

## Polypropylene (PP) Film/Foil Capacitors for Pulse Applications in PCM 5 mm. Capacitances from 33 pF to 0.033 µF. Rated Voltages from 63 VDC to 1000 VDC.

### Special Features

- Pulse duty construction
- Close tolerances up to  $\pm 2.5\%$  ( $\pm 1\%$  on request)
- 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
- LC-Filtering
- Oscillating circuits
- Audio equipment

### Construction

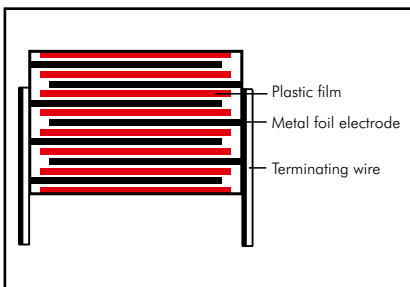
#### Dielectric:

Polypropylene (PP) film

#### Capacitor electrodes:

Metal foil

#### 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:

33 pF to 0.033 µF (E12-values on request)

#### Rated voltages:

63 VDC, 100 VDC, 250 VDC, 400 VDC, 630 VDC, 800 VDC, 1000 VDC

#### Capacitance tolerances:

$\pm 20\%$ ,  $\pm 10\%$ ,  $\pm 5\%$ ,  $\pm 2.5\%$  ( $\pm 2\%$ ,  $\pm 1.5\%$  or  $\pm 1\%$  available as precision capacitors subject to special enquiry)

#### Operating temperature range:

$-55^\circ\text{C}$  to  $+100^\circ\text{C}$

#### Test specifications:

In accordance with IEC 60384-13

#### Climatic test category:

55/100/56 in accordance with IEC

#### Insulation resistance at $+20^\circ\text{C}$ :

$\geq 3 \times 10^5 \text{ M}\Omega$

Measuring voltage:

$U_r = 63 \text{ V}$ :  $U_{\text{test}} = 50 \text{ V/1 min.}$

$U_r \geq 100 \text{ V}$ :  $U_{\text{test}} = 100 \text{ V/1 min.}$

#### Dissipation factors at $+20^\circ\text{C}$ : $\tan \delta$

at f	$C \leq 1000 \text{ pF}$	$1000 \text{ pF} < C \leq 4700 \text{ pF}$	$C > 4700 \text{ pF}$
1 kHz	$\leq 5 \times 10^{-4}$	$\leq 5 \times 10^{-4}$	$\leq 5 \times 10^{-4}$
10 kHz	$\leq 6 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 6 \times 10^{-4}$
100 kHz	$\leq 8 \times 10^{-4}$	$\leq 8 \times 10^{-4}$	-
1 MHz	$\leq 10 \times 10^{-4}$	-	-

**Test voltage:**  $2 U_r$ , 2 sec.

#### Maximum pulse rise time:

1000 V/ $\mu\text{sec}$

#### Dielectric absorption:

0.05%

#### Temperature coefficient:

$-200 \times 10^{-6}/^\circ\text{C}$  (typical)

#### Voltage derating:

A voltage derating factor of 1.35 % per K must be applied from  $+85^\circ\text{C}$  for DC voltages and from  $+75^\circ\text{C}$  for AC voltages

#### Reliability:

Operational life  $> 300\,000$  hours

Failure rate  $< 5 \text{ fit}$  ( $0.5 \times U_r$  and  $40^\circ\text{C}$ )

### Mechanical Tests

#### Pull test on pins:

10 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/sec<sup>2</sup> in accordance with IEC 60068-2-29

### Packing

Available taped and reeled.

