



## SPECIFICATION FOR APPROVAL

File No.: Q/FRK 0.GS.E.C42-B06

|               |  |
|---------------|--|
| Product Name  | Box-type Metallized Polypropylene Film Interference Suppression Capacitor (Class X2) |
| Product Type  | MKP62 Series   |
| Type Code     | C42  |
| Product Code  |  |
| Customer      |  |
| Customer Code |  |
| Issue Date    | 2011-08  |



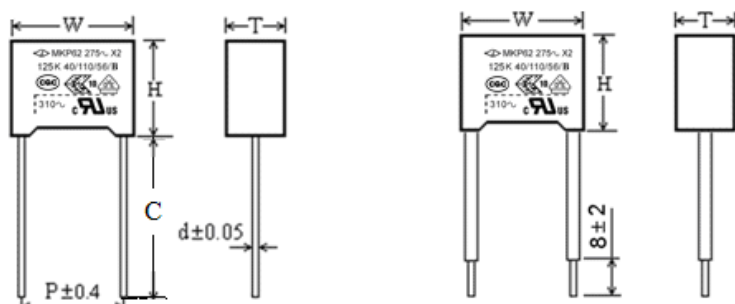
### **Xiamen Faratronic Co. Ltd.**

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

Domestic business  
TEL: 0592-6208620 6208618  
FAX: 0592-6208777  
Mail: [fsc@faratronic.com.cn](mailto:fsc@faratronic.com.cn)  
[michael\\_lai@faratronic.com.cn](mailto:michael_lai@faratronic.com.cn)  
Http: [www.faratronic.com.cn](http://www.faratronic.com.cn)

Export business  
0086-592-6208586 6208608  
0086-592-6208557  
[James@faratronic.com.cn](mailto:James@faratronic.com.cn)  
[jxh@faratronic.com.cn](mailto:jxh@faratronic.com.cn)

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**Metallized polypropylene film interference suppression capacitor(Class X2, 275Vac/305Vac)**
**■ Outline Drawing**

 $W \pm 0.4\text{mm}, H \pm 0.4\text{mm}, T \pm 0.4\text{mm}$ 

Lead Wire

 Insulated Lead Wire( $P \geq 10\text{mm}$ )

Note: There are two kind of the insulated lead wire:

1. Insulated rigid leads;
2. Insulated flexible leads.

|                           |       |       |       |
|---------------------------|-------|-------|-------|
| Lead Wire Dia.            | 0.6   | 0.8   | 1.0   |
| Insulated Lead Wire Gauge | AWG22 | AWG20 | AWG18 |

**■ Features**

- Metallized polypropylene structure
- Withstanding overvoltage stressing
- Excellent active and passive flame resistant abilities
- Widely used in across-the-line, interference suppression circuit, etc.

**■ Safety Approvals**

|                              |          |  |
|------------------------------|----------|--|
| •                            | CQC      | GB/T 14472-1998, X2, 275/305Vac, 0.001 $\mu$ F~10.0 $\mu$ F, 40/110/56/B<br>Certificate No.: CQC03001002875              |
| •                            | ENEC-VDE | EN 60384-14:2005, X2, 275/305Vac, 0.001 $\mu$ F~10.0 $\mu$ F, 40/110/56/B<br>Certificate No.: 40000358                   |
| •                            | UL/CUL   | UL1414, CSA C22.2 No.1, 250 Vac, 0.001 $\mu$ F to 1.0 $\mu$ F<br>Certificate No.: E186600                                |
|                              |          | UL1283, CSA C22.2 No.8, 310 Vac, 0.001 $\mu$ F to 45.0 $\mu$ F<br>Certificate No.: E186662                               |
| • <b>CB TEST CERTIFICATE</b> |          | IEC 60384-14:2005, X2, 275/305 Vac, 0.001 $\mu$ F~10.0 $\mu$ F, 40/110/56/B<br>Certificate No.: DE1--12559/M2, DE1-40344 |

**■ Specifications**

|   |  |  |  |
|---|--|--|--|
| Class   | Class X2   |  |  |
| Climatic Category/Passive Flammability Category | 40/110/56/B  |  |  |
| Operating Temperature Range                     | -40°C ~ +110°C   |  |  |
| Rated Voltage ( $U_R$ )                         | 275/305Vac(ENEC/CQC), 250Vac(UL1414), 310Vac(UL1283)   |  |  |
| Maximum continuous DC voltage                   | 630Vdc   |  |  |
| Capacitance Range                               | 0.0010 $\mu$ F~10.0 $\mu$ F  |  |  |
| Capacitance Tolerance                           | $\pm 10\%$ (K), $\pm 20\%$ (M)   |  |  |
| Voltage Proof                                   | Between Terminals:   | 2 000Vdc(2s) $C_R \leq 1.0\mu\text{F}$                 |  |
|   | Between Terminals To Case:   | 1 800Vdc(2s) $C_R > 1.0\mu\text{F}$<br>2 110Vac (1min) |  |
| Insulation Resistance                           | $\geq 15\ 000\text{M}\Omega$ , $C_R \leq 0.33\mu\text{F}$<br>$\geq 5\ 000\text{s}$ , $C_R > 0.33\mu\text{F}$ | (20°C, 100V, 1min)                                     |  |
| Dissipation Factor                              | 0.0010 $\mu\text{F} < C_R \leq 0.47\mu\text{F}$  | $\leq 10 \times 10^{-4}$ (1kHz, 20°C)                  | $\leq 20 \times 10^{-4}$ (10kHz, 20°C) |
|   | 0.47 $\mu\text{F} < C_R \leq 1.0\mu\text{F}$   | $\leq 20 \times 10^{-4}$ (1kHz, 20°C)                  | $\leq 40 \times 10^{-4}$ (10kHz, 20°C) |
|   | 1.0 $\mu\text{F} < C_R \leq 10\mu\text{F}$   | $\leq 30 \times 10^{-4}$ (1kHz, 20°C)                  | -----                                  |



