



# SPECIFICATION FOR APPROVAL

File No.: O/FRK 0.GS.E.C43-C15

|               |   |
|---------------|---|
| Product Name  | Metallized Polypropylene Film Interference Suppression Capacitor<br>(Class Y2,300Vac) |
| Product Type  | MKP63   |
| Product Code  | C43   |
| Customer      |   |
| Customer Code |   |
| Issue Date    |   |

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



厦门法拉电子股份有限公司

**Xiamen Faratronic Co. Ltd.**

地址：中国厦门市海沧区新园路 99 号

Add: No.99 Xinyuan Road, Haicang District, Xiamen, China

Export business

HK office : **Faratronic (HK) Co. Ltd.**

TEL: 0086-592-6208609 6208608

0852-2898 9168

FAX: 0086-592-6208557

0852-2898 9683

Mail: [Vivian@faratronic.com.cn](mailto:Vivian@faratronic.com.cn)

[hkoffice@faratronic.com.hk](mailto:hkoffice@faratronic.com.hk)

[Donny@faratronic.com.cn](mailto:Donny@faratronic.com.cn)

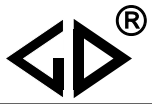
[kolin@faratronic.com.hk](mailto:kolin@faratronic.com.hk)

[james@faratronic.com.cn](mailto:james@faratronic.com.cn)

Http: [www.faratronic.com.cn](http://www.faratronic.com.cn)

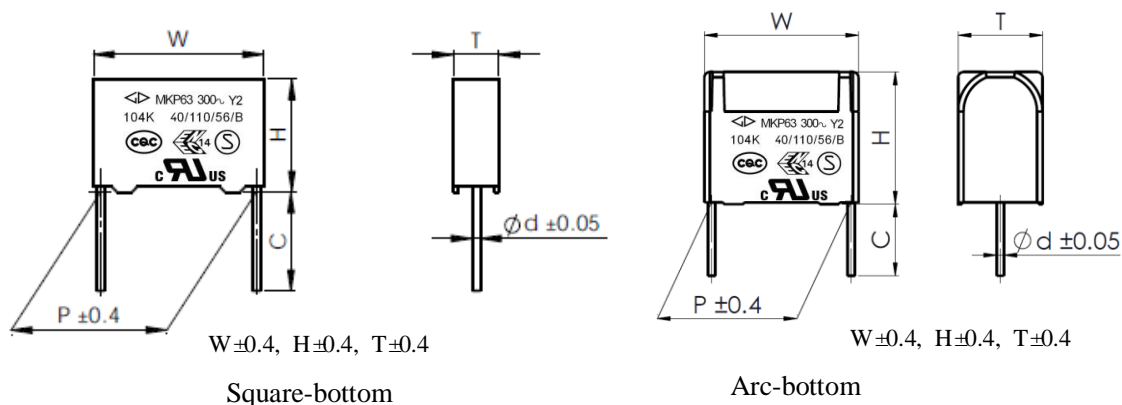
[www.faratronic.com](http://www.faratronic.com)

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**Version history**

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

**Metallized polypropylene film interference suppression capacitor (Class Y2, 300Vac)**
**Outline Drawing**

**Features**

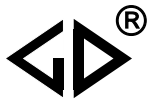
- Withstanding overvoltage stressing
- Excellent active and passive flame resistant abilities
- Widely used in across-the-line, line-by-pass, antenna Coupling interference suppression circuit, etc.

**Safety Approvals**

|   |  |            |   |
|---|--|------------|---|
| ● |  | CQC        | IEC 60384-14:2005, Y2, 300Vac, 0.001 $\mu$ F~1.0 $\mu$ F, 40/110/56/B<br>Certificate No.: CQC04001009958                |
| ● |  | ENEC-SEMKO | EN 60384-14:2013, Y2, 300Vac, 0.001 $\mu$ F~1.0 $\mu$ F, 40/110/56/B<br>Certificate No.: SE/0366-2C                     |
| ● |  | UL/CUL     | UL60384-14:2014, CSA E60384-14:09, Y2, 300Vac, 0.001 $\mu$ F~1.0 $\mu$ F, 40/110/56/B<br>File No.: E186600, CN: FOWX2/8 |
| ● |  | KC         | K60384-14(2006-12), Y2, 300Vac, 0.001 $\mu$ F~0.10 $\mu$ F, 40/110/56/B<br>Certificate No.: SU03060-12005               |

