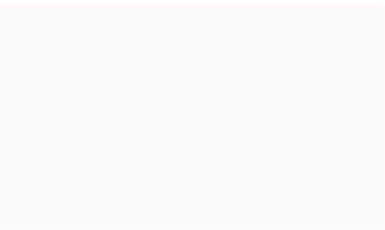




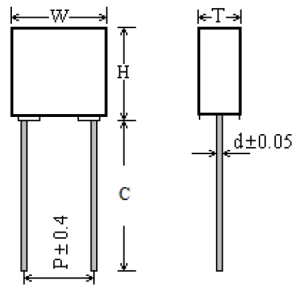
# SPECIFICATION FOR APPROVAL

File No.: Q/FRK 0.GS.E.C24-A03

|               |                                                               |
|---------------|---------------------------------------------------------------|
| Product Name  | Box-type Metallized Polyester Film Capacitor(Stacked version) |
| Product Type: | C24(CL23B Series)                                             |
| Product Code  |                                                               |
| Customer      |                                                               |
| Customer Code |                                                               |
| Issue Date    | 2010-04                                                       |



**SURGE**  
Surge Components, Inc.  
95 E. Jefryn Blvd  
Deer Park, NY 11729  
[www.surgecomponents.com](http://www.surgecomponents.com)

**Box-type metallized polyester film capacitor(Stacked version)**
**■ Outline Drawing**

**■ Features**

- metallized polyester film, stacked construction
- Plastic case (UL94 V-0), Epoxy resin sealing
- High dv/dt ability

**■ Typical Applications:**

- By-passing, blocking, coupling, decoupling,
- Pulse logic, timing, oscillator circuits.
- Inverter for LCD monitors, automotive DC motor suppression

**■ Specifications**

|                       |                                                                        |                                                                                          |                        |
|-----------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------|
| Reference Standard    | GB 7332(IEC 60384-2)                                                   |                                                                                          |                        |
| Climatic Category     | 55/105/56                                                              |                                                                                          |                        |
| Rated temperature     | 85℃                                                                    |                                                                                          |                        |
| Operating temperature | -55℃~105℃<br>(+85℃ to +105℃: decreasing factor 1.25% per ℃ for VR(dc)) |                                                                                          |                        |
| Rated Voltage         | 50/63V, 100V, 250V, 400V, 500V, 630V, 700V                             |                                                                                          |                        |
| Capacitance Range     | 0.0010μF ~ 2.2μF                                                       |                                                                                          |                        |
| Capacitance Tolerance | ±5%(J), ±10%(K), ±20%(M)                                               |                                                                                          |                        |
| Voltage Proof         | Pattern I: 1.6U <sub>R</sub> (5s), Pattern II: 1.4U <sub>R</sub> (5s)  |                                                                                          |                        |
| Dissipation Factor    | Frequency                                                              | C <sub>R</sub> ≤ 0.1μF                                                                   | C <sub>R</sub> > 0.1μF |
|                       | 1kHz                                                                   | ≤1.0%                                                                                    | ≤1.0%                  |
|                       | 10kHz                                                                  | ≤1.5%                                                                                    | ≤1.5%                  |
|                       | 100kHz                                                                 | ≤3.0%                                                                                    | -                      |
| Insulation Resistance | U <sub>R</sub> > 100V                                                  | ≥3 000MΩ, C <sub>R</sub> ≤ 0.33μF<br>≥10 000s, C <sub>R</sub> > 0.33μF (20℃, 100V, 1min) |                        |
|                       | U <sub>R</sub> ≤ 100V                                                  | ≥15 000MΩ, C <sub>R</sub> ≤ 0.33μF<br>≥5 000s, C <sub>R</sub> > 0.33μF (20℃, 10V, 1min)  |                        |

## Part number system

The 18 digits part number is formed as follow:

### C24 Pattern I (High performance)

|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| C | 2 | 4 |   |   |   |   |   |   |    | 2  | 0  |    |    |    |    |    |    |

### C24 Pattern II (Reduced size)

|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| C | 2 | 4 |   |   |   |   |   |   |    | 2  | S  |    |    |    |    |    |    |

Digit 1 to 3 Series code of film capacitor

C24=CL23B

Digit 4 to 5 DC rated voltage

1H=50V 1J=63V 2A=100V 2E=250V

2G=400V 2H=500V 2J=630V 1V=700V

Digit 6 to 8 Rated capacitance value

For example : 103=10×10<sup>3</sup>pF=0.01uF

Digit 9 Capacitance tolerance

J=±5%, K=±10%, M=±10%

Digit 10 Lead pitch

2=5.0

Digit 11 Internal use

S=pattern II

Digit 12 to 15 Lead dimensions and packaging code

Digit 16 to 18 Internal use

**Table 1 lead dimensions 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                             | 0        | straight    | 1        | each cap. among two consecutive holes<br>P3=12.7mm,H=18.5mm (For pitch=5.0mm) |
| C        | straight lead<br>“C”in the<br>figure above | code     | explanation                         |          |             | 0        | Length tolerance ±0.5mm<br>Or standard length                                 |
|          |                                            | 00       | standard lead length<br>(18mm~22mm) |          |             |          |                                                                               |
|          |                                            | 45       | lead length 4.5mm                   |          |             |          |                                                                               |

## ■ Dimensions(mm)

|                               |      |      |
|-------------------------------|------|------|
| Capacitor Thickness: T        | ≤3.5 | >3.5 |
| Dimension Tolerance (W, H, T) | ±0.2 | ±0.4 |