■ Part number system

The 18 digits part number is formed as follow:

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

Digit 1 to 3 Series code

C42=MKP62

Digit 4 to 5 A.C. rated voltage

P2=275V Q2=305V

Digit 6 to 8 Rated capacitance value

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

Digit 9 Capacitance tolerance

K=±10%, M=±20%

Digit 10 Pitch

3=7.5mm 4=10.0mm 6=15.0mm

9=22.5mm B=27.5mm F=37.5mm

Digit 11 Internal use

Digit 12 to 15 Lead form and packaging code

Digit 16 to 18 Internal use

**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<br>4<br>6          | F=7.5mm<br>F=10.0mm<br>F=15.0mm   | 0        | straight    | 1<br><br>5 | each cap. among two consecutive holes<br>P3=12.7mm, H=18.5mm(For pitch=7.5mm)<br><br>P3=25.4mm;H=18.5mm (For pitch=10/15mm)<br>(Detail parameter refer to page 15) |
| C        | straight lead<br>"C" in the<br>figure above                | code<br><br>00<br>45 | explanation<br><br>standard lead length<br>(18mm~26mm)<br>lead length 4.5mm     |          |             | 0          | Length tolerance ±0.5mm<br>Or standard length  |
| D<br>E   | Insulated<br>flexible<br>leads<br>Insulated<br>rigid leads | C5<br>K0<br>K2<br>L0 | lead length 35mm<br>lead length 100mm<br>lead length 120mm<br>lead length 200mm |          |             | 1          | Length tolerance -5~0  |



