

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/EU

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

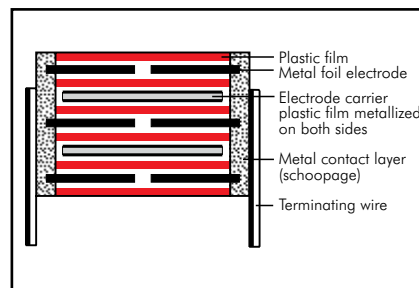
Dielectric:

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 $T_A < 40^{\circ}\text{C}$							
	400VDC	630VDC	1000VDC	1250VDC	1600VDC	2000VDC	4000VDC	6000VDC
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_____
0.068 "	11	21	31.5	27.5	FKP1O124706B00_____	11	22	41.5	37.5	FKP1R024707B00_____
	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 140.

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

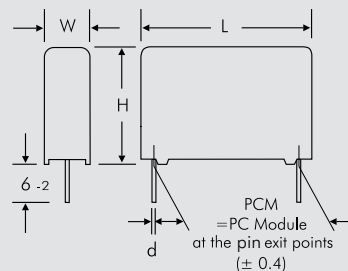
Dims. in mm.

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 140.

Ø d	PCM
0.8	15 - 27.5
1.0	37.5



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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

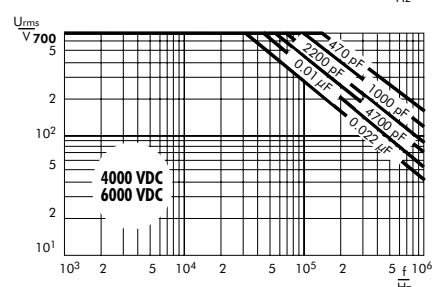
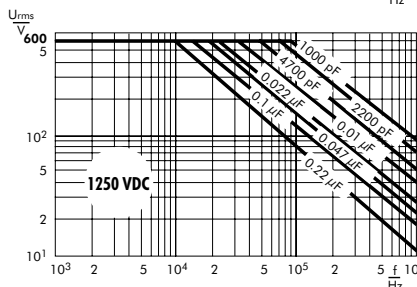
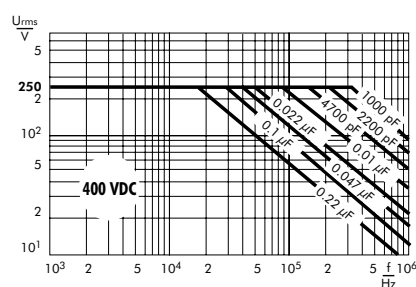
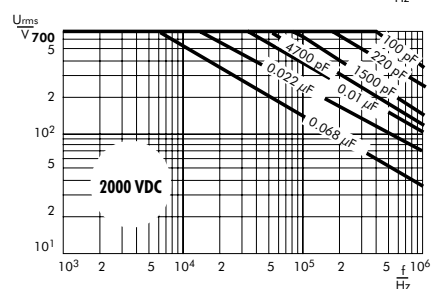
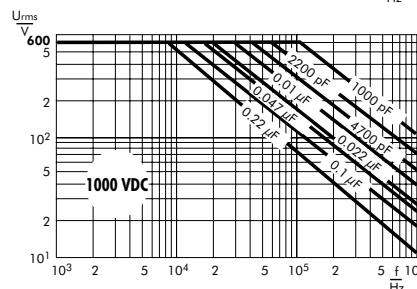
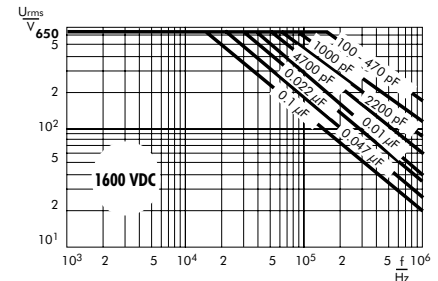
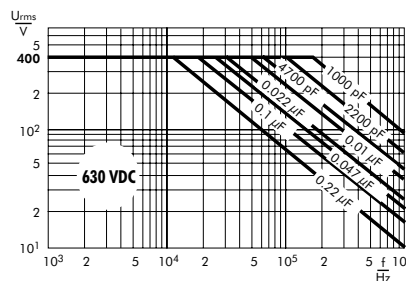
5 % = J

Packing: bulk = S

Pin length: 6-2 = SD

Taped version see page 140.