Pattern II (Reduced size)

| 50Vdc (30Vac)/63Vdc (40Vac) # |     |      |     |     |     |                    |
|-------------------------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)                     | W   | H    | T   | P   | d   | 产品代码               |
| 0.15                          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J154-2S*****++ |
| 0.18                          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J184-2S*****++ |
| 0.22                          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J224-2S*****++ |
| 0.27                          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J274-2S*****++ |
| 0.33                          | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241J334-2S*****++ |
| 0.39                          | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241J394-2S*****++ |
| 0.47                          | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241J474-2S*****++ |
| 0.56                          | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241J564-2S*****++ |
| 0.68                          | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241J684-2S*****++ |
| 0.82                          | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241J824-2S*****++ |
| 1.0                           | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C241J105-2S*****++ |
| 1.5                           | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C241J155-2S*****++ |
| 2.2                           | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C241J225-2S*****++ |

| 100 Vdc (63Vac) |     |      |     |     |     |                    |
|-----------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)       | W   | H    | T   | P   | d   | 产品代码               |
| 0.10            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A104-2S*****++ |
| 0.12            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A124-2S*****++ |
| 0.15            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242A154-2S*****++ |
| 0.18            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242A184-2S*****++ |
| 0.22            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242A224-2S*****++ |
| 0.27            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242A274-2S*****++ |
| 0.33            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242A334-2S*****++ |
| 0.39            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242A394-2S*****++ |
| 0.47            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242A474-2S*****++ |
| 0.56            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242A564-2S*****++ |
| 0.68            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A684-2S*****++ |
| 0.82            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A824-2S*****++ |
| 1.0             | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A105-2S*****++ |

| 250 Vdc (140Vac) |     |      |     |     |     |                    |
|------------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)        | W   | H    | T   | P   | d   | 产品代码               |
| 0.022            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E223-2S*****++ |
| 0.027            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E273-2S*****++ |
| 0.033            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E333-2S*****++ |
| 0.039            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E393-2S*****++ |
| 0.047            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E473-2S*****++ |
| 0.056            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E563-2S*****++ |
| 0.068            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E683-2S*****++ |
| 0.082            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242E823-2S*****++ |
| 0.10             | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242E104-2S*****++ |
| 0.12             | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242E124-2S*****++ |
| 0.15             | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242E154-2S*****++ |
| 0.18             | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242E184-2S*****++ |
| 0.22             | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242E224-2S*****++ |

| 400 Vdc (160Vac) |     |      |     |     |     |                    |
|------------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)        | W   | H    | T   | P   | d   | 产品代码               |
| 0.0056           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G562-2S*****++ |
| 0.0068           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G682-2S*****++ |
| 0.0082           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G822-2S*****++ |
| 0.010            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G103-2S*****++ |
| 0.012            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G123-2S*****++ |
| 0.015            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G153-2S*****++ |
| 0.018            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G183-2S*****++ |
| 0.022            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G223-2S*****++ |
| 0.027            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G273-2S*****++ |
| 0.033            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242G333-2S*****++ |
| 0.039            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242G393-2S*****++ |
| 0.047            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242G473-2S*****++ |
| 0.051            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242G513-2S*****++ |
| 0.056            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G563-2S*****++ |
| 0.068            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G683-2S*****++ |
| 0.082            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G823-2S*****++ |
| 0.10             | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G104-2S*****++ |

- 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.

Pattern II (Reduced size)

| 500 Vdc/630(220Vac) <sup>#</sup> |     |      |     |     |     |                    |
|----------------------------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)                        | W   | H    | T   | P   | d   | 产品代码               |
| 0.0018                           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J182-2S*****++ |
| 0.0022                           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J222-2S*****++ |
| 0.0027                           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J272-2S*****++ |
| 0.0033                           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J332-2S*****++ |
| 0.0039                           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J392-2S*****++ |
| 0.0047                           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J472-2S*****++ |
| 0.0056                           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J562-2S*****++ |
| 0.0068                           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J682-2S*****++ |
| 0.0082                           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J822-2S*****++ |
| 0.010                            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J103-2S*****++ |
| 0.012                            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J123-2S*****++ |
| 0.015                            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J153-2S*****++ |
| 0.018                            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J183-2S*****++ |
| 0.022                            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242J223-2S*****++ |
| 0.027                            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242J273-2S*****++ |
| 0.033                            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242J333-2S*****++ |

| 700 Vdc (250Vac) |     |      |     |     |     |                    |
|------------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)        | W   | H    | T   | P   | d   | 产品代码               |
| 0.0010           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241V102-2S*****++ |
| 0.0012           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241V122-2S*****++ |
| 0.0015           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241V152-2S*****++ |
| 0.0018           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241V182-2S*****++ |
| 0.0022           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241V222-2S*****++ |
| 0.0027           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241V272-2S*****++ |
| 0.0033           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241V332-2S*****++ |
| 0.0039           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241V392-2S*****++ |
| 0.0047           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241V472-2S*****++ |
| 0.0056           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241V562-2S*****++ |
| 0.0068           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241V682-2S*****++ |
| 0.0082           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241V822-2S*****++ |
| 0.010            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241V103-2S*****++ |
| 0.012            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241V123-2S*****++ |
| 0.015            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C241V153-2S*****++ |
| 0.018            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C241V183-2S*****++ |
| 0.022            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C241V223-2S*****++ |

- Note: 1. “-”=capacitance tolerance code, M=±20%,K=±10%,J=±5%
2. “\*\*\*\*\*”=lead dimensions and packing mode code (refer to table 1).
3. “#” when the rated voltage is 500VDC,the digit 4~5 is 2H.

## Pattern I (High performance)

| 50Vdc (30Vac)/63Vdc (40Vac) # |     |      |     |     |     |                    |
|-------------------------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)                     | W   | H    | T   | P   | d   | 产品代码               |
| 0.0010                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J102-20****+++ |
| 0.0012                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J122-20****+++ |
| 0.0015                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J152-20****+++ |
| 0.0018                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J182-20****+++ |
| 0.0022                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J222-20****+++ |
| 0.0027                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J272-20****+++ |
| 0.0033                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J332-20****+++ |
| 0.0039                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J392-20****+++ |
| 0.0047                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J472-20****+++ |
| 0.0056                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J562-20****+++ |
| 0.0068                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J682-20****+++ |
| 0.0082                        | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J822-20****+++ |
| 0.010                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J103-20****+++ |
| 0.012                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J123-20****+++ |
| 0.015                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J153-20****+++ |
| 0.018                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J183-20****+++ |
| 0.022                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J223-20****+++ |
| 0.027                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J273-20****+++ |
| 0.033                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J333-20****+++ |
| 0.039                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J393-20****+++ |
| 0.047                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J473-20****+++ |
| 0.056                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J563-20****+++ |
| 0.068                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J683-20****+++ |
| 0.082                         | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J823-20****+++ |
| 0.10                          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J104-20****+++ |
| 0.12                          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C241J124-20****+++ |
| 0.15                          | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241J154-20****+++ |
| 0.18                          | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241J184-20****+++ |
| 0.22                          | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C241J224-20****+++ |
| 0.27                          | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241J274-20****+++ |
| 0.33                          | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241J334-20****+++ |
| 0.39                          | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C241J394-20****+++ |
| 0.47                          | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C241J474-20****+++ |
| 0.56                          | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C241J564-20****+++ |
| 0.68                          | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C241J684-20****+++ |
| 0.82                          | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C241J824-20****+++ |
| 1.0                           | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C241J105-20****+++ |

