

Polypropylene (PP) Capacitors for Pulse Applications with Metal Foil Electrodes, Schoopage Contacts, Double-Sided Metallization and Self-Healing Internal Series Connection for Highest Current Carrying Capability PCM 15 mm to 37.5 mm

Special Features

- Extremely high pulse duty
- Self-healing
- Internal series connection
- Very low dissipation factor
- Negative capacitance change versus temperature
- According to RoHS 2011/65/EC

Typical Applications

For high pulse and high frequency applications e.g.

- Switch mode power supplies
- Converters in drives and power electronics
- Deflection systems in monitors and TV-sets
- Electronic ballasts

Construction

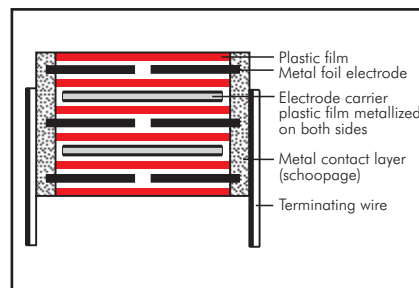
Dielectric:

Polypropylene (PP) film

Capacitor electrodes:

Aluminium foil and double-sided metallized plastic film

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.
Epoxy resin seal: Yellow

Electrical Data

Capacitance range:

100 pF to 0.22 μ F (E12-values on request)

Rated voltages:

400 VDC, 630 VDC, 1000 VDC, 1250 VDC, 1600 VDC, 2000 VDC, 4000 VDC, 6000 VDC

Capacitance tolerances:

$\pm 20\%$, $\pm 10\%$, $\pm 5\%$ (other tolerances are available subject to special enquiry)

Operating temperature range:

-55°C to $+100^{\circ}\text{C}$

Climatic test category:

55/100/56 in accordance with IEC

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

$C \leq 0.1 \mu\text{F}$: $\geq 1 \times 10^5 \text{ M}\Omega$

(mean value: $5 \times 10^5 \text{ M}\Omega$)

$C > 0.1 \mu\text{F}$: $\geq 30\,000 \text{ sec (M}\Omega \times \mu\text{F)}$

(mean value: 100 000 sec)

Measuring voltage: 100 V/1 min.

Test voltage:

$2 U_r$, 2 sec / 6 kV: $1.6 U_r$, 2 sec.

Maximum pulse rise time:

Capacitance pF/ μ F	max. pulse rise time V/ μ sec at $T_A < 40^{\circ}\text{C}$							
	400 VDC	630 VDC	1000 VDC	1250 VDC	1600 VDC	2000 VDC	4000 VDC	6000 VDC
100 ... 220	—	—	—	—	56000	56000	—	—
330 ... 680	—	—	—	—	51000	56000	56000	56000
1000 ... 2200	29000	29000	29000	29000	46000	51000	51000	51000
3300 ... 6800	9000	14000	27000	29000	29000	29000	29000	29000
0.01 ... 0.022	9000	11000	11000	11000	11000	13000	13000	13000
0.033 ... 0.068	9000	11000	11000	11000	11000	11000	—	—
0.1 ... 0.22	7000	11000	11000	11000	11000	—	—	—

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:

1 kPa = 10 mbar in accordance with

IEC 60068-2-13

Bump test:

4000 bumps at 390 m/sec²

in accordance with IEC 60068-2-29

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

at f	$C \leq 0.1 \mu\text{F}$	$0.1 \mu\text{F} < C \leq 0.22 \mu\text{F}$
1 kHz	$\leq 3 \times 10^{-4}$	$\leq 3 \times 10^{-4}$
10 kHz	$\leq 4 \times 10^{-4}$	$\leq 6 \times 10^{-4}$
100 kHz	$\leq 10 \times 10^{-4}$	—

Dielectric absorption:

0.05%

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 < 1 fit ($0.5 \times U_r$ and 40°C)

