

## 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

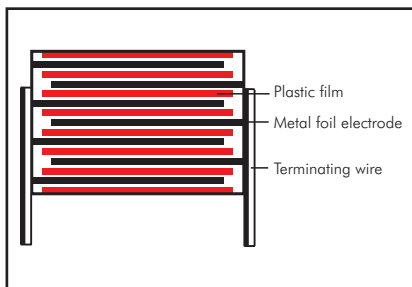
#### Dielectric:

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/µsec for pulses equal to the rated voltage

#### 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:

1 kPa = 10 mbar in accordance with IEC 60068-2-13

#### Bump test:

4000 bumps at  $390 \text{ m/sec}^2$  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_____					

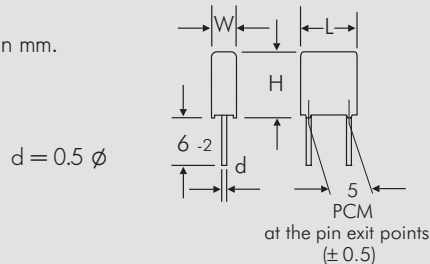
Capacitance	250 VDC/160 VAC*					400 VDC/220 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
100 pF	4.5	6	7.2	5	FKP2F001001D00_____	4.5	6	7.2	5	FKP2G001001D00_____
150 "	4.5	6	7.2	5	FKP2F001501D00_____	4.5	6	7.2	5	FKP2G001501D00_____
220 "	4.5	6	7.2	5	FKP2F002201D00_____	4.5	6	7.2	5	FKP2G002201D00_____
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.



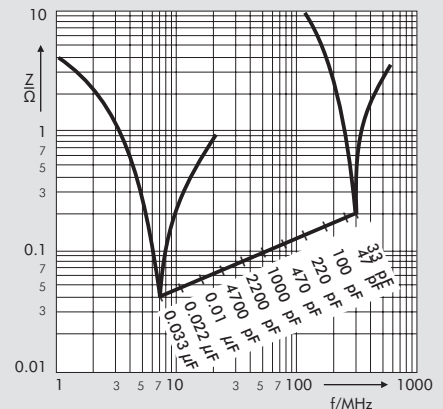
Part number completion:

- 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 149.



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.

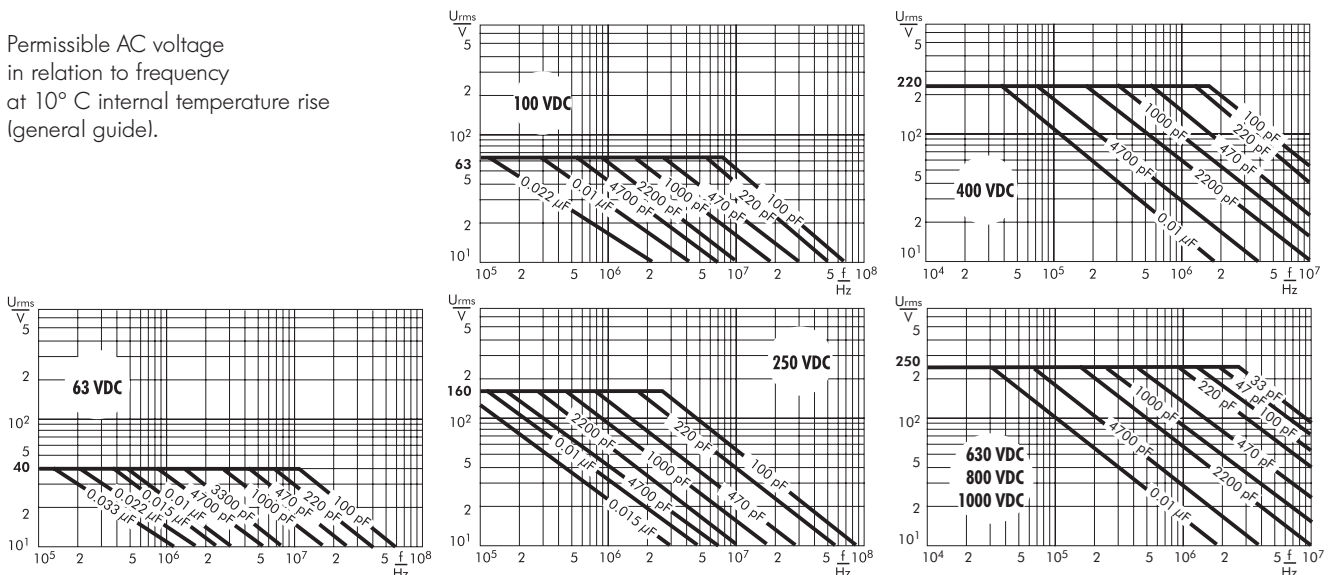
Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
	2.5 % = H
	2 % = G
	1.5 % = F
	1 % = E
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 149.	