| 100 Vdc (63Vac) |     |      |     |     |     |                    |
|-----------------|-----|------|-----|-----|-----|--------------------|
| C<br>(μF)       | W   | H    | T   | P   | d   | 产品代码               |
| 0.0010          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A102-20****+++ |
| 0.0012          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A122-20****+++ |
| 0.0015          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A152-20****+++ |
| 0.0018          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A182-20****+++ |
| 0.0022          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A222-20****+++ |
| 0.0027          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A272-20****+++ |
| 0.0033          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A332-20****+++ |
| 0.0039          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A392-20****+++ |
| 0.0047          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A472-20****+++ |
| 0.0056          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A562-20****+++ |
| 0.0068          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A682-20****+++ |
| 0.0082          | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A822-20****+++ |
| 0.010           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A103-20****+++ |
| 0.012           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A123-20****+++ |
| 0.015           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A153-20****+++ |
| 0.018           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A183-20****+++ |
| 0.022           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A223-20****+++ |
| 0.027           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A273-20****+++ |
| 0.033           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A333-20****+++ |
| 0.039           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A393-20****+++ |
| 0.047           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A473-20****+++ |
| 0.056           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A563-20****+++ |
| 0.068           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A683-20****+++ |
| 0.082           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242A823-20****+++ |
| 0.10            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242A104-20****+++ |
| 0.12            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242A124-20****+++ |
| 0.15            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242A154-20****+++ |
| 0.18            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242A184-20****+++ |
| 0.22            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242A224-20****+++ |
| 0.27            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242A274-20****+++ |
| 0.33            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A334-20****+++ |
| 0.39            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A394-20****+++ |
| 0.47            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A474-20****+++ |
| 0.56            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242A564-20****+++ |

- 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.

## Pattern I (High performance)

| 250 Vdc (160Vac) |     |      |     |     |     |                   |
|------------------|-----|------|-----|-----|-----|-------------------|
| C<br>( $\mu$ F)  | W   | H    | T   | P   | d   | 产品代码              |
| 0.0010           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E102-20****++ |
| 0.0012           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E122-20****++ |
| 0.0015           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E152-20****++ |
| 0.0018           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E182-20****++ |
| 0.0022           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E222-20****++ |
| 0.0027           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E272-20****++ |
| 0.0033           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E332-20****++ |
| 0.0039           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E392-20****++ |
| 0.0047           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E472-20****++ |
| 0.0056           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E562-20****++ |
| 0.0068           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E682-20****++ |
| 0.0082           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E822-20****++ |
| 0.010            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E103-20****++ |
| 0.012            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E123-20****++ |
| 0.015            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E153-20****++ |
| 0.018            | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242E183-20****++ |
| 0.022            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E223-20****++ |
| 0.027            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E273-20****++ |
| 0.033            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E333-20****++ |
| 0.039            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242E393-20****++ |
| 0.047            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242E473-20****++ |
| 0.056            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242E563-20****++ |
| 0.068            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242E683-20****++ |
| 0.082            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242E823-20****++ |
| 0.10             | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242E104-20****++ |
| 0.12             | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242E124-20****++ |
| 0.15             | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242E154-20****++ |

| 400 Vdc (200Vac) |     |      |     |     |     |                   |
|------------------|-----|------|-----|-----|-----|-------------------|
| C<br>( $\mu$ F)  | W   | H    | T   | P   | d   | 产品代码              |
| 0.0010           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G102-20****++ |
| 0.0012           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G122-20****++ |
| 0.0015           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G152-20****++ |
| 0.0018           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G182-20****++ |
| 0.0022           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G222-20****++ |
| 0.0027           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G272-20****++ |
| 0.0033           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G332-20****++ |
| 0.0039           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G392-20****++ |
| 0.0047           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242G472-20****++ |
| 0.0056           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G562-20****++ |
| 0.0068           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G682-20****++ |
| 0.0082           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G822-20****++ |
| 0.010            | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242G103-20****++ |
| 0.012            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242G123-20****++ |
| 0.015            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242G153-20****++ |
| 0.018            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242G183-20****++ |
| 0.022            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242G223-20****++ |
| 0.027            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G273-20****++ |
| 0.033            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G333-20****++ |
| 0.039            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G393-20****++ |
| 0.047            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242G473-20****++ |

- Note: 1. “-”=capacitance tolerance code, M= $\pm 20\%$ , K= $\pm 10\%$ , J= $\pm 5\%$   
 2. “\*\*\*\*”=lead form and packing code (refer to table 1).