**Specifications**

|   |  |   |
|---|--|---|
| Class   | Class Y2   |   |
| Climatic Category / Passive Flammability Category | 40/110/56/B  |   |
| Operating Temperature Range                       | -40°C ~ +110°C   |   |
| Rated Voltage ( $U_R$ )                           | 300Vac, 50/60Hz  |   |
| Maximum continuous DC voltage                     | 1 500Vdc   |   |
| Capacitance Range                                 | 0.0010 $\mu$ F~1.0 $\mu$ F   |   |
| Capacitance Tolerance                             | $\pm 10\%$ (K), $\pm 20\%$ (M)   |   |
| Voltage Proof                                     | Between Terminals:   | 2 000Vac(2s) or 4 000Vdc(2s) $C_N \leq 0.33\mu F$<br>3 700Vdc(2s) $C_N > 0.33\mu F$ |
|   | Between Terminals To Case:   | 2 500Vac(1min)  |
| Insulation Resistance                             | $R \geq 15\ 000M\Omega$ , $C_N \leq 0.33\mu F$<br>$RC_N \geq 5\ 000s$ , $C_N > 0.33\mu F$ (20°C, 100V, 1min) |   |
| Dissipation Factor                                | $\leq 30 \times 10^{-4}$ (1kHz, 20°C)  | $\leq 40 \times 10^{-4}$ (10kHz, 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 | 3 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |

Digit 1 to 3 Series code

C43=MKP63

Digit 4 to 5 A.C. rated voltage

Q1=300V

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=10mm 6=15mm

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

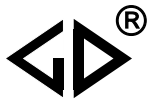
Digit 11 Internal use

Digit 12 to 15 Lead form and packaging code

Digit 16 to 18 Internal use

**Table 1 Lead form and packaging code**

| Digit 12 |  | Digit 13             |                                  | Digit 14  |  | Digit 15 |  |
|----------|--|----------------------|----------------------------------|---|--|----------|--|
| code     | explanation                                      | code                 | explanation                      | code  | explanation  | code     | explanation  |
| A        | ammo-pack  | 3<br>4<br>6          | F=7.5mm<br>F=10.0mm<br>F=15.0mm  | 0   | Straight   | 1<br>5   | each cap. among two consecutive holes<br>P3=12.7mm,H=18.5mm (For P=7.5mm)<br>P3=25.4mm;H=18.5mm (For pitch=10/15mm)<br>(Detail parameter refer to page 11) |
| C        | straight lead<br>"C" in the<br>figure above      | code                 | explanation                      |   |  | 0<br>2   | Length tolerance ±0.5mm or standard length<br>Length tolerance ±0.3mm  |
|          |  | 00                   | standard lead length (18mm~26mm) |   |  |          |  |
|          |  | 45                   | lead length 4.5mm                |   |  |          |  |
|          |  | 35                   | lead length 3.5mm                |   |  |          |  |
|          |  | 32                   | lead length 3.2mm                |   |  |          |  |
| D        | Insulated<br>stranded leads                      | C5<br>K0<br>K2<br>L0 | 35mm<br>100mm<br>120mm<br>200mm  | Note 1: This length<br>includes the stripping<br>parts. | Note 2: Normally, for<br>P ≥ 27.5 Caps can<br>choice Insulated<br>leads. | 1        | Length tolerance -5 mm~0 mm  |
| E        | Insulated<br>solid leads                         |                      |                                  |   |  | 2        | Length tolerance 0 mm~+5 mm  |
| M        | Insulated leads<br>and box with<br>mounting foot |                      |                                  |   |  | 3        | Length tolerance 0 mm~+10mm  |
|          |  |                      |                                  |   |  | 4        | Length tolerance ±5 mm   |