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	400 VDC/250 VAC*					630 VDC/400 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1000 pF	5	11	18	15	FKP1G011004B00_____	5	11	18	15	FKP1J011004B00_____
1500 "	5	11	18	15	FKP1G011504B00_____	5	11	18	15	FKP1J011504B00_____
2200 "	5	11	18	15	FKP1G012204B00_____	5	11	18	15	FKP1J012204B00_____
3300 "	5	11	18	15	FKP1G013304B00_____	5	11	18	15	FKP1J013304B00_____
4700 "	5	11	18	15	FKP1G014704B00_____	5	11	18	15	FKP1J014704B00_____
6800 "	5	11	18	15	FKP1G016804B00_____	6	12.5	18	15	FKP1J016804C00_____
0.01 µF	5	11	18	15	FKP1G021004B00_____	7	14	18	15	FKP1J021004D00_____
0.015 "	6	12.5	18	15	FKP1G021504C00_____	5	14	26.5	22.5	FKP1J021005A00_____
0.022 "	7	14	18	15	FKP1G022204D00_____	8	15	18	15	FKP1J021504F00_____
0.033 "	5	14	26.5	22.5	FKP1G022205A00_____	6	15	26.5	22.5	FKP1J021505B00_____
0.047 "	8	15	18	15	FKP1G023304F00_____	7	16.5	26.5	22.5	FKP1J022205D00_____
0.068 "	6	15	26.5	22.5	FKP1G023305B00_____	8.5	18.5	26.5	22.5	FKP1J023305F00_____
0.1 µF	7	16.5	26.5	22.5	FKP1G024705D00_____	10.5	20.5	26.5	22.5	FKP1J024705H00_____
	8.5	18.5	26.5	22.5	FKP1G026805F00_____	9	19	31.5	27.5	FKP1J024706A00_____
						11	21	31.5	27.5	FKP1J026806B00_____
						9	19	41.5	37.5	FKP1J026807A00_____
0.1 µF	10.5	20.5	26.5	22.5	FKP1G031005H00_____	13	24	31.5	27.5	FKP1J031006D00_____
0.15 "	9	19	31.5	27.5	FKP1G031006A00_____	11	22	41.5	37.5	FKP1J031007B00_____
0.22 "	11	21	31.5	27.5	FKP1G031506B00_____	13	24	41.5	37.5	FKP1J031507C00_____
	13	24	31.5	27.5	FKP1G032206D00_____	15	26	41.5	37.5	FKP1J032207D00_____

Capacitance	1000 VDC/600 VAC*					1250 VDC/600 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1000 pF	5	11	18	15	FKP1O111004B00_____	5	11	18	15	FKP1R011004B00_____
1500 "	5	11	18	15	FKP1O111504B00_____	5	11	18	15	FKP1R011504B00_____
2200 "	5	11	18	15	FKP1O112204B00_____	5	11	18	15	FKP1R012204B00_____
3300 "	5	11	18	15	FKP1O113304B00_____	6	12.5	18	15	FKP1R013304C00_____
4700 "	6	12.5	18	15	FKP1O114704C00_____	7	14	18	15	FKP1R014704D00_____
6800 "	7	14	18	15	FKP1O116804D00_____	8	15	18	15	FKP1R016804F00_____
						5	14	26.5	22.5	FKP1R016805A00_____
0.01 µF	8	15	18	15	FKP1O121004F00_____	7	16.5	26.5	22.5	FKP1R021005D00_____
0.015 "	6	15	26.5	22.5	FKP1O121005B00_____	8.5	18.5	26.5	22.5	FKP1R021505F00_____
0.022 "	6	15	26.5	22.5	FKP1O121505B00_____	10.5	20.5	26.5	22.5	FKP1R022205H00_____
0.033 "	8.5	18.5	26.5	22.5	FKP1O122205F00_____	11	21	31.5	27.5	FKP1R023306B00_____
0.047 "	10.5	20.5	26.5	22.5	FKP1O123305H00_____	9	19	41.5	37.5	FKP1R023307A00_____
	9	19	31.5	27.5	FKP1O123306A00_____	13	24	31.5	27.5	FKP1R024706D00_____
	11	21	31.5	27.5	FKP1O124706B00_____	11	22	41.5	37.5	FKP1R024707B00_____
0.068 "	13	24	31.5	27.5	FKP1O126806D00_____	11	22	41.5	37.5	FKP1R026807B00_____
	11	22	41.5	37.5	FKP1O126807B00_____					
0.1 µF	13	24	41.5	37.5	FKP1O131007C00_____	15	26	41.5	37.5	FKP1R031007D00_____
0.15 "	15	26	41.5	37.5	FKP1O131507D00_____	17	29	41.5	37.5	FKP1R031507E00_____
0.22 "	19	32	41.5	37.5	FKP1O132207F00_____	19	32	41.5	37.5	FKP1R032207F00_____

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

** PCM = Printed circuit module = pin spacing

Dims. in mm.

