



# SPECIFICATION FOR APPROVAL

File No.: Q/FRK 0.GS.E.C82-C13

|               |  |
|---------------|--|
| Product Name  | Double sided metallized polypropylene film capacitor(Box-type) |
| Product Type  | MMKP82   |
| Product Code  | C82  |
| Customer      |  |
| Customer Code |  |
| Issue Date    | 2023-05  |

| Xiamen Faratronic Co. Ltd. |         |          | Approved by Customer |
|----------------------------|---------|----------|----------------------|
| Drafted                    | Checked | Approved |                      |
|                            |         |          |                      |



## Xiamen Faratronic Co. Ltd.

Add: 99 Xinyuan Road, Haicang District, Xiamen, China

Marketing/Sales center

TEL: 0086-592-6208620/6208618/6208589/6208505

FAX: 0086-592-6208777

Mail: Vitawang@faratronic.com.cn

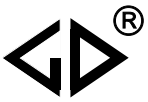
michael\_lai@faratronic.com.cn

chris@faratronic.com.cn

donny@faratronic.com.cn

Http: www.faratronic.com.cn

\*The specification are the property of Xiamen Faratronic Co,Ltd and shall not be copied or used as commercial purposes without permission.

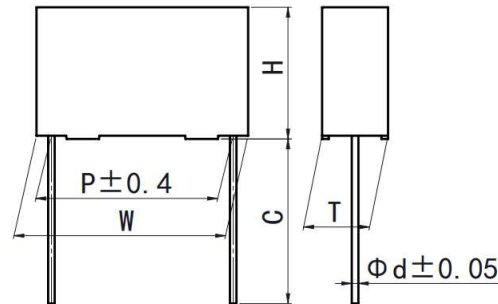


**Version history**

| Current version | Date | Author | Change description |
|-----------------|------|--------|--------------------|
|                 |      |        |                    |
|                 |      |        |                    |
|                 |      |        |                    |

## Double sided metallized polypropylene film capacitor (Box-type)

### ■ Outline Drawing



$$W \pm 0.4, H \pm 0.4, T \pm 0.4$$

### ■ Features

- Double sided metallized polypropylene structure
- Low loss and small inherent temperature rise
- Negative temperature coefficient of capacitance
- Excellent active and passive flame resistant abilities

### ■ Typical Application

- Widely used in high voltage, high frequency and pulse circuit
- Electronic ballasts and compact lamps
- SNUBBER and SCR commutating circuits

### ■ Specifications

|  |   |             |        |        |        |        |
|--|---|-------------|--------|--------|--------|--------|
| Reference Standard   | GB/T 10190 (IEC 60384-16)   |             |        |        |        |        |
| Climatic Category  | 40/105/56   |             |        |        |        |        |
| Rated Temperature  | 85°C for $U_R$ (dc); 75°C for $U_R$ (ac)  |             |        |        |        |        |
| Operating Temperature Range  | -40°C~105°C<br>(+85°C to +105°C: decreasing factor 1.25% per °C for $U_R$ (dc))<br>(+75°C to +105°C: decreasing factor 1.35% per °C for $U_R$ (ac)) |             |        |        |        |        |
| Rated Voltage  | 250V, 400V, 630V, 1 000V, 1 600V, 2 000V  |             |        |        |        |        |
| Capacitance Range  | 0.00022μF~3.9μF   |             |        |        |        |        |
| Capacitance Tolerance  | ±2% (G), ±3% (H), ±5% (J), ±10% (K), ±20% (M)   |             |        |        |        |        |
| Voltage Proof  | 1.60 $U_R$ (5s)   |             |        |        |        |        |
| Dissipation Factor   | $\leq 10 \times 10^{-4}$ (1kHz, 20°C)   |             |        |        |        |        |
| Insulation Resistance  | $R \geq 100\,000\,M\Omega$ , $C_N \leq 0.33\mu F$<br>$RC_N \geq 30\,000s$ , $C_N > 0.33\mu F$ (20°C, 100V, 1min)                                    |             |        |        |        |        |
| Maximum Pulse Rise Time(dV/dt):<br>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/us) |        |        |        |        |
|  |   | P=7.5       | P=10.0 | P=15.0 | P=22.5 | P=27.5 |
|  | 250   | 1 200       | 1 000  | 550    | 250    | 200    |
|  | 400   | 1 800       | 1 500  | 900    | 500    | 300    |
|  | 630   | 3 200       | 3 200  | 2 500  | 1 500  | 900    |
|  | 1 000   | 6 000       | 6 000  | 3 300  | 2 100  | 1 000  |
| 1 600  | --  | --          | 6 000  | 3 000  | 2 000  |        |
| 2 000  | --  | --          | 10 000 | 5 000  | 2 200  |        |



■ 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 | 8 | 2 |   |   |   |   |   |   |    |    |    |    |    |    |

Digit 1 to 3 Series code

C82=MMKP82

Digit 4 to 5 D.C. rated voltage

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

3A=1000V 3C=1600V 3D=2000V

Digit 6 to 8 Rated capacitance value

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

Digit 9 Capacitance tolerance

G=±2%, H=±3%

J=±5%, K=±10%, M=±20%

Digit 10 Pitch

3=7.5mm 4=10mm 6=15mm

9=22.5mm B=27.5mm

Digit 11 Internal use

Digit 12 to 15 Lead form and packaging code

Table1 Lead form and packaging code

| Digit 12 |  | Digit 13 |                                     | Digit 14 |             | Digit 15 |   |
|----------|--|----------|-------------------------------------|----------|-------------|----------|---|
| code     | explanation                                    | code     | explanation                         | code     | explanation | code     | explanation   |
| A        | ammo-pack                                      | 3        | F=7.5mm                             | 0        | straight    | 1        | Each cap. among two consecutive holes<br>P3=12.7mm,H=18.5mm (For pitch=7.5mm) |
|          |  | 4        | F=10.0mm                            |          |             |          |   |
|          |  | 6        | F=15.0mm                            |          |             |          |   |
| C        | straight lead<br>"C" in the<br>figure<br>above | code     | explanation                         | 0        |             | 0        | Length tolerance ±0.5mm<br>Or standard length                                 |
|          |  | 00       | standard lead length<br>(18mm~26mm) |          |             |          |   |
|          |  | 45       | lead length 4.5mm                   |          |             |          |   |