Pattern I (High performance)

| 500 Vdc (220Vac) |     |      |     |     |     |                    |
|------------------|-----|------|-----|-----|-----|--------------------|
| C<br>( $\mu$ F)  | W   | H    | T   | P   | d   | 产品代码               |
| 0.0010           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242H102-20*****++ |
| 0.0012           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242H122-20*****++ |
| 0.0015           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242H152-20*****++ |
| 0.0018           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242H182-20*****++ |
| 0.0022           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242H222-20*****++ |
| 0.0027           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242H272-20*****++ |
| 0.0033           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242H332-20*****++ |
| 0.0039           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242H392-20*****++ |
| 0.0047           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242H472-20*****++ |
| 0.0056           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242H562-20*****++ |
| 0.0068           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242H682-20*****++ |
| 0.0082           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242H822-20*****++ |
| 0.010            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242H103-20*****++ |
| 0.012            | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242H123-20*****++ |
| 0.015            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242H153-20*****++ |
| 0.018            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242H183-20*****++ |
| 0.022            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242H223-20*****++ |
| 0.027            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242H273-20*****++ |

| 630 Vdc (220Vac) |     |      |     |     |     |                    |
|------------------|-----|------|-----|-----|-----|--------------------|
| C<br>( $\mu$ F)  | W   | H    | T   | P   | d   | 产品代码               |
| 0.0010           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J102-20*****++ |
| 0.0012           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J122-20*****++ |
| 0.0015           | 7.2 | 6.5  | 2.5 | 5.0 | 0.5 | C242J152-20*****++ |
| 0.0018           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J182-20*****++ |
| 0.0022           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J222-20*****++ |
| 0.0027           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J272-20*****++ |
| 0.0033           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J332-20*****++ |
| 0.0039           | 7.2 | 7.5  | 3.5 | 5.0 | 0.5 | C242J392-20*****++ |
| 0.0047           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J472-20*****++ |
| 0.0056           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J562-20*****++ |
| 0.0068           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J682-20*****++ |
| 0.0082           | 7.2 | 9.5  | 4.5 | 5.0 | 0.6 | C242J822-20*****++ |
| 0.010            | 7.2 | 10.0 | 5.0 | 5.0 | 0.6 | C242J103-20*****++ |
| 0.012            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242J123-20*****++ |
| 0.015            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242J153-20*****++ |
| 0.018            | 7.2 | 11.0 | 6.0 | 5.0 | 0.6 | C242J183-20*****++ |

Note: 1. “-”=capacitance tolerance code, M=±20%,K=±10%,J=±5%  
 2. “\*\*\*\*\*”=lead form and packing code (refer to table 1).



Maximum permissible voltage change per unit of time

Pattern I

| Rated Voltage (V) | Max dv/dt(V/us) |
|-------------------|-----------------|
| 50/63             | 250             |
| 100               | 300             |
| 250               | 400             |
| 400               | 600             |
| 500               | 700             |
| 630               | 800             |

Pattern II

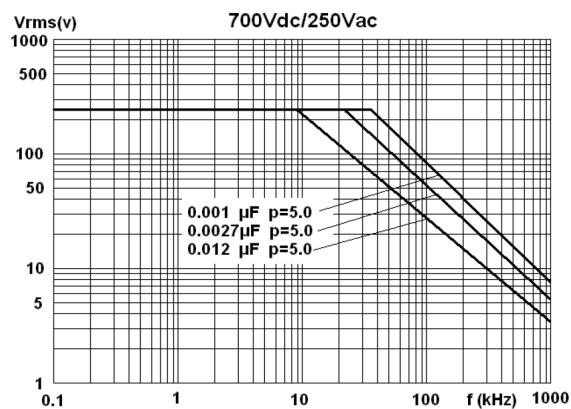
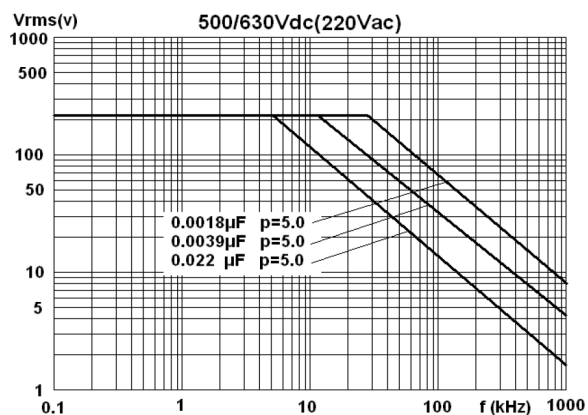
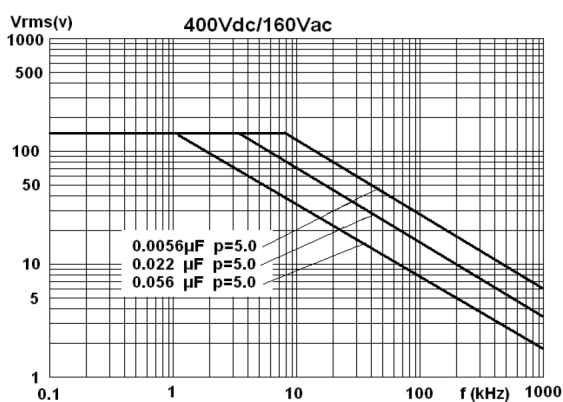
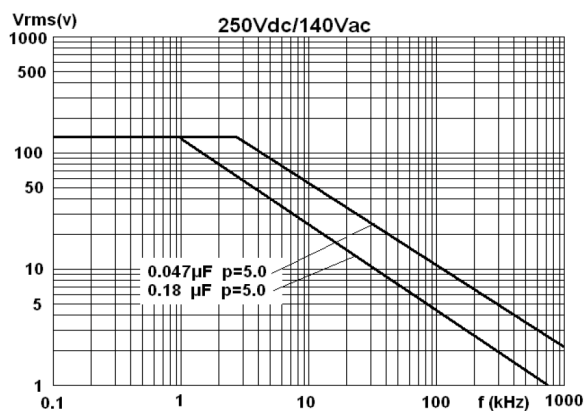
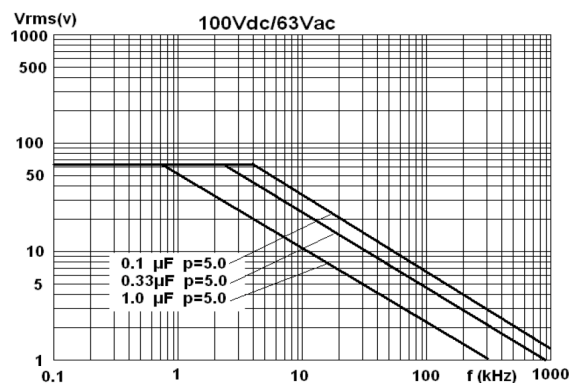
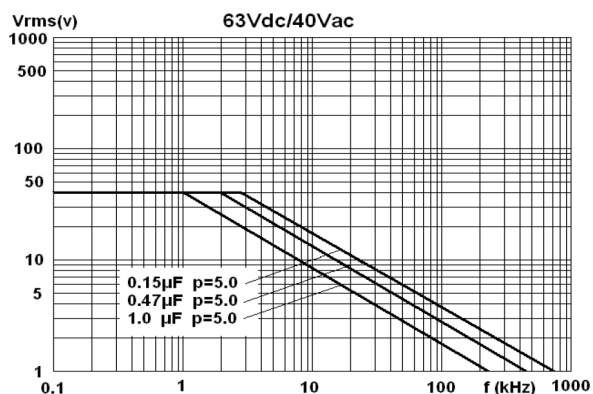
| Rated Voltage (V) | Max dv/dt(V/us) |
|-------------------|-----------------|
| 50/63             | 75              |
| 100               | 85              |
| 250               | 100             |
| 400               | 150             |
| 500/630           | 200             |
| 700               | 250             |

