

## Metallized Polyester (PET) Capacitors in PCM 5 mm

### Special Features

- High volume/capacitance ratio
- Self-healing
- According to RoHS 2002/95/EC

### Typical Applications

For general DC-applications e.g.

- By-pass
- Blocking
- Coupling and decoupling
- Timing

### Construction

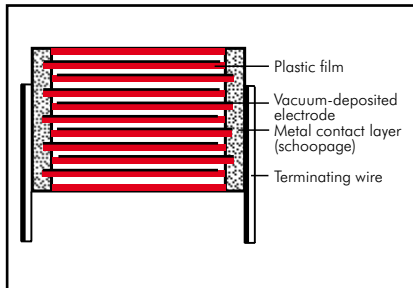
#### Dielectric:

Polyethylene-terephthalate (PET) 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: Silver/White.  
Epoxy resin seal: Red

### Electrical Data

#### Capacitance range:

0.01  $\mu\text{F}$  to 10  $\mu\text{F}$  (E12-values on request)

#### Rated voltages:

50 VDC, 63 VDC, 100 VDC, 250 VDC,  
400 VDC, 630 VDC

#### Capacitance tolerances:

$\pm 20\%$ ,  $\pm 10\%$ ,  $\pm 5\%$

#### Operating temperature range:

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

#### Climatic test category:

55/100/21 in accordance with IEC

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

$U_r$	$U_{\text{test}}$	$C \leq 0.33 \mu\text{F}$	$0.33 \mu\text{F} < C \leq 10 \mu\text{F}$
50 VDC	10V	$\geq 5 \times 10^3 \text{ M}\Omega$ (mean value: $3 \times 10^4 \text{ M}\Omega$ )	$\geq 1000 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 3000 sec)
63 VDC	50V	$\geq 1 \times 10^4 \text{ M}\Omega$ (mean value: $5 \times 10^4 \text{ M}\Omega$ )	$\geq 1250 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 3000 sec)
$\geq 100 \text{ VDC}$	100V	$\geq 1.5 \times 10^4 \text{ M}\Omega$ (mean value: $1 \times 10^5 \text{ M}\Omega$ )	$\geq 3000 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 6000 sec)

Measuring time: 1 min.

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

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	$\leq 8 \times 10^{-3}$	$\leq 8 \times 10^{-3}$	$\leq 10 \times 10^{-3}$
10 kHz	$\leq 15 \times 10^{-3}$	$\leq 15 \times 10^{-3}$	-
100 kHz	$\leq 30 \times 10^{-3}$	-	-

#### Maximum pulse rise time: for pulses equal to the rated voltage

Capacitance $\mu\text{F}$	Pulse rise time V/ $\mu\text{sec}$ max. operation/test					
	50 VDC	63 VDC	100 VDC	250 VDC	400 VDC	630 VDC
0.01 ... 0.022	-	35/350	35/350	50/500	80/800	110/1100
0.033 ... 0.068	-	20/200	25/250	50/500	80/800	90/900
0.1 ... 0.47	10/100	15/150	20/200	50/500	80/800	-
0.68 ... 1.0	8/80	12/120	15/150	25/250	-	-
1.5 ... 3.3	8/80	7.5/75	10/100	-	-	-
4.7	5/50	5/50	-	-	-	-
6.8	3/30	3/30	-	-	-	-
10	2.5/25	-	-	-	-	-

