0μF 10kHz, C≤1.0μF	
	Rapid change of temperature		There shall be no evidence of deterioration.	θ _A = -55°C, θ _B = +105°C 5 cycles, Duration: t=30min
	Vibration (straight lead) (when capacitor weight > 3g, the capacitor body needs to be fixed)		There shall be no evidence of deterioration.	Amplitude 0.75mm or acceleration 98m/s ² (whichever is the smaller severity), f: 10Hz to 500Hz. Three directions, 2h for each direction, total 6h.
	Bump (straight lead) (when capacitor weight > 3g, the capacitor body needs to be fixed)		There shall be no evidence of deterioration.	4 000 times, Acceleration: 390m/s ² , Pulse duration, 6ms
	Final measurement		ΔC/C ≤±5%(relative to the initial value) Increase of tanδ: ≤0.003 (10kHz, C≤1.0μF) ≤0.002 (1kHz, C>1.0μF) IR: ≥ 50% of the rated value	
4	climate sequence	Initial measurement	Capacitance Tanδ: 1kHz, C>1.0μF 10kHz, C≤1.0μF	
		Dry heat		+105°C, 16h
		Damp heat, Cyclic		Test Db, Severity: b, the first cycle
		Cold		-55°C, 2h
		Low air pressure	There shall be no permanent breakdown, flashover or other harmful deformation when applying U _R at the last 1 minute.	15°C~35°C, 8.5kPa, 1h,
		Damp heat, cyclic other		Test Db, Severity b, the other cycles, Applying U _R for 1 minute after the test finished.

No.	Item		Performance	Test method (IEC 60384-2)
4	climate sequence (continue)	Final measurement	There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of $\tan \delta$: ≤ 0.005 (10kHz, $C \leq 1.0 \mu F$) ≤ 0.003 (1kHz, $C > 1.0 \mu F$) $IR: \geq 50\%$ of the rated value	
5	Damp heat steady state		There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of $\tan \delta \leq 0.005$ $IR: \geq 50\%$ of the rated value	Temperature: $40^\circ C \pm 2^\circ C$ Humidity: $93 \pm 2\%$ RH Duration: 21 days
6	Endurance		$\Delta C/C \leq \pm 8\%$ (relative to the initial value) Increase of $\tan \delta$: ≤ 0.003 (10kHz, $C \leq 1.0 \mu F$) ≤ 0.002 (1kHz, $C > 1.0 \mu F$) $IR: \geq 50\%$ of the rated value	Temperature Voltage 1) $+85^\circ C$ $1.25 \times U_R$ 2) $+105^\circ C$ $1.25 \times U_C$ ($U_C = 0.8 U_R$) Duration: 2 000h
7	Charging and discharging		$\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of $\tan \delta$: ≤ 0.003 (10kHz, $C \leq 1.0 \mu F$) ≤ 0.002 (1kHz, $C > 1.0 \mu F$) $IR: \geq 50\%$ of the rated value	Times: 10 000 Duration of charging: 0.5s Duration of discharging: 0.5s Charging voltage: rated voltage Charging resistance: $220/C_N(\Omega)$ Discharging resistance: $R = 10/C_N(\Omega)$ or 20Ω (whichever is the greater) C_N : rated capacitance (μF)

■ Marking (For example)

 CL21
 104K 250
 $P \leq 10mm$

 CL21
 104K 250 L
 $P > 10mm$

Marking Introduction:

	Brand	CL21	Type
250	Rated voltage	104	Rated capacitance
K	Tolerance	L	Year of manufacture

■ Taping for dipped-type capacitor

▲ Outline Drawing

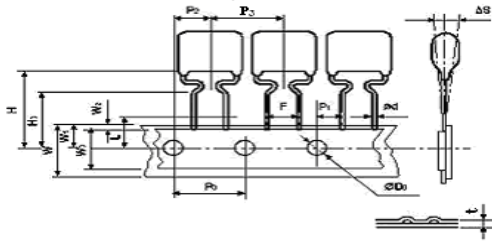


Fig.1

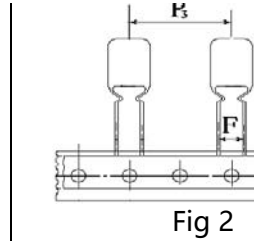


Fig 2

▲ Taping Dimensions(mm)

Technology index title	Code	Dimensions (mm)				
		P=5.0	P=7.5	P=10.0	P=15.0	Tolerance
Taping type	—	Fig 1	Fig 1	Fig 2	Fig 2	—
Part number Digit12-15	Ammo-pack	A21A	A31A	A41E	A61E	
Taping pitch	P ₃	12.7	12.7	25.4	25.4	±1.0
Feed hole pitch	P ₀	12.7	12.7	12.7	12.7	±0.3
Center of wire	P ₁	3.85	2.60	7.7	5.2	±0.7
Center of body	P ₂	6.35	6.35	12.7	12.7	±1.3
Pitch of taping wire	F**	5.0	7.5	10.0	15.0	+0.8 -0.2
Component alignment	△ S	0	0	0	0	±2.0
Height of crangle from tape center	H	20.0	20.0	20.0	20.0	±1.0
Height of component from tape center	H ₀	16.0	16.0	16.0	16.0	±0.5
Carrier tape width	W	18.0	18.0	18.0	18.0	+1.0 -0.5
Hold down tape width	W ₀	10min	10min	10min	10min	—
Hole position	W ₁	9.0	9.0	9.0	9.0	+0.75 -0.5
Hold down tape position	W ₂	3max	3max	3max	3max	—
Feed hole dia.	D ₀	4.0	4.0	4.0	4.0	±0.3
Tape thickness	t	0.7	0.7	0.7	0.7	±0.2