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

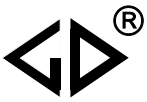


■ Dimensions(mm)

| 250Vdc (180Vac)        |      |      |      |      |     |                 |
|------------------------|------|------|------|------|-----|-----------------|
| C <sub>N</sub><br>(μF) | W    | H    | T    | P    | d   | Part number     |
| 0.0068                 | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E682-30**** |
| 0.0082                 | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E822-30**** |
| 0.010                  | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E103-30**** |
| 0.012                  | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E123-30**** |
| 0.015                  | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E153-30**** |
| 0.018                  | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E183-30**** |
| 0.022                  | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C822E223-30**** |
| 0.027                  | 10.5 | 11.0 | 5.0  | 7.5  | 0.6 | C822E273-30**** |
| 0.033                  | 10.5 | 11.0 | 5.0  | 7.5  | 0.6 | C822E333-30**** |
| 0.039                  | 10.5 | 12.0 | 6.0  | 7.5  | 0.6 | C822E393-30**** |
| 0.047                  | 10.5 | 12.0 | 6.0  | 7.5  | 0.6 | C822E473-30**** |
| 0.027                  | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C822E273-40**** |
| 0.033                  | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C822E333-40**** |
| 0.039                  | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C822E393-40**** |
| 0.047                  | 13.0 | 11.0 | 5.0  | 10.0 | 0.6 | C822E473-40**** |
| 0.056                  | 13.0 | 11.0 | 5.0  | 10.0 | 0.6 | C822E563-40**** |
| 0.068                  | 13.0 | 12.0 | 6.0  | 10.0 | 0.6 | C822E683-40**** |
| 0.082                  | 13.0 | 12.0 | 6.0  | 10.0 | 0.6 | C822E823-40**** |
| 0.068                  | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C822E683-60**** |
| 0.082                  | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C822E823-60**** |
| 0.10                   | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C822E104-60**** |
| 0.12                   | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C822E124-60**** |
| 0.15                   | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C822E154-60**** |
| 0.18                   | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C822E184-60**** |
| 0.22                   | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C822E224-60**** |
| 0.27                   | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C822E274-60**** |
| 0.33                   | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C822E334-60**** |
| 0.39                   | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C822E394-60**** |
| 0.22                   | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822E224-90**** |
| 0.27                   | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822E274-90**** |
| 0.33                   | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822E334-90**** |
| 0.39                   | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C822E394-90**** |
| 0.47                   | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C822E474-90**** |
| 0.56                   | 26.5 | 17.0 | 8.5  | 22.5 | 0.8 | C822E564-90**** |
| 0.68                   | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C822E684-90**** |
| 0.82                   | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C822E824-90**** |
| 1.0                    | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C822E105-90**** |
| 0.82                   | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C822E824-B0**** |
| 1.0                    | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C822E105-B0**** |
| 1.2                    | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C822E125-B0**** |
| 1.5                    | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C822E155-B0**** |
| 1.8                    | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C822E185-B0**** |
| 2.2                    | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C822E225-B0**** |
| 2.7                    | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C822E275-B0**** |
| 3.3                    | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C822E335-B0**** |
| 3.9                    | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C822E395-B0**** |

| 400Vdc (250Vac) <sup>®</sup> |      |      |      |       |     |                 |
|------------------------------|------|------|------|-------|-----|-----------------|
| C <sub>N</sub><br>(μF)       | W    | H    | T    | P     | d   | Part number     |
| 0.0027                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G272-30**** |
| 0.0033                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G332-30**** |
| 0.0039                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G392-30**** |
| 0.0047                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G472-30**** |
| 0.0056                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G562-30**** |
| 0.0068                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G682-30**** |
| 0.0082                       | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G822-30**** |
| 0.010                        | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G103-30**** |
| 0.012                        | 10.5 | 9.0  | 4.0  | 7.5   | 0.6 | C822G123-30**** |
| 0.015                        | 10.5 | 11.0 | 5.0  | 7.5   | 0.6 | C822G153-30**** |
| 0.018                        | 10.5 | 11.0 | 5.0  | 7.5   | 0.6 | C822G183-30**** |
| 0.022                        | 10.5 | 12.0 | 6.0  | 7.5   | 0.6 | C822G223-30**** |
| 0.027                        | 10.5 | 12.0 | 6.0  | 7.5   | 0.6 | C822G273-30**** |
| 0.010                        | 13.0 | 9.0  | 4.0  | 10.0  | 0.6 | C822G103-40**** |
| 0.012                        | 13.0 | 9.0  | 4.0  | 10.0  | 0.6 | C822G123-40**** |
| 0.015                        | 13.0 | 9.0  | 4.0  | 10.0  | 0.6 | C822G153-40**** |
| 0.018                        | 13.0 | 9.0  | 4.0  | 10.0  | 0.6 | C822G183-40**** |
| 0.022                        | 13.0 | 9.0  | 4.0  | 10.0  | 0.6 | C822G223-40**** |
| 0.027                        | 13.0 | 11.0 | 5.0  | 10.0  | 0.6 | C822G273-40**** |
| 0.033                        | 13.0 | 11.0 | 5.0  | 10.0  | 0.6 | C822G333-40**** |
| 0.039                        | 13.0 | 12.0 | 6.0  | 10.0  | 0.6 | C822G393-40**** |
| 0.047                        | 13.0 | 12.0 | 6.0  | 10.0  | 0.6 | C822G473-40**** |
| 0.033                        | 17.5 | 11.0 | 5.0  | 15.0  | 0.8 | C822G333-60**** |
| 0.039                        | 17.5 | 11.0 | 5.0  | 15.0  | 0.8 | C822G393-60**** |
| 0.047                        | 17.5 | 11.0 | 5.0  | 15.0  | 0.8 | C822G473-60**** |
| 0.056                        | 17.5 | 11.0 | 5.0  | 15.0  | 0.8 | C822G563-60**** |
| 0.068                        | 17.5 | 12.0 | 6.0  | 15.0  | 0.8 | C822G683-60**** |
| 0.082                        | 17.5 | 12.0 | 6.0  | 15.0  | 0.8 | C822G823-60**** |
| 0.10                         | 17.5 | 13.5 | 7.5  | 15.0  | 0.8 | C822G104-60**** |
| 0.12                         | 17.5 | 13.5 | 7.5  | 15.0  | 0.8 | C822G124-60**** |
| 0.15                         | 17.5 | 14.5 | 8.5  | 15.0  | 0.8 | C822G154-60**** |
| 0.18                         | 17.5 | 16.0 | 10.0 | 15.0  | 0.8 | C822G184-60**** |
| 0.22                         | 17.5 | 16.0 | 10.0 | 15.0  | 0.8 | C822G224-60**** |
| 0.27                         | 17.5 | 19.0 | 11.0 | 15.0  | 0.8 | C822G274-60**** |
| 0.12                         | 26.5 | 15.0 | 6.0  | 22.5  | 0.8 | C822G124-90**** |
| 0.15                         | 26.5 | 15.0 | 6.0  | 22.5  | 0.8 | C822G154-90**** |
| 0.18                         | 26.5 | 15.0 | 6.0  | 22.5  | 0.8 | C822G184-90**** |
| 0.22                         | 26.5 | 16.0 | 7.0  | 22.5  | 0.8 | C822G224-90**** |
| 0.27                         | 26.5 | 17.0 | 8.5  | 22.5  | 0.8 | C822G274-90**** |
| 0.33                         | 26.5 | 17.0 | 8.5  | 22.50 | 0.8 | C822G334-90**** |
| 0.39                         | 26.5 | 18.5 | 10.0 | 22.5  | 0.8 | C822G394-90**** |
| 0.47                         | 26.5 | 18.5 | 10.0 | 22.5  | 0.8 | C822G474-90**** |
| 0.56                         | 26.5 | 22.0 | 12.0 | 22.5  | 0.8 | C822G564-90**** |
| 0.68                         | 26.5 | 22.0 | 12.0 | 22.5  | 0.8 | C822G684-90**** |
| 0.39                         | 32.0 | 18.0 | 9.0  | 27.5  | 0.8 | C822G394-B0**** |
| 0.47                         | 32.0 | 18.0 | 9.0  | 27.5  | 0.8 | C822G474-B0**** |
| 0.56                         | 32.0 | 20.0 | 11.0 | 27.5  | 0.8 | C822G564-B0**** |
| 0.68                         | 32.0 | 20.0 | 11.0 | 27.5  | 0.8 | C822G684-B0**** |
| 0.82                         | 32.0 | 22.0 | 13.0 | 27.5  | 0.8 | C822G824-B0**** |
| 1.0                          | 32.0 | 24.5 | 15.0 | 27.5  | 0.8 | C822G105-B0**** |
| 1.2                          | 32.0 | 24.5 | 15.0 | 27.5  | 0.8 | C822G125-B0**** |
| 1.5                          | 32.0 | 33.0 | 18.0 | 27.5  | 0.8 | C822G155-B0**** |
| 1.8                          | 32.0 | 33.0 | 18.0 | 27.5  | 0.8 | C822G185-B0**** |