### Mechanical Tests

#### Pull test on leads:

10 N in direction of leads 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 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	50 VDC/30 VAC*					63 VDC/40 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.01 $\mu\text{F}$						2.5	6.5	7.2	5	MKS2C021001A00_
0.015 "						2.5	6.5	7.2	5	MKS2C021501A00_
0.022 "						2.5	6.5	7.2	5	MKS2C022201A00_
0.033 "						2.5	6.5	7.2	5	MKS2C023301A00_
0.047 "						2.5	6.5	7.2	5	MKS2C024701A00_
0.068 "						2.5	6.5	7.2	5	MKS2C026801A00_
0.1 $\mu\text{F}$						2.5	6.5	7.2	5	MKS2C031001A00_
0.15 "						2.5	6.5	7.2	5	MKS2C031501A00_
0.22 "						3	7.5	7.2	5	MKS2C032201B00_
0.33 "	2.5	6.5	7.2	5	MKS2B033301A00_	3.5	8.5	7.2	5	MKS2C033301C00_
0.47 "	3	7.5	7.2	5	MKS2B034701B00_	3.5	8.5	7.2	5	MKS2C034701C00_
0.68 "	3.5	8.5	7.2	5	MKS2B036801C00_	4.5	9.5	7.2	5	MKS2C036801E00_
1.0 $\mu\text{F}$	3.5	8.5	7.2	5	MKS2B041001C00_	5	10	7.2	5	MKS2C041001F00_
1.5 "	4.5	9.5	7.2	5	MKS2B041501E00_	5.5	11.5	7.2	5	MKS2C041501H00_
2.2 "	5	10	7.2	5	MKS2B042201F00_	7.2	13	7.2	5	MKS2C042201K00_
3.3 "	5.5	11.5	7.2	5	MKS2B043301H00_	7.2	13	7.2	5	MKS2C043301K00_
4.7 "	7.2	13	7.2	5	MKS2B044701K00_	8.5	14	7.2	5	MKS2C044701M00_
6.8 "	8.5	14	7.2	5	MKS2B046801M00_	11	16	7.2	5	MKS2C046801N00_
10 $\mu\text{F}$	11	16	7.2	5	MKS2B051001N00_					

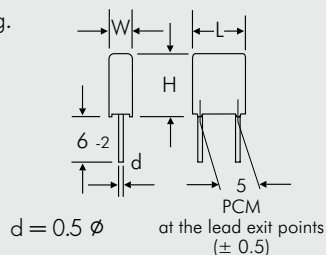
Capacitance	100 VDC/63 VAC*					250 VDC/160 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.01 $\mu\text{F}$	2.5	6.5	7.2	5	MKS2D021001A00_	2.5	6.5	7.2	5	MKS2F021001A00_
0.015 "	2.5	6.5	7.2	5	MKS2D021501A00_	2.5	6.5	7.2	5	MKS2F021501A00_
0.022 "	2.5	6.5	7.2	5	MKS2D022201A00_	2.5	6.5	7.2	5	MKS2F022201A00_
0.033 "	2.5	6.5	7.2	5	MKS2D023301A00_	3.5	8.5	7.2	5	MKS2F023301C00_
0.047 "	2.5	6.5	7.2	5	MKS2D024701A00_	3.5	8.5	7.2	5	MKS2F024701C00_
0.068 "	2.5	6.5	7.2	5	MKS2D026801A00_	3.5	8.5	7.2	5	MKS2F026801C00_
0.1 $\mu\text{F}$	2.5	6.5	7.2	5	MKS2D031001A00_	4.5	9.5	7.2	5	MKS2F031001E00_
0.15 "	3.5	8.5	7.2	5	MKS2D031501C00_	5	10	7.2	5	MKS2F031501F00_
0.22 "	3.5	8.5	7.2	5	MKS2D032201C00_	5.5	11.5	7.2	5	MKS2F032201H00_
0.33 "	4.5	9.5	7.2	5	MKS2D033301E00_	7.2	13	7.2	5	MKS2F033301K00_
0.47 "	4.5	9.5	7.2	5	MKS2D034701E00_	8.5	14	7.2	5	MKS2F034701M00_
0.68 "	5	10	7.2	5	MKS2D036801F00_	11	16	7.2	5	MKS2F036801N00_
1.0 $\mu\text{F}$	7.2	13	7.2	5	MKS2D041001K00_					
1.5 "	8.5	14	7.2	5	MKS2D041501M00_					
2.2 "	11	16	7.2	5	MKS2D042201N00_					

\* AC voltage:  $f = 50 \text{ Hz}$ ;  $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

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

Dims. in mm.