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

Rights reserved to amend design data without prior notification.

Part number completion:

Tolerance: 20 % = M

10 % = K

5 % = J

Packing: bulk = S

Pin length: 6-2 = SD

Taped version see page 148.

Continuation

General Data

Capacitance	1600 VDC/650 VAC*					2000 VDC/700 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
100 pF	5	11	18	15	FKP1T001004B00_____	5	11	18	15	FKP1U001004B00_____
150 "	5	11	18	15	FKP1T001504B00_____	5	11	18	15	FKP1U001504B00_____
220 "	5	11	18	15	FKP1T002204B00_____	5	11	18	15	FKP1U002204B00_____
330 "	5	11	18	15	FKP1T003304B00_____	6	12.5	18	15	FKP1U003304C00_____
470 "	5	11	18	15	FKP1T004704B00_____	6	12.5	18	15	FKP1U004704C00_____
680 "	5	11	18	15	FKP1T006804B00_____	6	12.5	18	15	FKP1U006804C00_____
1000 pF	6	12.5	18	15	FKP1T011004C00_____	7	14	18	15	FKP1U011004D00_____
1500 "	5	14	26.5	22.5	FKP1T011005A00_____	5	14	26.5	22.5	FKP1U011005A00_____
	7	14	18	15	FKP1T011504D00_____	6	15	26.5	22.5	FKP1U011505B00_____
2200 "	5	14	26.5	22.5	FKP1T011505A00_____	7	16.5	26.5	22.5	FKP1U012205D00_____
	8	15	18	15	FKP1T012204F00_____					
3300 "	5	14	26.5	22.5	FKP1T012205A00_____	7	16.5	26.5	22.5	FKP1U013305D00_____
	6	15	26.5	22.5	FKP1T013305B00_____					
4700 "	7	16.5	26.5	22.5	FKP1T014705D00_____	8.5	18.5	26.5	22.5	FKP1U014705F00_____
6800 "	8.5	18.5	26.5	22.5	FKP1T016805F00_____	10.5	20.5	26.5	22.5	FKP1U016805H00_____
0.01 µF	10.5	20.5	26.5	22.5	FKP1T021005H00_____	11	21	31.5	27.5	FKP1U021006B00_____
0.015 "	11	21	31.5	27.5	FKP1T021506B00_____	13	24	31.5	27.5	FKP1U021506D00_____
0.022 "	11	21	31.5	27.5	FKP1T022206B00_____	15	26	31.5	27.5	FKP1U022206F00_____
0.033 "	13	24	31.5	27.5	FKP1T023306D00_____	13	24	41.5	37.5	FKP1U022207C00_____
			41.5	37.5	FKP1T023307C00_____	13	24	41.5	37.5	FKP1U023307C00_____
0.047 "	13	24	41.5	37.5	FKP1T024707C00_____	17	29	41.5	37.5	FKP1U024707E00_____
0.068 "	15	26	41.5	37.5	FKP1T026807D00_____	19	32	41.5	37.5	FKP1U026807F00_____
0.1 µF	17	29	41.5	37.5	FKP1T031007E00_____					

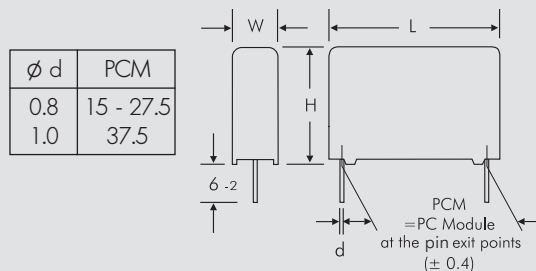
* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

** PCM = Printed circuit module = pin spacing

Dims. in mm.