## ■ Dimensions(mm)

### Miniature version

| 275Vac <sup>#</sup>    |           |           |           |           |     |                  | 275Vac <sup>#</sup>    |           |           |           |           |     |                   | 275Vac <sup>#</sup>    |           |           |           |           |     |                  |
|------------------------|-----------|-----------|-----------|-----------|-----|------------------|------------------------|-----------|-----------|-----------|-----------|-----|-------------------|------------------------|-----------|-----------|-----------|-----------|-----|------------------|
| C <sub>R</sub><br>(μF) | W<br>±0.4 | H<br>±0.4 | T<br>±0.4 | P<br>±0.4 | d   | Part number      | C <sub>R</sub><br>(μF) | W<br>±0.4 | H<br>±0.4 | T<br>±0.4 | P<br>±0.4 | d   | Part number       | C <sub>R</sub><br>(μF) | W<br>±0.4 | H<br>±0.4 | T<br>±0.4 | P<br>±0.4 | d   | Part number      |
| 0.0010                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2102-30****+ | 0.010                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2103-6A****+  | 0.47M                  | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2474M9S****+ |
| 0.0012                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2122-30****+ | 0.012                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2123-6A****+  | 0.47K                  | 26.5      | 16.0      | 7.0       | 22.5      | 0.8 | C42P2474K9S****+ |
| 0.0015                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2152-30****+ | 0.015                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2153-6A****+  | 0.56                   | 26.5      | 16.0      | 7.0       | 22.5      | 0.8 | C42P2564-9S****+ |
| 0.0018                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2182-30****+ | 0.018                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2183-6A****+  | 0.60                   | 26.5      | 17.0      | 8.5       | 22.5      | 0.8 | C42P2604-9S****+ |
| 0.0022                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2222-30****+ | 0.022                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2223-6A****+  | 0.68                   | 26.5      | 17.0      | 8.5       | 22.5      | 0.8 | C42P2684-9S****+ |
| 0.0027                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2272-30****+ | 0.027                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2273-6A****+  | 0.82                   | 26.5      | 18.5      | 10.0      | 22.5      | 0.8 | C42P2824-9S****+ |
| 0.0033                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2332-30****+ | 0.033                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2333-6A****+  | 1.0                    | 26.5      | 18.5      | 10.0      | 22.5      | 0.8 | C42P2105-9S****+ |
| 0.0039                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2392-30****+ | 0.039                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2393-6A****+  | 1.2                    | 26.5      | 20.0      | 11.0      | 22.5      | 0.8 | C42P2125-9S****+ |
| 0.0047                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2472-30****+ | 0.047                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2473-6A****+  | 1.5M                   | 26.5      | 20.0      | 11.0      | 22.5      | 0.8 | C42P2155M9S****+ |
| 0.0056                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2562-30****+ | 0.056                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2563-6A****+  | 1.5K                   | 26.5      | 22.0      | 12.0      | 22.5      | 0.8 | C42P2155K9S****+ |
| 0.0068                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2682-30****+ | 0.068                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2683-6A****+  | 1.8                    | 26.5      | 24.5      | 15.5      | 22.5      | 0.8 | C42P2185-9S****+ |
| 0.0082                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2822-30****+ | 0.082                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2823-6A****+  | 2.2                    | 26.5      | 24.5      | 15.5      | 22.5      | 0.8 | C42P2225-9S****+ |
| 0.010                  | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2103-30****+ | 0.10M                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C42P2104M6A****+  | 0.47                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C42P2474-B0****+ |
| 0.012                  | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2123-30****+ | 0.10                   | 17.5      | 11.0      | 5.0       | 15.0      | 0.6 | C42P2104-6S****+  | 0.56                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C42P2564-B0****+ |
| 0.015                  | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2153-30****+ | 0.12                   | 17.5      | 11.0      | 5.0       | 15.0      | 0.6 | C42P2124-6S****+  | 0.68                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C42P2684-B0****+ |
| 0.018                  | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2183-30****+ | 0.15M                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.6 | C42P2154M6S****+  | 0.82                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C42P2824-BS****+ |
| 0.022                  | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C42P2223-30****+ | 0.15K                  | 17.5      | 12.0      | 6.0       | 15.0      | 0.6 | C42P2154K6S****+  | 1.0                    | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C42P2105-BS****+ |
| 0.027                  | 10.5      | 11.0      | 5.0       | 7.5       | 0.6 | C42P2273-30****+ | 0.18                   | 17.5      | 12.0      | 6.0       | 15.0      | 0.6 | C42P2184-6S****+  | 1.2                    | 32.0      | 20.0      | 11.0      | 27.5      | 0.8 | C42P2125-BS****+ |
| 0.033                  | 10.5      | 11.0      | 5.0       | 7.5       | 0.6 | C42P2333-30****+ | 0.22M                  | 17.5      | 12.0      | 6.0       | 15.0      | 0.6 | C42P2224M6S****+  | 1.5                    | 32.0      | 20.0      | 11.0      | 27.5      | 0.8 | C42P2155-BS****+ |
| 0.039                  | 10.5      | 12.0      | 6.0       | 7.5       | 0.6 | C42P2393-30****+ | 0.22K                  | 17.5      | 12.5      | 9.0       | 15.0      | 0.6 | C42P2224K6A****+  | 1.8                    | 32.0      | 22.0      | 13.0      | 27.5      | 0.8 | C42P2185-BS****+ |
| 0.047                  | 10.5      | 12.0      | 6.0       | 7.5       | 0.6 | C42P2473-30****+ | 0.22K                  | 17.5      | 13.5      | 6.0       | 15.0      | 0.6 | C42P2224K6B****+  | 2.2M                   | 32.0      | 22.0      | 13.0      | 27.5      | 0.8 | C42P2225MBS****+ |