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



■ Dimensions(mm)

| 630Vdc (400Vac) |      |      |     |      |     |                 |
|-----------------|------|------|-----|------|-----|-----------------|
| CN (μF)         | W    | H    | T   | P    | d   | Part number     |
| 0.00068         | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J681-30**** |
| 0.00082         | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J821-30**** |
| 0.0010          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J102-30**** |
| 0.0012          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J122-30**** |
| 0.0015          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J152-30**** |
| 0.0018          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J182-30**** |
| 0.0022          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J222-30**** |
| 0.0027          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J272-30**** |
| 0.0033          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J332-30**** |
| 0.0039          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J392-30**** |
| 0.0047          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J472-30**** |
| 0.0056          | 10.5 | 9.0  | 4.0 | 7.5  | 0.6 | C822J562-30**** |
| 0.0068          | 10.5 | 11.0 | 5.0 | 7.5  | 0.6 | C822J682-30**** |
| 0.0082          | 10.5 | 11.0 | 5.0 | 7.5  | 0.6 | C822J822-30**** |
| 0.010           | 10.5 | 12.0 | 6.0 | 7.5  | 0.6 | C822J103-30**** |
| 0.012           | 10.5 | 12.0 | 6.0 | 7.5  | 0.6 | C822J123-30**** |
| 0.0039          | 13.0 | 9.0  | 4.0 | 10.0 | 0.6 | C822J392-40**** |
| 0.0047          | 13.0 | 9.0  | 4.0 | 10.0 | 0.6 | C822J472-40**** |
| 0.0056          | 13.0 | 9.0  | 4.0 | 10.0 | 0.6 | C822J562-40**** |
| 0.0068          | 13.0 | 9.0  | 4.0 | 10.0 | 0.6 | C822J682-40**** |
| 0.0082          | 13.0 | 9.0  | 4.0 | 10.0 | 0.6 | C822J822-40**** |
| 0.010           | 13.0 | 11.0 | 5.0 | 10.0 | 0.6 | C822J103-40**** |
| 0.012           | 13.0 | 11.0 | 5.0 | 10.0 | 0.6 | C822J123-40**** |
| 0.015           | 13.0 | 12.0 | 6.0 | 10.0 | 0.6 | C822J153-40**** |
| 0.018           | 13.0 | 12.0 | 6.0 | 10.0 | 0.6 | C822J183-40**** |
| 0.010           | 17.5 | 11.0 | 5.0 | 15.0 | 0.8 | C822J103-60**** |
| 0.012           | 17.5 | 11.0 | 5.0 | 15.0 | 0.8 | C822J123-60**** |
| 0.015           | 17.5 | 11.0 | 5.0 | 15.0 | 0.8 | C822J153-60**** |
| 0.018           | 17.5 | 11.0 | 5.0 | 15.0 | 0.8 | C822J183-60**** |
| 0.022           | 17.5 | 11.0 | 5.0 | 15.0 | 0.8 | C822J223-60**** |
| 0.027           | 17.5 | 11.0 | 5.0 | 15.0 | 0.8 | C822J273-60**** |
| 0.033           | 17.5 | 12.0 | 6.0 | 15.0 | 0.8 | C822J333-60**** |

| 630Vdc (400Vac) |      |      |      |      |     |                 |
|-----------------|------|------|------|------|-----|-----------------|
| CN (μF)         | W    | H    | T    | P    | d   | Part number     |
| 0.039           | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C822J393-60**** |
| 0.047           | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C822J473-60**** |
| 0.056           | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C822J563-60**** |
| 0.068           | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C822J683-60**** |
| 0.082           | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C822J823-60**** |
| 0.10            | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C822J104-60**** |
| 0.12            | 17.5 | 19.0 | 11.0 | 15.0 | 0.8 | C822J124-60**** |
| 0.047           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822J473-90**** |
| 0.056           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822J563-90**** |
| 0.068           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822J683-90**** |
| 0.082           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822J823-90**** |
| 0.10            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C822J104-90**** |
| 0.12            | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C822J124-90**** |
| 0.15            | 26.5 | 17.0 | 8.5  | 22.5 | 0.8 | C822J154-90**** |
| 0.18            | 26.5 | 17.0 | 8.5  | 22.5 | 0.8 | C822J184-90**** |
| 0.22            | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C822J224-90**** |
| 0.27            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C822J274-90**** |
| 0.33            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C822J334-90**** |
| 0.39            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C822J394-90**** |
| 0.15            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C822J154-B0**** |
| 0.18            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C822J184-B0**** |
| 0.22            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C822J224-B0**** |
| 0.27            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C822J274-B0**** |
| 0.33            | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C822J334-B0**** |
| 0.39            | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C822J394-B0**** |
| 0.47            | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C822J474-B0**** |
| 0.56            | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C822J564-B0**** |
| 0.68            | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C822J684-B0**** |
| 0.82            | 32.0 | 28.0 | 14.0 | 27.5 | 0.8 | C822J824-B0**** |
| 1.0             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C822J105-B0**** |
| 1.2             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C822J125-B0**** |