Note:

- 1、 Rated voltage pulse slope  $(dv/dt)_R$  at rated voltage.
- 2、 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  $U_R/U$ .

## MAX. VOLTAGE( $V_{r.m.s}$ ) VERSUS FREQUENCY

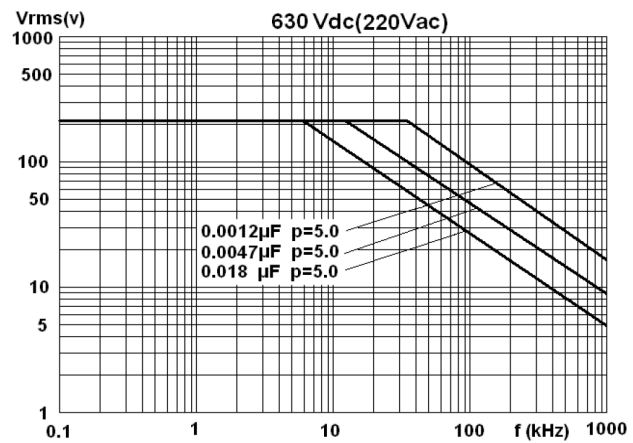
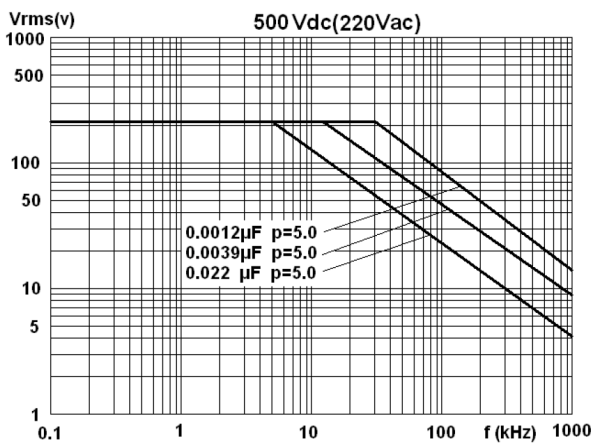
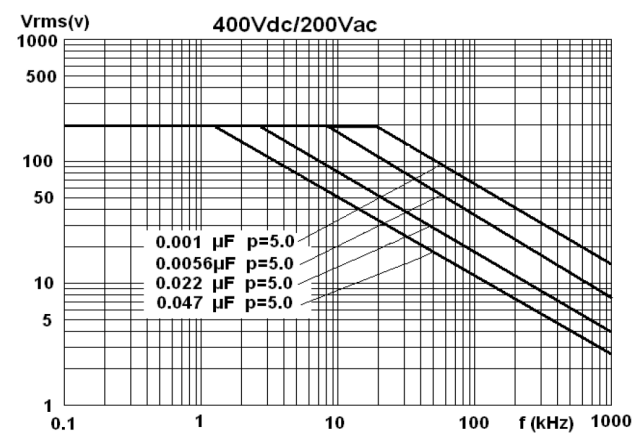
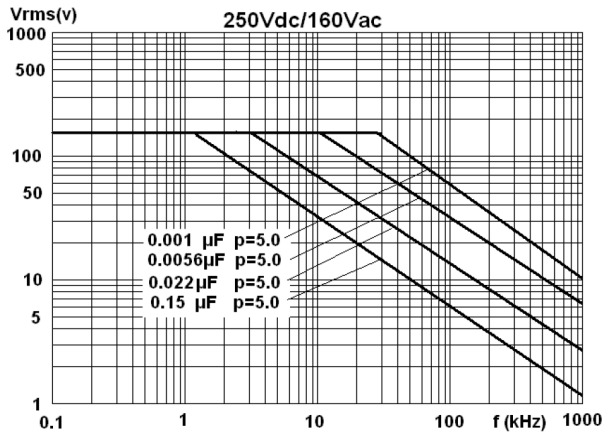
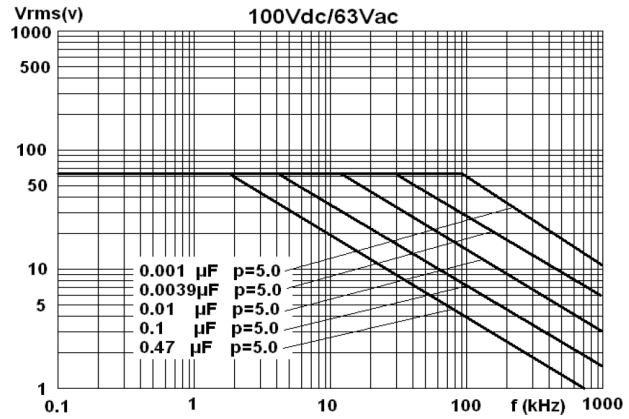
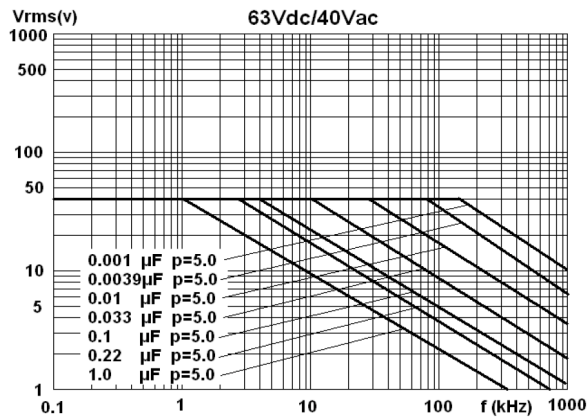
Pattern II (Reduced sized)