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	63 VDC/40 VAC*					100 VDC/63 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
100 pF	4.5	6	7.2	5	FKP2C001001D00_____	4.5	6	7.2	5	FKP2D001001D00_____
150 "	4.5	6	7.2	5	FKP2C001501D00_____	4.5	6	7.2	5	FKP2D001501D00_____
220 "	4.5	6	7.2	5	FKP2C002201D00_____	4.5	6	7.2	5	FKP2D002201D00_____
330 "	4.5	6	7.2	5	FKP2C003301D00_____	4.5	6	7.2	5	FKP2D003301D00_____
470 "	4.5	6	7.2	5	FKP2C004701D00_____	4.5	6	7.2	5	FKP2D004701D00_____
680 "	4.5	6	7.2	5	FKP2C006801D00_____	4.5	6	7.2	5	FKP2D006801D00_____
1000 pF	4.5	6	7.2	5	FKP2C011001D00_____	4.5	6	7.2	5	FKP2D011001D00_____
1500 "	4.5	6	7.2	5	FKP2C011501D00_____	4.5	6	7.2	5	FKP2D011501D00_____
2200 "	4.5	6	7.2	5	FKP2C012201D00_____	4.5	6	7.2	5	FKP2D012201D00_____
3300 "	4.5	6	7.2	5	FKP2C013301D00_____	5.5	7	7.2	5	FKP2D013301G00_____
4700 "	4.5	6	7.2	5	FKP2C014701D00_____	5.5	7	7.2	5	FKP2D014701G00_____
6800 "	4.5	6	7.2	5	FKP2C016801D00_____	5.5	7	7.2	5	FKP2D016801G00_____
0.01 µF	5.5	7	7.2	5	FKP2C021001G00_____	6.5	8	7.2	5	FKP2D021001I00_____
0.015 "	6.5	8	7.2	5	FKP2C021501I00_____	7.2	8.5	7.2	5	FKP2D021501J00_____
0.022 "	7.2	8.5	7.2	5	FKP2C022201J00_____	8.5	10	7.2	5	FKP2D022201L00_____
0.033 "	8.5	10	7.2	5	FKP2C023301L00_____					

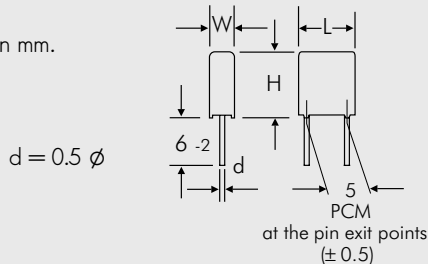
Capacitance	250 VDC/160 VAC*					400 VDC/220 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
100 pF	4.5	6	7.2	5	FKP2F001001D00_____	4.5	6	7.2	5	FKP2G001001D00_____
150 "	4.5	6	7.2	5	FKP2F001501D00_____	4.5	6	7.2	5	FKP2G001501D00_____
220 "	4.5	6	7.2	5	FKP2F002201D00_____	4.5	6	7.2	5	FKP2G002201D00_____
330 "	4.5	6	7.2	5	FKP2F003301D00_____	4.5	6	7.2	5	FKP2G003301D00_____
470 "	4.5	6	7.2	5	FKP2F004701D00_____	4.5	6	7.2	5	FKP2G004701D00_____
680 "	4.5	6	7.2	5	FKP2F006801D00_____	4.5	6	7.2	5	FKP2G006801D00_____
1000 pF	4.5	6	7.2	5	FKP2F011001D00_____	4.5	6	7.2	5	FKP2G011001D00_____
1500 "	4.5	6	7.2	5	FKP2F011501D00_____	4.5	6	7.2	5	FKP2G011501D00_____
2200 "	4.5	6	7.2	5	FKP2F012201D00_____	4.5	6	7.2	5	FKP2G012201D00_____
3300 "	5.5	7	7.2	5	FKP2F013301G00_____	5.5	7	7.2	5	FKP2G013301G00_____
4700 "	6.5	8	7.2	5	FKP2F014701I00_____	6.5	8	7.2	5	FKP2G014701I00_____
6800 "	6.5	8	7.2	5	FKP2F016801I00_____	7.2	8.5	7.2	5	FKP2G016801J00_____
0.01 µF	7.2	8.5	7.2	5	FKP2F021001J00_____	8.5	10	7.2	5	FKP2G021001L00_____
0.015 "	8.5	10	7.2	5	FKP2F021501L00_____					

\* AC voltage:  $f \leq 1000 \text{ Hz}$ ;  $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

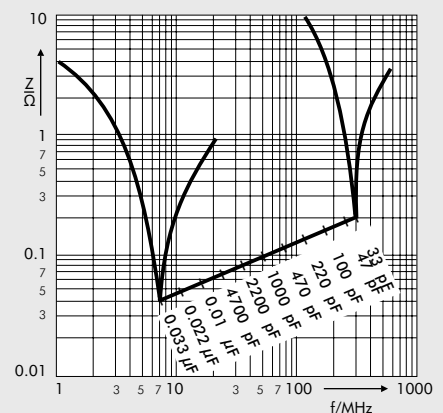
\*\* PCM = Printed circuit module = pin spacing.

E12 values and individual values available from 27 pF up on request.

Dims. in mm.



Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
	2.5 % = H
	2 % = G
	1.5 % = F
	1 % = E
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 161.	



Impedance change with frequency (general guide).

Rights reserved to amend design data without prior notification.