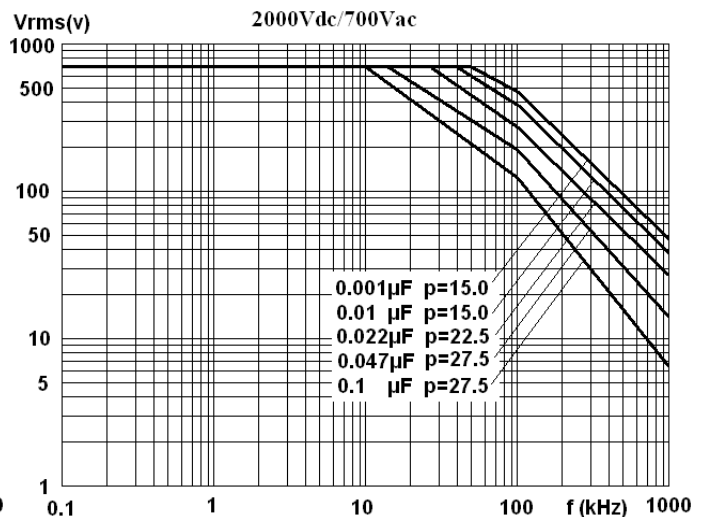
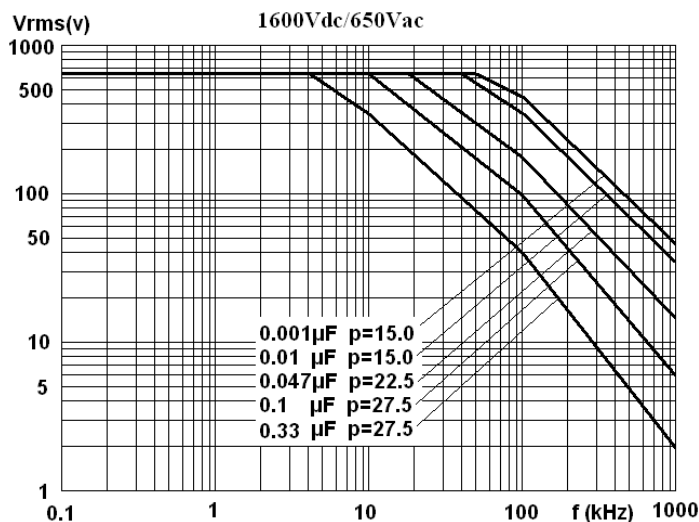
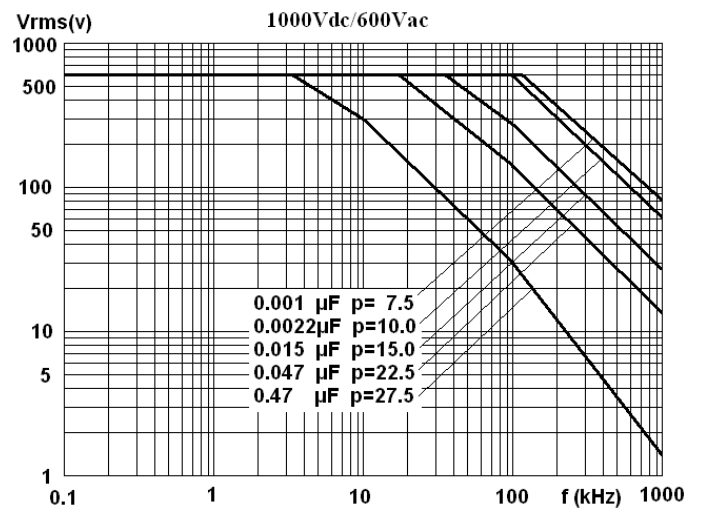
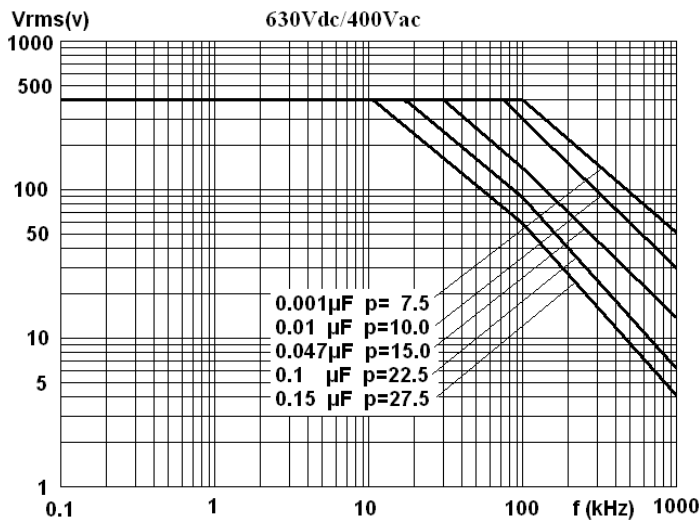
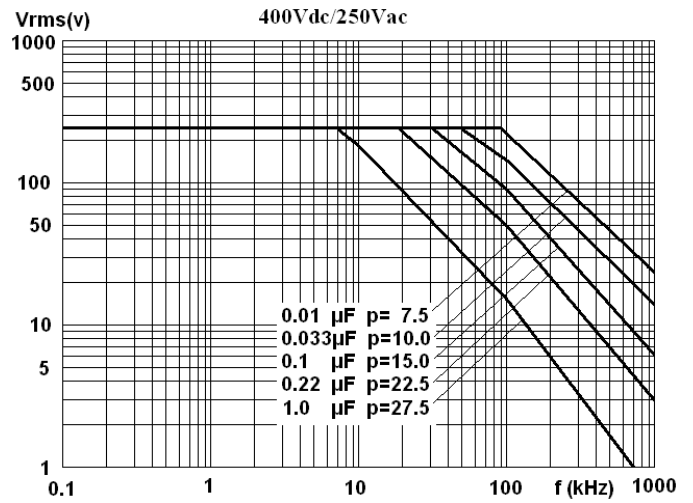
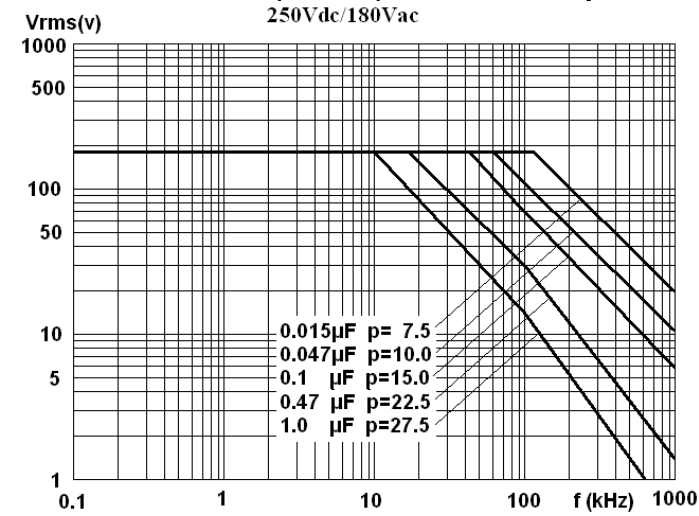
- Note: 1. “-” =capacitance tolerance code, M=±20%,K=±10%,J=±5%, H=±3%, G=±2%  
 2. “\*\*\*\*” =lead form and packaging code (refer to table 1)  
 3. “@” Not suitable for across-the-line applications. Pls refer to the Interference Suppression Capacitor.