Note: * P₀=15mm is also available;
** F can be other lead spacing;

■ Soldering suggestions

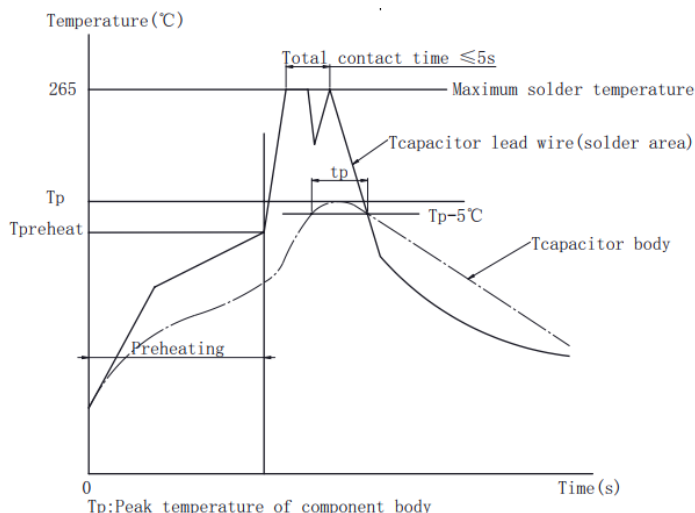
▲ Manual soldering

Max. temperature: 350°C, time: 3s

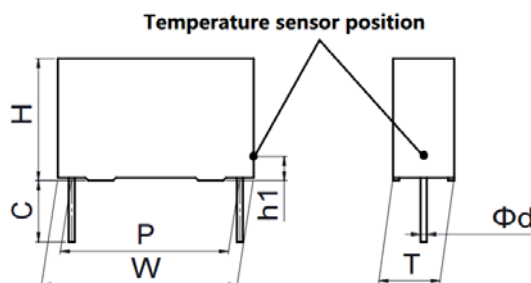
▲ Wave soldering

There are many factors affecting the heating of film capacitor during the wave soldering process, such as: preheating temperature, preheating time, soldering temperature, soldering time, other heat sources influence and so on.

The typical soldering profile is as below:



▲ Because overheating could damage the capacitor, we recommend paying attention to the maximum capacitor temperature and heating time, use temperature sensor to detect the maximum capacitor body temperature.

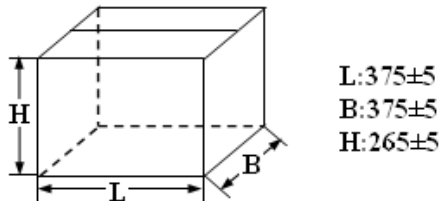


Note: If re-working or dipping twice is necessary, it should be done after the capacitor returns to the normal temperature.

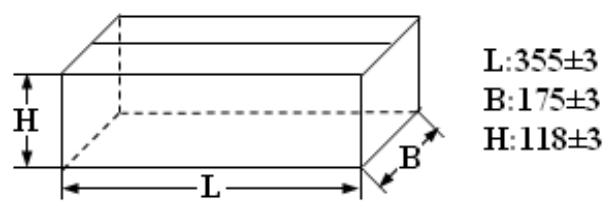
Temperature sensor position (Tcapacitor body)	The capacitor body surface of lead side, capacitor height position from PCB: $h_1 = 2 \sim 3mm$		
Maximum capacitor body temperature $T_p(^{\circ}C)$	OPP film $P \leq 15mm$	OPP film $P > 15mm$	PET film
	115	120	125
Maximum capacitor lead wire temperature($^{\circ}C$)	265	265	265
Maximum capacitor body heating time $t_p = T_p - 5^{\circ}C$	30s		

■ Packing box sizes(mm)(example)

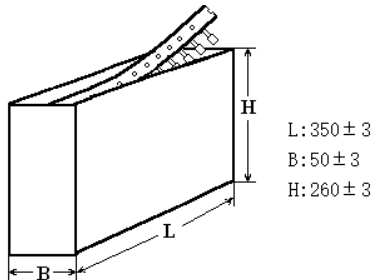
1. Out packing box for bulk



2. Inner packing box for bulk



3. Box sizes for Ammo-pack



■ Storage conditions

▲ It must be noted that the solderability of the terminals may be deteriorated when stored in an atmosphere filled with moisture, dust, or a reactive oxidizing gas.(hydrogen chloride, hydrogen sulfide, sulfuric acid,etc.)

▲ It shouldn't be located in particularly high temperature and high humidity, it must submit to the following conditions(unchanging primal package):

Temperature: -40 °C to 35 °C

Humidity: Average per year ≤ 70%RH;

For 30 full days randomly distributed throughout the year ≤ 80%RH

Storage time for tinned lead wire: (from the date marked on the capacitor's body or the label glued to the package) :

Bulk(packed with plastic bag): ≤ 24 months ;

Taping and line up: ≤ 12 months