## Continuation

### General Data

Capacitance	630 VDC/250 VAC*					800 VDC/250 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
100 pF	4.5	6	7.2	5	FKP2J001001D00_	4.5	6	7.2	5	FKP2L001001D00_
150 "	4.5	6	7.2	5	FKP2J001501D00_	4.5	6	7.2	5	FKP2L001501D00_
220 "	4.5	6	7.2	5	FKP2J002201D00_	4.5	6	7.2	5	FKP2L002201D00_
330 "	4.5	6	7.2	5	FKP2J003301D00_	4.5	6	7.2	5	FKP2L003301D00_
470 "	4.5	6	7.2	5	FKP2J004701D00_	5.5	7	7.2	5	FKP2L004701G00_
680 "	4.5	6	7.2	5	FKP2J006801D00_	5.5	7	7.2	5	FKP2L006801G00_
1000 pF	4.5	6	7.2	5	FKP2J011001D00_	5.5	7	7.2	5	FKP2L011001G00_
1500 "	4.5	6	7.2	5	FKP2J011501D00_	5.5	7	7.2	5	FKP2L011501G00_
2200 "	5.5	7	7.2	5	FKP2J012201G00_	6.5	8	7.2	5	FKP2L012201I00_
3300 "	6.5	8	7.2	5	FKP2J013301I00_	7.2	8.5	7.2	5	FKP2L013301J00_
4700 "	6.5	8	7.2	5	FKP2J014701I00_	8.5	10	7.2	5	FKP2L014701L00_
6800 "	7.2	8.5	7.2	5	FKP2J016801J00_					
0.01 µF	8.5	10	7.2	5	FKP2J021001L00_					

Capacitance	1000 VDC/250 VAC*				
	W	H	L	PCM**	Part number
33 pF	4.5	6	7.2	5	FKP2O100331D00_
47 "	4.5	6	7.2	5	FKP2O100471D00_
68 "	4.5	6	7.2	5	FKP2O100681D00_
100 pF	4.5	6	7.2	5	FKP2O101001D00_
150 "	4.5	6	7.2	5	FKP2O101501D00_
220 "	4.5	6	7.2	5	FKP2O102201D00_
330 "	4.5	6	7.2	5	FKP2O103301D00_
470 "	5.5	7	7.2	5	FKP2O104701G00_
680 "	5.5	7	7.2	5	FKP2O106801G00_
1000 pF	6.5	8	7.2	5	FKP2O111001I00_
1500 "	7.2	8.5	7.2	5	FKP2O111501J00_
2200 "	8.5	10	7.2	5	FKP2O112201L00_

E12 values and individual values available from 27 pF up on request.

Dims. in mm.

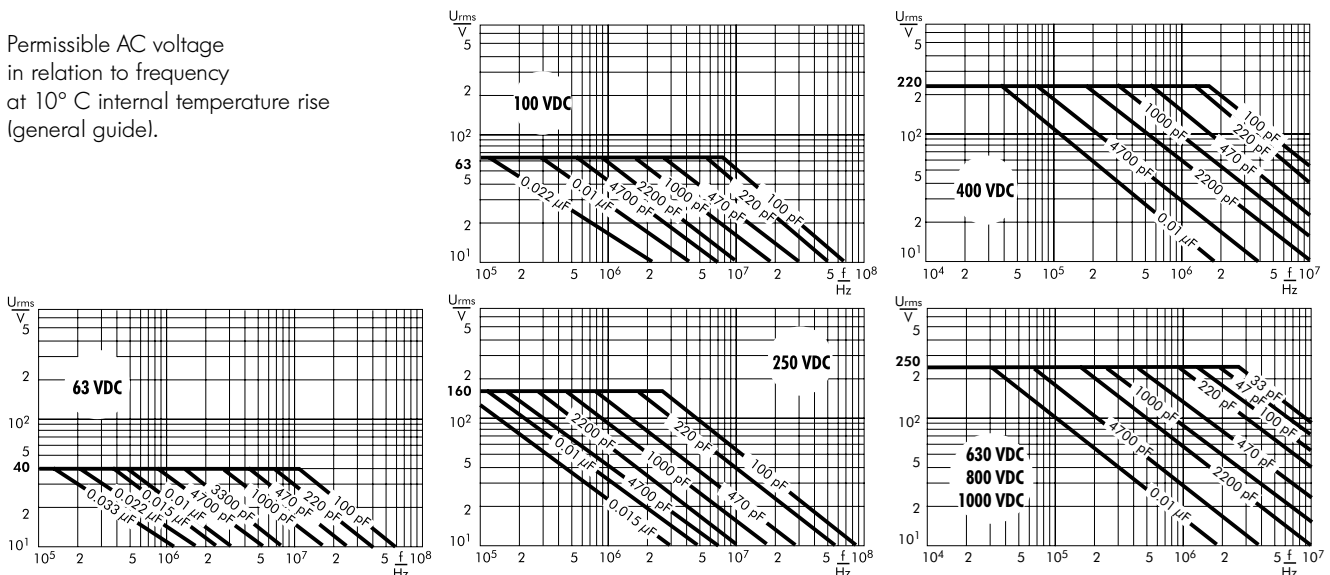
Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
	2.5 % = H
	2 % = G
	1.5 % = F
	1 % = E
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 161.	