**■ Dimensions(mm)**

| 1 000Vdc(600Vac) |      |      |      |      |     |                 | 1 600Vdc(650Vac) |      |      |      |      |     |                 | 2 000Vdc(700Vac) |      |      |      |      |     |                 |
|------------------|------|------|------|------|-----|-----------------|------------------|------|------|------|------|-----|-----------------|------------------|------|------|------|------|-----|-----------------|
| CN (µF)          | W    | H    | T    | P    | d   | Part number     | CN (µF)          | W    | H    | T    | P    | d   | Part number     | CN (µF)          | W    | H    | T    | P    | d   | Part number     |
| 0.00047K         | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C823A471K30**** | 0.00068          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C681-60**** | 0.00022          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D221-60**** |
| 0.00056          | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C823A561-30**** | 0.00082          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C821-60**** | 0.00027          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D271-60**** |
| 0.00068          | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C823A681-30**** | 0.0010           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C102-60**** | 0.00033          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D331-60**** |
| 0.00082          | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C823A821-30**** | 0.0012           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C122-60**** | 0.00039          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D391-60**** |
| 0.0010           | 10.5 | 9.0  | 4.0  | 7.5  | 0.6 | C823A102-30**** | 0.0015           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C152-60**** | 0.00047          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D471-60**** |
| 0.0012           | 10.5 | 11.0 | 5.0  | 7.5  | 0.6 | C823A122-30**** | 0.0018           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C182-60**** | 0.00056          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D561-60**** |
| 0.0015           | 10.5 | 11.0 | 5.0  | 7.5  | 0.6 | C823A152-30**** | 0.0022           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C222-60**** | 0.00068          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D681-60**** |
| 0.0018           | 10.5 | 11.0 | 5.0  | 7.5  | 0.6 | C823A182-30**** | 0.0027           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C272-60**** | 0.00082          | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D821-60**** |
| 0.0022           | 10.5 | 11.0 | 5.0  | 7.5  | 0.6 | C823A222-30**** | 0.0033           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C332-60**** | 0.0010           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D102-60**** |
| 0.0027           | 10.5 | 12.0 | 6.0  | 7.5  | 0.6 | C823A272-30**** | 0.0039           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C392-60**** | 0.0012           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D122-60**** |
| 0.0033           | 10.5 | 12.0 | 6.0  | 7.5  | 0.6 | C823A332-30**** | 0.0047           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C472-60**** | 0.0015           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D152-60**** |
| 0.0010           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A102-40**** | 0.0056           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C562-60**** | 0.0018           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D182-60**** |
| 0.0012           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A122-40**** | 0.0068           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823C682-60**** | 0.0022           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D222-60**** |
| 0.0015           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A152-40**** | 0.0082           | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C823C822-60**** | 0.0027           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823D272-60**** |
| 0.0018           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A182-40**** | 0.010            | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C823C103-60**** | 0.0033           | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C823D332-60**** |
| 0.0022           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A222-40**** | 0.012            | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C823C123-60**** | 0.0039           | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C823D392-60**** |
| 0.0027           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A272-40**** | 0.015            | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C823C153-60**** | 0.0047           | 17.5 | 12.0 | 6.0  | 15.0 | 0.8 | C823D472-60**** |
| 0.0033           | 13.0 | 9.0  | 4.0  | 10.0 | 0.6 | C823A332-40**** | 0.018            | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C823C183-60**** | 0.0056           | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C823D562-60**** |
| 0.0039           | 13.0 | 11.0 | 5.0  | 10.0 | 0.6 | C823A392-40**** | 0.022            | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C823C223-60**** | 0.0068           | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C823D682-60**** |
| 0.0047           | 13.0 | 11.0 | 5.0  | 10.0 | 0.6 | C823A472-40**** | 0.027            | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C823C273-60**** | 0.0082           | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C823D822-60**** |
| 0.0056           | 13.0 | 12.0 | 6.0  | 10.0 | 0.6 | C823A562-40**** | 0.033            | 17.5 | 19.0 | 11.0 | 15.0 | 0.8 | C823C333-60**** | 0.010            | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C823D103-60**** |
| 0.0068           | 13.0 | 12.0 | 6.0  | 10.0 | 0.6 | C823A682-40**** | 0.015            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823C153-90**** | 0.012            | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C823D123-60**** |
| 0.0082           | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823A822-60**** | 0.018            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823C183-90**** | 0.015            | 17.5 | 19.0 | 11.0 | 15.0 | 0.8 | C823D153-60**** |
| 0.010            | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823A103-60**** | 0.022            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823C223-90**** | 0.010            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D102-90**** |
| 0.012            | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823A123-60**** | 0.027            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823C273-90**** | 0.012            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D122-90**** |
| 0.015            | 17.5 | 11.0 | 5.0  | 15.0 | 0.8 | C823A153-60**** | 0.033            | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C823C333-90**** | 0.0015           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D152-90**** |
| 0.018            | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C823A183-60**** | 0.039            | 26.5 | 17.0 | 8.5  | 22.5 | 0.8 | C823C393-90**** | 0.0018           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D182-90**** |
| 0.022            | 17.5 | 13.5 | 7.5  | 15.0 | 0.8 | C823A223-60**** | 0.047            | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C823C473-90**** | 0.0022           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D222-90**** |
| 0.027            | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C823A273-60**** | 0.056            | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C823C563-90**** | 0.0027           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D272-90**** |
| 0.033            | 17.5 | 14.5 | 8.5  | 15.0 | 0.8 | C823A333-60**** | 0.068            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C823C683-90**** | 0.0033           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D332-90**** |
| 0.039            | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C823A393-60**** | 0.082            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C823C823-90**** | 0.0039           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D392-90**** |
| 0.047            | 17.5 | 19.0 | 11.0 | 15.0 | 0.8 | C823A473-60**** | 0.039            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823C393-B0**** | 0.0047           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D472-90**** |
| 0.027            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823A273-90**** | 0.047            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823C473-B0**** | 0.0056           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D562-90**** |
| 0.033            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823A333-90**** | 0.056            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823C563-B0**** | 0.0068           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D682-90**** |
| 0.039            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823A393-90**** | 0.068            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823C683-B0**** | 0.0082           | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D822-90**** |
| 0.047            | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C823A473-90**** | 0.082            | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C823C823-B0**** | 0.010            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D103-90**** |
| 0.056            | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C823A563-90**** | 0.10             | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C823C104-B0**** | 0.012            | 26.5 | 15.0 | 6.0  | 22.5 | 0.8 | C823D123-90**** |
| 0.068            | 26.5 | 17.0 | 8.5  | 22.5 | 0.8 | C823A683-90**** | 0.12             | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C823C124-B0**** | 0.015            | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C823D153-90**** |
| 0.082            | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C823A823-90**** | 0.15             | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C823C154-B0**** | 0.018            | 26.5 | 16.0 | 7.0  | 22.5 | 0.8 | C823D183-90**** |
| 0.10             | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C823A104-90**** | 0.18             | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C823C184-B0**** | 0.022            | 26.5 | 17.0 | 8.5  | 22.5 | 0.8 | C823D223-90**** |
| 0.12             | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C823A124-90**** | 0.22             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823C224-B0**** | 0.027            | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C823D273-90**** |
| 0.15             | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C823A154-90**** | 0.27             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823C274-B0**** | 0.033            | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C823D333-90**** |
| 0.10             | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823A104-B0**** | 0.33             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823C334-B0**** | 0.039            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C823D393-90**** |
| 0.12             | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C823A124-B0**** |                  |      |      |      |      |     |                 | 0.047            | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C823D473-90**** |
| 0.15             | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C823A154-B0**** |                  |      |      |      |      |     |                 | 0.022            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823D223-B0**** |
| 0.18             | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C823A184-B0**** |                  |      |      |      |      |     |                 | 0.027            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823D273-B0**** |
| 0.22             | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C823A224-B0**** |                  |      |      |      |      |     |                 | 0.033            | 32.0 | 18.0 | 9.0  | 27.5 | 0.8 | C823D333-B0**** |
| 0.27             | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C823A274-B0**** |                  |      |      |      |      |     |                 | 0.039            | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C823D393-B0**** |
| 0.33             | 32.0 | 28.0 | 14.0 | 27.5 | 0.8 | C823A334-B0**** |                  |      |      |      |      |     |                 | 0.047            | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C823D473-B0**** |
| 0.39             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823A394-B0**** |                  |      |      |      |      |     |                 | 0.056            | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C823D563-B0**** |
| 0.47             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823A474-B0**** |                  |      |      |      |      |     |                 | 0.068            | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C823D683-B0**** |
|                  |      |      |      |      |     |                 |                  |      |      |      |      |     |                 | 0.082            | 32.0 | 24.5 | 15.0 | 27.5 | 0.8 | C823D823-B0**** |
|                  |      |      |      |      |     |                 |                  |      |      |      |      |     |                 | 0.10             | 32.0 | 28.0 | 14.0 | 27.5 | 0.8 | C823D104-B0**** |
|                  |      |      |      |      |     |                 |                  |      |      |      |      |     |                 | 0.12             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823D124-B0**** |
|                  |      |      |      |      |     |                 |                  |      |      |      |      |     |                 | 0.15             | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C823D154-B0**** |