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

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

Single wave soldering

Soldering bath temperature: $T < 260^{\circ}\text{C}$

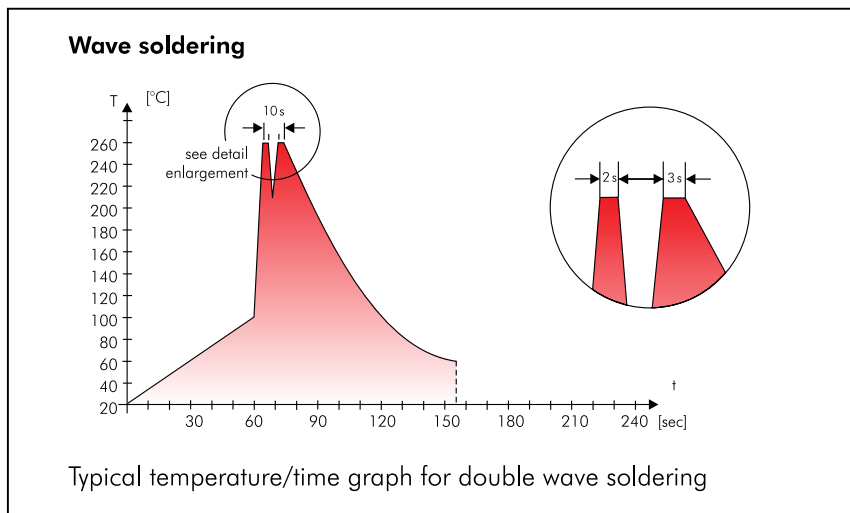
Dwell time: $t < 5\text{ sec}$

Double wave soldering

Soldering bath temperature: $T < 260^{\circ}\text{C}$

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

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



WIMA Quality and Environmental Philosophy

ISO 9001:2008 Certification

ISO 9001:2008 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2008 of our factories by the 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
- 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 | – 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/EU certain hazardous substances like e.g. lead, cadmium, mercury must not be used any longer in electronic equipment as of July 1st, 2006. For the sake of the environment WIMA has refrained from using such substances since years already.



WIMA Kondensatoren sind bleifrei
konform RoHS 2011/65/EU

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

Tape for lead-free WIMA capacitors

DIN EN ISO 14001:2004

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

Typical Dimensions for Taping Configuration

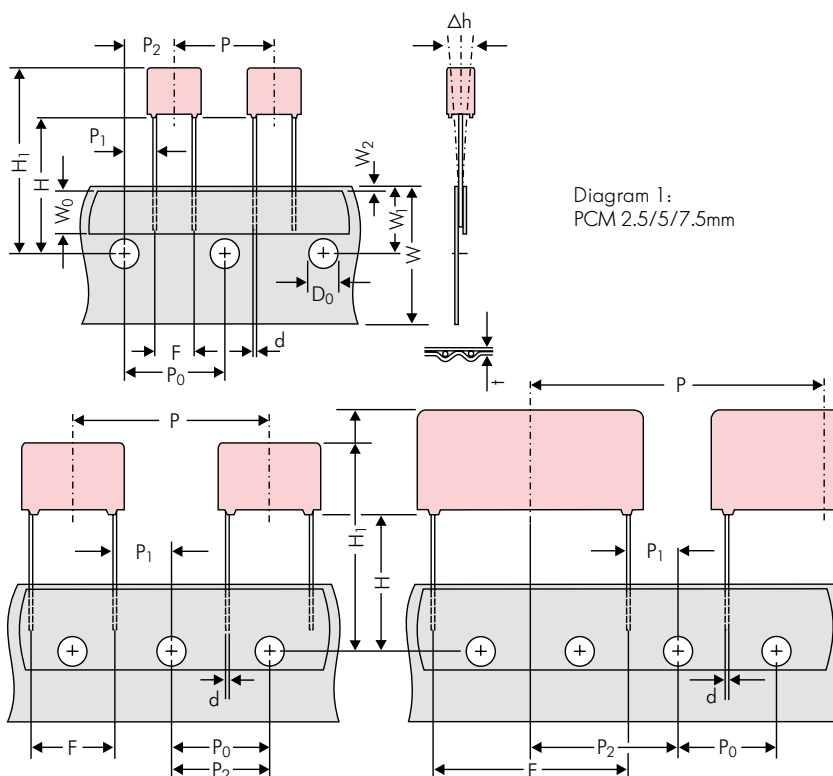


Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5*mm

*PCM 27.5 tapping possible with two feed holes between components

Dimensions for Radial Taping										
Designation	Symbol	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 141)		ROLL/AMMO			AMMO					
		REEL ϕ 360 max. ϕ 30 ±1			REEL ϕ 360 max. ϕ 30 ±1				52 ±2 B 58 ±2 or 66 ±2	
Unit									54 ±2 B 60 ±2 or 68 ±2	
									depending on PCM and component dimensions	
see details page 142.										

Dims in mm.