\* AC voltage:  $f \leq 1000 \text{ Hz}$ ;  $1.4 \times U_{\text{rms}} + \text{UDC} \leq U_r$

\*\* PCM = Printed circuit module = pin spacing.

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:  $T < 260^{\circ}C$

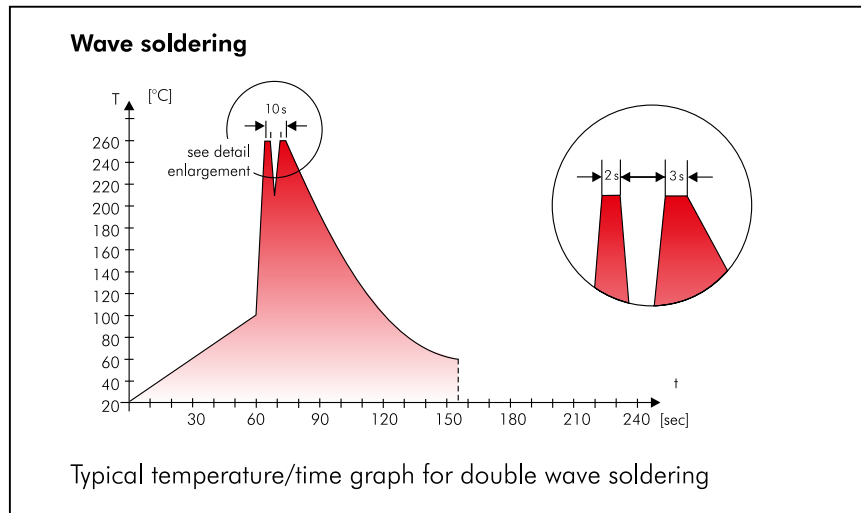
Dwell time:  $t < 5 \text{ sec}$

### 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 9001:2015 Certification

ISO 9001:2015 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2015 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:

- adhesive tapes made of plastic
- metal clips

### RoHS Compliance

According to the RoHS Directive 2011/65/EU as amended from time to time 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