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

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 69

Continuation

General Data

Capacitance	4000 VDC/700 VAC*					6000 VDC/700 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
470 pF	5	14	26.5	22.5	FKP1X004705A00_____	5	14	26.5	22.5	FKP1Y004705A00_____
680 "	5	14	26.5	22.5	FKP1X006805A00_____	5	14	26.5	22.5	FKP1Y006805A00_____
1000 pF	5	14	26.5	22.5	FKP1X011005A00_____	5	14	26.5	22.5	FKP1Y011005A00_____
1500 "	7	16.5	26.5	22.5	FKP1X011505D00_____	7	16.5	26.5	22.5	FKP1Y011505D00_____
2200 "	8.5	18.5	26.5	22.5	FKP1X012205F00_____	10.5	20.5	26.5	22.5	FKP1Y012205H00_____
3300 "	10.5	20.5	26.5	22.5	FKP1X013305H00_____	10.5	20.5	26.5	22.5	FKP1Y013305H00_____
4700 "	11	21	31.5	27.5	FKP1X014706B00_____	11	21	31.5	27.5	FKP1Y014706B00_____
6800 "	13	24	31.5	27.5	FKP1X016806D00_____	13	24	31.5	27.5	FKP1Y016806D00_____
0.01 µF	15	26	31.5	27.5	FKP1X021006F00_____	15	26	31.5	27.5	FKP1Y021006F00_____
0.015 "	13	24	41.5	37.5	FKP1X021507C00_____	13	24	41.5	37.5	FKP1Y021507C00_____
0.022 "	17	29	41.5	37.5	FKP1X022207E00_____	17	29	41.5	37.5	FKP1Y022207E00_____

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

** PCM = Printed circuit module = pin spacing

Dims. in mm.

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

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Part number completion:

Tolerance: 20 % = M

10 % = K

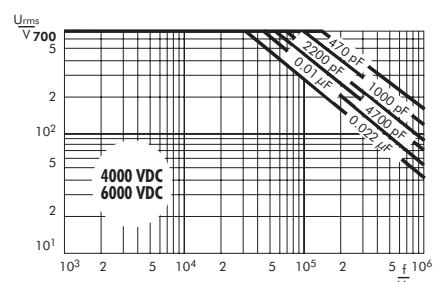
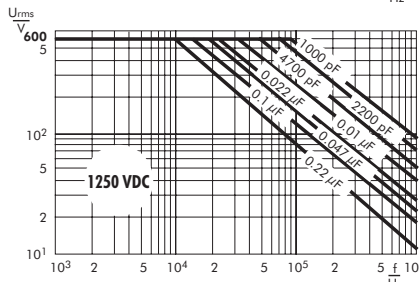
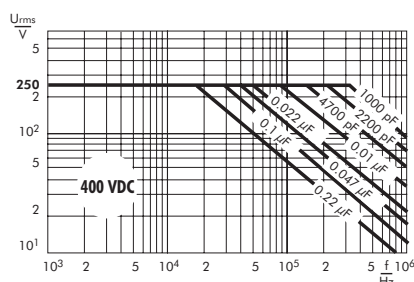
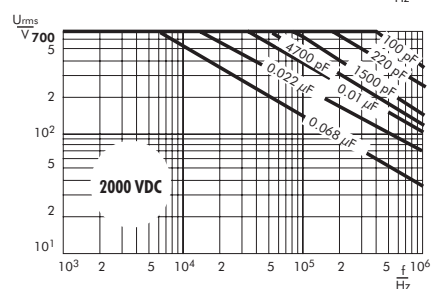
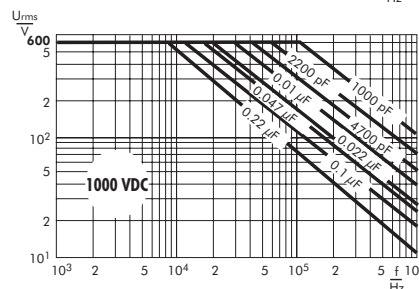
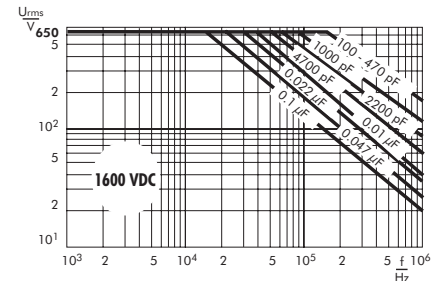
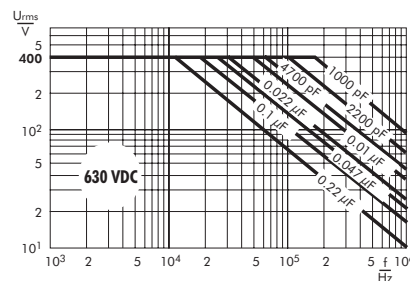
5 % = J

Packing: bulk = S

Pin length: 6-2 = SD

Taped version see page 148.

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.