\* 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.

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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 150)	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 151.							

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

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.

<b>WIMA</b> Best Capacitors Made In Germany		Werk Unna
Supplier-ID: 123456789	<b>RoHS</b> 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.: MKS2C034701C00K8SD	
Handling Unit: <b>MKS 2</b>	<b>QTY: 5.000</b>	<b>COO: DE</b>
	<b>MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RM5</b>	
<b>1000067326</b>	Standard 10% Loss - Standard Dichte 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	H16.5	H18.5	ø 500	H16.5	H18.5	340 × 340
					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		3100
	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		–		1200
	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
	10	18	19	<b>FG</b>	500		–		300		650		–		590
11	14	18	<b>4M</b>	1000		–		300		600		–		540	
<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*	-	-	420				
	11	21	31.5	<b>6B</b>	459*	-	-	-	-	380/280*	-	-	350				
	13	24	31.5	<b>6D</b>	378*	-	-	-	-	300	-	-	290				
	13	25	33	<b>FK</b>	405*	-	-	-	-	-	-	-	-				
	15	26	31.5	<b>6F</b>	324*	-	-	-	-	270	-	-	250				
	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*	-	-	-	-	-	-	-	-				
	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 µF			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 4C = MKPC                  MKP 4 = MKP4                  MKP 10 = MKP1                  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 3 = DCP3                  DC-LINK MKP 4 = DCP4                  DC-LINK MKP 4S = DCP5                  DC-LINK MKP 5 = DCP5                  DC-LINK MKP 6 = DCP6                  DC-LINK HC = DCHC                  DC-LINK HY = DCHY</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                  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 µF = 2100                  0.022 µF = 2220                  0.047 µF = 2470                  0.1 µF = 3100                  0.22 µF = 3220                  0.47 µF = 3470                  1 µF = 4100                  2.2 µF = 4220                  4.7 µF = 4470                  10 µF = 5100                  22 µF = 5220                  47 µF = 5470                  100 µF = 6100                  220 µF = 6220                  1000 µF = 7100                  1500 µF = 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>±20% = M                  ±10% = K                  ±5% = J                  ±2.5% = H                  ±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 ±0.5 = C9                  6 -2 = SD                  16 ±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

Authorized Distributor

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[FKP2D012201D00JSSD](#) [FKP2D002201D00JSSD](#) [FKP2C013301D00KSSD](#) [FKP2C016801D00KSSD](#)  
[FKP2D001001D00KSSD](#) [FKP2F002201D00JSSD](#) [FKP2F011001D00HSSD](#) [FKP2F011501D00KSSD](#)  
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[FKP2J004701D00KSSD](#) [FKP2J011001D00KSSD](#) [FKP2O100471D00KSSD](#) [FKP2G021001L00JSSD](#)  
[FKP2D016801G00HSSD](#) [FKP2D011501D00ESSD](#) [FKP2D014701G00HSSD](#) [FKP2D021501J00HSSD](#)  
[FKP2D022201L00HSSD](#) [FKP2D011001D00JSSD](#) [FKP2F006801D00HSSD](#) [FKP2D011501D00HSSD](#)  
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[FKP2C021501I00HSSD](#) [FKP2C021001G00ESSD](#) [FKP2D012201D00HSSD](#) [FKP2D003301D00JSSD](#)  
[FKP2D004701D00HSSD](#) [FKP2C014701D00JSSD](#) [FKP2J004701D00JSSD](#) [FKP2D002201D00KSSD](#)  
[FKP2D011501D00JSSD](#) [FKP2F004701D00JSSD](#) [FKP2O100471D00JSSD](#) [FKP2O100681D00JSSD](#)  
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