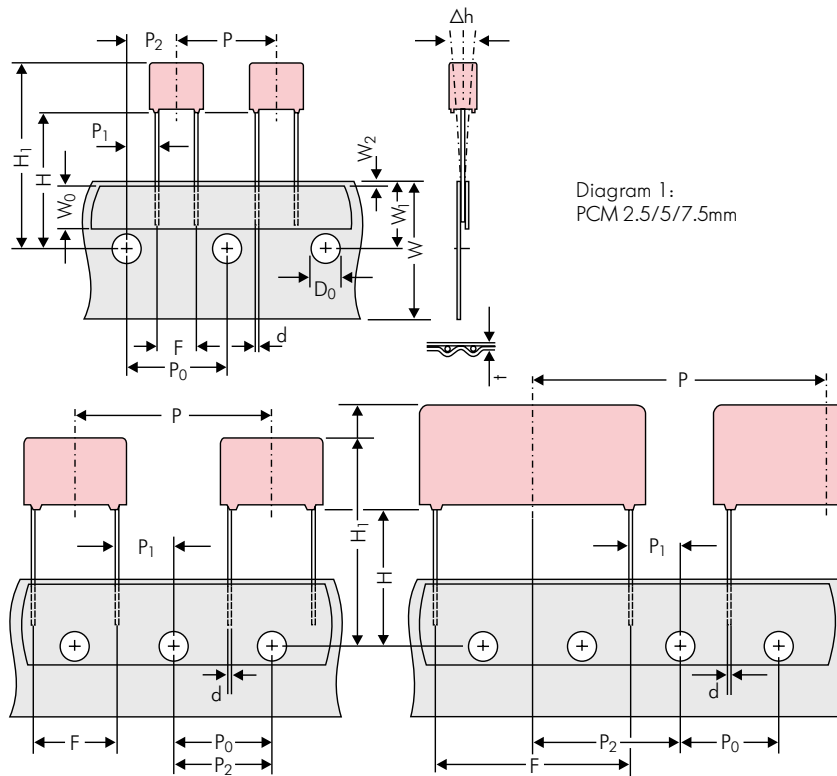


Diagram 1:  
PCM 2.5/5/7.5mm

Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5\*mm

\*PCM 27.5 taping possible with two feed holes between components

Designation	Symbol	Dimensions for Radial Taping						
		PCM 2.5 taping	PCM 5 taping	PCM 7.5 taping	PCM 10 taping*	PCM 15 taping*	PCM 22.5 taping	PCM 27.5 taping
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 <sub>0</sub>	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 <sub>1</sub>	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 <sub>2</sub>	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 <sub>0</sub>	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 <sub>0</sub>	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 <sub>1</sub>	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 <sub>2</sub>	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 <sub>1</sub>	H+H <sub>component</sub> < H <sub>1</sub> 32.25 max.	H+H <sub>component</sub> < H <sub>1</sub> 32.25 max.	H+H <sub>component</sub> < H <sub>1</sub> 24.5 to 31.5	H+H <sub>component</sub> < H <sub>1</sub> 25.0 to 31.5	H+H <sub>component</sub> < H <sub>1</sub> 26.0 to 37.0	H+H <sub>component</sub> < H <sub>1</sub> 30.0 to 43.0	H+H <sub>component</sub> < H <sub>1</sub> 35.0 to 45.0
Pin spacing at upper edge of carrier tape	F	2.5 ±0.5	5.0 <sup>+0.8</sup> <sub>-0.2</sub>	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 <sup>+0.06</sup> <sub>-0.05</sub>	0.5 ±0.05 or 0.6 <sup>+0.06</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>
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	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2
Package (see also page 162)	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	52 ±2 58 ±2 or 66 ±2	REEL	φ 500 max. φ 25 ±1
Unit	see details page 163.							

Dims in mm.

\* Diameter of pins see General Data.

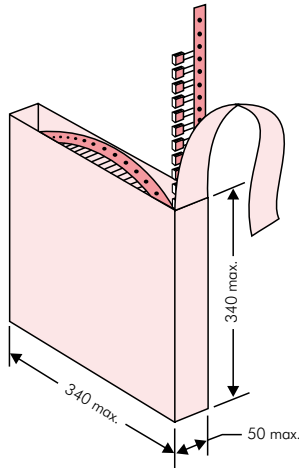
\* PCM 10 and PCM 15 can be crimped to PCM 7.5.

Position of components according to PCM 7.5 (sketch 11). P<sub>0</sub> = 12.7 or 15.0 is possible

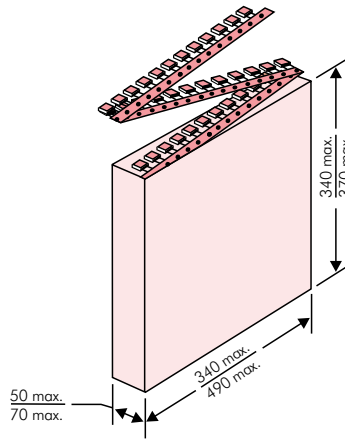
Please clarify customer-specific deviations with the manufacturer.

## Types of Tape Packaging of Capacitors for Automatic Radial Insertion

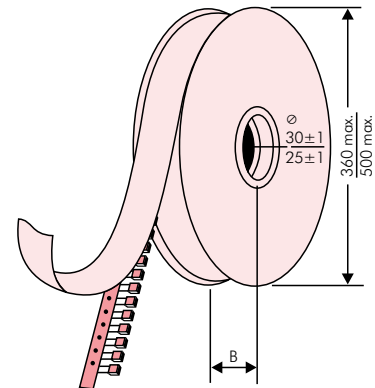
### ■ ROLL Packaging



### ■ AMMO Packaging



### ■ REEL Packaging



## BAR CODE (Labelling)

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

- WIMA supplier number
- Date code
- Customer's P/O number
- P/O line
- Customer's part number
- WIMA part number
- Quantity
- WIMA confirmation number
- Country of origin
- Customer name
- Handling unit number
- Week of delivery.