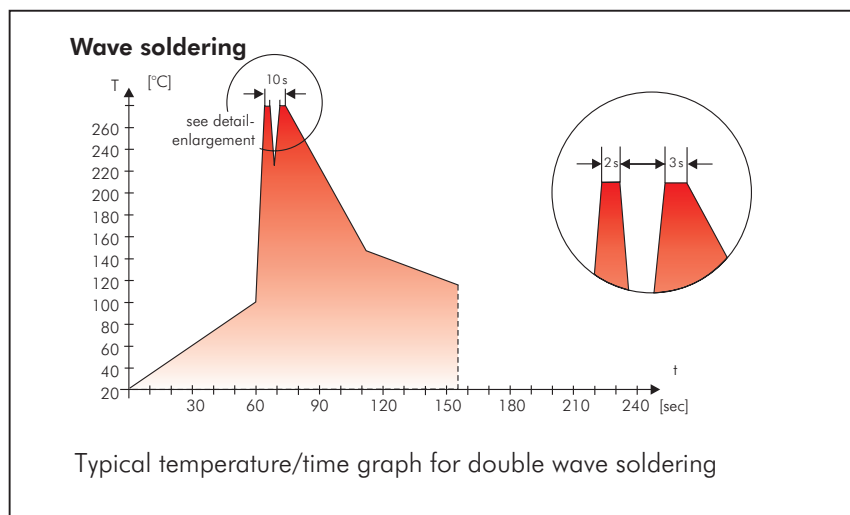
Single wave soldering

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 9001:2008 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 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
- pin 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 | – PBB/PBDE |
| – PCB | – Arsenic |
| – CFC | – Cadmium |
| – Hydrocarbon chloride | – Mercury |
| – Chromium 6+ | – 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/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 2011/65/EC

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

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

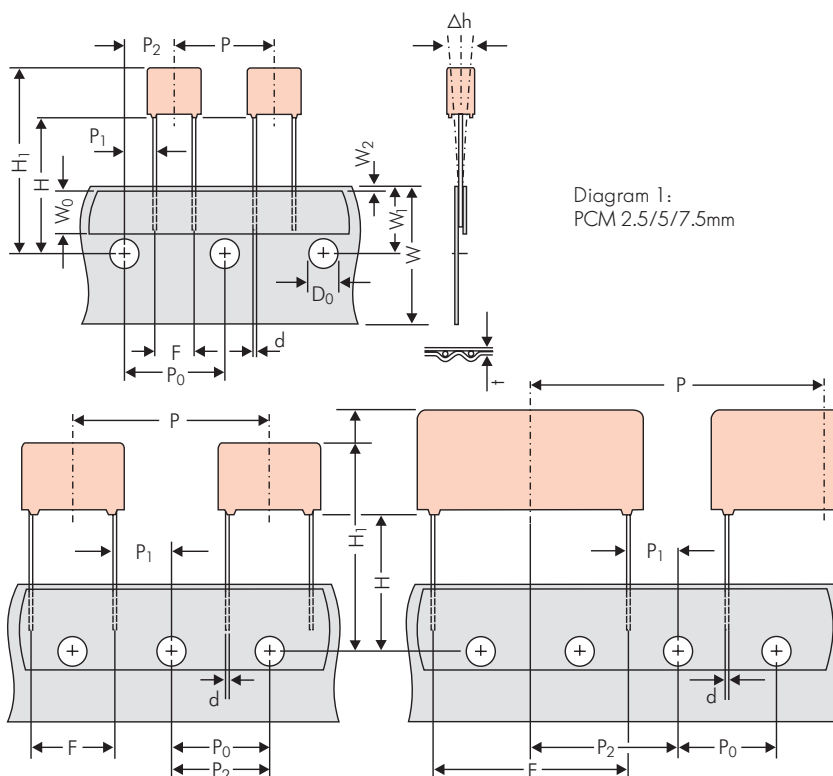


Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5*mm

*PCM 27.5 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 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	16.5 ±0.3	16.5 ±0.5	16.5 ±0.5	16.5 ±0.5	16.5 ±0.5	16.5 ±0.5
		18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±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	52 ±2 B 58 ±2 or 66 ±2	REEL ϕ 500 max. ϕ 25 ±1	54 ±2 B 60 ±2 68 ±2
see details page 150.								

Dims in mm.

* Diameter of pins see General Data.