Note: sinusoidal wave-form、environment temperature  $\leq 75^{\circ}\text{C}$ , internal temperature rise  $\Delta T=10^{\circ}\text{C}$ , p (pitch) in mm..

### MAX. VOLTAGE(Vr.m.s) VERSUS FREQUENCY

Pattern I (High performance)



Note: sinusoidal wave-form、environment temperature  $\leq 75^{\circ}\text{C}$ , internal temperature rise  $\Delta T = 10^{\circ}\text{C}$ , p (pitch) in mm..

## 2 Test Method And Performance

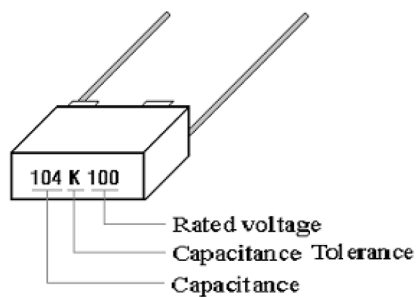
| No. | Item                               |                     | Performance                                                                                                                                                                                                                                                                      | Test method (IEC60384-2)                                                                                                                                                                                                           |
|-----|------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Capacitance tolerance              |                     | J( $\pm 5\%$ ), K( $\pm 10\%$ ), M( $\pm 20\%$ )                                                                                                                                                                                                                                 | 1kHz, 3%U <sub>R</sub> (V <sub>rms</sub> )max.                                                                                                                                                                                     |
| 2   | Tangent of the loss angle          |                     | tg $\delta \leq 0.010$ (1kHz)<br>tg $\delta \leq 0.015$ (10kHz)<br>tg $\delta \leq 0.030$ (100kHz, C<0.1 $\mu$ F)                                                                                                                                                                | 1KHz or 10 KHz or 100 KHz<br>$\leq 3\%$ U <sub>R</sub> (V <sub>rms</sub> ) or 1 V <sub>rms</sub> (whichever is the minor)                                                                                                          |
| 3   | Dielectric strength                |                     | There shall be no breakdown or flashover.                                                                                                                                                                                                                                        | Type I: 1.6U <sub>R</sub> , 5s<br>Type II: 1.4U <sub>R</sub> , 5s                                                                                                                                                                  |
| 4   | Insulation resistance              |                     | U <sub>R</sub> $\leq 100$ V C <sub>R</sub> $\leq 0.33\mu$ F, $\geq 15\ 000$ M $\Omega$<br>C <sub>R</sub> $> 0.33\mu$ F, $\geq 5\ 000$ s<br>U <sub>R</sub> $> 100$ V C <sub>R</sub> $\leq 0.33\mu$ F, $\geq 3\ 0000$ M $\Omega$<br>C <sub>R</sub> $> 0.33\mu$ F, $\geq 10\ 000$ s | U <sub>R</sub> $\leq 100$ V, Charging voltage 10V<br>U <sub>R</sub> $> 100$ V, Charging voltage 100V<br>20°C, measuring after applying voltage for 1 minute                                                                        |
| 5   | Solderability                      |                     | Good quality of tinning                                                                                                                                                                                                                                                          | Solder temperature:245°C $\pm 5^\circ$ C<br>Immersion time: 2.0s $\pm 0.5$ s                                                                                                                                                       |
| 6   | Initial measurement                |                     | Capacitance、Tg $\delta$ (10kHz)                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                    |
|     | Terminal strength                  |                     | There shall be no visible damage                                                                                                                                                                                                                                                 | Tension U <sub>a1</sub> :<br>Pull: $\phi d=0.5$ mm,5N;<br>$\phi d=0.6$ mm,10N<br>Bend U <sub>b</sub> :<br>The pull of bend: $\phi d=0.5$ mm, 2.5N<br>$\phi d=0.6$ mm, 5N<br>The terminals shall be bent 2 times in each direction. |
|     | Resistance to solder heat          |                     | There shall be no visible damage                                                                                                                                                                                                                                                 | Solder temperature:260°C $\pm 5^\circ$ C<br>Immersion time: 10s $\pm 1$ s                                                                                                                                                          |
|     | Final measurement                  |                     | $\Delta C/C \leq \pm 2\%$ (relative to the initial value)<br>Increase of tg $\delta$ : $\leq 0.003$ (10kHz)                                                                                                                                                                      |                                                                                                                                                                                                                                    |
| 7   | Component's resistance of solvents |                     | The dimensions shall reach the requirement of Table 1, and the change of capacitor weight shall not beyond 1%.                                                                                                                                                                   | Solvent: Industrial isopropanol.<br>Solvent temperature:23°C $\pm 5^\circ$ C<br>Immersion time:5min $\pm 0.5$ min<br>Reverting time:48h                                                                                            |
| 8   | Initial measurement                |                     | Capacitance、Tg $\delta$ (10kHz)                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                    |
|     | Rapid change of temperature        |                     | There shall be no evidence of deterioration.                                                                                                                                                                                                                                     | $\theta_A = -55^\circ$ C, $\theta_B = +105^\circ$ C 5 cycles,<br>Duration: t=30min                                                                                                                                                 |
|     | Vibration                          |                     | There shall be no evidence of deterioration.                                                                                                                                                                                                                                     | Amplitude 0.75mm or acceleration 98m/s <sup>2</sup> (whichever is the smaller severity), f: 10Hz to 500Hz.Three directions, 2h foreach direction, total 6h.                                                                        |
|     | Bump                               |                     | There shall be no evidence of deterioration.                                                                                                                                                                                                                                     | 4 000 times, Acceleration: 390m/s <sup>2</sup> ,Pulse duration, 6ms                                                                                                                                                                |
|     | Final measurement                  |                     | $\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of tg $\delta$ :<br>$\leq 0.003$ (10kHz)<br>IR: $\geq 50\%$ of the rated value                                                                                                                             |                                                                                                                                                                                                                                    |
| 9   | climate sequence                   | Initial measurement | Capacitance、Tg $\delta$ (10kHz)                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                    |
|     |                                    | Dry heat            |                                                                                                                                                                                                                                                                                  | +105°C,16h                                                                                                                                                                                                                         |