In addition part description of

- article
- capacitance value
- rated voltage
- dimensions
- technical note
- capacitance tolerance
- packing
- connecting information

**WIMA** Best Capacitors Made in Germany  
Werk Aurich

Supplier-ID: LIEF.NR.	Date Code: 20210419
Purchase Order No. (P/O): Bestellung xyz	P/O line: 100
Customer Part No.: KUNDENTEILENUMMER	
WIMA Part No.: MKP1F041006B00KSSD	Quantity: 459
WIMA Confirmation No.: 0001105072000100	RoHS 2011/65/EU
	COO: DE
Customer No.: 0000100002	
Gross Weight [g]: 4557	
<b>WIMA - MKP 10</b>	WIMA Part No.: MKP1F041006B00KSSD
MKP 10 1.0 µF 250 VDC 11x21x31.5 RM27.5	
Standard 10% Lose - Standard Drähte 6-2	
Vorlage Debitor Inland	
	0001105072000100
1002021443	QTY: 459 Week 19/2021

BARCODE PDF417  
BARCODE 2D Datamatrix

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

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

■ Moulded versions.

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## 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	N	O	ø 360		ø 500		340 x 340		490 x 370			
								H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	
								F	I	H	J	A	C	B	D			
<b>27.5 mm</b>	9	19	31.5	<b>6A</b>	567*	-	-	-	-	460/340*		-	-	-	-	-	-	
	11	21	31.5	<b>6B</b>	459*	-	-	-	-	380/280*		-	-	-	-	-	-	
	13	24	31.5	<b>6D</b>	378*	-	-	-	-	300		-	-	-	-	-	-	
	13	25	33	<b>FK</b>	405*	-	-	-	-	-		-	-	-	-	-	-	
	15	26	31.5	<b>6F</b>	324*	-	-	-	-	270		-	-	-	-	-	-	
	15	26	33	<b>FL</b>	324*	-	-	-	-	-		-	-	-	-	-	-	
	17	29	31.5	<b>6G</b>	198*	-	-	-	-	-		-	-	-	-	-	-	
	17	34.5	31.5	<b>6I</b>	198*	-	-	-	-	-		-	-	-	-	-	-	
	20	32	33	<b>FM</b>	162*	-	-	-	-	-		-	-	-	-	-	-	-
	20	39.5	31.5	<b>6J</b>	162*	-	-	-	-	-		-	-	-	-	-	-	-
<b>37.5 mm</b>	9	19	41.5	<b>7A</b>	441*	-	-	-	-	-	-	-	-	-	-	-	-	
	11	22	41.5	<b>7B</b>	357*	-	-	-	-	-	-	-	-	-	-	-	-	
	13	24	41.5	<b>7C</b>	294*	-	-	-	-	-	-	-	-	-	-	-	-	
	15	26	41.5	<b>7D</b>	252*	-	-	-	-	-	-	-	-	-	-	-	-	
	17	29	41.5	<b>7E</b>	154*	-	-	-	-	-	-	-	-	-	-	-	-	
	19	32	41.5	<b>7F</b>	140*	-	-	-	-	-	-	-	-	-	-	-	-	
	20	39.5	41.5	<b>7G</b>	126*	-	-	-	-	-	-	-	-	-	-	-	-	
	24	45.5	41.5	<b>7H</b>	112*	-	-	-	-	-	-	-	-	-	-	-	-	
	28	38	41.5	<b>7L</b>	84*	-	-	-	-	-	-	-	-	-	-	-	-	
	31	46	41.5	<b>7I</b>	84*	-	-	-	-	-	-	-	-	-	-	-	-	
	35	50	41.5	<b>7J</b>	35*	-	-	-	-	-	-	-	-	-	-	-	-	
	40	55	41.5	<b>7K</b>	28*	-	-	-	-	-	-	-	-	-	-	-	-	
<b>48.5 mm</b>	19	31	56	<b>8D</b>	120*	-	-	-	-	-	-	-	-	-	-	-		
	23	34	56	<b>8E</b>	80*	-	-	-	-	-	-	-	-	-	-	-		
	27	37.5	56	<b>8H</b>	84*	-	-	-	-	-	-	-	-	-	-	-		
	33	48	56	<b>8J</b>	25*	-	-	-	-	-	-	-	-	-	-	-		
	37	54	56	<b>8L</b>	25*	-	-	-	-	-	-	-	-	-	-	-		
<b>52.5 mm</b>	25	45	57	<b>9D</b>	70*	-	-	-	-	-	-	-	-	-	-	-		
	30	45	57	<b>9E</b>	60*	-	-	-	-	-	-	-	-	-	-	-		
	35	50	57	<b>9F</b>	25*	-	-	-	-	-	-	-	-	-	-	-		
	45	55	57	<b>9H</b>	20*	-	-	-	-	-	-	-	-	-	-	-		
	45	65	57	<b>9J</b>	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. Rights reserved to amend design data without prior notification.

