



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Metallized Polypropylene (PP) Capacitors in PCM 7.5 mm to 37.5 mm. Capacitances from 1000 pF to 10 µF. Rated Voltages from 100 VDC to 2000 VDC.

Special Features

- High volume/capacitance ratio
- Self-healing
- Very low dissipation factor
- Negative capacitance change versus temperature
- Very low dielectric absorption
- According to RoHS 2011/65/EU

Typical Applications

For high frequency applications e.g.

- Sample and hold
- Timing
- Oscillating circuits
- High frequency coupling and decoupling

Construction

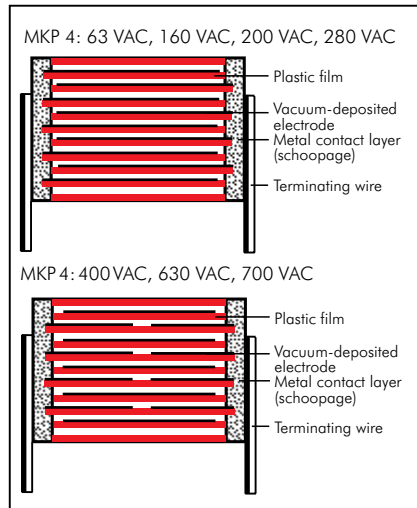
Dielectric:

Polypropylene (PP) film

Capacitor electrodes:

Vacuum-deposited

Internal construction:



Encapsulation:

Solvent-resistant, flame-retardant plastic case with epoxy resin seal, UL 94 V-0

Terminations:

Tinned wire.

Marking:

Colour: Red. Marking: Black.

Electrical Data

Capacitance range:

1000 pF to 10 µF (E12-values on request)

Rated voltages:

100VDC, 250VDC, 400VDC, 630VDC, 850VDC, 1000VDC, 1600VDC, 2000VDC

Capacitance tolerances:

±20%, ±10%, ±5%

Operating temperature range:

-55° C to +100° C

Climatic test category:

55/100/56 in accordance with IEC

Insulation resistance at +20° C:

$C \leq 0.33 \mu\text{F}$: $\geq 1 \times 10^5 \text{ M}\Omega$

$C > 0.33 \mu\text{F}$: $\geq 30000 \text{ sec (M}\Omega \times \mu\text{F)}$

Measuring voltage: 100 V/1 min.

Dissipation factors at +20° C:

| at f | $C \leq 0.1 \mu\text{F}$ | $0.1 \mu\text{F} < C \leq 1.0 \mu\text{F}$ | $C > 1.0 \mu\text{F}$ |
|---------|--------------------------|--------------------------------------------|-------------------------|
| 1 kHz | $\leq 6 \times 10^{-4}$ | $\leq 6 \times 10^{-4}$ | $\leq 6 \times 10^{-4}$ |
| 10 kHz | $\leq 8 \times 10^{-4}$ | $\leq 8 \times 10^{-4}$ | - |
| 100 kHz | $\leq 25 \times 10^{-4}$ | - | - |

Test specifications:

In accordance with IEC 60384-16

Test voltage: $1.6 U_r$, 2 sec.

Dielectric absorption:

0.05%

Voltage derating:

A voltage derating factor of 1.35 % per K must be applied from +85° C for DC voltages and from +75° C for AC voltages.

Reliability:

Operational life > 300 000 hours

Failure rate < 2 fit ($0.5 \times U_r$ and 40° C).

Maximum pulse rise time:

| Capacitance pF/µF | max. pulse rise time V/µsec at $T_A < 40^\circ \text{C}$ | | | | | | | |
|----------------------|----------------------------------------------------------|--------|--------|--------|--------|---------|---------|---------|
| | 100VDC | 250VDC | 400VDC | 630VDC | 850VDC | 1000VDC | 1600VDC | 2000VDC |
| 1000 ... 2200 | - | - | - | - | 2200 | 2200 | 3500 | 5200 |
| 3300 ... 6800 | - | - | - | - | 1150 | 1150 | 2700 | 3500 |
| 0.01 ... 0.022 | 450 | 450 | 450 | 500 | 550 | 550 | 1800 | 2700 |
| 0.033 ... 0.068 | 250 | 250 | 300 | 350 | 400 | 400 | 900 | 1800 |
| 0.1 ... 0.22 | 150 | 150 | 200 | 250 | 300 | 300 | 500 | 900 |
| 0.33 ... 0.68 | 100 | 100 | 150 | 200 | 200 | 200 | - | - |
| 1.0 ... 2.2 | 75 | 100 | 100 | 150 | 150 | 150 | - | - |
| 3.3 ... 4.7 | 60 | 100 | 100 | 120 | 140 | 140 | - | - |
| 6.8 ... 10 | 40 | 50 | 60 | 85 | - | - | - | - |

for pulses equal to the rated voltage

Mechanical Tests

Pull test on pins:

$d \leq 0.8 \phi$: 10 N in direction of pins

$d > 0.8 \phi$: 20 N in direction of pins

according to IEC 60068-2-21

Vibration:

6 hours at 10...2000 Hz and 0.75 mm

displacement amplitude or 10 g in

accordance with IEC 60068-2-6

Low air density:

1kPa = 10 mbar in accordance with

IEC 60068-2-13

Bump test:

4000 bumps at 390 m/sec²

in accordance with IEC 60068-2-29

Packing

Available taped and reeled up to and

including case size 15 x 26 x 31.5 /

PCM 27.5 mm.

Detailed taping information and graphs

at the end of the catalogue.

For further details and graphs please

refer to Technical Information.