■ Dimensions(mm)

| 300Vac                 |           |           |           |           |     |                    |
|------------------------|-----------|-----------|-----------|-----------|-----|--------------------|
| C <sub>N</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 | C43Q1102-30****+++ |
| 0.0012                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C43Q1122-30****+++ |
| 0.0015                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C43Q1152-30****+++ |
| 0.0018                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C43Q1182-30****+++ |
| 0.0022                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C43Q1222-30****+++ |
| 0.0027                 | 10.5      | 9.0       | 4.0       | 7.5       | 0.6 | C43Q1272-30****+++ |
| 0.0033                 | 10.5      | 11.0      | 5.0       | 7.5       | 0.6 | C43Q1332-30****+++ |
| 0.0039                 | 10.5      | 11.0      | 5.0       | 7.5       | 0.6 | C43Q1392-30****+++ |
| 0.0047                 | 10.5      | 12.0      | 6.0       | 7.5       | 0.6 | C43Q1472-30****+++ |
| 0.0056                 | 10.5      | 12.0      | 6.0       | 7.5       | 0.6 | C43Q1562-30****+++ |
| 0.0010                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1102-40****+++ |
| 0.0012                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1122-40****+++ |
| 0.0015                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1152-40****+++ |
| 0.0018                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1182-40****+++ |
| 0.0022                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1222-40****+++ |
| 0.0027                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1272-40****+++ |
| 0.0033                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1332-40****+++ |
| 0.0039                 | 13.0      | 9.0       | 4.0       | 10.0      | 0.6 | C43Q1392-40****+++ |
| 0.0047                 | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C43Q1472-40****+++ |
| 0.0056                 | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C43Q1562-41****+++ |
| 0.0068                 | 13.0      | 11.0      | 5.0       | 10.0      | 0.6 | C43Q1682-41****+++ |
| 0.0068                 | 13.0      | 7.5       | 9.5       | 10.0      | 0.6 | C43Q1682-40****+++ |
| 0.0082                 | 13.0      | 12.0      | 6.0       | 10.0      | 0.6 | C43Q1822-40****+++ |
| 0.010                  | 13.0      | 12.0      | 6.0       | 10.0      | 0.6 | C43Q1103-40****+++ |
| 0.015                  | 13.0      | 12.0      | 6.0       | 10.0      | 0.6 | C43Q1153-4S****+++ |
| 0.0022                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1222-60****+++ |
| 0.0027                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1272-61****+++ |
| 0.0033                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1332-61****+++ |
| 0.0039                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1392-61****+++ |
| 0.0047                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1472-61****+++ |
| 0.0056                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1562-61****+++ |
| 0.0068                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1682-61****+++ |
| 0.0082                 | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1822-61****+++ |
| 0.010                  | 17.5      | 9.5       | 5.0       | 15.0      | 0.6 | C43Q1103-6S****+++ |
| 0.012                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.6 | C43Q1123-6S****+++ |
| 0.015                  | 17.5      | 11.0      | 5.0       | 15.0      | 0.6 | C43Q1153-6S****+++ |
| 0.018M                 | 17.5      | 11.0      | 5.0       | 15.0      | 0.6 | C43Q1183M6S****+++ |
| 0.018K                 | 17.5      | 12.0      | 6.0       | 15.0      | 0.6 | C43Q1183K6S****+++ |
| 0.022                  | 17.5      | 12.0      | 6.0       | 15.0      | 0.6 | C43Q1223-6S****+++ |
| 0.027M                 | 17.5      | 12.0      | 6.0       | 15.0      | 0.6 | C43Q1273M6S****+++ |
| 0.027K                 | 17.5      | 12.0      | 7.0       | 15.0      | 0.6 | C43Q1273K6S****+++ |
| 0.033                  | 17.5      | 13.5      | 7.5       | 15.0      | 0.6 | C43Q1333-6S****+++ |
| 0.033                  | 17.5      | 12.5      | 9.0       | 15.0      | 0.6 | C43Q1333-6A****+++ |
| 0.039                  | 17.5      | 13.5      | 7.5       | 15.0      | 0.6 | C43Q1393-6S****+++ |
| 0.039                  | 17.5      | 12.5      | 9.0       | 15.0      | 0.6 | C43Q1393-6A****+++ |
| 0.047                  | 17.5      | 14.5      | 8.5       | 15.0      | 0.6 | C43Q1473-6S****+++ |
| 0.047                  | 17.5      | 12.0      | 13.0      | 15.0      | 0.8 | C43Q1473-6C****+++ |
| 0.056                  | 17.5      | 16.0      | 10.0      | 15.0      | 0.8 | C43Q1563-6S****+++ |
| 0.068                  | 17.5      | 16.0      | 10.0      | 15.0      | 0.8 | C43Q1683-6S****+++ |
| 0.082                  | 17.5      | 19.0      | 11.0      | 15.0      | 0.8 | C43Q1823-6S****+++ |
| 0.033                  | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C43Q1333-90****+++ |
| 0.039                  | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C43Q1393-90****+++ |
| 0.047                  | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C43Q1473-9S****+++ |
| 0.056                  | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C43Q1563-9S****+++ |
| 0.068M                 | 26.5      | 15.0      | 6.0       | 22.5      | 0.8 | C43Q1683M9S****+++ |
| 0.068K                 | 26.5      | 16.0      | 7.0       | 22.5      | 0.8 | C43Q1683K9S****+++ |
| 0.082                  | 26.5      | 16.0      | 7.0       | 22.5      | 0.8 | C43Q1823-9S****+++ |