The value 10  $\mu\text{F}$  has been transferred from the former WIMA MKS 2-XL range.



Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
Packing:	bulk = S
Lead length:	6-2 = SD
Taped version see page 127.	

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## Continuation

### General Data

Capacitance	400 VDC/200 VAC*					630 VDC/220 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.01 $\mu\text{F}$	2.5	6.5	7.2	5	MKS2G021001A00_	5.5	11.5	7.2	5	MKS2J021001H00_
0.015 "	2.5	6.5	7.2	5	MKS2G021501A00_	7.2	13	7.2	5	MKS2J021501K00_
0.022 "	3.5	8.5	7.2	5	MKS2G022201C00_	7.2	13	7.2	5	MKS2J022201K00_
0.033 "	4.5	9.5	7.2	5	MKS2G023301E00_	7.2	13	7.2	5	MKS2J023301K00_
0.047 "	4.5	9.5	7.2	5	MKS2G024701E00_	8.5	14	7.2	5	MKS2J024701M00_
0.068 "	5.5	11.5	7.2	5	MKS2G026801H00_					
0.1 $\mu\text{F}$	7.2	13	7.2	5	MKS2G031001K00_					
0.15 "	8.5	14	7.2	5	MKS2G031501M00_					
0.22 "	11	16	7.2	5	MKS2G032201N00_					

\* AC voltage:  $f = 50 \text{ Hz}$ ;  $1.4 \times U_{\text{rms}} + \text{UDC} \leq U_r$

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

Dims. in mm.

The values of the WIMA MKM 2 and WIMA MKI 2 ranges according to the main catalogue 2009 are still available on request.

#### Part number completion:

Tolerance: 20 % = M

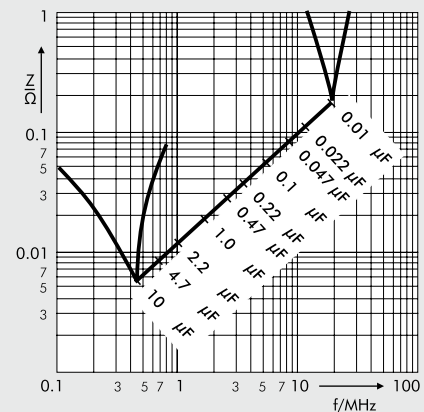
10 % = K

5 % = J

Packing: bulk = S

Lead length: 6-2 = SD

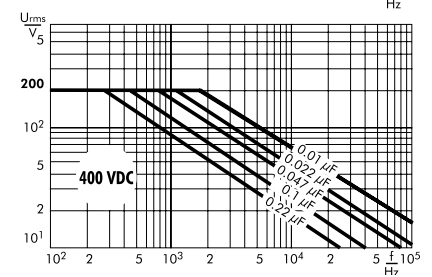
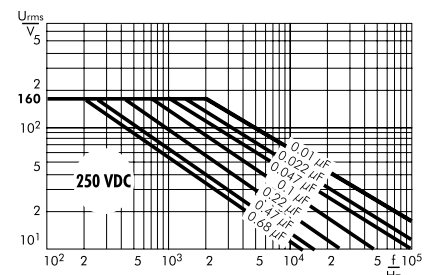
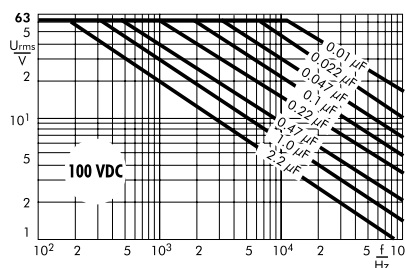
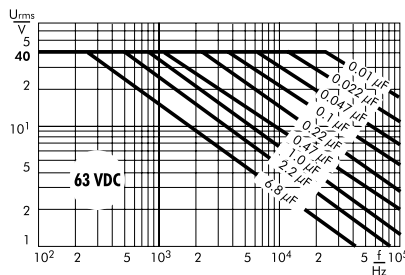
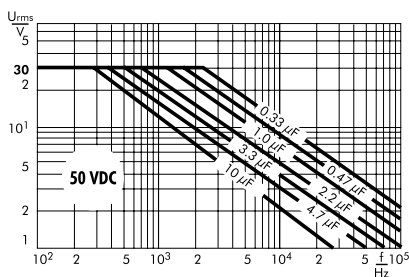
Taped version see page 127.