Continuation

General Data

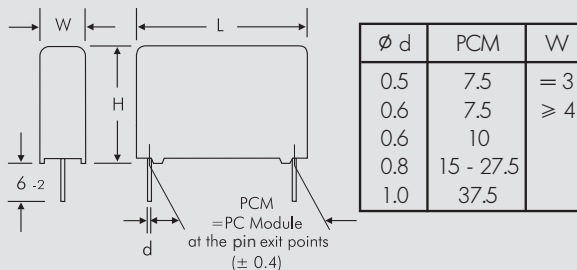
| Capacitance | 100 VDC/63 VAC* | | | | | 250 VDC/160 VAC* | | | | |
|--------------|-----------------|------|------|------------|---------------------|------------------|------|------|------------|---------------------|
| | W | H | L | PCM** | Part number | W | H | L | PCM** | Part number |
| 0.01 μ F | 3 | 8.5 | 10 | 7.5 | MKP4D021002B00_____ | 3 | 8.5 | 10 | 7.5 | MKP4F021002B00_____ |
| 0.015 " | 3 | 8.5 | 10 | 7.5 | MKP4D021502B00_____ | 3 | 8.5 | 10 | 7.5 | MKP4F021502B00_____ |
| 0.022 " | 3 | 8.5 | 10 | 7.5 | MKP4D022202B00_____ | 3 | 8.5 | 10 | 7.5 | MKP4F022202B00_____ |
| 0.033 " | 3 | 8.5 | 10 | 7.5 | MKP4D023302B00_____ | 3 | 8.5 | 10 | 7.5 | MKP4F023302B00_____ |
| 0.047 " | 4 | 9 | 13 | 10 | MKP4D023303C00_____ | 4 | 9 | 13 | 10 | MKP4F023303C00_____ |
| | 4 | 9 | 10 | 7.5 | MKP4D024702C00_____ | 4 | 9 | 10 | 7.5 | MKP4F024702C00_____ |
| 0.068 " | 4 | 9 | 13 | 10 | MKP4D024703C00_____ | 4 | 9 | 13 | 10 | MKP4F024703C00_____ |
| | 4 | 9 | 10 | 7.5 | MKP4D026802C00_____ | 4 | 9 | 10 | 7.5 | MKP4F026802C00_____ |
| 0.1 μ F | 4 | 9 | 13 | 10 | MKP4D026803C00_____ | 4 | 9 | 13 | 10 | MKP4F026803C00_____ |
| | 4.5 | 9.5 | 10.3 | 7.5 | MKP4D031002D00_____ | 4.5 | 9.5 | 10.3 | 7.5 | MKP4F031002D00_____ |
| 0.15 " | 4 | 9 | 13 | 10 | MKP4D031003C00_____ | 4 | 9 | 13 | 10 | MKP4F031003C00_____ |
| | 5 | 10.5 | 10.3 | 7.5 | MKP4D031502E00_____ | 5 | 10.5 | 10.3 | 7.5 | MKP4F031502E00_____ |
| 0.22 " | 5 | 11 | 13 | 10 | MKP4D031503F00_____ | 5 | 11 | 13 | 10 | MKP4F031503F00_____ |
| | 6 | 12 | 13 | 10 | MKP4D032203G00_____ | 6 | 12 | 13 | 10 | MKP4F032203G00_____ |
| 0.33 " | 5 | 11 | 18 | 15 | MKP4D032204B00_____ | 5 | 11 | 18 | 15 | MKP4F032204B00_____ |
| | 6 | 12.5 | 18 | 15 | MKP4D033304C00_____ | 6 | 12.5 | 18 | 15 | MKP4F033304C00_____ |
| 0.47 " | 7 | 14 | 18 | 15 | MKP4D034704D00_____ | 7 | 14 | 18 | 15 | MKP4F034704D00_____ |
| 0.68 " | 8 | 15 | 18 | 15 | MKP4D036804F00_____ | 8 | 15 | 18 | 15 | MKP4F036804F00_____ |
| | 6 | 15 | 26.5 | 22.5 | MKP4D036805B00_____ | 6 | 15 | 26.5 | 22.5 | MKP4F036805B00_____ |
| 1.0 μ F | 7 | 16.5 | 26.5 | 22.5 | MKP4D041005D00_____ | 7 | 16.5 | 26.5 | 22.5 | MKP4F041005D00_____ |
| 1.5 " | 10.5 | 19 | 26.5 | 22.5 | MKP4D041505G00_____ | 10.5 | 19 | 26.5 | 22.5 | MKP4F041505G00_____ |
| 2.2 " | 11 | 21 | 26.5 | 22.5 | MKP4D042205I00_____ | 11 | 21 | 26.5 | 22.5 | MKP4F042205I00_____ |
| | 11 | 21 | 31.5 | 27.5 | MKP4D042206B00_____ | 11 | 21 | 31.5 | 27.5 | MKP4F042206B00_____ |
| 3.3 " | 13 | 24 | 31.5 | 27.5 | MKP4D043306D00_____ | 13 | 24 | 31.5 | 27.5 | MKP4F043306D00_____ |
| 4.7 " | 13 | 24 | 31.5 | 27.5 | MKP4D044706D00_____ | 15 | 26 | 31.5 | 27.5 | MKP4F044706F00_____ |
| 6.8 " | 15 | 26 | 31.5 | 27.5 | MKP4D046806F00_____ | 17 | 29 | 31.5 | 27.5 | MKP4F046806G00_____ |
| | 13 | 24 | 41.5 | 37.5 | MKP4D046807C00_____ | 15 | 26 | 41.5 | 37.5 | MKP4F046807D00_____ |
| 10 μ F | 17 | 29 | 41.5 | 37.5 | MKP4D051007E00_____ | 19 | 32 | 41.5 | 37.5 | MKP4F051007F00_____ |

* AC voltages: $f \leq 400$ Hz; $1.4 \times U_{rms} + U_{DC} \leq U_r$

** PCM = Printed circuit module = pin spacing

The high values and large box sizes according to main catalogue 2015 are still available on request.

Dims. in mm.



Part number completion:

Tolerance: 20 % = M
10 % = K
5 % = J

Packing: bulk = S
Pin length: 6-2 = SD

Taped version see page 148.