| 0.0047                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2472-40****+ | 0.22K                  | 17.5      | 12.0      | 7.0       | 15.0      | 0.6 | C42P2224K6C****+  | 2.2K                   | 32.0      | 25.0      | 13.0      | 27.5      | 0.8 | C42P2225KBS****+ |
| 0.0056                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2562-40****+ | 0.22K                  | 17.5      | 13.5      | 7.5       | 15.0      | 0.6 | C42P2224K6S****+  | 2.7                    | 32.0      | 28.0      | 14.0      | 27.5      | 0.8 | C42P2275-BS****+ |
| 0.0068                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2682-40****+ | 0.27                   | 17.5      | 13.5      | 7.5       | 15.0      | 0.6 | C42P2274-6S****+  | 3.3M                   | 32.0      | 24.5      | 15.0      | 27.5      | 0.8 | C42P2335MBS****+ |
| 0.0082                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2822-40****+ | 0.33M                  | 17.5      | 13.5      | 7.5       | 15.0      | 0.6 | C42P2334M6S****+  | 3.3K                   | 32.0      | 28.0      | 17.0      | 27.5      | 0.8 | C42P2335KBS****+ |
| 0.010                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2103-40****+ | 0.33K                  | 17.5      | 14.0      | 8.0       | 15.0      | 0.6 | C42P2334K6S****+  | 3.3                    | 32.0      | 30.0      | 16.0      | 27.5      | 0.8 | C42P2335-BA****+ |
| 0.012                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2123-40****+ | 0.33M                  | 17.5      | 12.5      | 9.0       | 15.0      | 0.6 | C42P2334M6A****+  | 3.9                    | 32.0      | 33.0      | 18.0      | 27.5      | 0.8 | C42P2395-BS****+ |
| 0.015                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2153-40****+ | 0.33M                  | 17.5      | 17.5      | 6.0       | 15.0      | 0.6 | C42P2334M6B****+  | 4.7M                   | 32.0      | 33.0      | 18.0      | 27.5      | 0.8 | C42P2475MBS****+ |
| 0.018                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2183-40****+ | 0.33K                  | 17.5      | 18.5      | 7.5       | 15.0      | 0.8 | C42P2334K6A****+  | 4.7K                   | 32.0      | 33.0      | 18.0      | 27.5      | 0.8 | C42P2475KBA****+ |
| 0.022                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2223-40****+ | 0.39                   | 17.5      | 14.5      | 8.5       | 15.0      | 0.6 | C42P2394-6S****+  | 5.6                    | 32.0      | 37.0      | 22.0      | 27.5      | 0.8 | C42P2565-BS****+ |
| 0.027                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2273-40****+ | 0.47M                  | 17.5      | 14.5      | 8.5       | 15.0      | 0.6 | C42P2474M6S****+  | 6.8M                   | 32.0      | 37.0      | 22.0      | 27.5      | 0.8 | C42P2685MBS****+ |
| 0.033                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2333-4S****+ | 0.47M                  | 17.5      | 18.5      | 7.5       | 15.0      | 0.8 | C42P2474M-6A****+ | 1.5                    | 41.0      | 22.0      | 11.0      | 37.5      | 1.0 | C42P2155-FS****+ |
| 0.039                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2393-4S****+ | 0.47K                  | 17.5      | 16.0      | 10.0      | 15.0      | 0.8 | C42P2474K6S****+  | 1.8                    | 41.0      | 22.0      | 11.0      | 37.5      | 1.0 | C42P2185-FS****+ |
| 0.047                  | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C42P2473-4S****+ | 0.56                   | 17.5      | 16.0      | 10.0      | 15.0      | 0.8 | C42P2564-6A****+  | 2.2                    | 41.0      | 24.0      | 13.0      | 37.5      | 1.0 | C42P2225-FS****+ |
| 0.056                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C42P2563-4S****+ | 0.60                   | 17.5      | 19.0      | 11.0      | 15.0      | 0.8 | C42P2604-6S****+  | 2.7                    | 41.0      | 24.0      | 13.0      | 37.5      | 1.0 | C42P2275-FS****+ |
| 0.068                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C42P2683-4S****+ | 0.68                   | 17.5      | 19.0      | 11.0      | 15.0      | 0.8 | C42P2684-6S****+  | 3.3                    | 42.0      | 28.0      | 14.0      | 37.5      | 1.0 | C42P2335-FS****+ |
| 0.082                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C42P2823-4S****+ | 0.82M                  | 17.5      | 19.0      | 11.0      | 15.0      | 0.8 | C42P2824M6S****+  | 3.3                    | 41.0      | 26.0      | 15.0      | 37.5      | 1.0 | C42P2335-FA****+ |
| 0.10M                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C42P2104M4S****+ | 0.15                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2154-90****+  | 3.9                    | 41.0      | 30.0      | 16.0      | 37.5      | 1.0 | C42P2395-FS****+ |
| 0.10K                  | 13.0      | 12.0      | 6.0       | 10.0      | 0.6 | C42P2104K4S****+ | 0.18                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2184-90****+  | 4.7                    | 41.0      | 30.0      | 16.0      | 37.5      | 1.0 | C42P2475-FS****+ |
| 0.12                   | 13.0      | 13.0      | 7.0       | 10.0      | 0.6 | C42P2124-4S****+ | 0.22                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2224-9S****+  | 5.6                    | 41.0      | 33.5      | 18.5      | 37.5      | 1.0 | C42P2565-FS****+ |
| 0.15                   | 13.0      | 13.0      | 7.0       | 10.0      | 0.6 | C42P2154-4S****+ | 0.27                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2274-9S****+  | 6.8                    | 41.0      | 33.5      | 18.5      | 37.5      | 1.0 | C42P2685-FS****+ |
| 0.18                   | 13.0      | 14.0      | 8.0       | 10.0      | 0.6 | C42P2184-4S****+ | 0.33                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2334-9S****+  | 8.2                    | 41.0      | 37.0      | 22.0      | 37.5      | 1.0 | C42P2825-FS****+ |
| 0.22M                  | 13.0      | 14.0      | 8.0       | 10.0      | 0.6 | C42P2224M4S****+ | 0.39                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C42P2394-9S****+  | 10.0M                  | 41.0      | 37.0      | 22.0      | 37.5      | 1.0 | C42P2106MFS****+ |
|                        |           |           |           |           |     |                  |                        |           |           |           |           |     |                   | 10.0K                  | 41.0      | 41.0      | 26.0      | 37.5      | 1.0 | C42P2106KFS****+ |

