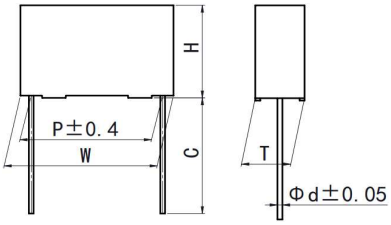
## Version history

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

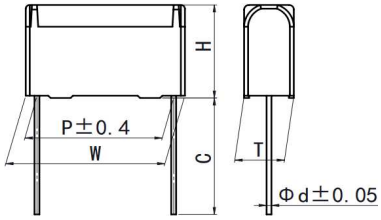
# Metallized polypropylene film interference suppression capacitor (Class X2, THB Version) (Temperature Humidity Bias series)

## ■ Outline Drawing




W±0.4, H±0.4, T±0.4

Square-bottom




W±0.4, H±0.4, T±0.4

Arc-bottom

## ■ Features

●High stability of capacitance under severe ambient condition, such as high temperature and high humidity

●Good self-healing properties, withstanding surge voltage stressing

●Excellent active and passive flame resistant abilities

## ■ Applications

●For connection in series with the mains

●For capacitive divider power supply

●Such as power meter, LED driver, and other severe ambient condition applications.

## ■ Specifications

| | | | |
|---|---|---|---|
| Reference Standard | GB/T 6346.14 (IEC60384-14) | | |
| Safety Approvals | CQC03001002875; ENEC-VDE:40000358;<br>UL-CUL: E186600, CCN: FOWX2/8 | | |
| Class | Class X2 | | |
| Climatic Category /<br>Passive Flammability Category | 40/110/56/B | | |
| Operating Temperature Range | -40℃ ~ +110℃ | | |
| Rated Voltage ($U_R$) | 305Vac/275Vac, 50/60Hz | | |
| Capacitance Range | 0.010μF ~ 15μF | | |
| Capacitance Tolerance | ±10%(K) , ±20%(M) | | |
| Voltage Proof | Between Terminals: | | 4.3$U_R$(dc), 2s |
| | Between Terminals To Case: | | 2 120Vac, 1min |
| Insulation Resistance | R≥15 000MΩ , CN≤0.33μF<br>RCN≥5 000s, CN>0.33μF | (20℃, 100V, 1min) | |
| Dissipation Factor | CN≤1.0μF | ≤$10\times10^{-4}$(1kHz,20℃) | ≤$20\times10^{-4}$(10kHz,20℃) |
| | CN>1.0μF | ≤$20\times10^{-4}$(1kHz,20℃) | ≤$40\times10^{-4}$(10kHz,20℃) |
| THB test (Damp heat test with loading) | Temperature: 85℃±2℃; Humidity: 85%RH±2% RH<br>Voltage: 240Vac 50Hz; Duration: 1 000 hours<br>Capacitance change (ΔC/C): ≤10%<br>Dissipation factor change (Δtan δ): ≤0.5% (1kHz) | | |

| | |
|---|---|
| | Insulation resistance: ≥50% of the rated value |

Note: 1.Recommend for max rated supply mains voltage 250Vac application;
2. If used in application which has ripple current applied, recommend to use AC filter series: C6A etc. If have any questions please contact our technical engineer for more detail.

## ■ 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 | 4 | 2 | | | | | | | | W | | | | |

Digit 1 to 3 Series code

C42=MKP62

Digit 4 to 5 A.C. rated voltage

Q2=305V P2=275V

Digit 6 to 8 Rated capacitance value

For example : 474=47×$10^4$ pF=0.47uF

Digit 9 Capacitance tolerance

K=±10% M=±20%

Digit 10 Pitch

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

**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 | 6 | F=15.0mm | 0 | straight | 5 | P3=25.4mm;H=18.5mm (For pitch=10/15mm) |
| C | straight lead "C" in the figure above | Code | explanation | | | 0 | Length tolerance ±0.5mm Or standard length |
| | | 00 | standard lead length (18mm~26mm) | | | 2 | Length tolerance ±0.3mm |
| | | 45 | lead length 4.5mm | | | | |
| | | 35 | lead length 3.5mm | | | | |
| | | 32 | lead length 3.2mm | | | | |
| Note: Recommend short lead due to long lead could deform easily. | | | | | | | |