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Continuation

General Data

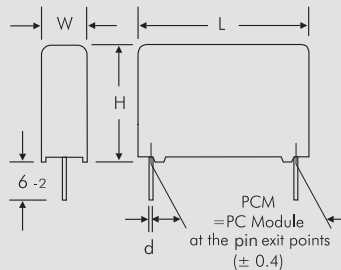
| Capacitance | 400 VDC/220 VAC* | | | | | 630 VDC/280 VAC* | | | | |
|--------------|------------------|------|------|-------|---------------------|------------------|------|------|-------|---------------------|
| | W | H | L | PCM** | Part number | W | H | L | PCM** | Part number |
| 0.01 μ F | 3 | 8.5 | 10 | 7.5 | MKP4G021002B00_____ | 3 | 8.5 | 10 | 7.5 | MKP4J021002B00_____ |
| 0.015 " | 4 | 9 | 10 | 7.5 | MKP4G021502C00_____ | 4 | 9 | 13 | 10 | MKP4J021003C00_____ |
| | 4 | 9 | 13 | 10 | MKP4G021503C00_____ | 4 | 9 | 13 | 10 | MKP4J021502C00_____ |
| 0.022 " | 4.5 | 9.5 | 10.3 | 7.5 | MKP4G022202D00_____ | 4.5 | 9.5 | 10.3 | 7.5 | MKP4J022202D00_____ |
| | 4 | 9 | 13 | 10 | MKP4G022203C00_____ | 4 | 9 | 13 | 10 | MKP4J022203C00_____ |
| 0.033 " | 5 | 10.5 | 10.3 | 7.5 | MKP4G023302E00_____ | 5 | 10.5 | 10.3 | 7.5 | MKP4J023302E00_____ |
| | 4 | 9 | 13 | 10 | MKP4G023303C00_____ | 4 | 9 | 13 | 10 | MKP4J023303C00_____ |
| 0.047 " | 5 | 10.5 | 10.3 | 7.5 | MKP4G024702E00_____ | 5.7 | 12.5 | 10.3 | 7.5 | MKP4J024702F00_____ |
| | 5 | 11 | 13 | 10 | MKP4G024703F00_____ | 5 | 11 | 13 | 10 | MKP4J024703F00_____ |
| 0.068 " | 5.7 | 12.5 | 10.3 | 7.5 | MKP4G026802F00_____ | 6 | 12 | 13 | 10 | MKP4J026803G00_____ |
| | 5 | 11 | 13 | 10 | MKP4G026803F00_____ | 6 | 12.5 | 18 | 15 | MKP4J026804C00_____ |
| 0.1 μ F | 6 | 12 | 13 | 10 | MKP4G031003G00_____ | 7 | 14 | 18 | 15 | MKP4J031004D00_____ |
| | 5 | 11 | 18 | 15 | MKP4G031004B00_____ | | | | | |
| 0.15 " | 6 | 12.5 | 18 | 15 | MKP4G031504C00_____ | 8 | 15 | 18 | 15 | MKP4J031504F00_____ |
| | | | | | | 6 | 15 | 26.5 | 22.5 | MKP4J031505B00_____ |
| 0.22 " | 7 | 14 | 18 | 15 | MKP4G032204D00_____ | 9 | 16 | 18 | 15 | MKP4J032204J00_____ |
| | | | | | | 7 | 16.5 | 26.5 | 22.5 | MKP4J032205D00_____ |
| 0.33 " | 8 | 15 | 18 | 15 | MKP4G033304F00_____ | 8.5 | 18.5 | 26.5 | 22.5 | MKP4J033305F00_____ |
| | 6 | 15 | 26.5 | 22.5 | MKP4G033305B00_____ | | | | | |
| 0.47 " | 7 | 16.5 | 26.5 | 22.5 | MKP4G034705D00_____ | 10.5 | 19 | 26.5 | 22.5 | MKP4J034705G00_____ |
| | | | | | | 11 | 21 | 31.5 | 27.5 | MKP4J034706B00_____ |
| 0.68 " | 8.5 | 18.5 | 26.5 | 22.5 | MKP4G036805F00_____ | 11 | 21 | 31.5 | 27.5 | MKP4J036806B00_____ |
| | | | | | | | | | | |
| 1.0 μ F | 11 | 21 | 26.5 | 22.5 | MKP4G041005I00_____ | 13 | 24 | 31.5 | 27.5 | MKP4J041006D00_____ |
| | 11 | 21 | 31.5 | 27.5 | MKP4G041006B00_____ | | | | | |
| 1.5 " | 11 | 21 | 31.5 | 27.5 | MKP4G041506B00_____ | 15 | 26 | 31.5 | 27.5 | MKP4J041506F00_____ |
| 2.2 " | 15 | 26 | 31.5 | 27.5 | MKP4G042206F00_____ | 17 | 29 | 41.5 | 37.5 | MKP4J042207E00_____ |
| 3.3 " | 17 | 29 | 31.5 | 27.5 | MKP4G043306G00_____ | 19 | 32 | 41.5 | 37.5 | MKP4J043307F00_____ |
| | 17 | 29 | 41.5 | 37.5 | MKP4G043307E00_____ | | | | | |
| 4.7 " | 19 | 32 | 41.5 | 37.5 | MKP4G044707F00_____ | 20 | 39.5 | 41.5 | 37.5 | MKP4J044707G00_____ |
| 6.8 " | 20 | 39.5 | 41.5 | 37.5 | MKP4G046807G00_____ | 24 | 45.5 | 41.5 | 37.5 | MKP4J046807H00_____ |
| 10 μ F | 24 | 45.5 | 41.5 | 37.5 | MKP4G051007H00_____ | 35 | 50 | 41.5 | 37.5 | MKP4J051007J00_____ |

* AC voltages: $f \leq 400$ Hz; $1.4 \times U_{rms} + U_{DC} \leq U_r$

** PCM = Printed circuit module = pin spacing

The high values and large box sizes according to main catalogue 2015 are still available on request.

Dims. in mm.



| ϕ d | PCM | W |
|----------|-----------|----------|
| 0.5 | 7.5 | = 3 |
| 0.6 | 7.5 | ≥ 4 |
| 0.6 | 10 | |
| 0.8 | 15 - 27.5 | |
| 1.0 | 37.5 | |

Part number completion:

Tolerance: 20 % = M
10 % = K
5 % = J

Packing: bulk = S
Pin length: 6-2 = SD

Taped version see page 148.

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Continuation

General Data

| Capacitance | 850 VDC/400 VAC* | | | | | 1000 VDC/400 VAC* | | | | |
|-------------|------------------|------|------|-------|---------------------|-------------------|------|------|-------|---------------------|
| | W | H | L | PCM** | Part number | W | H | L | PCM** | Part number |
| 1000 pF | 4 | 9 | 13 | 10 | MKP4M011003C00_____ | 4 | 9 | 13 | 10 | MKP4O111003C00_____ |
| 1500 " | 4 | 9 | 13 | 10 | MKP4M011503C00_____ | 4 | 9 | 13 | 10 | MKP4O111503C00_____ |
| 2200 " | 4 | 9 | 13 | 10 | MKP4M012203C00_____ | 4 | 9 | 13 | 10 | MKP4O112203C00_____ |
| 3300 " | 4 | 9 | 13 | 10 | MKP4M013303C00_____ | 4 | 9 | 13 | 10 | MKP4O113303C00_____ |
| 4700 " | 4 | 9 | 13 | 10 | MKP4M014703C00_____ | 4 | 9 | 13 | 10 | MKP4O114703C00_____ |
| 6800 " | 4 | 9 | 13 | 10 | MKP4M016803C00_____ | 5 | 11 | 13 | 10 | MKP4O116803F00_____ |
| 0.01 µF | 5 | 11 | 13 | 10 | MKP4M021003F00_____ | 5 | 11 | 13 | 10 | MKP4O121003F00_____ |
| 0.015 " | 5 | 11 | 13 | 10 | MKP4M021503F00_____ | 5 | 11 | 13 | 10 | MKP4O121503F00_____ |
| | 5 | 11 | 18 | 15 | MKP4M021504B00_____ | 5 | 11 | 18 | 15 | MKP4O121504B00_____ |
| 0.022 " | 5 | 11 | 18 | 15 | MKP4M022204B00_____ | 5 | 11 | 18 | 15 | MKP4O122204B00_____ |
| 0.033 " | 6 | 12.5 | 18 | 15 | MKP4M023304C00_____ | 6 | 12.5 | 18 | 15 | MKP4O123304C00_____ |
| 0.047 " | 7 | 14 | 18 | 15 | MKP4M024704D00_____ | 7 | 14 | 18 | 15 | MKP4O124704D00_____ |
| 0.068 " | 8 | 15 | 18 | 15 | MKP4M026804F00_____ | 8 | 15 | 18 | 15 | MKP4O126804F00_____ |
| | 6 | 15 | 26.5 | 22.5 | MKP4M026805B00_____ | 6 | 15 | 26.5 | 22.5 | MKP4O126805B00_____ |
| 0.1 µF | 9 | 16 | 18 | 15 | MKP4M031004J00_____ | 9 | 16 | 18 | 15 | MKP4O131004J00_____ |
| | 7 | 16.5 | 26.5 | 22.5 | MKP4M031005D00_____ | 7 | 16.5 | 26.5 | 22.5 | MKP4O131005D00_____ |
| 0.15 " | 8.5 | 18.5 | 26.5 | 22.5 | MKP4M031505F00_____ | 8.5 | 18.5 | 26.5 | 22.5 | MKP4O131505F00_____ |
| 0.22 " | 11 | 21 | 26.5 | 22.5 | MKP4M032205I00_____ | 11 | 21 | 26.5 | 22.5 | MKP4O132205I00_____ |
| | 11 | 21 | 31.5 | 27.5 | MKP4M032206B00_____ | 11 | 21 | 31.5 | 27.5 | MKP4O132206B00_____ |
| 0.33 " | 11 | 21 | 31.5 | 27.5 | MKP4M033306B00_____ | 11 | 21 | 31.5 | 27.5 | MKP4O133306B00_____ |
| 0.47 " | 13 | 24 | 31.5 | 27.5 | MKP4M034706D00_____ | 13 | 24 | 31.5 | 27.5 | MKP4O134706D00_____ |
| 0.68 " | 17 | 29 | 31.5 | 27.5 | MKP4M036806G00_____ | 17 | 29 | 31.5 | 27.5 | MKP4O136806G00_____ |
| 1.0 µF | 17 | 29 | 41.5 | 37.5 | MKP4M041007E00_____ | 17 | 29 | 41.5 | 37.5 | MKP4O141007E00_____ |
| 1.5 " | 20 | 39.5 | 41.5 | 37.5 | MKP4M041507G00_____ | 20 | 39.5 | 41.5 | 37.5 | MKP4O141507G00_____ |
| 2.2 " | 24 | 45.5 | 41.5 | 37.5 | MKP4M042207H00_____ | 24 | 45.5 | 41.5 | 37.5 | MKP4O142207H00_____ |
| 3.3 " | 31 | 46 | 41.5 | 37.5 | MKP4M043307I00_____ | 31 | 46 | 41.5 | 37.5 | MKP4O143307I00_____ |
| 4.7 " | 35 | 50 | 41.5 | 37.5 | MKP4M044707J00_____ | 35 | 50 | 41.5 | 37.5 | MKP4O144707J00_____ |