Impedance change with frequency (general guide).

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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

A preheating of through-hole WIMA capacitors is allowed for temperatures  $T_{\max} < 100^{\circ}\text{C}$ . In practice a preheating duration of  $t < 5$  min. has been proven to be best.

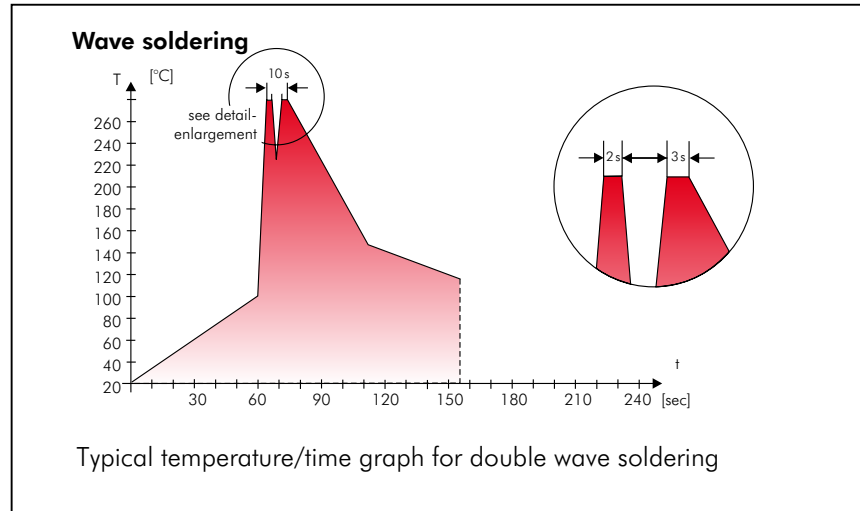
#### Single wave soldering

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

#### Double wave soldering

Soldering bath temperature:  $T < 260^{\circ}\text{C}$   
Immersion time:  $2 \times t < 3$  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 9001:2000 Certification

ISO 9001:2000 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2000 of our factories by the VDE inspectorate 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 of WPCS during production process:

- incoming material inspection
- metallization
- film inspection
- schoopage
- pre-healing
- lead attachment
- cast resin preparation/encapsulation
- 100% final inspection
- AQL check

### 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 2002/95/EC 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 2002/95/EG

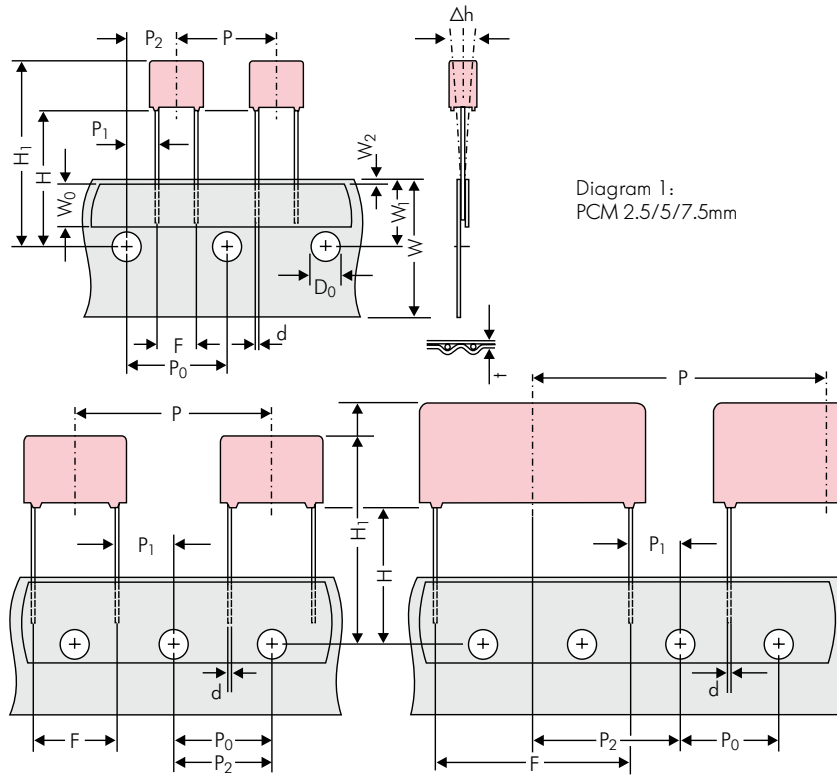
WIMA capacitors are lead free in accordance with RoHS 2002/95/EC