Note: 1. “-”=capacitance tolerance code, M=±20%,K=±10%

2. “\*\*\*\*”=lead form and packaging mode code (refer to table 1)

3. ”#”when the rated voltage is 305Vac,the digit 4-5 is Q2.



■ Dimensions(mm)

| 275Vac <sup>#</sup>    |           |           |           |           |            |                    |
|------------------------|-----------|-----------|-----------|-----------|------------|--------------------|
| C <sub>R</sub><br>(μF) | W<br>±0.4 | H<br>±0.4 | T<br>±0.4 | P<br>±0.4 | d<br>±0.05 | Part number        |
| 0.033                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6        | C42P2333-40*****++ |
| 0.039                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6        | C42P2393-40*****++ |
| 0.047                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6        | C42P2473-40*****++ |
| 0.056                  | 13.0      | 11.0      | 5.0       | 10.0      | 0.6        | C42P2563-40*****++ |
| 0.068                  | 13.0      | 12.0      | 6.0       | 10.0      | 0.6        | C42P2683-40*****++ |
| 0.082                  | 13.0      | 12.0      | 6.0       | 10.0      | 0.6        | C42P2823-40*****++ |
| 0.10                   | 13.0      | 12.0      | 6.0       | 10.0      | 0.6        | C42P2104-40*****++ |
| 0.12                   | 13.0      | 14.0      | 8.0       | 10.0      | 0.6        | C42P2124-40*****++ |
| 0.15                   | 13.0      | 14.0      | 8.0       | 10.0      | 0.6        | C42P2154-40*****++ |
| 0.010                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2103-60*****++ |
| 0.012                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2123-60*****++ |
| 0.015                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2153-60*****++ |
| 0.018                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2183-60*****++ |
| 0.022                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2223-60*****++ |
| 0.027                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2273-60*****++ |
| 0.033                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2333-60*****++ |
| 0.039                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2393-60*****++ |
| 0.047                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2473-60*****++ |
| 0.056                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2563-60*****++ |
| 0.068                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2683-60*****++ |
| 0.082                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2823-60*****++ |
| 0.10                   | 17.5      | 11.0      | 5.0       | 15.0      | 0.8        | C42P2104-60*****++ |
| 0.12                   | 17.5      | 12.0      | 6.0       | 15.0      | 0.8        | C42P2124-60*****++ |
| 0.15                   | 17.5      | 12.0      | 6.0       | 15.0      | 0.8        | C42P2154-60*****++ |
| 0.18                   | 17.5      | 13.5      | 7.5       | 15.0      | 0.8        | C42P2184-60*****++ |
| 0.22                   | 17.5      | 13.5      | 7.5       | 15.0      | 0.8        | C42P2224-60*****++ |
| 0.27                   | 17.5      | 14.5      | 8.5       | 15.0      | 0.8        | C42P2274-60*****++ |
| 0.33                   | 17.5      | 16.0      | 10.0      | 15.0      | 0.8        | C42P2334-60*****++ |
| 0.39                   | 17.5      | 19.0      | 11.0      | 15.0      | 0.8        | C42P2394-60*****++ |
| 0.47                   | 17.5      | 19.0      | 11.0      | 15.0      | 0.8        | C42P2474-60*****++ |

| 275Vac <sup>#</sup>    |           |           |           |           |            |                    |
|------------------------|-----------|-----------|-----------|-----------|------------|--------------------|
| C <sub>R</sub><br>(μF) | W<br>±0.4 | H<br>±0.4 | T<br>±0.4 | P<br>±0.4 | d<br>±0.05 | Part number        |
| 0.22                   | 26.5      | 15.0      | 6.0       | 22.5      | 0.8        | C42P2224-90*****++ |
| 0.27                   | 26.5      | 16.0      | 7.0       | 22.5      | 0.8        | C42P2274-90*****++ |
| 0.33                   | 26.5      | 16.0      | 7.0       | 22.5      | 0.8        | C42P2334-90*****++ |
| 0.39                   | 26.5      | 17.0      | 8.5       | 22.5      | 0.8        | C42P2394-90*****++ |
| 0.47                   | 26.5      | 17.0      | 8.5       | 22.5      | 0.8        | C42P2474-90*****++ |
| 0.56                   | 26.5      | 18.5      | 10.0      | 22.5      | 0.8        | C42P2564-90*****++ |
| 0.68                   | 26.5      | 18.5      | 10.0      | 22.5      | 0.8        | C42P2684-90*****++ |
| 0.82                   | 26.5      | 22.0      | 12.0      | 22.5      | 0.8        | C42P2824-90*****++ |
| 1.0                    | 26.5      | 22.0      | 12.0      | 22.5      | 0.8        | C42P2105-90*****++ |
| 1.2                    | 26.5      | 24.5      | 15.5      | 22.5      | 0.8        | C42P2125-90*****++ |
| 1.5                    | 26.5      | 24.5      | 15.5      | 22.5      | 0.8        | C42P2155-90*****++ |
| 0.82                   | 32.0      | 20.0      | 11.0      | 27.5      | 0.8        | C42P2824-B0*****++ |
| 1.0                    | 32.0      | 20.0      | 11.0      | 27.5      | 0.8        | C42P2105-B0*****++ |
| 1.2                    | 32.0      | 22.0      | 13.0      | 27.5      | 0.8        | C42P2125-B0*****++ |
| 1.5                    | 32.0      | 22.0      | 13.0      | 27.5      | 0.8        | C42P2155-B0*****++ |
| 1.8                    | 32.0      | 24.5      | 15.0      | 27.5      | 0.8        | C42P2185-B0*****++ |
| 2.2                    | 32.0      | 28.0      | 14.0      | 27.5      | 0.8        | C42P2225-B0*****++ |
| 2.7                    | 32.0      | 33.0      | 18.0      | 27.5      | 0.8        | C42P2275-B0*****++ |
| 3.3                    | 32.0      | 33.0      | 18.0      | 27.5      | 0.8        | C42P2335-B0*****++ |
| 3.9                    | 32.0      | 37.0      | 22.0      | 27.5      | 0.8        | C42P2395-B0*****++ |
| 4.7                    | 32.0      | 37.0      | 22.0      | 27.5      | 0.8        | C42P2475-B0*****++ |
| 1.8                    | 41.0      | 26.0      | 12.0      | 37.5      | 1.0        | C42P2185-F0*****++ |
| 2.2M                   | 41.0      | 26.0      | 12.0      | 37.5      | 1.0        | C42P2225MF0*****++ |
| 2.2K                   | 42.0      | 28.0      | 14.0      | 37.5      | 1.0        | C42P2225KF0*****++ |
| 2.7                    | 42.0      | 28.0      | 14.0      | 37.5      | 1.0        | C42P2275-F0*****++ |
| 3.3                    | 41.0      | 30.0      | 16.0      | 37.5      | 1.0        | C42P2335-F0*****++ |
| 3.9                    | 41.0      | 32.0      | 17.0      | 37.5      | 1.0        | C42P2395-F0*****++ |
| 4.7                    | 41.0      | 33.5      | 18.5      | 37.5      | 1.0        | C42P2475-F0*****++ |
| 5.6                    | 41.0      | 37.0      | 22.0      | 37.5      | 1.0        | C42P2565-F0*****++ |
| 6.8                    | 41.0      | 37.0      | 22.0      | 37.5      | 1.0        | C42P2685-F0*****++ |
| 8.2                    | 41.0      | 41.0      | 26.0      | 37.5      | 1.0        | C42P2825-F0*****++ |
| 10.0                   | 41.0      | 43.0      | 28.0      | 37.5      | 1.0        | C42P2106-F0*****++ |