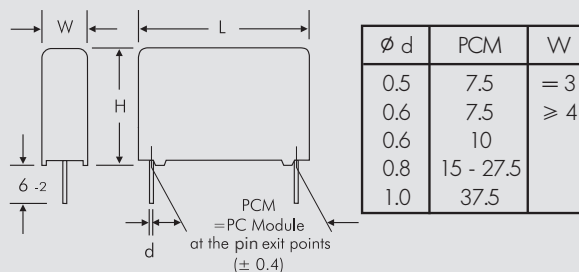
* AC voltages: $f \leq 400 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

New values and range

** PCM = Printed circuit module = pin spacing

The high values and large box sizes according to main catalogue 2015 are still available on request.

Dims. in mm.



Part number completion:

Tolerance: 20 % = M
10 % = K
5 % = J

Packing: bulk = S

Pin length: 6-2 = SD

Taped version see page 148.

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Continuation page 63

Continuation

General Data

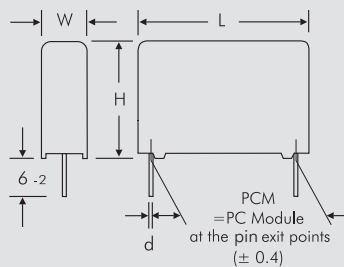
| Capacitance | 1600 VDC/630 VAC* | | | | | 2000 VDC/700 VAC* | | | | |
|-------------|-------------------|------|------|-------|-----------------|-------------------|------|------|-------|-----------------|
| | W | H | L | PCM** | Part number | W | H | L | PCM** | Part number |
| 1000 pF | 4 | 9 | 13 | 10 | MKP4T011003C00_ | 4 | 9 | 13 | 10 | MKP4U011003C00_ |
| 1500 " | 4 | 9 | 13 | 10 | MKP4T011503C00_ | 4 | 9 | 13 | 10 | MKP4U011503C00_ |
| 2200 " | 4 | 9 | 13 | 10 | MKP4T012203C00_ | 4 | 9 | 13 | 10 | MKP4U012203C00_ |
| 3300 " | 4 | 9 | 13 | 10 | MKP4T013303C00_ | 4 | 9 | 13 | 10 | MKP4U013303C00_ |
| 4700 " | 4 | 9 | 13 | 10 | MKP4T014703C00_ | 4 | 9 | 13 | 10 | MKP4U014703C00_ |
| 6800 " | 5 | 11 | 13 | 10 | MKP4T016803F00_ | 5 | 11 | 13 | 10 | MKP4U016803F00_ |
| | | | | | | 5 | 11 | 18 | 15 | MKP4U016804B00_ |
| 0.01 μF | 5 | 11 | 13 | 10 | MKP4T021003F00_ | 6 | 12.5 | 18 | 15 | MKP4U021004C00_ |
| 0.015 " | 5 | 11 | 18 | 15 | MKP4T021504B00_ | 7 | 14 | 18 | 15 | MKP4U021504D00_ |
| 0.022 " | 6 | 12.5 | 18 | 15 | MKP4T022204C00_ | 8 | 15 | 18 | 15 | MKP4U022204F00_ |
| 0.033 " | 7 | 14 | 18 | 15 | MKP4T023304D00_ | 9 | 16 | 18 | 15 | MKP4U023304J00_ |
| | 6 | 15 | 26.5 | 22.5 | MKP4T023305B00_ | 6 | 15 | 26.5 | 22.5 | MKP4U023305B00_ |
| 0.047 " | 9 | 16 | 18 | 15 | MKP4T024704J00_ | 7 | 16.5 | 26.5 | 22.5 | MKP4U024705D00_ |
| | 6 | 15 | 26.5 | 22.5 | MKP4T024705B00_ | | | | | |
| 0.068 " | 7 | 16.5 | 26.5 | 22.5 | MKP4T026805D00_ | 8.5 | 18.5 | 26.5 | 22.5 | MKP4U026805F00_ |
| 0.1 μF | 8.5 | 18.5 | 26.5 | 22.5 | MKP4T031005F00_ | 11 | 21 | 26.5 | 22.5 | MKP4U031005I00_ |

* AC voltages: $f \leq 400 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

■ New ranges

** PCM = Printed circuit module = pin spacing

Dims in mm



| ∅ d | PCM | W |
|-----|-----------|-----|
| 0.5 | 7.5 | = 3 |
| 0.6 | 7.5 | ≥ 4 |
| 0.6 | 10 | |
| 0.8 | 15 - 27.5 | |
| 1.0 | 37.5 | |

Part number completion:

Tolerance: 20 % = M

10 % = K

5 % = J

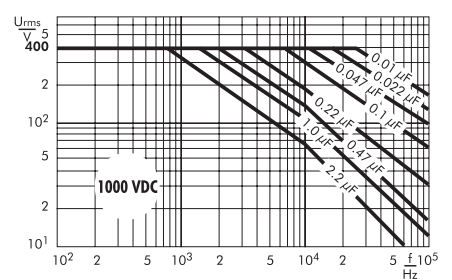
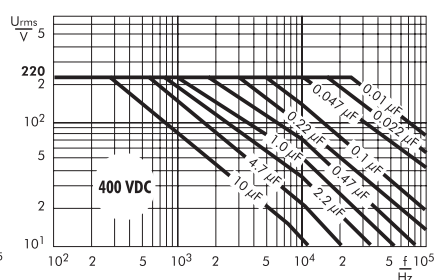
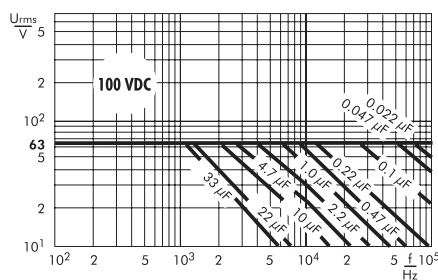
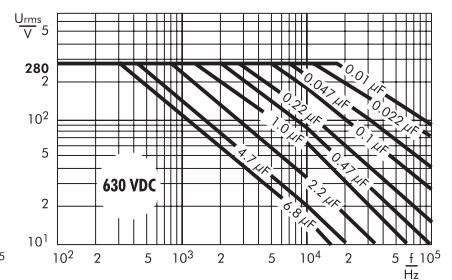
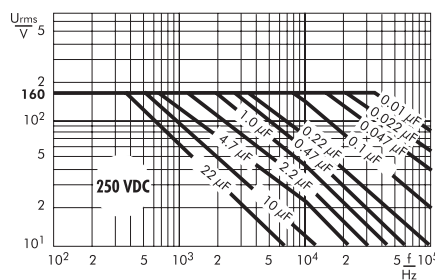
Packing: bulk = S

Pin length: 6-2 = SD

Taped version see page 148.

Rights reserved to amend design data without prior notification.

Permissible AC voltage in relation to frequency at 10° C internal temperature rise (general guide).



Recommendation for Processing and Application of Through-Hole Capacitors

Soldering Process

Internal temperature of the capacitor must be kept as follows:

Polyester: preheating: $T_{max.} \leq 125^{\circ}C$
soldering: $T_{max.} \leq 135^{\circ}C$

Polypropylene: preheating: $T_{max.} \leq 100^{\circ}C$
soldering: $T_{max.} \leq 110^{\circ}C$

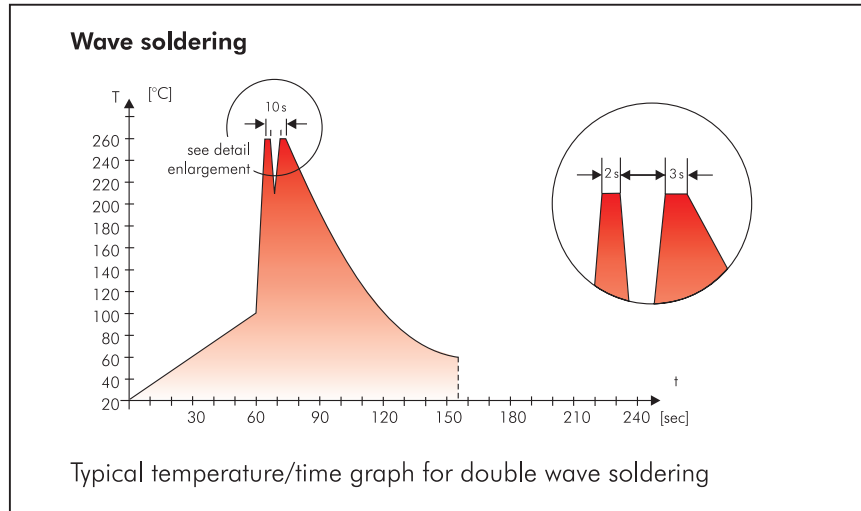
Single wave soldering

Soldering bath temperature: $T < 260^{\circ}C$
Dwell time: $t < 5 \text{ sec}$

Double wave soldering

Soldering bath temperature: $T < 260^{\circ}C$
Dwell time: $\Sigma t < 5 \text{ sec}$

Due to different soldering processes and heat requirements the graphs are to be regarded as a recommendation only.



WIMA Quality and Environmental Philosophy

ISO 9001:2008 Certification

ISO 9001:2008 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2008 of our factories by the infaz (Institut für Auditierung und Zertifizierung) certifies that organisation, equipment and monitoring of quality assurance in our factories correspond to internationally recognized standards.

WIMA WPCS

The WIMA Process Control System (WPCS) is a quality surveillance and optimization system developed by WIMA. WPCS is a major part of the quality-oriented WIMA production. Points of application during production process:

- incoming material inspection
- metallization
- film inspection
- schoopage
- pre-healing
- pin attachment
- cast resin preparation/encapsulation
- 100% final inspection
- Testing as per customer requirements

WIMA Environmental Policy

All WIMA capacitors, irrespective of whether through-hole devices or SMD, are made of environmentally friendly materials. Neither during manufacture nor in the product itself any toxic substances are used, e.g.

- Lead
- PCB
- CFC
- Hydrocarbon chloride
- Chromium 6+
- PBB/PBDE
- Arsenic
- Cadmium
- Mercury
- etc.

We merely use pure, recyclable materials for packing our components, such as:

- carton
- cardboard
- adhesive tape made of paper
- polystyrene

We almost completely refrain from using packing materials such as:

- foamed polystyrene (Styropor®)
- adhesive tapes made of plastic
- metal clips

RoHS Compliance

According to the RoHS Directive 2011/65/EU certain hazardous substances like e.g. lead, cadmium, mercury must not be used any longer in electronic equipment as of July 1st, 2006. For the sake of the environment WIMA has refrained from using such substances since years already.



WIMA Kondensatoren sind bleifrei konform RoHS 2011/65/EU

WIMA capacitors are lead free in accordance with RoHS 2011/65/EU

Tape for lead-free WIMA capacitors

DIN EN ISO 14001:2004

WIMA's environmental management has been established in accordance with the guidelines of DIN EN ISO 14001:2004 to optimize the production processes with regard to energy and resources.