■ Dimensions(mm)

| 305Vac/275Vac# | | | | | | |
|---|---|---|---|---|---|---|
| $C_N$ (μF) | W | H | T | P | d | Part number |
| 0.010 | 17.5 | 11.0 | 5.0 | 15.0 | 0.6 | C42Q2103-6W**** |
| 0.015 | 17.5 | 11.0 | 5.0 | 15.0 | 0.6 | C42Q2153-6W**** |
| 0.022 | 17.5 | 11.0 | 5.0 | 15.0 | 0.6 | C42Q2223-6W**** |
| 0.033 | 17.5 | 11.0 | 5.0 | 15.0 | 0.6 | C42Q2333-6W**** |
| 0.047 | 17.5 | 11.0 | 5.0 | 15.0 | 0.6 | C42Q2473-6W**** |
| 0.068 | 17.5 | 11.0 | 5.0 | 15.0 | 0.6 | C42Q2683-6W**** |
| 0.10 | 17.5 | 12.0 | 6.0 | 15.0 | 0.6 | C42Q2104-6W**** |
| 0.15 | 17.5 | 13.5 | 7.5 | 15.0 | 0.6 | C42Q2154-6W**** |
| 0.22 | 17.5 | 14.5 | 8.5 | 15.0 | 0.8 | C42Q2224-6W**** |
| 0.27 | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C42Q2274-6W**** |
| 0.33 | 17.5 | 16.0 | 10.0 | 15.0 | 0.8 | C42Q2334-6W**** |
| 0.39 | 17.5 | 19.0 | 11.0 | 15.0 | 0.8 | C42Q2394-6W**** |
| 0.47 | 17.5 | 19.0 | 11.0 | 15.0 | 0.8 | C42Q2474-6W**** |
| 0.10 | 26.5 | 15.0 | 6.0 | 22.5 | 0.6 | C42Q2104-9W**** |
| 0.15 | 26.5 | 15.0 | 6.0 | 22.5 | 0.6 | C42Q2154-9W**** |
| 0.22 | 26.5 | 15.0 | 6.0 | 22.5 | 0.6 | C42Q2224-9W**** |
| 0.27 | 26.5 | 16.0 | 7.0 | 22.5 | 0.6 | C42Q2274-9W**** |
| 0.33 | 26.5 | 16.0 | 7.0 | 22.5 | 0.6 | C42Q2334-9W**** |
| 0.39 | 26.5 | 17.0 | 8.5 | 22.5 | 0.8 | C42Q2394-9W**** |
| 0.47 | 26.5 | 17.0 | 8.5 | 22.5 | 0.8 | C42Q2474-9W**** |
| 0.56 | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C42Q2564-9W**** |
| 0.68 | 26.5 | 18.5 | 10.0 | 22.5 | 0.8 | C42Q2684-9W**** |
| 0.82 | 26.5 | 20.0 | 11.0 | 22.5 | 0.8 | C42Q2824-9W**** |
| 1.0 | 26.5 | 22.0 | 12.0 | 22.5 | 0.8 | C42Q2105-9W**** |
| 1.2 | 26.5 | 24.5 | 15.5 | 22.5 | 0.8 | C42Q2125-9W**** |
| 1.5 | 26.5 | 24.5 | 15.5 | 22.5 | 0.8 | C42Q2155-9W**** |