- Note: 1. “-”=capacitance tolerance code, M=±20%,K=±10%  
 2. “\*\*\*\*\*”=lead form and packaging mode code (refer to table 1)  
 3. ”#”when the rated voltage is 305VAC,the digit 4~5 is Q2.  
 4. For new design, please refer to reduced sizes

**Maximum permissible voltage change per unit of time**

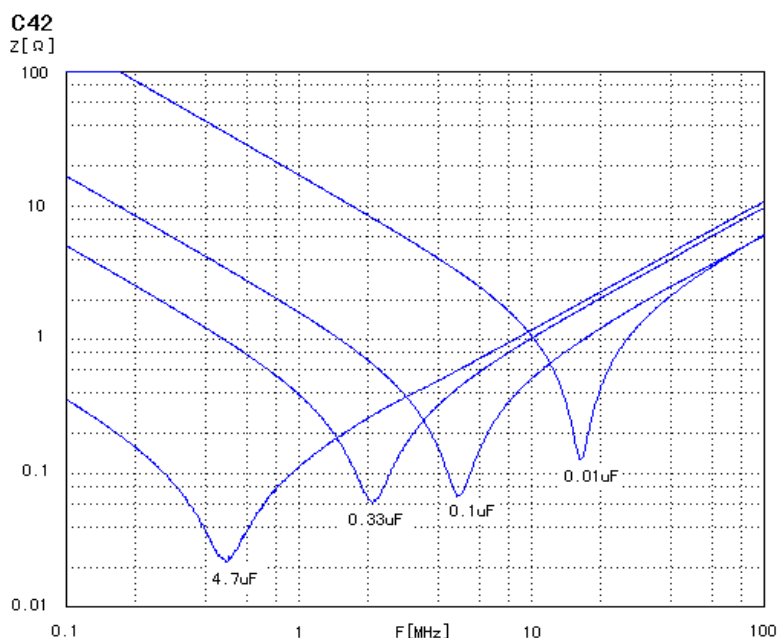
| Rated Voltage<br>(Vac) | Max dV/dt(V/us) |        |        |          |          |          |
|------------------------|-----------------|--------|--------|----------|----------|----------|
|                        | P=7.5mm         | P=10mm | P=15mm | P=22.5mm | P=27.5mm | P=37.5mm |
| 275/305                | 500             | 500    | 400    | 200      | 150      | 100      |

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  $U_R/U$ .

**Impedance Vs. Frequency**

TYPICAL GRAPHS

 $Z=f(f)$  Typical values

**Quality ensuring test (before shipment):**

| Inspection item (each batch) | Inspection level (GB 2828) |       |
|------------------------------|----------------------------|-------|
|                              | IL                         | AQL   |
| Appearance inspection        | II                         | 1.5%  |
| Dimensions                   |                            |       |
| Capacitance                  | II                         | 0.25% |
| Tangent of the loss angle    |                            |       |
| Dielectric strength          |                            |       |
| Insulation resistance        |                            |       |
| Solderability                | S-3                        | 2.5%  |



■ Test Method And Performance

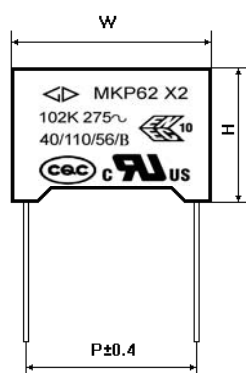
| No. | Item                              | Performance  | Test Method (IEC 60384-14)   |
|-----|-----------------------------------|--|--|
| 1   | Solderability                     | Good quality of tinning  | Solder temperature: 245°C ±5°C<br>Immersion time: 2.0s±0.5s  |
| 2   | Terminal strength                 | 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  |
| 3   | Resistance to solder heat         | There shall be no visible damage<br>ΔC/C ≤±5%(relative to the initial value) | Solder temperature:260°C±5°C<br>Immersion time: 10s±1s   |
| 4   | Solvent resistance of the marking | The marking shall be legible   | Solvent: Industrial isopropanol.<br>Solvent temperature:23°C±5°C<br>Dipping time: 5min±0.5min<br>Condition:scrub<br>Scrub material:absorbent cotton<br>Reverting time:No   |
| 5   | Initial measurement               | Capacitance、Tgδ  |  |
|     | Rapid change of temperature       | There shall be no evidence of deterioration.                                 | θ <sub>A</sub> =-40°C, θ <sub>B</sub> =+110°C 5 cycles<br>Duration: t=30min  |
|     | Vibration                         | There shall be no evidence of deterioration.                                 | Amplitude 0.75mm or acceleration 100m/s <sup>2</sup> (whichever is the smaller severity), f: 10Hz to 500Hz.Three directions, 2h for each direction, total 6h.  |
|     | Bump                              | There shall be no evidence of deterioration.                                 | 4 000 times,<br>Acceleration: 400m/s <sup>2</sup> ,<br>Pulse duration, 6ms   |
|     | Final measurement                 | There shall be no visible damage<br>ΔC/C ≤±5%(relative to the initial value) |  |
| 6   | Climate sequence                  | Initial measurement  |  |
|     |                                   | Dry heat   | +110°C, 16h  |
|     |                                   | Damp heat,Cyclic   | Test Db, Severity: b, the first cycle  |
|     |                                   | Cold   | -40°C, 2h  |
|     |                                   | Damp heat, cyclic other  | Test Db, Severity b, the other cycles,   |
|     |                                   | Final measurement  | There shall be no visible damage, legible marking<br>ΔC/C ≤±5%(relative to the initial value)<br>Increase of tgδ:<br>C <sub>R</sub> ≤1μF: ≤0.008 (10kHz)<br>C <sub>R</sub> >1μF: ≤0.005 (1kHz)<br>Dielectric strength : there shall be no permanent breakdown or flashover<br>I.R.: ≥ 50% of the rated value |