Typical Dimensions for Taping Configuration

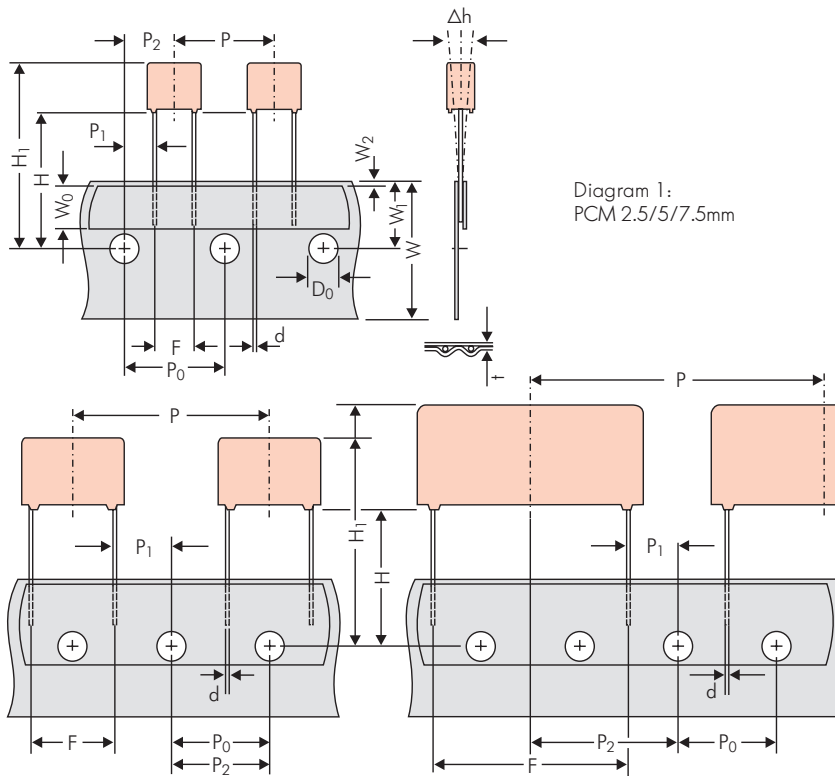


Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5*mm

*PCM 27.5 tapping possible with two feed holes between components

| Designation | Symbol | Dimensions for Radial Taping | | | | | | | | | | |
|--------------------------------------------------|-----------------------|----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|------|-----------------------|------------------|-------------------------------------------|
| | | PCM 2.5 tapping | PCM 5 tapping | PCM 7.5 tapping | PCM 10 tapping* | PCM 15 tapping* | PCM 22.5 tapping | PCM 27.5 tapping | | | | |
| Carrier tape width | W | 18.0 ±0.5 | 18.0 ±0.5 | 18.0 ±0.5 | 18.0 ±0.5 | 18.0 ±0.5 | 18.0 ±0.5 | 18.0 ±0.5 | | | | |
| Hold-down tape width | W ₀ | 6.0 for hot-sealing adhesive tape | 6.0 for hot-sealing adhesive tape | 12.0 for hot-sealing adhesive tape | 12.0 for hot-sealing adhesive tape | 12.0 for hot-sealing adhesive tape | 12.0 for hot-sealing adhesive tape | 12.0 for hot-sealing adhesive tape | | | | |
| Hole position | W ₁ | 9.0 ±0.5 | 9.0 ±0.5 | 9.0 ±0.5 | 9.0 ±0.5 | 9.0 ±0.5 | 9.0 ±0.5 | 9.0 ±0.5 | | | | |
| Hold-down tape position | W ₂ | 0.5 to 3.0 max. | 0.5 to 3.0 max. | 0.5 to 3.0 max. | 0.5 to 3.0 max. | 0.5 to 3.0 max. | 0.5 to 3.0 max. | 0.5 to 3.0 max. | | | | |
| Feed hole diameter | D ₀ | 4.0 ±0.2 | 4.0 ±0.2 | 4.0 ±0.2 | 4.0 ±0.2 | 4.0 ±0.2 | 4.0 ±0.2 | 4.0 ±0.2 | | | | |
| Pitch of component | P | 12.7 ±1.0 | 12.7 ±1.0 | 12.7 ±1.0 | 25.4 ±1.0 | 25.4 ±1.0 | 38.1 ±1.5 | 38.1 ±1.5 or 50.8 ±1.5 | | | | |
| Feed hole pitch | P ₀ | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | 12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch | | | | |
| Feed hole centre to pin | P ₁ | 5.1 ±0.5 | 3.85 ±0.7 | 2.6 ±0.7 | 7.7 ±0.7 | 5.2 ±0.7 | 7.8 ±0.7 | 5.3 ±0.7 | | | | |
| Hole centre to component centre | P ₂ | 6.35 ±1.3 | 6.35 ±1.3 | 6.35 ±1.3 | 12.7 ±1.3 | 12.7 ±1.3 | 19.05 ±1.3 | 19.05 ±1.3 | | | | |
| Feed hole centre to bottom edge of the component | H | 16.5 ±0.3 18.5 ±0.5 | 16.5 ±0.3 18.5 ±0.5 | 16.5 ±0.5 18.5 ±0.5 | 16.5 ±0.5 18.5 ±0.5 | 16.5 ±0.5 18.5 ±0.5 | 16.5 ±0.5 18.5 ±0.5 | 16.5 ±0.5 18.5 ±0.5 | | | | |
| Feed hole centre to top edge of the component | H ₁ | H+H _{component} < H ₁ 32.25 max. | H+H _{component} < H ₁ 32.25 max. | H+H _{component} < H ₁ 24.5 to 31.5 | H+H _{component} < H ₁ 25.0 to 31.5 | H+H _{component} < H ₁ 26.0 to 37.0 | H+H _{component} < H ₁ 30.0 to 43.0 | H+H _{component} < H ₁ 35.0 to 45.0 | | | | |
| Pin spacing at upper edge of carrier tape | F | 2.5 ±0.5 | 5.0 ^{+0.8} _{-0.2} | 7.5 ±0.8 | 10.0 ±0.8 | 15 ±0.8 | 22.5 ±0.8 | 27.5 ±0.8 | | | | |
| Pin diameter | d | 0.4 ±0.05 | 0.5 ±0.05 | 0.5 ±0.05 or 0.6 ^{+0.06} _{-0.05} | 0.5 ±0.05 or 0.6 ^{+0.06} _{-0.05} | 0.8 ^{+0.08} _{-0.05} | 0.8 ^{+0.08} _{-0.05} | 0.8 ^{+0.08} _{-0.05} | | | | |
| Component alignment | Δh | ± 2.0 max. | ± 2.0 max. | ± 3.0 max. | ± 3.0 max. | ± 3.0 max. | ± 3.0 max. | ± 3.0 max. | | | | |
| Total tape thickness | t | 0.7 ±0.2 | 0.7 ±0.2 | 0.7 ±0.2 | 0.7 ±0.2 | 0.7 ±0.2 | 0.7 ±0.2 | 0.7 ±0.2 | | | | |
| Package (see also page 149) | ROLL/AMMO | | | AMMO | | | | | | | | |
| | REEL | φ 360 max. φ 30 ±1 | B 52 ±2 58 ±2 | depending on comp. dimensions | | REEL | φ 360 max. φ 30 ±1 | B 52 ±2 58 ±2 or 66 ±2 | REEL | φ 500 max. φ 25 ±1 | B 60 ±2 68 ±2 | depending on PCM and component dimensions |
| Unit | see details page 150. | | | | | | | | | | | |

Dims in mm.

* Diameter of pins see General Data.

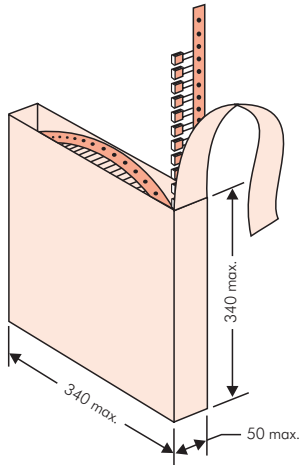
* PCM 10 and PCM 15 can be crimped to PCM 7.5.