| 305Vac/275Vac# | | | | | | |
|---|---|---|---|---|---|---|
| $C_N$ (μF) | W | H | T | P | d | Part number |
| 0.47 | 32.0 | 18.0 | 9.0 | 27.5 | 0.8 | C42Q2474-BW*** |
| 0.56 | 32.0 | 18.0 | 9.0 | 27.5 | 0.8 | C42Q2564-BW*** |
| 0.68 | 32.0 | 18.0 | 9.0 | 27.5 | 0.8 | C42Q2684-BW*** |
| 0.82 | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C42Q2824-BW*** |
| 1.0 | 32.0 | 20.0 | 11.0 | 27.5 | 0.8 | C42Q2105-BW*** |
| 1.2 | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C42Q2125-BW*** |
| 1.5 | 32.0 | 22.0 | 13.0 | 27.5 | 0.8 | C42Q2155-BW*** |
| 2.2 | 32.0 | 28.0 | 14.0 | 27.5 | 0.8 | C42Q2225-BW*** |
| 2.7 | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C42Q2275-BW*** |
| 3.3 | 32.0 | 33.0 | 18.0 | 27.5 | 0.8 | C42Q2335-BW*** |
| ★3.9 | 32.0 | 37.0 | 22.0 | 27.5 | 0.8 | C42Q2395-BW*** |
| ★4.7 | 32.0 | 37.0 | 22.0 | 27.5 | 0.8 | C42Q2475-BW*** |
| ★2.2 | 41.0 | 26.0 | 12.0 | 37.5 | 1.0 | C42Q2225-FW*** |
| ★2.7 | 41.0 | 28.0 | 14.0 | 37.5 | 1.0 | C42Q2275-FW*** |
| 3.3 | 41.0 | 30.0 | 16.0 | 37.5 | 1.0 | C42Q2335-FW*** |
| ★3.9 | 41.0 | 32.0 | 17.0 | 37.5 | 1.0 | C42Q2395-FW*** |
| 4.7 | 41.0 | 33.5 | 18.5 | 37.5 | 1.0 | C42Q2475-FW*** |
| 5.6 | 41.0 | 34.0 | 20.0 | 37.5 | 1.0 | C42Q2565-FW*** |
| 6.8 | 41.0 | 37.0 | 22.0 | 37.5 | 1.0 | C42Q2685-FW*** |
| 8.2 | 41.0 | 37.0 | 26.0 | 37.5 | 1.0 | C42Q2825-FW*** |
| 10M | 41.0 | 41.0 | 26.0 | 37.5 | 1.0 | C42Q2106MFW** |
| ★10K | 41.0 | 43.0 | 28.0 | 37.5 | 1.0 | C42Q2106KFW*** |
| ★12 | 42.0 | 45.0 | 30.0 | 37.5 | 1.0 | C42Q2126-FW*** |
| ★15 | 42.0 | 50.0 | 30.0 | 37.5 | 1.0 | C42Q2156-FW*** |

Note: 1. "-" =capacitance tolerance code, K=±10%, M=±20%
2. " ****" =lead form and packing code (refer to table 1)
3. "#" when the rated voltage is 275Vac,the digit 4~5 is P2.
4. If used in the 380Vac, Pls refer to MKP65. Pls contact our technical engineer for more details.
5. "★" = Arc-bottom of the outer shell.