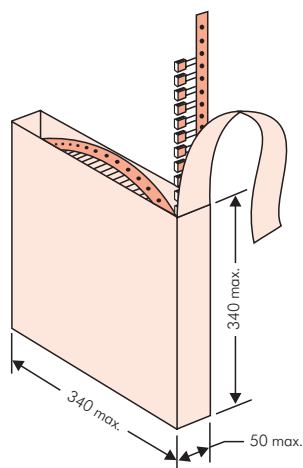
* PCM 10 and PCM 15 can be crimped to PCM 7.5.

Position of components according to PCM 7.5 (sketch 11). P₀ = 12.7 or 15.0 is possible

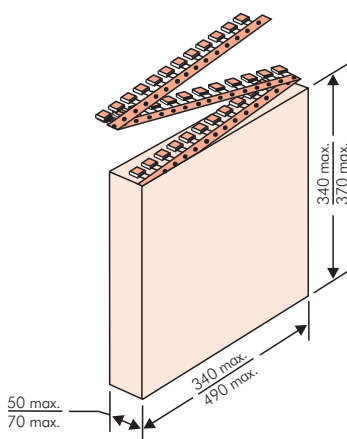
Please clarify customer-specific deviations with the manufacturer.

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

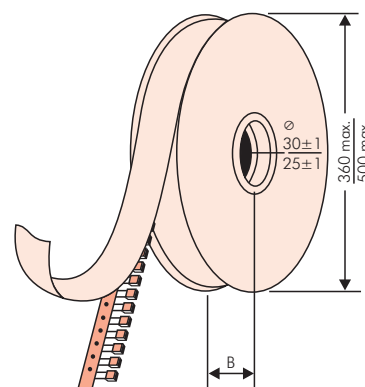
■ ROLL Packaging



■ 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/EC	Date Code: 08.10.10	
Purchase Order No. (P/O): Bestellung xyz		Quantity: 5.000	
Customer Part No.: KUNDETEILENUMMER		Customer No.: 0000100002	
WIMA Confirmation No.: 0001004063000100		Gross Weight [g]: 1870	
WIMA Part No.: MKS2C034701C00K88D			
Handling Unit:	MKS 2	QTY: 5.000	COO: DE
1000067326	MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RMS		
	Standard 10% Loss - Standard Drähte 6-2		
	Vorlage Debitur Inland	Week 03/2011	

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										
	3	7.5	4.6	0C	5000										
	3.8	8.5	4.6	0D	5000										
	4.6	9	4.6	0E	5000										
	5.5	10	4.6	0F	5000										
5 mm	2.5	6.5	7.2	1A	5000										
	3	7.5	7.2	1B	5000										
	3.5	8.5	7.2	1C	5000										
	4.5	6	7.2	1D	6000										
	4.5	9.5	7.2	1E	4000										
	5	10	7.2	1F	3500										
	5.5	7	7.2	1G	4000										
	5.5	11.5	7.2	1H	2500										
	6.5	8	7.2	1I	2500										
	7.2	8.5	7.2	1J	2500										
	7.2	13	7.2	1K	2000										
	8.5	10	7.2	1L	2000										
	8.5	14	7.2	1M	1500										
11	16	7.2	1N	1000											
7.5 mm	2.5	7	10	2A	5000										
	3	8.5	10	2B	5000										
	4	9	10	2C	4000										
	4.5	9.5	10.3	2D	3500										
	5	10.5	10.3	2E	3000										
	5.7	12.5	10.3	2F	2000										
	7.2	12.5	10.3	2G	1500										
10 mm	3	9	13	3A	3000										
	4	8.5	13.5	FA	3000										
	4	9	13	3C	3000										
	4	9.5	13	3D	3000										
	5	10	13.5	FB	2000										
	5	11	13	3F	3000										
	6	12	13	3G	2400										
	6	12.5	13	3H	2400										
8	12	13	3I	2000											
15 mm	5	11	18	4B	2400										
	5	13	19	FC	1000										
	6	12.5	18	4C	2000										
	6	14	19	FD	1000										
	7	14	18	4D	1600										
	7	15	19	FE	1000										
	8	15	18	4F	1200										
	8	17	19	FF	500										
	9	14	18	4H	1200										
	9	16	18	4J	900										
	10	18	19	FG	500										
11	14	18	4M	1000											
22.5 mm	5	14	26.5	5A	1200										
	6	15	26.5	5B	1000										
	7	16.5	26.5	5D	760										
	8	20	28	FH	500										
	8.5	18.5	26.5	5F	500										
	10	22	28	FI	540*										
	10.5	19	26.5	5G	680*										
	10.5	20.5	26.5	5H	680*										
	11	21	26.5	5I	680*										
	12	24	28	FJ	450*										