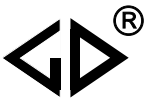
Note: 1. “-” =capacitance tolerance code, M=±20%,K=±10%,J=±5%, H=±3%, G=±2%  
 2. “\*\*\*\*” =lead form and packaging code (refer to table 1)

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

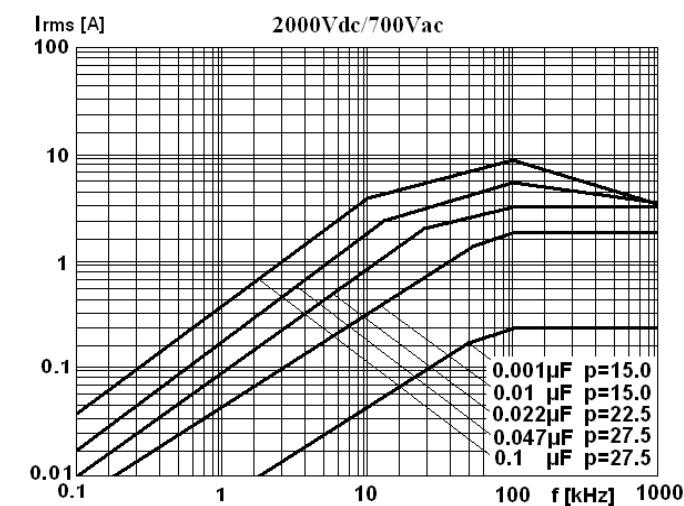
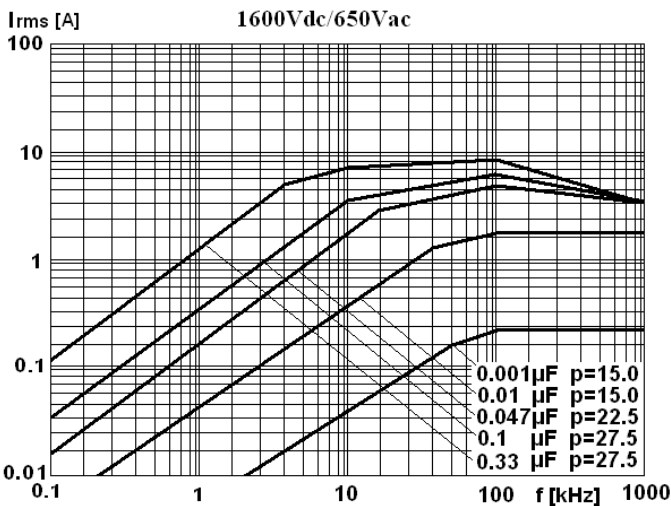
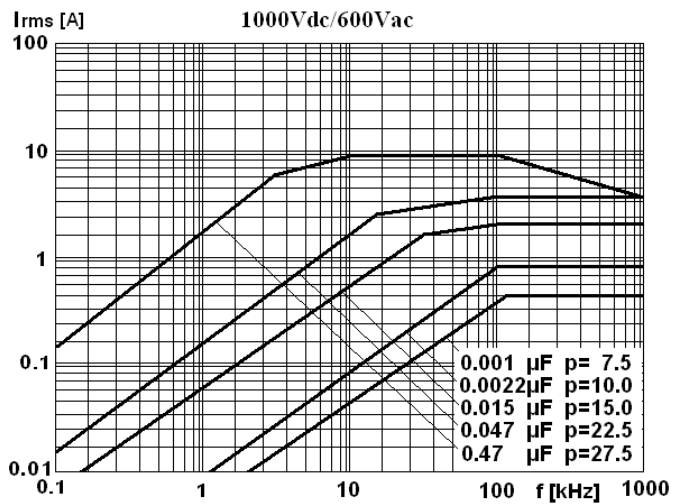
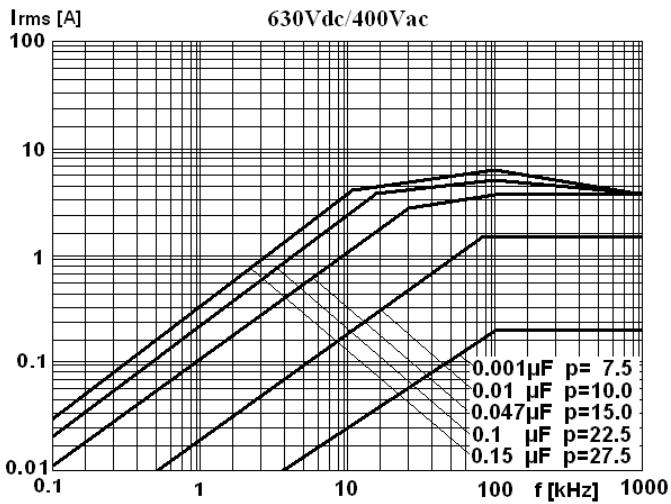
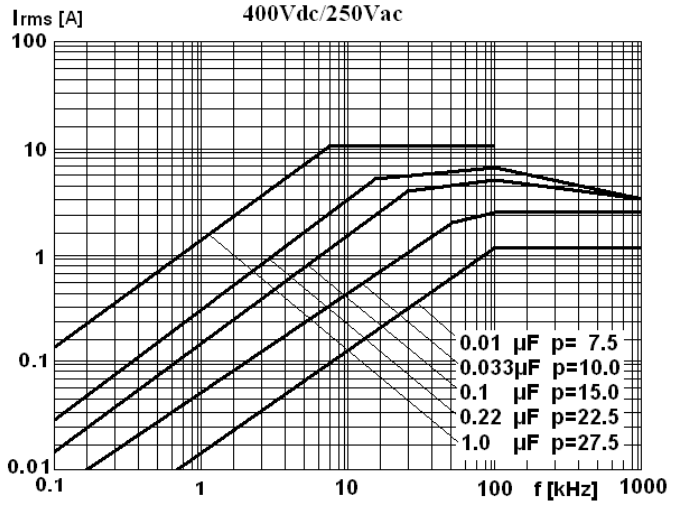
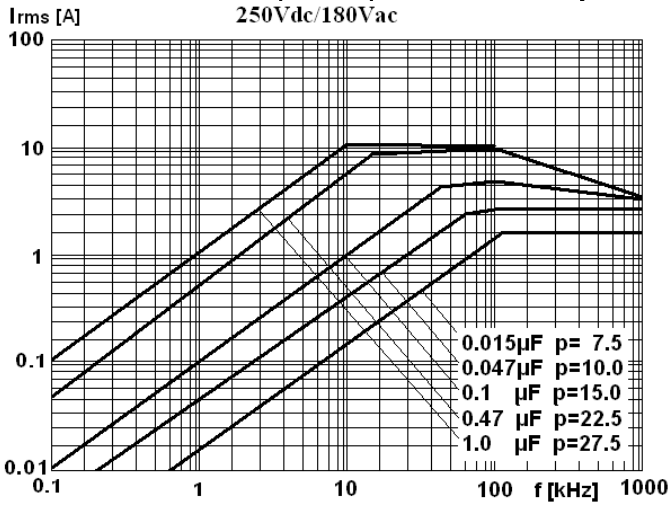


Note: sinusoidal wave-form, environment temperature  $\leq 85^{\circ}C$ , internal temperature rise  $\Delta T=10^{\circ}C$ , p (pitch) in mm..