| No. | Item                        |                         | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Test method (IEC60384-2)                                                                                                                                                |
|-----|-----------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9   | climate sequence (continue) | Damp heat, Cyclic       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Test Db, Severity: b, the first cycle                                                                                                                                   |
|     |                             | Cold                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -55℃, 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℃~35℃, 8.5kPa, 1h,                                                                                                                                                    |
|     |                             | Damp heat, cyclic other |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Test Db, Severity b, the other cycles, Applying $U_R$ for 1 minute after the test finished.                                                                             |
|     |                             | Final measurement       | There shall be no evidence of deterioration and the marking shall be legible.<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\tan \delta$ : $\leq 0.005$ (10kHz)<br>IR: $\geq 50\%$ of the rated value                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                         |
| 10  | Damp heat steady state      |                         | There shall be no evidence of deterioration and the marking shall be legible.<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\tan \delta \leq 0.005$ (10kHz)<br>IR: $\geq 50\%$ of the rated value                                                                                                                                                                                                                                                                                                     | Temperature: 40℃ $\pm 2^\circ\text{C}$<br>Humidity: $93 \pm 3\%$ RH<br>Duration: 56 days                                                                                |
| 11  | Endurance                   |                         | There shall be no evidence of deterioration and the marking shall be legible.<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\tan \delta$ :<br>$\leq 0.003$ (10kHz)<br>IR: $\geq 50\%$ of the rated value                                                                                                                                                                                                                                                                                              | Temperature: +85℃/+100℃<br>Voltage: $1.25 \times U_R$ / $1.25 \times U_c$ ( $U_c = 0.8U_R$ )<br>Duration: 2 000h                                                        |
| 12  | Temperature characteristic  |                         | Measuring capacitance at test point b, d, f:<br>Characteristic at lower category temperature -55℃:<br>$-10\% \leq (C_b - C_d)/C_d \leq 0\%$<br>Characteristic at upper category temperature +105℃:<br>$0\% \leq (C_f - C_d)/C_d \leq +10\%$<br>I.R. (test at point f):<br>$U_R \leq 100\text{V}$ : $\geq 75\text{M}\Omega$ ( $C \leq 0.33\mu\text{F}$ )<br>$\geq 25\text{s}$ ( $C > 0.33\mu\text{F}$ )<br>$U_R > 100\text{V}$ : $\geq 150\text{M}\Omega$ ( $C \leq 0.33\mu\text{F}$ )<br>$\geq 50\text{s}$ ( $C > 0.33\mu\text{F}$ ) | Static method: The Capacitors should be kept at the following temperature in turn:<br>a(20 $\pm$ 2)℃, b(-55 $\pm$ 3)℃, d(20 $\pm$ 2)℃, f(+105 $\pm$ 2)℃, g(20 $\pm$ 2)℃ |

| No. | Item                     | Performance                                                                                                                                                                                                        | Test method (IEC60384-2)                                                                                                                                                                                                                                                                       |
|-----|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13  | Charging and discharging | $\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\tan \delta$ :<br>$\leq 0.003$ (10kHz, $C \leq 1.0\mu F$ )<br>$\leq 0.002$ (1kHz, $C > 1.0\mu F$ )<br>$IR: \geq 50\%$ of the rated value | Times: 10 000<br>Duration of charging: 0.5s<br>Duration of discharging: 0.5s<br>Charging voltage: rated voltage<br>Charging resistance: $220/C_R(\Omega)$<br>Discharging resistance:<br>$R = 10/C_R(\Omega)$ or $20\Omega$ (whichever is the greater)<br>$C_R$ : rated capacitance ( $\mu F$ ) |

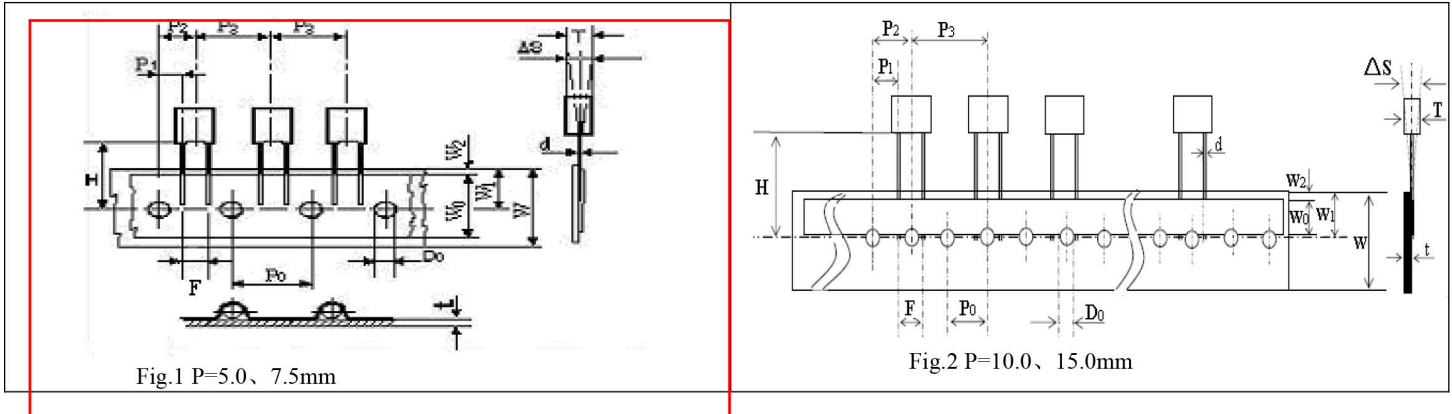
**Note:** Please test it follow the serial number.