## ■ Test Method And Performance (IEC 60384-14)

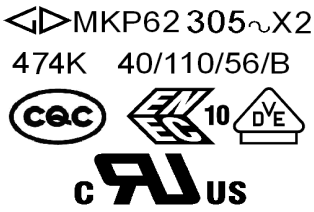
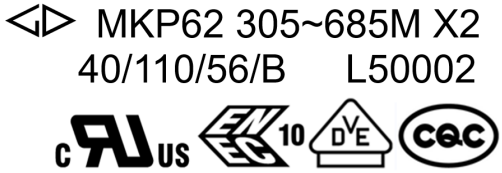
| Group | Item | | Conditions of test | Performance requirements |
|---|---|---|---|---|
| A1 | 4.1 Visual examination | | Dimensions: gauging by vernier caliper | No visible damage & legible marking |
| | 4.1Dimensions(Gauging) | | | Fit detail specification |
| A2 | 4.2.2 Capacitance | | Measuring frequency:<br>Capacitance: 1kHz<br>Tangent of loss angle:<br>CN≤1μF: 10kHz; CN＞1μF: 1kHz<br>Voltage proof between terminals:<br>4.3UR(d.c.), 1min<br>IR. test voltage: 100Vd.c. | Within specified tolerance |
| | 4.2.3<br>Tangent of loss angle | | | |
| | 4.2.1 Voltage proof | | | No permanent breakdown or flashover |
| | 4.2.5<br>Insulation Resistance | | | I.R.:≥the rated value |
| B1 | 4.5 Solderability | | Methods: Groove welding Ta, Method 1<br>Solder temperature: 245℃±5℃<br>Immersion time: 2.0s±0.5s | Good quality of tinning |
| C1A | Initial measurement | 4.1Visual examination | Dimensions: gauging by vernier caliper<br>Measuring frequency:<br>Capacitance: 1kHz<br>Tangent of loss angle:<br>$C_N$≤1μF: 10kHz; $C_N$＞1μF: 1kHz | No visible damage & legible marking |
| | | 4.1Dimensions(Gauging) | | Fit detail specification |
| | | 4.2.2Capacitance | | Within specified tolerance |
| | | 4.2.3Tangent of loss angle | | |
| | 4.1.1<br>Creepage distances and Clearances | | Gauging by vernier caliper | Creepage distances≥4.0mm<br>Clearances≥3.0mm |
| | 4.3<br>Robustness of Terminations<br>(straight lead) | | Tense: 0.50＜d≤0.80, 10N<br>0.80＜d≤1.25, 20N<br>Ub bending test:<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 | No visible damage |
| | 4.4<br>Resistance to Soldering heat | | Capacitors are not pre-dried<br>Groove Method Tb, Method 1A<br>Solder temperature: 260℃±5℃<br>Immersion time: 10s±1s | No visible damage & legible marking |
| | 4.19 Component solvent resistance | | Solvent: industrial isopropyl<br>Solvent temperature:23℃±5℃<br>Dipping time:5min±0.5min<br>Method 2: (without Sassafras test)<br>Recovery time: 48h | Comply with the specifications in the product size table |
| | Final measurement | | Appearance inspection<br>Cap. measuring frequency: 1kHz<br>Tangent of loss angle:<br>CN≤1μF: 10kHz; CN＞1μF: 1kHz | No visible damage<br>Cap.: \|ΔC\|/C≤5%<br>Tangent of loss angle:<br>CN≤1μF: ≤0.008 (10kHz)<br>CN＞1μF: ≤0.005 (1kHz) |

| Group | Item | | Conditions of test | Performance requirements |
|---|---|---|---|---|
| C1B | Initial measurement | 4.1Visual examination | Dimensions: gauging by vernier caliper<br>Measuring frequency:<br>Capacitance: 1kHz<br>Tangent of loss angle:<br>$C_N \leqslant 1\mu F$: 10kHz; $C_N > 1\mu F$: 1kHz | No visible damage & legible marking |
| | | 4.1Dimensions(Gauging) | | Fit detail specification |
| | | 4.2.2Capacitance | | Within specified tolerance |
| | | 4.2.3Tangent of loss angle | | |
| | 4.5 Solderability | | Methods: Groove welding Ta, Method 1<br>Solder temperature: 245℃±5℃<br>Immersion time: 2.0s±0.5s | Good quality of tinning |
| | 4.20<br>Solvent resistance of the marking | | Solvent: Industrial isopropanol.<br>Solvent temperature:23℃±5℃<br>Dipping time: 5min±0.5min<br>Condition: scrub<br>Scrub material: absorbent cotton<br>Reverting time: No | The marking shall be legible |
| | 4.6 Rapid change of temperature | | $T_A$=-40℃, $T_B$=+110℃<br>5 cycles, Duration: t=30min | No visible damage |
| | 4.7 Vibration (straight lead) | | Amplitude 0.75mm or acceleration 98m/s$^2$ (whichever is the smaller severity),<br>f: 10Hz to 500Hz.Three directions,<br>2h for each direction, total 6h. | No visible damage |
| | 4.8 Bump (straight lead) | | 4 000 times, Acceleration: 400m/s$^2$,<br>Pulse duration, 6ms | No visible damage |
| | Final measurement | | Appearance inspection<br>Cap. measuring frequency: 1kHz | No visible damage<br>Cap.: \|ΔC\|/C≤5% |
| C1 | 4.11 Climatic sequence | Initial measurement | According to the conditions of Group C1A and C1B | According to the requirements of Group C1A and C1B |
| | | Dry heat | +110℃, 16h | No visible damage & legible marking |
| | | Damp heat, Cyclic | Test Db, Severity: b, the first cycle<br>Temperature: +55℃, 24h each cycle,<br>Method 2 | |
| | | Cold | -40℃, 2h | |
| | | Damp heat, Cyclic | Test Db, Severity b, the other cycles<br>Temperature: +55℃, 24h each cycle,<br>Method 2 | |
| | | Final measurement | Measuring frequency:<br>Capacitance: 1kHz<br>Tangent of loss angle:<br>$C_N \leqslant 1\mu F$: 10kHz; $C_N > 1\mu F$: 1kHz<br>Voltage proof between terminals:<br>$4.3U_R$(d.c.),1min<br>Voltage proof between terminal and housing: 2UR+1500V(a.c.),1min<br>Insulation resistance test voltage: 100Vd.c. | Cap.: \|ΔC\|/C≤5%<br>Increase of tgδ:<br>$C_N \leqslant 1\mu F$: ≤0.008 (10kHz)<br>$C_N > 1\mu F$: ≤0.005 (1kHz)<br>No permanent breakdown or flashover<br>I.R.:≥50% of the rated value |