Tape for lead-free WIMA capacitors

### DIN EN ISO 14001:2005

WIMA's environmental management has been established in accordance with the guidelines of DIN EN ISO 14001:2005. The certification has been granted in June 2006.

# Typical Dimensions for Taping Configuration



\*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 lead	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
Lead 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
Lead 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	0.7 ±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 128)	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 130.							

Dims in mm.

\* Diameter of leads 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.

# Packing Quantities for Bulk Capacitors and TPS\*



PCM	Size				pcs. per packaging unit bulk			pcs. per packaging unit/TPS*	
	W	H	L	Codes	Mini <b>M</b>	Standard <b>S</b>	Maxi <b>G</b>	Mini <b>X</b>	Standard <b>Y</b>
<b>2.5 mm</b>	2.5	7	4.6	<b>0B</b>	1000	5000	10 000	-	-
	3	7.5	4.6	<b>0C</b>	1000	5000	10 000	-	-
	3.8	8.5	4.6	<b>0D</b>	1000	5000	10 000	-	-
	4.6	9	4.6	<b>0E</b>	1000	5000	10 000	-	-
	5.5	10	4.6	<b>0F</b>	1000	5000	10 000	-	-
<b>5 mm</b>	2.5	6.5	7.2	<b>1A</b>	2000	5000	10 000	-	-
	3	7.5	7.2	<b>1B</b>	1000	5000	-	-	-
	3.5	8.5	7.2	<b>1C</b>	1000	5000	-	-	-
	4.5	6	7.2	<b>1D</b>	1000	6000	-	-	-
	4.5	9.5	7.2	<b>1E</b>	1000	4000	-	-	-
	5	10	7.2	<b>1F</b>	1000	3500	-	-	-
	5.5	7	7.2	<b>1G</b>	1000	4000	-	-	-
	5.5	11.5	7.2	<b>1H</b>	500	2500	-	-	-
	6.5	8	7.2	<b>1I</b>	1000	2500	-	-	-
	7.2	8.5	7.2	<b>1J</b>	500	2500	-	-	-
	7.2	13	7.2	<b>1K</b>	500	2000	-	-	-
	8.5	10	7.2	<b>1L</b>	500	2000	-	-	-
	8.5	14	7.2	<b>1M</b>	500	1500	-	-	-
11	16	7.2	<b>1N</b>	250	1000	-	-	-	
<b>7.5 mm</b>	2.5	7	10	<b>2A</b>	1000	5000	-	-	-
	3	8.5	10	<b>2B</b>	1000	5000	-	-	-
	4	9	10	<b>2C</b>	1000	4000	-	-	-
	4.5	9.5	10.3	<b>2D</b>	1000	3500	-	-	-