■ MAX. CURRENT(Ir.m.s) VERSUS FREQUENCY




Note: sinusoidal wave-form, environment temperature  $\leq 85^{\circ}\text{C}$ , internal temperature rise  $\Delta T=10^{\circ}\text{C}$ , p (pitch) in mm.


**■ Test Method And Performance**

| No. | Item                                 | Performance  | Test method(IEC 60384-16)  |
|-----|--------------------------------------|--|--|
| 1   | Solderability                        | Good quality of tinning  | Solder temperature: 245°C ±5°C<br>Immersion time: 2.0s±0.5s  |
| 2   | Initial measurement                  | Capacitance<br>Tgδ: 1kHz, C>1.0μF<br>10kHz, C≤1.0μF  |  |
|     | Terminal strength<br>(straight lead) | There shall be no visible damage   | Tense: 0.50<d≤0.80, 10N<br>0.80<d≤1.25, 20N<br>Bend: 0.50<d≤0.80, 5N<br>0.80<d≤1.25, 10N<br>The terminals shall be bent 2 times in each direction                |
|     | Resistance to solder heat            | There shall be no visible damage, legible marking  | Solder temperature:260°C±5°C<br>Immersion time: 10s±1s   |
|     | Final measurement                    | ΔC/C ≤±2%(relative to the initial value)<br>Increase of tgδ:<br>≤0.002 (10kHz,C≤1.0μF)<br>≤0.002 (1kHz, C>1.0μF)                                   |  |
| 3   | Initial measurement                  | Capacitance<br>Tgδ(10kHz)  |  |
|     | Rapid change of temperature          | There shall be no evidence of deterioration.   | θ <sub>A</sub> =-40°C, θ <sub>B</sub> =+105°C 5 cycles<br>Duration: t=30min  |
|     | Vibration(straight lead)             | 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 for each direction, total 6h.     |
|     | Bump(straight lead)                  | There shall be no evidence of deterioration.   | 4 000 times, Acceleration: 390m/s <sup>2</sup> ,Pulse duration, 6ms  |
|     | Final measurement                    | There shall be no visible damage<br>ΔC/C ≤±2%(relative to the initial value)<br>Increase of tgδ:<br>≤0.002 (10kHz)<br>IR: ≥ 50% of the rated value |  |
| 4   | Climate sequence                     | Initial measurement  | Capacitance<br>Tgδ: 10kHz  |
|     |                                      | Dry heat   | +105°C, 16h  |
|     |                                      | Damp heat, Cyclic  | Test Db, Severity: b, the first cycle  |
|     |                                      | Cold   | -40°C, 2h  |
|     |                                      | Low air pressure   | There shall be no permanent breakdown, flashover or other harmful deformation when applying U <sub>R</sub> at the last 1 minute.<br>15°C~35°C, 8.5kPa, 1h        |
|     |                                      | Damp heat, cyclic other  | Applying U <sub>R</sub> for 1 minute after 15 minutes the test finished .<br>Test Db, Severity b, the other cycles,  |
|     |                                      | Final measurement  | There shall be no visible damage, legible marking<br>ΔC/C ≤±3%(relative to the initial value)<br>Increase of tgδ:≤0.003(10kHz)<br>I.R.: ≥ 50% of the rated value |


| No. | Item                       | Performance  | Test method(IEC 60384-16)  |
|-----|----------------------------|--|--|
| 5   | Damp heat steady state     | There shall be no visible damage, legible marking<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta: \leq 0.002$ (10kHz)<br>I.R.: $\geq 50\%$ of the rated value  | Temperature: $40^\circ\text{C} \pm 2^\circ\text{C}$<br>Humidity: $93 \pm 3\%$ RH<br>Duration: 56 days  |
| 6   | Endurance                  | There shall be no visible damage, legible marking<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta: \leq 0.0015$ (10kHz)<br>I.R.: $\geq 50\%$ of the rated value   | Temperature: $+85^\circ\text{C}$<br>Voltage: $1.25 \times U_R$ (50Hz)<br>Duration: 1 000h  |
| 7   | Temperature characteristic | Measuring capacitance at test point b, d, f:<br>Characteristic at lower category temperature $-40^\circ\text{C}$ :<br>$0 \leq (C_b - C_d)/C_d \leq +3\%$<br>Characteristic at upper category temperature $+105^\circ\text{C}$ :<br>$-4\% \leq (C_f - C_d)/C_d \leq 0$<br>I.R. (test at point f):<br>$IR \geq 2500\text{M}\Omega$ $C_R \leq 0.33\mu\text{F}$<br>$IR \geq 750\text{s}$ $C_R > 0.33\mu\text{F}$ | Static method: The Capacitors should be kept at the following temperature in turn:<br>a( $20 \pm 2$ ) °C, b( $-40 \pm 3$ ) °C, d( $20 \pm 2$ ) °C, f( $105 \pm 2$ ) °C, g( $20 \pm 2$ ) °C   |
| 8   | Charging and discharging   | $\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>increase of $\text{tg}\delta: \leq 0.005$ (10kHz)<br>I.R.: $\geq 50\%$ of the rated value   | Times: 10 000<br>Duration of charging: 0.5s<br>Duration of discharging: 0.5s<br>Charging voltage: rated voltage $U_R$<br>Charging resistance: $220/C_R(\Omega)$<br>Discharging resistance: $U_R \div C_R \div dV/dt(\Omega)$<br>$C_R$ : rated capacitance ( $\mu\text{F}$ )<br>dV/dt value: see page 9 table |
| 9   | Passive flammability       | The flaming time of each capacitor shall not go beyond 30s after it is taken apart from the flame. Drop of each capacitor caused by flame shall not fire the tissue below  | IEC 695-2-2<br>Needle flame test<br>The category of passive flammability: C, Expose time in flame : 1 time<br>Capacitor volume    Exposing time<br>$V \leq 250\text{mm}^3$ 5s<br>$250\text{mm}^3 < V \leq 500\text{mm}^3$ 10s<br>$500\text{mm}^3 < V \leq 1750\text{mm}^3$ 20s<br>$V > 1750\text{mm}^3$ 30s  |

**■ Marking (For example)**

 102J 1000  
 $P \leq 10\text{mm}$

 MMKP82  
 103J 1000  
 $P > 10\text{mm}$

**Marking Introduction:**

|  | Brand         | MMKP82     | Type              |
|---|---------------|------------|-------------------|
| 1000  | Rated voltage | 102<br>103 | Rated capacitance |
| J   | Tolerance     | -          | -                 |