* 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	ROLL		pcs. per packing unit				AMMO			
								REEL							
	W	H	L	Codes		H16.5	H18.5	ø 360	ø 500	340 × 340	490 × 370	H16.5	H18.5	H16.5	H18.5
					S	N	O	F	I	H	J	A	C	B	D
27.5 mm	9	19	31.5	6A	640*	–	–	–	–	460/340*	–	–	–	420	–
	11	21	31.5	6B	544*	–	–	–	–	380/280*	–	–	–	350	–
	13	24	31.5	6D	448*	–	–	–	–	300	–	–	–	290	–
	13	25	33	FK	336*	–	–	–	–	–	–	–	–	–	–
	15	26	31.5	6F	384*	–	–	–	–	270	–	–	–	250	–
	15	26	33	FL	288*	–	–	–	–	–	–	–	–	–	–
	17	29	31.5	6G	176*	–	–	–	–	–	–	–	–	–	–
	17	34.5	31.5	6I	176*	–	–	–	–	–	–	–	–	–	–
	19	30	31.5	6L	50*	–	–	–	–	–	–	–	–	–	–
	20	32	33	FM	216*	–	–	–	–	–	–	–	–	–	–
	20	39.5	31.5	6J	144*	–	–	–	–	–	–	–	–	–	–
37.5 mm	9	19	41.5	7A	480*	–	–	–	–	–	–	–	–	–	–
	11	22	41.5	7B	408*	–	–	–	–	–	–	–	–	–	–
	13	24	41.5	7C	252*	–	–	–	–	–	–	–	–	–	–
	15	26	41.5	7D	144*	–	–	–	–	–	–	–	–	–	–
	17	29	41.5	7E	132*	–	–	–	–	–	–	–	–	–	–
	19	32	41.5	7F	108*	–	–	–	–	–	–	–	–	–	–
	20	39.5	41.5	7G	108*	–	–	–	–	–	–	–	–	–	–
	24	45.5	41.5	7H	84*	–	–	–	–	–	–	–	–	–	–
	31	46	41.5	7I	72*	–	–	–	–	–	–	–	–	–	–
	35	50	41.5	7J	35*	–	–	–	–	–	–	–	–	–	–
	40	55	41.5	7K	28*	–	–	–	–	–	–	–	–	–	–
48.5 mm	19	31	56	8D	50*	–	–	–	–	–	–	–	–	–	–
	23	34	56	8E	72*	–	–	–	–	–	–	–	–	–	–
	27	37.5	56	8H	60*	–	–	–	–	–	–	–	–	–	–
	33	48	56	8J	48*	–	–	–	–	–	–	–	–	–	–
	37	54	56	8L	25*	–	–	–	–	–	–	–	–	–	–
52.5 mm	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.

Rights reserved to amend design data without prior notification.