| Group | Item | Conditions of test | Performance requirements |
|---|---|---|---|
| C2 | 4.12<br>Damp heat,<br>steady state | Temperature: 40℃ ±2℃<br>Humidity: 93±3%RH<br>Duration: 56 days | No visible damage & legible marking<br>Cap.: \|ΔC\|/C≤5%<br>Increase of tgδ:<br>$C_N$≤1μF: ≤0.008 (10kHz)<br>$C_N$>1μF: ≤0.005 (1kHz)<br>No permanent breakdown or flashover<br>I.R.:≥50% of the rated value |
| | Final measurement | Tangent of loss angle:<br>CN≤1μF: 10kHz; CN>1μF: 1kHz<br>Voltage proof between terminals:<br>4.3UR(d.c.),1min<br>Voltage proof between terminal and housing: 2UR+1500V(a.c.),1min<br>Insulation resistance test voltage: 100Vd.c. | |
| C3 | Initial measurement | Measuring frequency capacitance: 1kHz<br>Tangent of loss angle:<br>CN≤1μF: 10kHz; CN>1μF: 1kHz<br>Insulation resistance test voltage: 100Vd.c. | Within specified tolerance |
| | 4.13<br>Impulse voltage | Each individual capacitor shall be subjected to 24 impulses of the same polarity, the time between impulses shall not be less than 10S, and the peak value of the voltage impulse: 2.5kV<br>(suitable for $C_N$ ≤1μF; When $C_N$>1μF, the capacitor can endure pulse voltage value is $2.5/\sqrt{C_N}$ kV) | There are three or more waveforms which indicate that no self-heating breakdown have occurred when it is monitored by the monitor<br>(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<br>can be stopped) |
| | 4.14 Endurance | Temperature : +110℃<br>Duration : 1000h<br>Voltage: at 1.25 $U_R$ | No visible damage & legible marking<br>Cap.: \|ΔC\|/C≤10%<br>Increase of tgδ:<br>$C_N$≤1μF: ≤0.008 (10kHz)<br>$C_N$>1μF: ≤0.005 (1kHz)<br>No permanent breakdown or flashover<br>I.R.:≥50% of the rated value |
| | Final measurement | Tangent of loss angle:<br>CN≤1μF: 10kHz; CN>1μF: 1kHz<br>Voltage proof between terminals:<br>4.3UR(d.c.),1min<br>Voltage proof between terminal and housing: 2UR+1500V(a.c.),1min | |