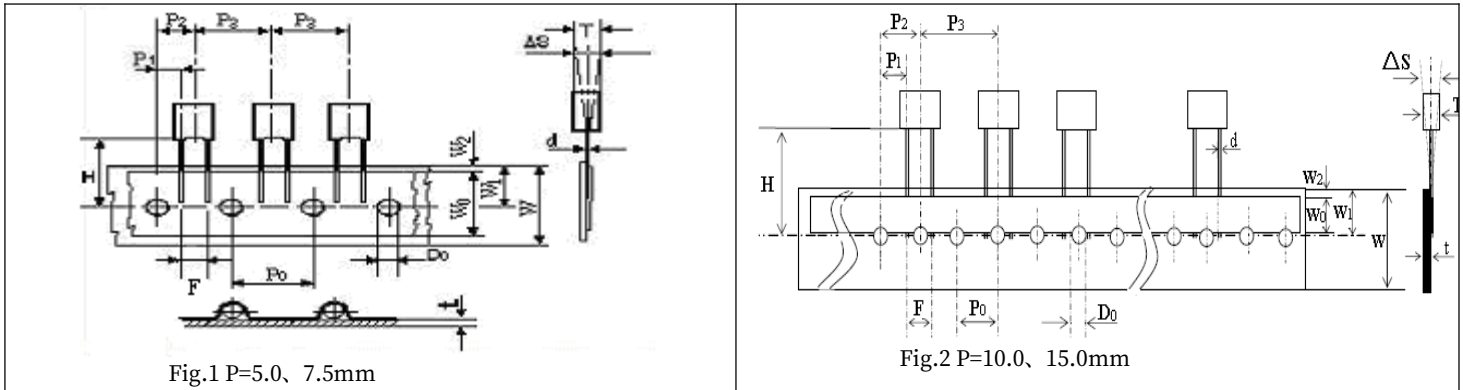
**■ Taping specification for box-type capacitors**
**▲ Outline Drawing**


Fig.1 P=5.0, 7.5mm

Fig.2 P=10.0, 15.0mm

**▲ Taping Dimensions(mm)**

| Technology index title               | Code       | Dimensions |       |        |        | Tolerance    |
|--------------------------------------|------------|------------|-------|--------|--------|--------------|
|                                      |            | P=5.0      | P=7.5 | P=10.0 | P=15.0 |              |
| Taping type                          | —          | Fig 1      | Fig 1 | Fig2   | Fig 2  | —            |
| Part number<br>Digit12-15            | Ammo-pack  | A201       | A301  | A405   | A605   |              |
| Taping pitch                         | $P_3$      | 12.7       | 12.7  | 25.4   | 25.4   | $\pm 1.0$    |
| Feed hole pitch                      | $P_0$      | 12.7       | 12.7  | 12.7   | 12.7   | $\pm 0.2$    |
| Center of wire                       | $P_1$      | 3.85       | 2.6   | 7.7    | 5.2    | $\pm 0.7$    |
| Center of body                       | $P_2$      | 6.35       | 6.35  | 12.7   | 12.7   | $\pm 1.3$    |
| Pitch of taping wire                 | $F^{**}$   | 5.0        | 7.5   | 10.0   | 15.0   | +0.6<br>-0.1 |
| Component alignment                  | $\Delta S$ | 0          | 0     | 0      | 0      | $\pm 2.0$    |
| Height of component from tape center | $H^{***}$  | 18.5       | 18.5  | 18.5   | 18.5   | $\pm 0.5$    |
| Carrier tape width                   | W          | 18.0       | 18.0  | 18.0   | 18.0   | +1.0<br>-0.5 |
| Hold down tape width                 | $W_0$      | 6min       | 10min | 10min  | 10min  | —            |
| Hole position                        | $W_1$      | 9.0        | 9.0   | 9.0    | 9.0    | $\pm 0.5$    |
| Hold down tape position              | $W_2$      | 3max       | 3max  | 3max   | 3max   | —            |
| Feed hole dia.                       | $D_0$      | 4.0        | 4.0   | 4.0    | 4.0    | $\pm 0.2$    |
| Tape thickness                       | t          | 0.7        | 0.7   | 0.7    | 0.9    | $\pm 0.2$    |

**Note:** \*  $P_0=15\text{mm}$  is also available;

\*\*F can be other lead spacing;

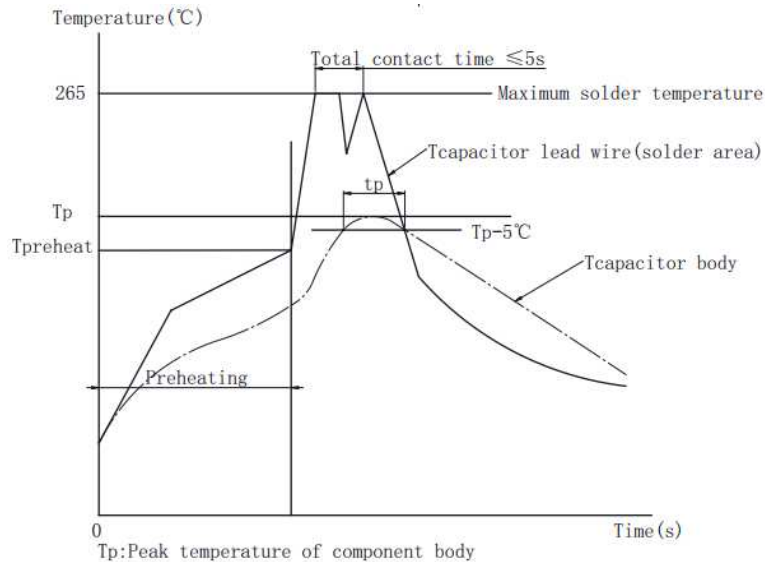
\*\*\*H=16.5mm is available;

**■ Soldering suggestions**

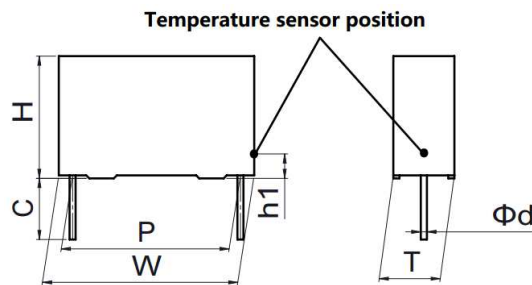
- ▲ Manual soldering  
Max. temperature: 350°C, time: 3s
- ▲ Wave soldering

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.

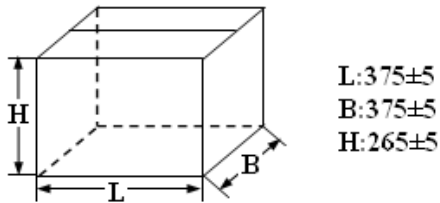


Note: If re-working or dipping twice is necessary, it should be done after the capacitor returns to the normal temperature.

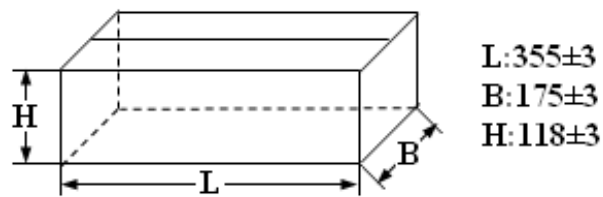
|  |   |                        |                 |
|--|---|------------------------|-----------------|
| Temperature sensor position<br>(Tcapacitor body) | The capacitor body surface of lead side, capacitor height position from PCB: h1=2~3mm |                        |                 |
| Maximum capacitor body temperature<br>Tp(°C)     | OPP film P≤15mm<br>115  | OPP film P>15mm<br>120 | PET film<br>125 |
| Maximum capacitor lead wire temperature<br>(°C)  | 265   | 265                    | 265             |
| Maximum capacitor body heating time<br>tp=Tp-5°C | 30s   |                        |                 |

■ Packing box sizes(mm)(example)

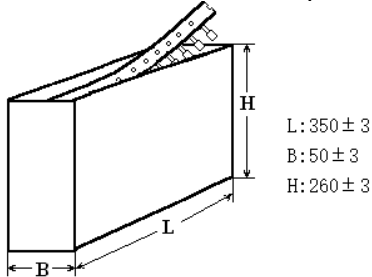
1. Out packing box for bulk



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