	5	10.5	10.3	<b>2E</b>	1000	3000	-	-	-
	5.7	12.5	10.3	<b>2F</b>	500	2000	-	-	-
	7.2	12.5	10.3	<b>2G</b>	500	1500	-	-	-
<b>10 mm</b>	3	9	13	<b>3A</b>	1000	3000	-	-	-
	4	8.5	13.5	<b>3B</b>	500	3000	-	-	-
	4	9	13	<b>3C</b>	1000	3000	-	-	-
	4	9.5	13	<b>3D</b>	1000	3000	-	-	-
	5	10	13.5	<b>3E</b>	500	2000	-	-	-
	5	11	13	<b>3F</b>	1000	3000	-	-	-
	6	12	13	<b>3G</b>	800	2400	-	-	-
	6	12.5	13	<b>3H</b>	800	2400	-	-	-
8	12	13	<b>3I</b>	500	2000	-	-	-	
<b>15 mm</b>	5	11	18	<b>4B</b>	800	2400	-	-	-
	5	13	19	<b>4C</b>	200	1000	-	-	-
	6	12.5	18	<b>4D</b>	500	2000	-	-	-
	6	14	19	<b>4E</b>	250	1000	-	-	-
	7	14	18	<b>4F</b>	400	1600	-	-	-
	7	15	19	<b>4G</b>	250	1000	-	-	-
	8	15	18	<b>4H</b>	400	1200	-	-	-
	8	17	19	<b>4I</b>	100	500	-	-	-
	9	14	18	<b>4J</b>	400	1200	-	-	-
	9	16	18	<b>4K</b>	300	900	-	-	-
	10	18	19	<b>4L</b>	100	500	-	-	-
11	14	18	<b>4M</b>	300	1000	-	-	-	
<b>22.5 mm</b>	5	14	26.5	<b>5A</b>	300	1200	-	-	-
	6	15	26.5	<b>5B</b>	250	1000	-	-	-
	7	16.5	26.5	<b>5C</b>	190	760	-	-	-
	8	20	28	<b>5D</b>	125	500	-	-	-
	8.5	18.5	26.5	<b>5E</b>	125	500	-	-	-
	10	22	28	<b>5F</b>	-	-	-	90	540
	10.5	19	26.5	<b>5G</b>	-	-	-	170	680
	10.5	20.5	26.5	<b>5H</b>	-	-	-	170	680
	11	21	26.5	<b>5I</b>	-	-	-	170	680
	12	24	28	<b>5J</b>	-	-	-	75	450
<b>27.5 mm</b>	9	19	31.5	<b>6A</b>	-	-	-	160	640
	11	21	31.5	<b>6B</b>	-	-	-	136	544
	13	24	31.5	<b>6C</b>	-	-	-	112	448
	13	25	33	<b>6D</b>	-	-	-	56	336
	15	26	31.5	<b>6E</b>	-	-	-	96	384
	15	26	33	<b>6F</b>	-	-	-	48	288
	17	29	31.5	<b>6G</b>	-	-	-	88	176
	17	34.5	31.5	<b>6H</b>	-	-	-	88	176
	20	32	33	<b>6I</b>	-	-	-	36	216
	20	39.5	31.5	<b>6J</b>	-	-	-	36	144
<b>37.5 mm</b>	9	19	41.5	<b>7A</b>	-	-	-	60	480
	11	22	41.5	<b>7B</b>	-	-	-	51	408
	13	24	41.5	<b>7C</b>	-	-	-	84	252
	15	26	41.5	<b>7D</b>	-	-	-	72	144
	17	29	41.5	<b>7E</b>	-	-	-	66	132
	19	32	41.5	<b>7F</b>	-	-	-	54	108
	20	39.5	41.5	<b>7G</b>	-	-	-	27	108
	24	45.5	41.5	<b>7H</b>	-	-	-	21	84