| 300Vac                 |           |           |           |           |     |                    |
|------------------------|-----------|-----------|-----------|-----------|-----|--------------------|
| C <sub>N</sub><br>(μF) | W<br>±0.4 | H<br>±0.4 | T<br>±0.4 | P<br>±0.4 | d   | Part number        |
| 0.10                   | 26.5      | 17.0      | 8.5       | 22.5      | 0.8 | C43Q1104-9S****+++ |
| 0.12                   | 26.5      | 17.0      | 8.5       | 22.5      | 0.8 | C43Q1124-9S****+++ |
| 0.15                   | 26.5      | 18.5      | 10.0      | 22.5      | 0.8 | C43Q1154-9S****+++ |
| 0.18                   | 26.5      | 20.0      | 11.0      | 22.5      | 0.8 | C43Q1184-9S****+++ |
| 0.22                   | 26.5      | 22.0      | 12.0      | 22.5      | 0.8 | C43Q1224-9S****+++ |
| 0.27                   | 26.5      | 23.0      | 13.5      | 22.5      | 0.8 | C43Q1274-9S****+++ |
| 0.33                   | 26.5      | 24.5      | 15.5      | 22.5      | 0.8 | C43Q1334-9S****+++ |
| 0.33                   | 26.5      | 29.5      | 14.5      | 22.5      | 0.8 | C43Q1334-9A****+++ |
| 0.39M                  | 26.5      | 29.5      | 14.5      | 22.5      | 0.8 | C43Q1394M9S****+++ |
| 0.10                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C43Q1104-B0****+++ |
| 0.12                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C43Q1124-B0****+++ |
| 0.15                   | 32.0      | 18.0      | 9.0       | 27.5      | 0.8 | C43Q1154-BS****+++ |
| 0.15                   | 32.0      | 12.0      | 18.0      | 27.5      | 0.8 | C43Q1154-BC****+++ |
| 0.18                   | 32.0      | 20.0      | 11.0      | 27.5      | 0.8 | C43Q1184-BS****+++ |
| 0.22                   | 32.0      | 20.0      | 11.0      | 27.5      | 0.8 | C43Q1224-BS****+++ |
| 0.22M                  | 32.0      | 12.0      | 18.0      | 27.5      | 0.8 | C43Q1224MBC****+++ |
| ★0.22K                 | 32.0      | 12.0      | 22.0      | 27.5      | 0.8 | C43Q1224KBC****+++ |
| 0.27M                  | 32.0      | 20.0      | 11.0      | 27.5      | 0.8 | C43Q1274MBS****+++ |
| 0.27K                  | 32.0      | 22.0      | 13.0      | 27.5      | 0.8 | C43Q1274KBS****+++ |
| 0.33M                  | 32.0      | 22.0      | 13.0      | 27.5      | 0.8 | C43Q1334MBS****+++ |
| 0.33K                  | 32.0      | 25.0      | 13.0      | 27.5      | 0.8 | C43Q1334KBS****+++ |
| 0.33K                  | 32.0      | 24.5      | 15.0      | 27.5      | 0.8 | C43Q1334KBA****+++ |
| ★0.33M                 | 32.0      | 12.0      | 22.0      | 27.5      | 0.8 | C43Q1334MBC****+++ |
| 0.39                   | 32.0      | 24.5      | 15.0      | 27.5      | 0.8 | C43Q1394-BA****+++ |
| 0.39                   | 32.0      | 28.0      | 14.0      | 27.5      | 0.8 | C43Q1394-BS****+++ |
| 0.47M                  | 32.0      | 24.5      | 15.0      | 27.5      | 0.8 | C43Q1474MBA****+++ |