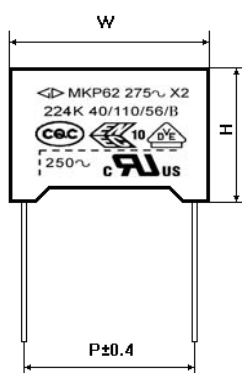
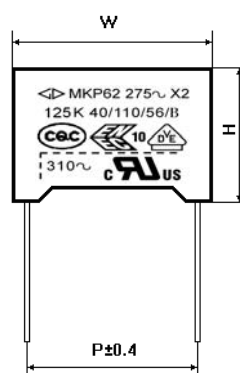
| No. | Item                     | Performance   | Test Method (IEC 60384-14)   |
|-----|--------------------------|---|--|
| 7   | Damp heat steady state   | There shall be no visible damage, legible marking<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta$ :<br>$C_R \leq 1\mu\text{F}$ : $\leq 0.008$ (10kHz)<br>$C_R > 1\mu\text{F}$ : $\leq 0.005$ (1kHz)<br>Dielectric strength : there shall be no permanent breakdown or flashover<br>I.R.: $\geq 50\%$ of the rated value | Temperature: $40^\circ\text{C} \pm 2^\circ\text{C}$<br>Humidity: $93 \pm 2_{-3} \% \text{RH}$<br>Duration: 56 days   |
| 8   | Impulse voltage          | There are three or more waveforms which indicate that no self-heating breakdown have occurred when it is monitored by the monitor   | Each individual capacitor shall be subjected to 24 impulses of the same polarity (when any three successive impulses are shown by the monitor to have a wave form indicating that no self-healing breakdown have taken place the impulses can be stopped), the time between impulses shall not be less than 10S, and the peak value of the voltage impulse: 2.5kV (suitable for $C_R \leq 1\mu\text{F}$ ; When $C_R > 1\mu\text{F}$ , the capacitor can endure pulse voltage value is $2.5/\sqrt{C_R}$ kV) |
| 9   | Endurance                | There shall be no visible damage, legible marking<br>$\Delta C/C \leq \pm 10\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta$ : $C_R \leq 1\mu\text{F}$ : $\leq 0.008$ (10kHz)<br>$C_R > 1\mu\text{F}$ : $\leq 0.005$ (1kHz)<br>Dielectric strength : There shall be no breakdown or flashover<br>I.R. : $\geq 50\%$ of the rated value            | $+110^\circ\text{C}$ , $1.25U_R \text{ V a.c.}$ , 1 000h<br>The voltage shall be subjected to 1000Vrms for 0.1s every one hour during test.  |
| 10  | Charging and discharging | $\Delta C/C \leq \pm 10\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta$ :<br>$C_R \leq 1\mu\text{F}$ : $\leq 0.008$ (10kHz)<br>$C_R > 1\mu\text{F}$ : $\leq 0.005$ (1kHz)<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: $\sqrt{2}U_R \text{ V d.c.}$<br>Charging resistance: $220/C_R (\Omega)$ or the current $\leq 1.0\text{A}$ (whichever is the minor)<br>Discharging resistance:<br>$R = \frac{\sqrt{2}U_R}{C_R \times \frac{dU}{dt}} (\Omega)$ $C_R$ : Capacitance ( $\mu\text{F}$ )<br>$dU/dt$ (V/us) : 100V/ $\mu\text{s}$   |



| No. | Item                 | Performance   | Test Method (IEC 60384-14)  |
|-----|----------------------|---|---|
| 11  | Passive flammability | The flaming time of each capacitor shall not go beyond 10s after it is taken apart from the flame.<br>Drop of each capacitor caused by flame shall not fire the tissue below. | Ref.item 4.17<br>Needle flame test<br>The category of flammability: B<br>Expose time: 1 time<br>Capacitor Volume Exposing time<br>250<V(mm <sup>3</sup> )≤500 20s<br>500<V(mm <sup>3</sup> )≤1750 30s<br>V(mm <sup>3</sup> )>1750 60s   |
| 12  | Active flammability  | The cheese cloth around the capacitor shall not burn with a flame.  | The specimens shall be individually wrapped in at least 1, but not more than 2, complete layers of cheesecloth, the cheesecloth shall be untreated pure cotton cloth.<br>Each sample shall be subjected to 20 discharged, the interval between successive discharges shall be 5s.<br>$U_i = 2.5kV_0^{+7\%}$<br>$U_R$ be applied and be maintained for 120 <sub>0</sub> <sup>+10</sup> s after the last discharge. |