## Packing Units for Taped Capacitors with Radial Leads

PCM	Size				ROLL		REEL				AMMO			
					H16.5	H18.5	ø 360		ø 500		340 × 340		490 × 370	
	W	H	L	Codes	N	O	F	I	H	J	A	C	B	D
<b>2.5 mm</b>	2.5	7	4.6	<b>0B</b>	2200		2500		–		2800		–	
	3	7.5	4.6	<b>0C</b>	2000		2300		–		2300		–	
	3.8	8.5	4.6	<b>0D</b>	1500		1800		–		1800		–	
	4.6	9	4.6	<b>0E</b>	1200		1500		–		1500		–	
	5.5	10	4.6	<b>0F</b>	900		1200		–		1200		–	
<b>5 mm</b>	2.5	6.5	7.2	<b>1A</b>	2200		2500		–		2800		–	
	3	7.5	7.2	<b>1B</b>	2000		2300		–		2300		–	
	3.5	8.5	7.2	<b>1C</b>	1600		2000		–		2000		–	
	4.5	6	7.2	<b>1D</b>	1300		1500		–		1500		–	
	4.5	9.5	7.2	<b>1E</b>	1300		1500		–		1500		–	
	5	10	7.2	<b>1F</b>	1100		1400		–		1400		–	
	5.5	7	7.2	<b>1G</b>	1000		1200		–		1200		–	
	5.5	11.5	7.2	<b>1H</b>	1000		1200		–		1200		–	
	6.5	8	7.2	<b>1I</b>	800		1000		–		1000		–	
	7.2	8.5	7.2	<b>1J</b>	700		1000		–		1000		–	
	7.2	13	7.2	<b>1K</b>	700		950		–		1000		–	
	8.5	10	7.2	<b>1L</b>	600		800		–		800		–	
	8.5	14	7.2	<b>1M</b>	600		800		–		800		–	
11	16	7.2	<b>1N</b>	500		700		–		700		–		
<b>7.5 mm</b>	2.5	7	10	<b>2A</b>	–		2500		4400		2500		–	
	3	8.5	10	<b>2B</b>	–		2200		4300		2300		4150	
	4	9	10	<b>2C</b>	–		1700		3200		1700		3100	
	4.5	9.5	10.3	<b>2D</b>	–		1500		2900		1400		2800	
	5	10.5	10.3	<b>2E</b>	–		1300		2500		1300		–	
	5.7	12.5	10.3	<b>2F</b>	–		1000		2200		1100		–	
	7.2	12.5	10.3	<b>2G</b>	–		900		1800		1000		–	
<b>10 mm</b>	3	9	13	<b>3A</b>	–		1100		2200		–		1900	
	4	8.5	13.5	<b>FA</b>	–		900		1600		–		1450	
	4	9	13	<b>3C</b>	–		900		1600		–		1450	
	4	9.5	13	<b>3D</b>	–		900		1600		–		1400	
	5	10	13.5	<b>FB</b>	–		700		1300		–		1200	
	5	11	13	<b>3F</b>	–		700		1300		–		1200	
	6	12	13	<b>3G</b>	–		550		1100		–		1000	
	6	12.5	13	<b>3H</b>	–		550		1100		–		1000	
8	12	13	<b>3I</b>	–		400		800		–		740		
<b>15 mm</b>	5	11	18	<b>4B</b>	–		600		1200		–		1150	
	5	13	19	<b>FC</b>	–		600		1200		–		1200	
	6	12.5	18	<b>4C</b>	–		500		1000		–		1000	
	6	14	19	<b>FD</b>	–		500		1000		–		1000	
	7	14	18	<b>4D</b>	–		450		900		–		850	
	7	15	19	<b>FE</b>	–		450		900		–		850	
	8	15	18	<b>4F</b>	–		400		800		–		740	
	8	17	19	<b>FF</b>	–		400		800		–		740	
	9	14	18	<b>4H</b>	–		350		700		–		650	
	9	16	18	<b>4J</b>	–		350		700		–		650	
	10	18	19	<b>FG</b>	–		300		650		–		590	
11	14	18	<b>4M</b>	–		300		600		–		540		
<b>22.5 mm</b>	5	14	26.5	<b>5A</b>	–		–		800		–		770	
	6	15	26.5	<b>5B</b>	–		–		700		–		640	
	7	16.5	26.5	<b>5D</b>	–		–		600		–		550	
	8	20	28	<b>FH</b>	–		–		500		–		480	
	8.5	18.5	26.5	<b>5F</b>	–		–		480		–		450	
	10	22	28	<b>FI</b>	–		–		420		–		380	
	10.5	19	26.5	<b>5G</b>	–		–		400		–		360	
	10.5	20.5	26.5	<b>5H</b>	–		–		400		–		360	
	11	21	26.5	<b>5I</b>	–		–		380		–		350	
	12	24	28	<b>FJ</b>	–		–		350		–		310	
<b>27.5 mm</b>	9	19	31.5	<b>6A</b>	–		–		460/340*		–		420	
	11	21	31.5	<b>6B</b>	–		–		380/280*		–		350	
	13	24	31.5	<b>6D</b>	–		–		300		–		290	
	15	26	31.5	<b>6F</b>	–		–		270		–		250	