| 0.47M                  | 32.0      | 28.0      | 14.0      | 27.5      | 0.8 | C43Q1474MBS****+++ |
| 0.47K                  | 32.0      | 30.0      | 16.0      | 27.5      | 0.8 | C43Q1474KBS****+++ |
| 0.47K                  | 32.0      | 28.0      | 17.0      | 27.5      | 0.8 | C43Q1474KBA****+++ |
| ★0.47                  | 32.0      | 16.0      | 27.5      | 27.5      | 0.8 | C43Q1474-BC****+++ |
| 0.56                   | 32.0      | 30.0      | 16.0      | 27.5      | 0.8 | C43Q1564-BS****+++ |
| 0.56                   | 32.0      | 28.0      | 17.0      | 27.5      | 0.8 | C43Q1564-BA****+++ |
| 0.68M                  | 32.0      | 29.0      | 19.0      | 27.5      | 0.8 | C43Q1684MBA****+++ |
| 0.68K                  | 32.0      | 30.0      | 21.0      | 27.5      | 0.8 | C43Q1684KBA****+++ |
| 0.68                   | 32.0      | 33.0      | 18.0      | 27.5      | 0.8 | C43Q1684-BS****+++ |
| ★0.68                  | 32.0      | 18.5      | 31.0      | 27.5      | 0.8 | C43Q1684-BC****+++ |
| ★0.82M                 | 32.0      | 18.5      | 31.0      | 27.5      | 0.8 | C43Q1824MBC****+++ |
| 0.82M                  | 32.0      | 33.0      | 18.0      | 27.5      | 0.8 | C43Q1824MBS****+++ |
| 0.82K                  | 32.0      | 37.0      | 22.0      | 27.5      | 0.8 | C43Q1824KBS****+++ |
| 1.0                    | 32.0      | 37.0      | 22.0      | 27.5      | 0.8 | C43Q1105-BS****+++ |
| 0.33                   | 41.0      | 22.0      | 11.0      | 37.5      | 1.0 | C43Q1334-FS****+++ |
| 0.39M                  | 41.0      | 22.0      | 11.0      | 37.5      | 1.0 | C43Q1394MFS****+++ |
| 0.39K                  | 41.0      | 24.0      | 13.0      | 37.5      | 1.0 | C43Q1394KFS****+++ |
| 0.47                   | 41.0      | 24.0      | 13.0      | 37.5      | 1.0 | C43Q1474-FS****+++ |
| 0.47                   | 42.0      | 15.0      | 24.0      | 37.5      | 1.0 | C43Q1474-FC****+++ |
| 0.56                   | 41.0      | 26.0      | 15.0      | 37.5      | 1.0 | C43Q1564-FS****+++ |
| 0.56                   | 42.0      | 28.0      | 14.0      | 37.5      | 1.0 | C43Q1564-FA****+++ |
| 0.68M                  | 41.0      | 26.0      | 15.0      | 37.5      | 1.0 | C43Q1684MFA****+++ |
| 0.68M                  | 42.0      | 28.0      | 14.0      | 37.5      | 1.0 | C43Q1684MFS****+++ |
| 0.68K                  | 41.0      | 30.0      | 16.0      | 37.5      | 1.0 | C43Q1684KFS****+++ |
| 0.68M                  | 42.0      | 15.0      | 24.0      | 37.5      | 1.0 | C43Q1684MFC****+++ |
| 0.82                   | 41.0      | 30.0      | 16.0      | 37.5      | 1.0 | C43Q1824-FS****+++ |
| 0.82                   | 42.0      | 19.0      | 24.0      | 37.5      | 1.0 | C43Q1824-FC****+++ |
| 1.0M                   | 41.0      | 32.0      | 17.0      | 37.5      | 1.0 | C43Q1105MFS****+++ |
| 1.0K                   | 41.0      | 33.5      | 18.5      | 37.5      | 1.0 | C43Q1105KFS****+++ |