WIMA Part Number System

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: Lead length (untaped)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
M	K	S	2	C	0	2	1	0	0	1	A	0	0	M	S	S	D
MKS 2				63 VDC		0.01 μF				2.5x6.5x7.2		-		20%	bulk	6 -2	
Type description:				Rated voltage:		Capacitance:				Size:				Tolerance:			
SMD-PET	=	SMDT		2.5 VDC	=	A1	22 pF	=	0022	4.8x3.3x3	Size 1812	=	KA	20%	=	M	
SMD-PPS	=	SMDI		4 VDC	=	A2	47 pF	=	0047	4.8x3.3x4	Size 1812	=	KB	10%	=	K	
FKP 02	=	FKP0		14 VDC	=	A3	100 pF	=	0100	5.7x5.1x3.5	Size 2220	=	QA	5%	=	J	
MKS 02	=	MKS0		28 VDC	=	A4	150 pF	=	0150	5.7x5.1x4.5	Size 2220	=	QB	2.5%	=	H	
FKS 2	=	FKS2		40 VDC	=	A5	220 pF	=	0220	7.2x6.1x3	Size 2824	=	TA	1%	=	E	
FKP 2	=	FKP2		5 VDC	=	A6	330 pF	=	0330	7.2x6.1x5	Size 2824	=	TB	...			
MKS 2	=	MKS2		50 VDC	=	B0	470 pF	=	0470	10.2x7.6x5	Size 4030	=	VA				
MKP 2	=	MKP2		63 VDC	=	C0	680 pF	=	0680	12.7x10.2x6	Size 5040	=	XA				
FKS 3	=	FKS3		100 VDC	=	D0	1000 pF	=	1100	15.3x13.7x7	Size 6054	=	YA				
FKP 3	=	FKP3		160 VDC	=	E0	1500 pF	=	1150	2.5x7x4.6	PCM 2.5	=	0B				
MKS 4	=	MKS4		250 VDC	=	F0	2200 pF	=	1220	3x7.5x4.6	PCM 2.5	=	0C				
MKP 4	=	MKP4		400 VDC	=	G0	3300 pF	=	1330	2.5x6.5x7.2	PCM 5	=	1A				
MKP 10	=	MKP1		450 VDC	=	H0	4700 pF	=	1470	3x7.5x7.2	PCM 5	=	1B				
FKP 4	=	FKP4		600 VDC	=	I0	6800 pF	=	1680	2.5x7x10	PCM 7.5	=	2A				
FKP 1	=	FKP1		630 VDC	=	J0	0.01 μF	=	2100	3x8.5x10	PCM 7.5	=	2B				
MKP-X2	=	MKX2		700 VDC	=	K0	0.022 μF	=	2220	3x9x13	PCM 10	=	3A				
MKP-X2 R	=	MKXR		800 VDC	=	L0	0.047 μF	=	2470	4x9x13	PCM 10	=	3C				
MKP-Y2	=	MKY2		850 VDC	=	M0	0.1 μF	=	3100	5x11x18	PCM 15	=	4B				
MP 3-X2	=	MPX2		900 VDC	=	N0	0.22 μF	=	3220	6x12.5x18	PCM 15	=	4C				
MP 3-X1	=	MPX1		1000 VDC	=	O1	0.47 μF	=	3470	5x14x26.5	PCM 22.5	=	5A				
MP 3-Y2	=	MPY2		1100 VDC	=	P0	1 μF	=	4100	6x15x26.5	PCM 22.5	=	5B				
MP 3R-Y2	=	MPRY		1200 VDC	=	Q0	2.2 μF	=	4220	9x19x31.5	PCM 27.5	=	6A				
Snubber MKP	=	SNMP		1250 VDC	=	R0	4.7 μF	=	4470	11x21x31.5	PCM 27.5	=	6B				
Snubber FKP	=	SNFP		1500 VDC	=	S0	10 μF	=	5100	9x19x41.5	PCM 37.5	=	7A				
GTO MKP	=	GTOM		1600 VDC	=	T0	22 μF	=	5220	11x22x41.5	PCM 37.5	=	7B				
DC-LINK MKP 3	=	DCP3		2000 VDC	=	U0	47 μF	=	5470	94x49x182	DCH_	=	H0				
DC-LINK MKP 4	=	DCP4		2500 VDC	=	V0	100 μF	=	6100	94x77x182	DCH_	=	H1				
DC-LINK MKP 4S	=	DCPS		3000 VDC	=	W0	220 μF	=	6220	...							
DC-LINK MKP 5	=	DCP5		4000 VDC	=	X0	1 F	=	A010								
DC-LINK MKP 6	=	DCP6		6000 VDC	=	Y0	2.5 F	=	A025								
DC-LINK HC	=	DCH_		250 VAC	=	0W	50 F	=	A500								
DC-LINK HY	=	DCHY		275 VAC	=	1W	100 F	=	B100								
SuperCap C	=	SCSC		300 VAC	=	2W	110 F	=	B110								
SuperCap MC	=	MC_		400 VAC	=	3W	600 F	=	B600								
SuperCap C60	=	SCSC		440 VAC	=	4W	1200 F	=	C120								
SuperCap R	=	SCSR		500 VAC	=	5W	...										
SuperCap MR	=	MRPP		...													
Version code:																	
Standard				= 00													
Version A1				= 1A													
Version A1.1.1				= 1B													
Version A2				= 2A													
...																	
Lead length (untaped)																	
3.5 ±0.5				= C9													
6 -2				= SD													
16 ±1				= P1													
...																	

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.