\* for 2-inch transport pitches.

Samples and pre-production needs 1 packing unit minimum.

■ Moulded versions.

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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: Special features (e.g. Snubber versions)
- Field 15: Capacitance tolerance
- Field 16: Packing
- Field 17 - 18: Lead 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-PPS = SMDI                  FKP 02 = FKP0                  MKS 02 = MKS0                  FKS 2 = FKS2                  FKP 2 = FKP2                  MKS 2 = MKS2                  MKP 2 = MKP2                  FKS 3 = FKS3                  FKP 3 = FKP3                  MKS 4 = MKS4                  MKP 4 = MKP4                  MKP 10 = MKP1                  FKP 4 = FKP4                  FKP 1 = FKP1                  MKP-X2 = MKX2                  MKP-X2 R = MKXR                  MKP-Y2 = MKY2                  MP 3-X2 = MPX2                  MP 3-X1 = MPX1                  MP 3-Y2 = MPY2                  MP 3R-Y2 = MPRY                  Snubber MKP = SNMP                  Snubber FKP = SNFP                  GTO MKP = GTOM                  DC-LINK MKP 4 = DCP4                  DC-LINK MKP C = DCPC                  DC-LINK HC = DCH_                  SuperCap C = SCSC                  SuperCap MC = SMC                  SuperCap R = SCSR                  SuperCap MR = SCMR</p>	<p><b>Rated voltage:</b></p> <p>2.5 VDC = A1                  4 VDC = A2                  14 VDC = A3                  28 VDC = A4                  40 VDC = A5                  5 VDC = A6                  50 VDC = B0                  63 VDC = C0                  100 VDC = D0                  160 VDC = E0                  250 VDC = F0                  400 VDC = G0                  450 VDC = H0                  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                  400 VAC = 3W                  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                  1 F = A010                  2.5 F = A025                  50 F = A500                  100 F = B100                  110 F = B110                  600 F = B600                  1200 F = C120                  ...</p>	<p><b>Size:</b></p> <p>4.8x3.3x3 Size 1812 = X1                  4.8x3.3x4 Size 1812 = X2                  5.7x5.1x3.5 Size 2220 = Y1                  5.7x5.1x4.5 Size 2220 = Y2                  7.2x6.1x3 Size 2824 = T1                  7.2x6.1x5 Size 2824 = T2                  10.2x7.6x5 Size 4030 = K1                  12.7x10.2x6 Size 5040 = V1                  15.3x13.7x7 Size 6054 = Q1                  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                  94x49x182 DCH_ = H0                  94x77x182 DCH_ = H1                  ...</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 Mini = M                  Bulk Standard = S                  Bulk Maxi = G                  TPS Mini = X                  TPS Standard = Y                  ...</p>	<p><b>Special features:</b></p> <p>Standard = 00                  Version A1 = 1A                  Version A1.1.1 = 1B                  Version A1.2 = 1C                  ...</p> <p><b>Lead length (untaped)</b></p> <p>3.5 ±0.5 = C9                  6 -2 = SD                  16 ±1 = P1                  ...</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.