- Note: 1. “-”=capacitance tolerance code, M=±20%,K=±10%  
 2. “\*\*\*\*”=lead form and packaging mode code (refer to table 1)  
 3. “★” = Arc bottom of the outer shell.

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

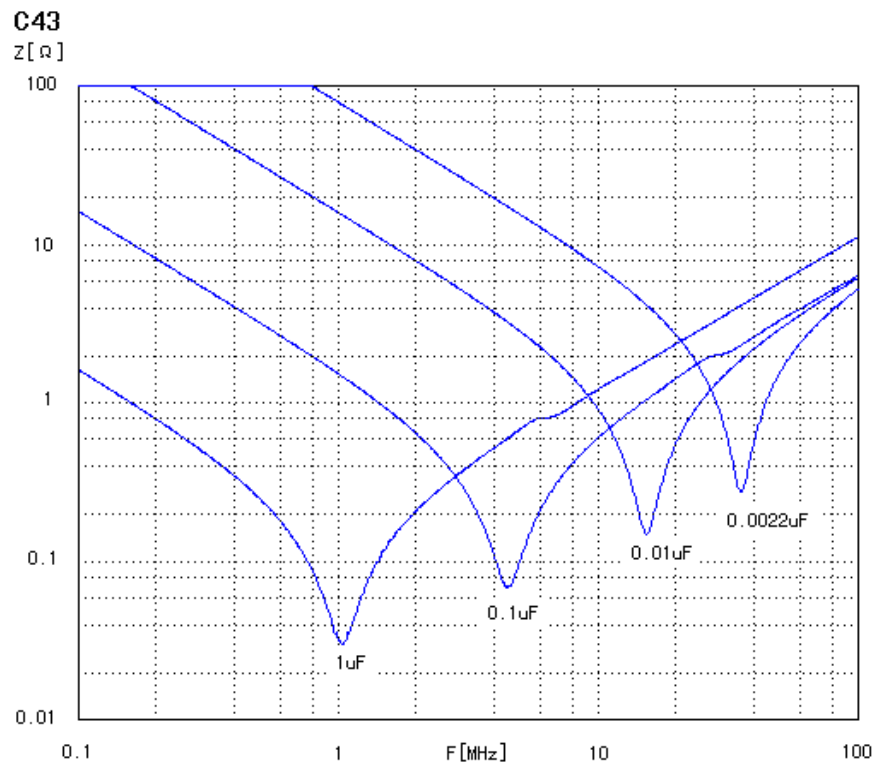
| Rated Voltage (Vac) | Max dV/dt(V/us) at 425Vdc |        |        |          |          |          |
|---------------------|---------------------------|--------|--------|----------|----------|----------|
|                     | P=7.5mm                   | P=10mm | P=15mm | P=22.5mm | P=27.5mm | P=37.5mm |
| 300                 | 800                       | 800    | 600    | 500      | 400      | 300      |

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/T 2828.1, ISO2859-1) |       |
|------------------------------|---|-------|
|                              | 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%  |