### 3 Marking



### 4 Taping specification for box-type capacitor

#### ■ Outline Drawing



#### ■ Taping Dimensions(mm)

| Technology index title               | Code           | Dimensions |        |        |        |              |
|--------------------------------------|----------------|------------|--------|--------|--------|--------------|
|                                      |                | P=5.0      | P=7.5  | P=10.0 | P=15.0 | Tolerance    |
| Taping type                          | —              | Fig 1      | Fig 1  | Fig2   | Fig 2  | —            |
| Part number<br>Digit12-15            | Ammo-pack      | A201       | A301   | A405   | A605   |              |
| Taping pitch                         | P <sub>3</sub> | 12.7       | 12.7   | 25.4   | 25.4   | ±1.0         |
| Feed hole pitch                      | P <sub>0</sub> | 12.7       | 12.7   | 12.7   | 12.7   | ±0.2         |
| Center of wire                       | P <sub>1</sub> | 3.85       | 2.6    | 7.7    | 5.2    | ±0.7         |
| Center of body                       | P <sub>2</sub> | 6.35       | 6.35   | 12.7   | 12.7   | ±1.3         |
| Pitch of taping wire                 | F**            | 5.0        | 7.5    | 10.0   | 15.0   | +0.6<br>-0.1 |
| Component alignment                  | ΔS             | 0          | 0      | 0      | 0      | ±2.0         |
| Height of component from tape center | H***           | 18.5       | 18.5   | 18.5   | 18.5   | ±0.5         |
| Carrier tape width                   | W              | 18.0       | 18.0   | 18.0   | 18.0   | +1.0<br>-0.5 |
| Hold down tape width                 | W <sub>0</sub> | 6min       | 12min  | 12min  | 12min  | —            |
| Hole position                        | W <sub>1</sub> | 9.0        | 9.0    | 9.0    | 9.0    | ±0.5         |
| Hold down tape position              | W <sub>2</sub> | 1.5max     | 1.5max | 1.5max | 1.5max | —            |
| Feed hole dia.                       | D <sub>0</sub> | 4.0        | 4.0    | 4.0    | 4.0    | ±0.2         |
| Tape thickness                       | t              | 0.7        | 0.7    | 0.7    | 0.9    | ±0.2         |

#### ■ Packing Quantity

| Pitch (mm)    | Box thickness T(mm) | Ammo-pack (pcs/box) |        |
|---------------|---------------------|---------------------|--------|
|               |                     | Domestic            | Export |
| 5.0           | 3.5                 | 1 700               | 1 500  |
|               | 4.5                 | 1 400               | 1 300  |
|               | 5.0                 | 1 200               | 1 000  |
|               | 6.0                 | 1 000               | 800    |
| 7.5           | 3.5                 | 1 700               | 1 500  |
|               | 4.0                 | 1 500               | 1 300  |
|               | 5.0                 | 1 200               | 1 000  |
|               | 6.0                 | 1 000               | 800    |
| 10.0/<br>15.0 | 4.0                 | 750                 | 650    |
|               | 5.0                 | 600                 | 500    |
|               | 6.0                 | 500                 | 450    |
| 15.0          | 7.5                 | 400                 | 350    |
|               | 8.5                 | 350                 | 300    |
|               | 10.0                | 300                 | 250    |
|               | 11.0                | 250                 | 200    |

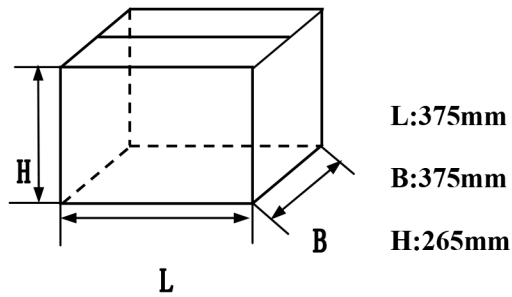
**Note:** \* P<sub>0</sub>=15mm is also available;

\*\*F can be other lead spacing;

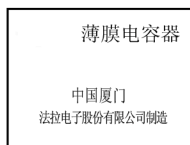
\*\*\*H=16.5mm is available;

### 5 Packing in bulk

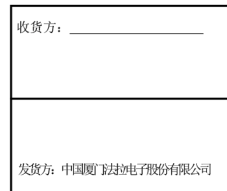
#### 5.1 Out packing box for bulk



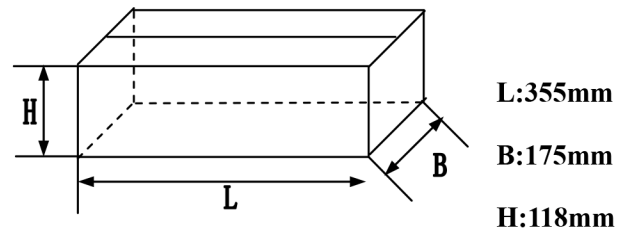
Plane drawing



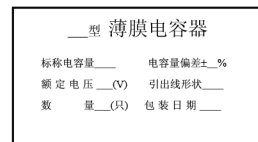
Overlooking Drawing



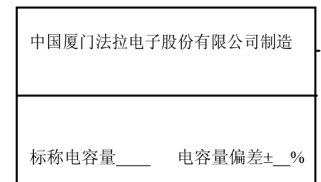
#### 5.2 Inner packing box for bulk



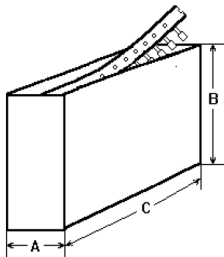
Plane drawing



Overlooking Drawing



#### 5.3 Box size for Ammo-pack



$$A=48 \pm 3; B=260 \pm 3; C=330 \pm 3$$