Position of components according to PCM 7.5 (sketch 1). P₀ = 12.7 or 15.0 is possible

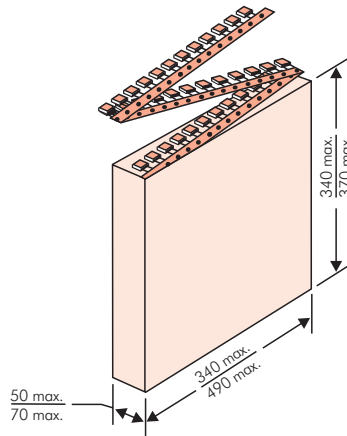
Please clarify customer-specific deviations with the manufacturer.

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

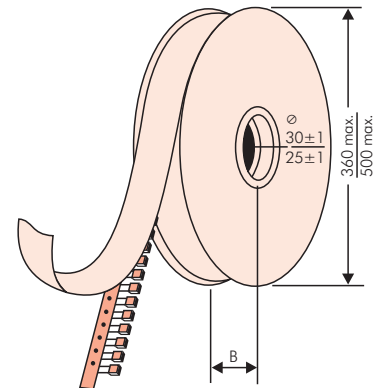
■ ROLL Packaging



■ AMMO Packaging



■ REEL Packaging



BAR CODE (Labelling)

Labelling of package units in plain text and with alphanumerical Bar Code

Scanner decoding of

- WIMA supplier number
- Customer's P/O number
- Customer's part number
- WIMA confirmation number
- WIMA part number
- Lot number
- Date code
- Quantity

In addition part description of

- article
- capacitance value
- rated voltage
- dimensions
- capacitance tolerance
- packing

as well as gross weight and customer's name are indicated in plain text.

| | | | |
|---------------------------------------------|---------------------------------------------|--------------------------|--------------|
| WIMA Best Capacitors Made in Germany | | Werk Unna | |
| Supplier-ID: 123456789 | RoHS 2011/65/EU | Date Code: 08.10.10 | |
| | | | |
| Purchase Order No. (P/O): Bestellung xyz | | Quantity: 5.000 | |
| | | | |
| Customer Part No.: KUNDETEILENUMMER | | Customer No.: 0000100002 | |
| | | Gross Weight [g]: 1870 | |
| WIMA Confirmation No.: 0001004053000100 | WIMA Part No.: MKS2C034701C00K89D | | |
| | | | |
| Handling Unit: MKS 2 | QTY: 5.000 | COO: DE | |
| | MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RMS | | |
| 1000067326 | Standard 10% Loss - Standard | Drahte 6-2 | Week 03/2011 |
| | Vorlage Debitor Inland | | |

BARCODE „Code 39“



Packing Quantities for Capacitors with Radial Pins in PCM 2.5 mm to 22.5 mm

| PCM | Size | | | | bulk | pcs. per packing unit | | | | | | | | |
|----------------|------|------|-----------|-----------|------|-----------------------|-------|-------|-------|-------|-----------|-----------|------|---|
| | | | | | | ROLL | | REEL | | | | AMMO | | |
| | W | H | L | Codes | | S | H16.5 | H18.5 | ø 360 | ø 500 | 340 × 340 | 490 × 370 | | |
| | | | | | N | O | F | I | H | J | A | C | B | D |
| 2.5 mm | 2.5 | 7 | 4.6 | 0B | 5000 | | 2200 | 2500 | | | | 2800 | | |
| | 3 | 7.5 | 4.6 | 0C | 5000 | | 2000 | 2300 | | | | 2300 | | |
| | 3.8 | 8.5 | 4.6 | 0D | 5000 | | 1500 | 1800 | | | | 1800 | | |
| | 4.6 | 9 | 4.6 | 0E | 5000 | | 1200 | 1500 | | | | 1500 | | |
| | 5.5 | 10 | 4.6 | 0F | 5000 | | 900 | 1200 | | | | 1200 | | |
| 5 mm | 2.5 | 6.5 | 7.2 | 1A | 5000 | | 2200 | 2500 | | | | 2800 | | |
| | 3 | 7.5 | 7.2 | 1B | 5000 | | 2000 | 2300 | | | | 2300 | | |
| | 3.5 | 8.5 | 7.2 | 1C | 5000 | | 1600 | 2000 | | | | 2000 | | |
| | 4.5 | 6 | 7.2 | 1D | 6000 | | 1300 | 1500 | | | | 1500 | | |
| | 4.5 | 9.5 | 7.2 | 1E | 4000 | | 1300 | 1500 | | | | 1500 | | |
| | 5 | 10 | 7.2 | 1F | 3500 | | 1100 | 1400 | | | | 1400 | | |
| | 5.5 | 7 | 7.2 | 1G | 4000 | | 1000 | 1200 | | | | 1200 | | |
| | 5.5 | 11.5 | 7.2 | 1H | 2500 | | 1000 | 1200 | | | | 1200 | | |
| | 6.5 | 8 | 7.2 | 1I | 2500 | | 800 | 1000 | | | | 1000 | | |
| | 7.2 | 8.5 | 7.2 | 1J | 2500 | | 700 | 1000 | | | | 1000 | | |
| | 7.2 | 13 | 7.2 | 1K | 2000 | | 700 | 950 | | | | 1000 | | |
| | 8.5 | 10 | 7.2 | 1L | 2000 | | 600 | 800 | | | | 800 | | |
| | 8.5 | 14 | 7.2 | 1M | 1500 | | 600 | 800 | | | | 800 | | |
| 11 | 16 | 7.2 | 1N | 1000 | | 500 | 600 | | | | 400 | | | |
| 7.5 mm | 2.5 | 7 | 10 | 2A | 5000 | | | 2500 | 4400 | | 2500 | | | |
| | 3 | 8.5 | 10 | 2B | 5000 | | | 2200 | 4300 | | 2300 | | 4150 | |
| | 4 | 9 | 10 | 2C | 4000 | | | 1700 | 3200 | | 1700 | | 3100 | |
| | 4.5 | 9.5 | 10.3 | 2D | 3500 | | | 1500 | 2900 | | 1400 | | 2700 | |
| | 5 | 10.5 | 10.3 | 2E | 3000 | | | 1300 | 2500 | | 1300 | | | |
| | 5.7 | 12.5 | 10.3 | 2F | 2000 | | | 1000 | 2200 | | 1100 | | | |
| | 7.2 | 12.5 | 10.3 | 2G | 1500 | | | 900 | 1800 | | 1000 | | | |
| 10 mm | 3 | 9 | 13 | 3A | 3000 | | | 1100 | 2200 | | | | 1900 | |
| | 4 | 8.5 | 13.5 | FA | 3000 | | | 900 | 1600 | | | | 1450 | |
| | 4 | 9 | 13 | 3C | 3000 | | | 900 | 1600 | | | | 1450 | |
| | 4 | 9.5 | 13 | 3D | 3000 | | | 900 | 1600 | | | | 1400 | |
| | 5 | 10 | 13.5 | FB | 2000 | | | 700 | 1300 | | | | 1200 | |
| | 5 | 11 | 13 | 3F | 3000 | | | 700 | 1300 | | | | 1200 | |
| | 6 | 12 | 13 | 3G | 2400 | | | 550 | 1100 | | | | 1000 | |
| | 6 | 12.5 | 13 | 3H | 2400 | | | 550 | 1100 | | | | 1000 | |
| 8 | 12 | 13 | 3I | 2000 | | | 400 | 800 | | | | 740 | | |
| 15 mm | 5 | 11 | 18 | 4B | 2400 | | | 600 | 1200 | | | | 1150 | |
| | 5 | 13 | 19 | FC | 1000 | | | 600 | 1200 | | | | 1200 | |
| | 6 | 12.5 | 18 | 4C | 2000 | | | 500 | 1000 | | | | 1000 | |
| | 6 | 14 | 19 | FD | 1000 | | | 500 | 1000 | | | | 1000 | |
| | 7 | 14 | 18 | 4D | 1600 | | | 450 | 900 | | | | 850 | |
| | 7 | 15 | 19 | FE | 1000 | | | 450 | 900 | | | | 850 | |
| | 8 | 15 | 18 | 4F | 1200 | | | 400 | 800 | | | | 740 | |
| | 8 | 17 | 19 | FF | 500 | | | 400 | 800 | | | | 740 | |
| | 9 | 14 | 18 | 4H | 1200 | | | 350 | 700 | | | | 650 | |
| | 9 | 16 | 18 | 4J | 900 | | | 350 | 700 | | | | 650 | |
| | 10 | 18 | 19 | FG | 500 | | | 300 | 650 | | | | 590 | |
| 11 | 14 | 18 | 4M | 1000 | | | 300 | 600 | | | | 540 | | |
| 22.5 mm | 5 | 14 | 26.5 | 5A | 1200 | | | | 800 | | | | 770 | |
| | 6 | 15 | 26.5 | 5B | 1000 | | | | 700 | | | | 640 | |
| | 7 | 16.5 | 26.5 | 5D | 760 | | | | 600 | | | | 550 | |
| | 8 | 20 | 28 | FH | 500 | | | | 500 | | | | 480 | |
| | 8.5 | 18.5 | 26.5 | 5F | 500 | | | | 480 | | | | 450 | |
| | 10 | 22 | 28 | FI | 570* | | | | 420 | | | | 380 | |
| | 10.5 | 19 | 26.5 | 5G | 594* | | | | 400 | | | | 360 | |
| | 10.5 | 20.5 | 26.5 | 5H | 594* | | | | 400 | | | | 360 | |
| | 11 | 21 | 26.5 | 5I | 561* | | | | 380 | | | | 350 | |
| | 12 | 24 | 28 | FJ | 480* | | | | 350 | | | | 310 | |