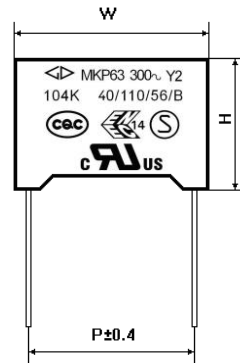
**■ Test Method And Performance**

| No. | Item                                      | Performance   | Test Method<br>(IEC 60384-14)   |
|-----|---|---|---|
| 1   | 4.5 Solderability                         | Good quality of tinning   | Solder temperature: 245°C ±5°C<br>Immersion time: 2.0s±0.5s   |
| 2   | 4.3<br>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   | 4.4<br>Resistance to solder heat          | There shall be no visible damage<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value) | Solder temperature: 260°C ±5°C<br>Immersion time: 10s ±1s   |
| 4   | 4.20<br>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   | 4.2 Initial measurement                   | Capacitance, Tgδ  |   |
|     | 4.6 Rapid change of temperature           | There shall be no evidence of deterioration.  | T <sub>A</sub> = -40°C, T <sub>B</sub> = +110°C 5 cycles<br>Duration: t = 30min   |
|     | 4.7 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.  |
|     | 4.8 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>$\Delta C/C \leq \pm 5\%$ (relative to the initial value) |   |
| 6   | 4.11<br>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>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of tgδ: ≤0.008 (10kHz)<br>Dielectric strength : there shall be no permanent breakdown or flashover<br>I.R.: ≥ 50% of the rated value |

| No. | Item                                | Performance   | Test Method<br>(IEC 60384-14)   |
|-----|-------------------------------------|---|---|
| 7   | 4.12<br>Damp heat<br>steady state   | There shall be no visible damage,<br>legible marking<br>$\Delta C/C \leq \pm 5\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta: \leq 0.008$ (10kHz)<br>Dielectric strength : there shall be no<br>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: $93 \pm 3\% \text{RH}$<br>Duration: 56 days  |
| 8   | 4.13<br>Impulse voltage             | There are three or more waveforms<br>which indicate that no self-heating<br>breakdown have occurred when it is<br>monitored by the monitor  | Each individual capacitor shall be<br>subjected to 24 impulses of the same<br>polarity (when any three successive<br>impulses are shown by the monitor to<br>have a wave form indicating that no<br>self-healing breakdown have taken<br>place the impulses can be stopped), the<br>time between impulses shall not be less<br>than 10s, and the peak value of the<br>voltage impulse: 5.0kV  |
| 9   | 4.14 Endurance                      | There shall be no visible damage, legible<br>marking<br>$\Delta C/C \leq \pm 10\%$ (relative to the initial value)<br>Increase of $\text{tg}\delta: \leq 0.008$ (10kHz)<br>Dielectric strength : There shall be no<br>breakdown or flashover<br>I.R. : $\geq 50\%$ of the rated value         | $+110^\circ\text{C}$ ,<br>$1.7U_R \text{V a.c.}$<br>1 000h<br>The voltage shall be subjected to<br>1 000Vrms for 0.1s every one hour<br>during test.  |
| 10  | 4.15<br>Charging and<br>discharging | $\Delta C/C \leq \pm 10\%$ (relative to the initial<br>value)<br>Increase of $\text{tg}\delta$ :<br>$C_N \leq 1\mu\text{F}: \leq 0.008$ (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: $\sqrt{2} U_R \text{V d.c.}$<br>Charging resistance: $220/C_N(\Omega)$ or the<br>current $\leq 1.0\text{A}$ (whichever is the<br>minor)<br>Discharging resistance:<br>$R = \frac{\sqrt{2}U_R}{C_N \times \frac{dU}{dt}} (\Omega)$<br>$C_N$ : Capacitance ( $\mu\text{F}$ )<br>$dU/dt(\text{V}/\mu\text{s})$ : 100V/ $\mu\text{s}$ |
| 11  | 4.17<br>Passive<br>flammability     | The flaming time of each capacitor shall<br>not go beyond 10s after it is taken apart<br>from the flame.<br>Drop of each capacitor caused by flame<br>shall not fire the tissue below.  | Needle flame test<br>The category of flammability: B<br>Expose time: 1 time<br>Capacitor Volume Exposing time<br>$250 < V(\text{mm}^3) \leq 500$ 20s<br>$500 < V(\text{mm}^3) \leq 1750$ 30s<br>$V(\text{mm}^3) > 1750$ 60s   |



| No. | Item                        | Performance  | Test Method<br>(IEC 60384-14)  |
|-----|-----------------------------|--|--|
| 12  | 4.18<br>Active flammability | The cheese cloth around the capacitor shall not burn with a flame. | <p>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.</p> <p>Each sample shall be subjected to 20 discharges, the interval between successive discharges shall be <math>5_0^{+1}</math> s.</p> <p><math>U_i = 5.0kV_0^{+7}\%</math></p> <p>Throughout the test, the <math>U_R \pm 5\%</math> shall be applied across the capacitor under test and shall be maintained for <math>120_0^{+10}</math> s after the last discharge, unless a blown fuse cause an open circuit.</p> |