| Group | Item | Conditions of test | Performance requirements |
|---|---|---|---|
| C4 | 4.15<br>Charging and discharging | Times: 10 000<br>Duration of charging: 0.5s<br>Duration of discharging: 0.5s<br>Charging voltage: $\sqrt{2}U_R$ Vd.c.<br>Charging resistance: 220/$C_N$(Ω) or the current ≤1.0A<br>(whichever is the minor)<br>Discharging resistance:<br>$R=\frac{\sqrt{2}U_R}{C_N\times\frac{dU}{dt}}(\Omega)$<br>$C_N$: Capacitance (μF)<br>dU/dt(V/us) : 100V/μs | Cap.: \|ΔC\|/C≤10%<br>Increase of tgδ:<br>$C_N$≤1μF: ≤0.008 (10kHz)<br>$C_N$>1μF: ≤0.005 (1kHz)<br>I.R.:≥50% of the rated value |
| C6 | 4.17<br>Passive flammability | Needle flame test<br>The category of flammability: B<br>Expose time: 1 time<br>Capacitor Volume Exposing time<br>250<V($mm^3$)≤500 20s<br>500<V($mm^3$)≤1750 30s<br>V($mm^3$)>1750 60s | 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. |
| C7 | 4.18<br>Active flammability | 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$^{+7}_{0}$ %<br>$U_R$ be applied and be maintained for 120$^{+10}_{0}$ s after the last discharge. | The cheese cloth around the capacitor shall not burn with a flame. |

■ Marking（For example）

| | |
|---|---|
|  <br>Fig.1 P≤27.5mm |  <br>Fig.2 P＞27.5mm |

Marking Introduction

| Sign | explain | Sign | explain |
|---|---|---|---|
|  | Brand |  | ENEC-VDE Approval |
| MKP62 | Type |  | CQC Approval |
| 305～ | Rated voltage |  | UL,CUL Approval |
| X2 | Class | 40/110/56/B | Climate category / Passive Flammability Class |
| 474K<br>685M | Rated capacitance and tolerance | L50002 | Lot No. |

## ■ Taping specification for box-type capacitors

### ▲ Outline Drawing

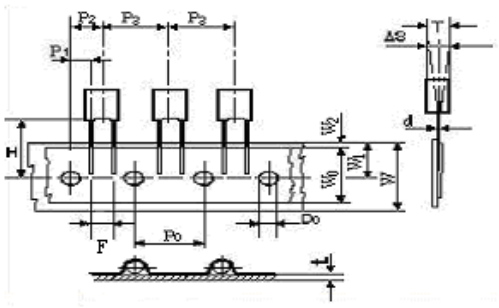



Fig.1 P=5.0, 7.5mm

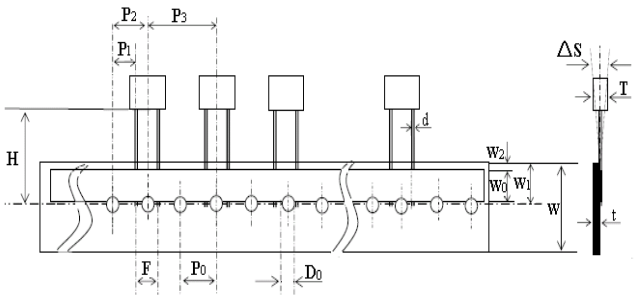



Fig.2 P=10.0, 15.0mm

### ▲ Taping Dimensions(mm)

| Technology index title | Code | Dimensions | | | | |
|---|---|---|---|---|---|---|
| | | P=5.0 | P=7.5 | P=10.0 | P=15.0 | Tolerance |
| Taping type | — | Fig 1 | Fig 1 | Fig2 | Fig 2 | —— |
| Part number Digit12-15 | Ammo-pack | A201 | A301 | A405 | A605 | |
| Taping pitch | $P_3$ | 12.7 | 12.7 | 25.4 | 25.4 | ±1.0 |
| Feed hole pitch | $P_0$ | 12.7 | 12.7 | 12.7 | 12.7 | ±0.3 |
| Center of wire | $P_1$ | 3.85 | 2.6 | 7.7 | 5.2 | ±0.7 |
| Center of body | $P_2$ | 6.35 | 6.35 | 12.7 | 12.7 | ±1.3 |
| Pitch of taping wire | F** | 5.0 | 7.5 | 10.0 | 15.0 | +0.6 -0.1 |
| Component alignment | △S | 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 -0.5 |
| Hold down tape width | $W_0$ | 6min | 10min | 10min | 10min | —— |
| Hole position | $W_1$ | 9.0 | 9.0 | 9.0 | 9.0 | ±0.5 |
| Hold down tape sition | $W_2$ | 3max | 3max | 3max | 3max | —— |
| Feed hole dia. | $D_0$ | 4.0 | 4.0 | 4.0 | 4.0 | ±0.2 |
| Tape thickness | t | 0.7 | 0.7 | 0.7 | 0.7 | ±0.2 |