* TPS (Tray-Packing-System). Plate versions may have different packing units. Samples and pre-production needs on request.

■ Moulded versions.

Rights reserved to amend design data without prior notification.



Packing Quantities for Capacitors with Radial Pins in PCM 27.5 mm to 52.5 mm

| PCM | Size | | | | bulk | pcs. per packing unit | | | | | | | | | |
|----------------|------|------|------|-----------|------|-----------------------|-------|-------|-------|----------|-------|------|-----------|---|-----------|
| | | | | | | ROLL | | REEL | | | | AMMO | | | |
| | W | H | L | Codes | | S | H16.5 | H18.5 | ø 360 | | ø 500 | | 340 × 340 | | 490 × 370 |
| | | | | | N | O | F | I | H | J | A | C | B | D | |
| 27.5 mm | 9 | 19 | 31.5 | 6A | 567* | – | – | – | – | 460/340* | – | – | 420 | | |
| | 11 | 21 | 31.5 | 6B | 459* | – | – | – | – | 380/280* | – | – | 350 | | |
| | 13 | 24 | 31.5 | 6D | 378* | – | – | – | – | 300 | – | – | 290 | | |
| | 13 | 25 | 33 | FK | 405* | – | – | – | – | – | – | – | – | | |
| | 15 | 26 | 31.5 | 6F | 324* | – | – | – | – | 270 | – | – | 250 | | |
| | 15 | 26 | 33 | FL | 324* | – | – | – | – | – | – | – | – | | |
| | 17 | 29 | 31.5 | 6G | 198* | – | – | – | – | – | – | – | – | | |
| | 17 | 34.5 | 31.5 | 6I | 198* | – | – | – | – | – | – | – | – | | |
| | 20 | 32 | 33 | FM | 162* | – | – | – | – | – | – | – | – | | |
| | 20 | 39.5 | 31.5 | 6J | 162* | – | – | – | – | – | – | – | – | | |
| 37.5 mm | 9 | 19 | 41.5 | 7A | 441* | – | – | – | – | – | – | – | – | | |
| | 11 | 22 | 41.5 | 7B | 357* | – | – | – | – | – | – | – | – | | |
| | 13 | 24 | 41.5 | 7C | 294* | – | – | – | – | – | – | – | – | | |
| | 15 | 26 | 41.5 | 7D | 252* | – | – | – | – | – | – | – | – | | |
| | 17 | 29 | 41.5 | 7E | 154* | – | – | – | – | – | – | – | – | | |
| | 19 | 32 | 41.5 | 7F | 140* | – | – | – | – | – | – | – | – | | |
| | 20 | 39.5 | 41.5 | 7G | 126* | – | – | – | – | – | – | – | – | | |
| | 24 | 45.5 | 41.5 | 7H | 112* | – | – | – | – | – | – | – | – | | |
| | 31 | 46 | 41.5 | 7I | 84* | – | – | – | – | – | – | – | – | | |
| | 35 | 50 | 41.5 | 7J | 35* | – | – | – | – | – | – | – | – | | |
| | 40 | 55 | 41.5 | 7K | 28* | – | – | – | – | – | – | – | – | | |
| 48.5 mm | 19 | 31 | 56 | 8D | 120* | – | – | – | – | – | – | – | – | | |
| | 23 | 34 | 56 | 8E | 80* | – | – | – | – | – | – | – | – | | |
| | 27 | 37.5 | 56 | 8H | 84* | – | – | – | – | – | – | – | – | | |
| | 33 | 48 | 56 | 8J | 25* | – | – | – | – | – | – | – | – | | |
| | 37 | 54 | 56 | 8L | 25* | – | – | – | – | – | – | – | – | | |
| 52.5 mm | 25 | 45 | 57 | 9D | 70* | – | – | – | – | – | – | – | – | | |
| | 30 | 45 | 57 | 9E | 60* | – | – | – | – | – | – | – | – | | |
| | 35 | 50 | 57 | 9F | 25* | – | – | – | – | – | – | – | – | | |
| | 45 | 55 | 57 | 9H | 20* | – | – | – | – | – | – | – | – | | |
| | 45 | 65 | 57 | 9J | 20* | – | – | – | – | – | – | – | – | | |

* for 2-inch transport pitches.

* TPS (Tray-Packing-System). Plate versions may have different packing units. Samples and pre-production needs on request.

■ Moulded versions.

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Updated data on www.wima.com