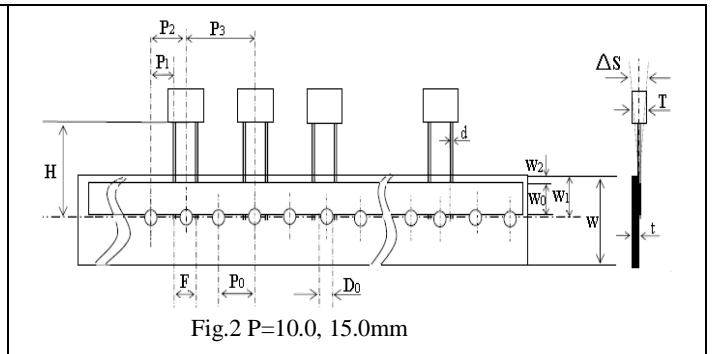
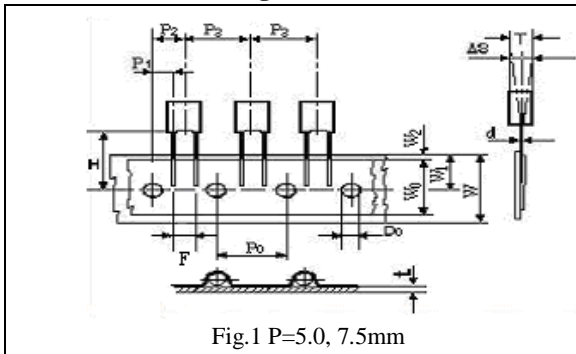
**■ Marking**


Marking Introduction:

| Sign  | explain                         | Sign        | explain                                       |
|-------|---------------------------------|-------------|---|
|       | Brand                           | 40/110/56/B | Climate category / Passive Flammability Class |
| MKP63 | Type                            |             | CQC Approval                                  |
| Y2    | Class                           |             | ENEC-SEMKO Approval                           |
| 300~  | Rated voltage                   |             | UL & CUL Approval                             |
| 104K  | Rated capacitance and tolerance |             |   |

## ■ Taping specification for box-type capacitors

### ▲ 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   | ±0.3         |
| 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       | 10min | 10min  | 10min  | —            |
| Hole position                        | W <sub>1</sub> | 9.0        | 9.0   | 9.0    | 9.0    | ±0.5         |
| Hold down tape sition                | W <sub>2</sub> | 3max       | 3max  | 3max   | 3max   | —            |
| 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    | 0.7    | ±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               | 1 350  |
|               | 5.0                 | 1 200               | 1 050  |
|               | 6.0                 | 1 000               | 850    |
| 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                 | 220    |

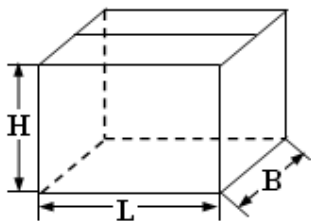
**Note:** \* P<sub>0</sub>=15mm is also available;

\*\*F can be other lead spacing;

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

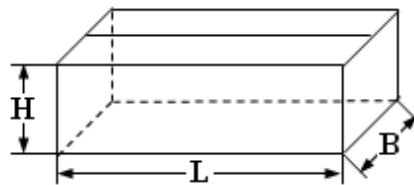
## ■ Packing box sizes(mm)

### 1. Out packing box for bulk



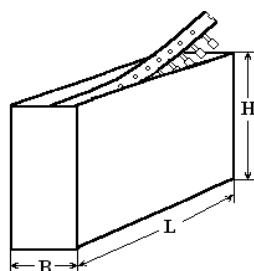
L:375±5  
B:375±5  
H:265±5

### 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

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