Updated data on [www.wima.com](http://www.wima.com)





A WIMA part number consists of 18 digits and is composed as follows:

- Field 1 - 4: Type description
- Field 5 - 6: Rated voltage
- Field 7 - 10: Capacitance
- Field 11 - 12: Size and PCM
- Field 13 - 14: Version code (e.g. Snubber versions)
- Field 15: Capacitance tolerance
- Field 16: Packing
- Field 17 - 18: Pin length (untaped)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>M</b>	<b>K</b>	<b>S</b>	<b>2</b>	<b>C</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>A</b>	<b>0</b>	<b>0</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>D</b>
MKS 2				63 VDC		0.01 $\mu$ F			2.5x6.5x7.2		-		20%	bulk	6 -2		

<p><b>Type description:</b></p> <p>SMD-PET = SMDT              SMD-PEN = SMDN              SMD-PPS = SMDI              FKP 02 = FKPO              MKS 02 = MKS0              FKS 2 = FKS2              FKP 2 = FKP2              FKS 3 = FKS3              FKP 3 = FKP 3              MKS 2 = MKS2              MKP 2 = MKP2              MKS 4 = MKS4              MKP 4 = MKP4              MKP 10 = MKP1              FKP 4 = FKP4              FKP 1 = FKP1              MKP-X2 = MKX2              MKP-X1 R = MKX1              MKP-Y2 = MKY2              MP 3-X2 = MPX2              MP 3-X1 = MPX1              MP 3-Y2 = MPY2              MP 3R-Y2 = MPRY              MKP 4F = MKPF              Snubber MKP = SNMP              Snubber FKP = SNFP              GTO MKP = GTOM              DC-LINK MKP 4 = DCP4              DC-LINK MKP 6 = DCP6              DC-LINK HC = DCHC</p>	<p><b>Rated voltage:</b></p> <p>50 VDC = B0              63 VDC = C0              100 VDC = D0              250 VDC = F0              400 VDC = G0              450 VDC = H0              520 VDC = H2              600 VDC = I0              630 VDC = J0              700 VDC = K0              800 VDC = L0              850 VDC = M0              900 VDC = N0              1000 VDC = O1              1100 VDC = P0              1200 VDC = Q0              1250 VDC = R0              1500 VDC = S0              1600 VDC = T0              1700 VDC = TA              2000 VDC = U0              2500 VDC = V0              3000 VDC = W0              4000 VDC = X0              6000 VDC = Y0              250 VAC = 0W              275 VAC = 1W              300 VAC = 2W              305 VAC = AW              350 VAC = BW              440 VAC = 4W              500 VAC = 5W              ...</p>	<p><b>Capacitance:</b></p> <p>22 pF = 0022              47 pF = 0047              100 pF = 0100              150 pF = 0150              220 pF = 0220              330 pF = 0330              470 pF = 0470              680 pF = 0680              1000 pF = 1100              1500 pF = 1150              2200 pF = 1220              3300 pF = 1330              4700 pF = 1470              6800 pF = 1680              0.01 <math>\mu</math>F = 2100              0.022 <math>\mu</math>F = 2220              0.047 <math>\mu</math>F = 2470              0.1 <math>\mu</math>F = 3100              0.22 <math>\mu</math>F = 3220              0.47 <math>\mu</math>F = 3470              1 <math>\mu</math>F = 4100              2.2 <math>\mu</math>F = 4220              4.7 <math>\mu</math>F = 4470              10 <math>\mu</math>F = 5100              22 <math>\mu</math>F = 5220              47 <math>\mu</math>F = 5470              100 <math>\mu</math>F = 6100              220 <math>\mu</math>F = 6220              1000 <math>\mu</math>F = 7100              1500 <math>\mu</math>F = 7150              ...</p>	<p><b>Size:</b></p> <p>4.8x3.3x3 Size 1812 = KA              4.8x3.3x4 Size 1812 = KB              5.7x5.1x3.5 Size 2220 = QA              5.7x5.1x4.5 Size 2220 = QB              7.2x6.1x3 Size 2824 = TA              7.2x6.1x5 Size 2824 = TB              10.2x7.6x5 Size 4030 = VA              12.7x10.2x6 Size 5040 = XA              15.3x13.7x7 Size 6054 = YA              2.5x7x4.6 PCM 2.5 = 0B              3x7.5x4.6 PCM 2.5 = 0C              2.5x6.5x7.2 PCM 5 = 1A              3x7.5x7.2 PCM 5 = 1B              2.5x7x10 PCM 7.5 = 2A              3x8.5x10 PCM 7.5 = 2B              3x9x13 PCM 10 = 3A              4x9x13 PCM 10 = 3C              5x11x18 PCM 15 = 4B              6x12.5x18 PCM 15 = 4C              5x14x26.5 PCM 22.5 = 5A              6x15x26.5 PCM 22.5 = 5B              9x19x31.5 PCM 27.5 = 6A              11x21x31.5 PCM 27.5 = 6B              9x19x41.5 PCM 37.5 = 7A              11x22x41.5 PCM 37.5 = 7B              19x31x56 PCM 48.5 = 8D              25x45x57 PCM 52.5 = 9D              ...</p> <p><b>Version code:</b></p> <p>Standard = 00              Version A1 = 1A              Version A1.1.1 = 1B              Version A2 = 2A              ...</p>	<p><b>Tolerance:</b></p> <p><math>\pm</math>20% = M  <math>\pm</math>10% = K  <math>\pm</math>5% = J  <math>\pm</math>2.5% = H  <math>\pm</math>1% = E              ...</p> <p><b>Packing:</b></p> <p>AMMO H16.5 340x340 = A              AMMO H16.5 490x370 = B              AMMO H18.5 340x340 = C              AMMO H18.5 490x370 = D              REEL H16.5 360 = F              REEL H16.5 500 = H              REEL H18.5 360 = I              REEL H18.5 500 = J              ROLL H16.5 = N              ROLL H18.5 = O              BLISTER W12 180 = P              BLISTER W12 330 = Q              BLISTER W16 330 = R              BLISTER W24 330 = T              Bulk/TPS Standard = S              ...</p> <p><b>Pin length (untaped)</b></p> <p>3.5 <math>\pm</math>0.5 = C9              6 -2 = SD              16 <math>\pm</math>1 = P1              ...</p> <p><b>Pin length (taped)</b></p> <p>none = 00</p>
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The data on this page is not complete and serves only to explain the part number system. Part number information is listed on the pages of the respective WIMA range.