**■ Marking**


P=7.5 or 10.0mm


 $P \geq 15.0\text{mm}$  and  $C_R \leq 1.0\mu\text{F}$ 

 $C_R > 1.0\mu\text{F}$ 
**Marking Introduction**

| Sign         | explain                         | Sign        | explain                                       |
|--------------|---------------------------------|-------------|---|
|              | Brand                           |             | ENEC-VDE Approval                             |
| MKP62        | Type                            |             | CQC Approval                                  |
| 275~         | Rated voltage                   |             | UL,CUL Approval                               |
| X2           | Class                           | 250~/310~   | Rated voltage (UL, UCL)                       |
| 102/224/125K | Rated capacitance and tolerance | 40/110/56/B | Climate category / Passive Flammability Class |

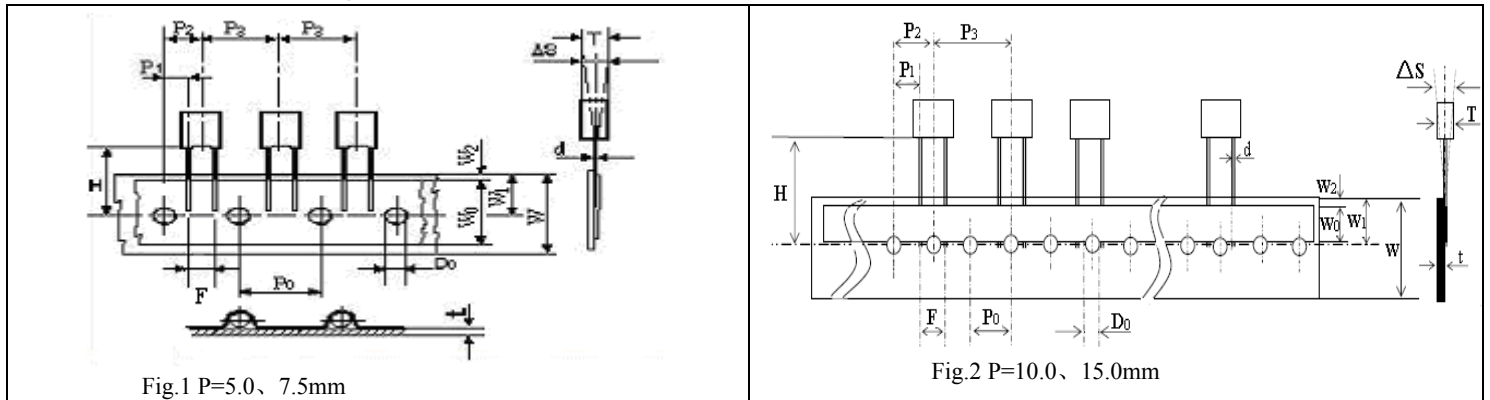
**■ Taping specification for box-type capacitors**
**▲ Outline Drawing**


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    | $\pm 0.2$    |

**▲ Packing Quantity**

| Pitch (mm)    | Box thickness T(mm) | Ammo-pack (pcs/box) |        |
|---------------|---------------------|---------------------|--------|
|               |                     | Domestic            | Export |
| 5.0           | 2.5                 | 2500                | 2 000  |
|               | 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    |

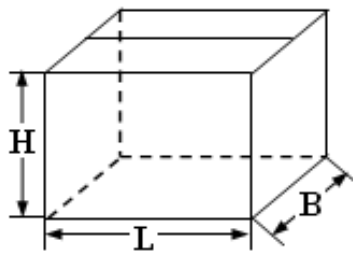
**Note:** \*  $P_0=15\text{mm}$  is also available;

\*\*F can be other lead spacing;

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

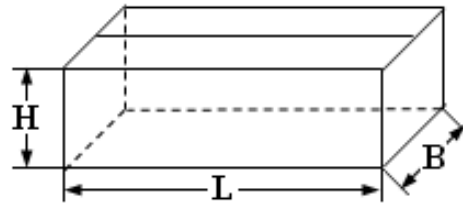
**■ Packing box sizes(mm)**

1. Out packing box for bulk



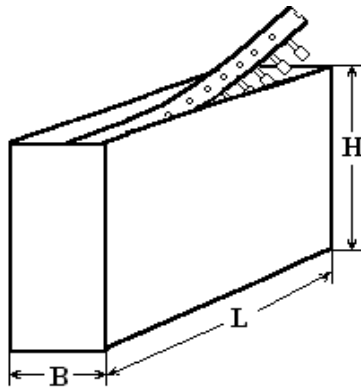
L:375±5  
B:375±5  
H:265±5

2. Inner packing box for bulk



L:355±3  
B:175±3  
H:118±3

3. Box sizes for Ammo-pack



L:330±3  
B:48±3  
H:260±3