**Note:** * $P_0$=15mm is also available;
**F can be other lead spacing;
***H=16.5mm is available;

## ■ Soldering suggestions

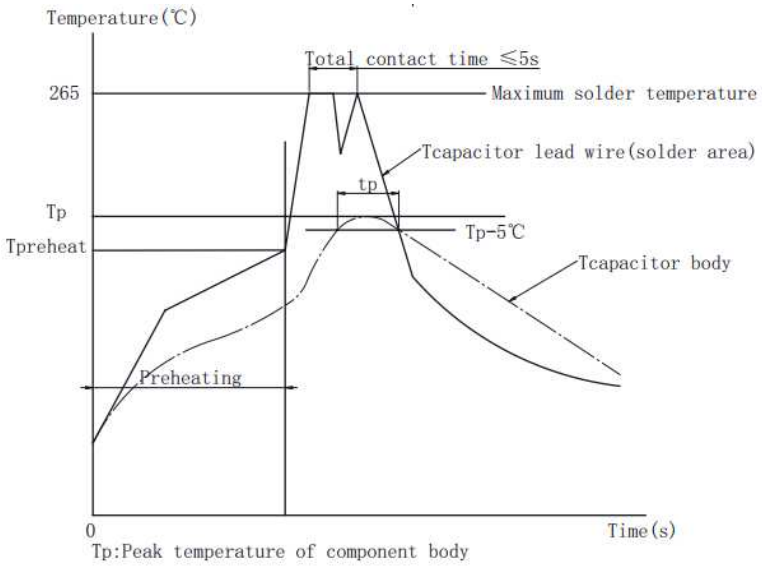
▲ Manual soldering

Max. temperature: 350℃, time: 3s

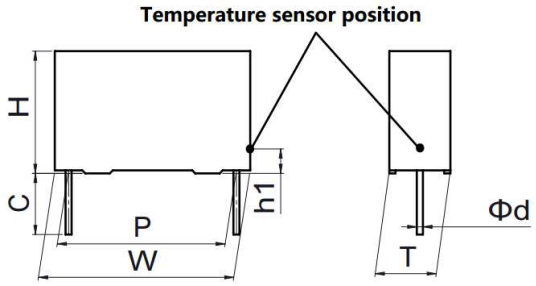
▲ Wave soldering

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

**The typical soldering profile is as below:**




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

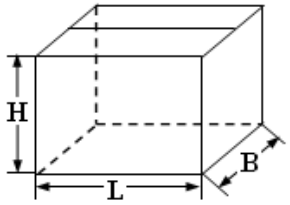



Note: If re-working or dipping twice is necessary, it should be done after the capacitor returns to the normal temperature.

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

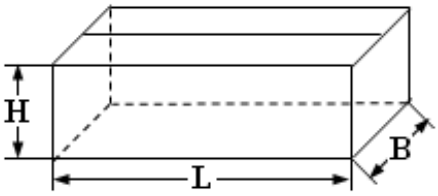
## ■ Packing box sizes(mm)(example)

1. Out packing box for bulk



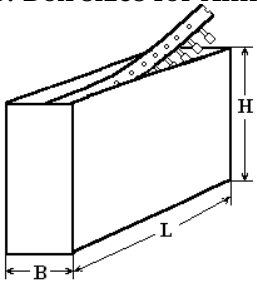

L:375±5
B:375±5
H:265±5

2. Inner packing box for bulk




L:355±3
B:175±3
H:118±3

3. Box sizes for Ammo-pack




L:350±3
B:50±3
H:260±3

## ■ 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 ℃ to 35 ℃

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