# Mouser Electronics

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[FKP2D012201D00JSSD](#) [FKP2D002201D00JSSD](#) [FKP2C013301D00KSSD](#) [FKP2C016801D00KSSD](#)  
[FKP2D001001D00KSSD](#) [FKP2F002201D00JSSD](#) [FKP2F011001D00HSSD](#) [FKP2F011501D00KSSD](#)  
[FKP2F013301G00HSSD](#) [FKP2J001001D00JSSD](#) [FKP2J001001D00KSSD](#) [FKP2J003301D00KSSD](#)  
[FKP2J004701D00KSSD](#) [FKP2J011001D00KSSD](#) [FKP2O100471D00KSSD](#) [FKP2G021001L00JSSD](#)  
[FKP2D016801G00HSSD](#) [FKP2D011501D00ESSD](#) [FKP2D014701G00HSSD](#) [FKP2D021501J00HSSD](#)  
[FKP2D022201L00HSSD](#) [FKP2D011001D00JSSD](#) [FKP2F006801D00HSSD](#) [FKP2D011501D00HSSD](#)  
[FKP2D004701D00JSSD](#) [FKP2C021001G00HSSD](#) [FKP2G013301G00JSSD](#) [FKP2D013301G00HSSD](#)  
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[FKP2D021001I00HSSD](#) [FKP2C014701D00HSSD](#) [FKP2C022201J00HSSD](#) [FKP2D001501D00HSSD](#)  
[FKP2D022201L00KSSD](#) [FKP2C023301L00HSSD](#) [FKP2C021001G00JSSD](#) [FKP2C014701D00KSSD](#)  
[FKP2C021501I00HSSD](#) [FKP2C021001G00ESSD](#) [FKP2D012201D00HSSD](#) [FKP2D003301D00JSSD](#)  
[FKP2D004701D00HSSD](#) [FKP2C014701D00JSSD](#) [FKP2J004701D00JSSD](#) [FKP2D002201D00KSSD](#)  
[FKP2D011501D00JSSD](#) [FKP2F004701D00JSSD](#) [FKP2O100471D00JSSD](#) [FKP2O100681D00JSSD](#)  
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[FKP2D011001D00KSSD](#) [FKP2C021501I00HSP1](#) [FKP2D014701G00KSSD](#) [FKP2J011001D00JSSD](#)  
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