* Diameter of pins see General Data.

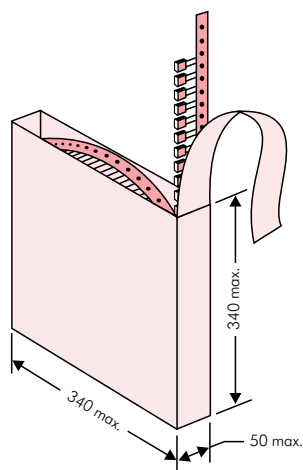
* PCM 10 and PCM 15 can be crimped to PCM 7.5.

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

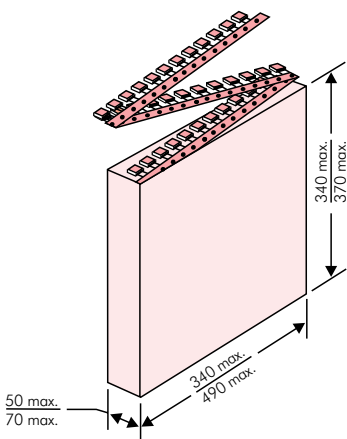
Please clarify customer-specific deviations with the manufacturer.

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

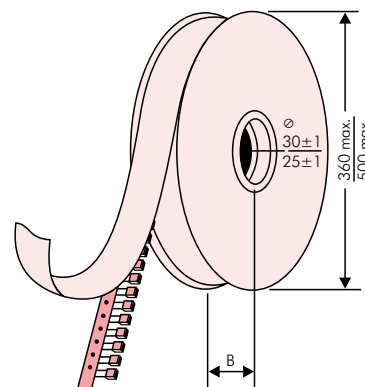
■ ROLL Packaging



■ 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/EU	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
MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RMS			
Standard 10% Loss - Standard Drähte 6-2			
1000067326 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			
	H16.5	H18.5	ø 360	ø 500		340 × 340		490 × 370							
	W	H	L	Codes	S	N	O	F	I	H	J	A	C	B	D
2.5 mm	2.5	7	4.6	0B	5000			2500		–		2800		–	
	3	7.5	4.6	0C	5000	2200		2300		–		2300		–	
	3.8	8.5	4.6	0D	5000	2000		1800		–		1800		–	
	4.6	9	4.6	0E	5000	1500		1500		–		1500		–	
	5.5	10	4.6	0F	5000	1200		1200		–		1200		–	
5 mm	2.5	6.5	7.2	1A	5000	900		2500		–		2800		–	
	3	7.5	7.2	1B	5000	2200		2300		–		2300		–	
	3.5	8.5	7.2	1C	5000	2000		2000		–		2000		–	
	4.5	6	7.2	1D	6000	1600		1500		–		1500		–	
	4.5	9.5	7.2	1E	4000	1300		1500		–		1500		–	
	5	10	7.2	1F	3500	1300		1400		–		1400		–	
	5.5	7	7.2	1G	4000	1100		1200		–		1200		–	
	5.5	11.5	7.2	1H	2500	1000		1200		–		1200		–	
	6.5	8	7.2	1I	2500	1000		1000		–		1000		–	
	7.2	8.5	7.2	1J	2500	800		1000		–		1000		–	
	7.2	13	7.2	1K	2000	700		950		–		1000		–	
	8.5	10	7.2	1L	2000	700		800		–		800		–	
	8.5	14	7.2	1M	1500	800		800		–		800		–	
	11	16	7.2	1N	1000	600		600		–		400		–	
7.5 mm	2.5	7	10	2A	5000	–		2500		4400		2500		–	
	3	8.5	10	2B	5000	–		2200		4300		2300		4150	
	4	9	10	2C	4000	–		1700		3200		1700		3100	
	4.5	9.5	10.3	2D	3500	–		1500		2900		1400		2800	
	5	10.5	10.3	2E	3000	–		1300		2500		1300		–	
	5.7	12.5	10.3	2F	2000	–		1000		2200		1100		–	
	7.2	12.5	10.3	2G	1500	–		900		1800		1000		–	
10 mm	3	9	13	3A	3000	–		1100		2200		–		1900	
	4	8.5	13.5	FA	3000	–		900		1600		–		1450	
	4	9	13	3C	3000	–		900		1600		–		1450	
	4	9.5	13	3D	3000	–		900		1600		–		1400	
	5	10	13.5	FB	2000	–		700		1300		–		1200	
	5	11	13	3F	3000	–		700		1300		–		1200	
	6	12	13	3G	2400	–		550		1100		–		1000	
	6	12.5	13	3H	2400	–		550		1100		–		1000	
15 mm	8	12	13	3I	2000	–		400		800		–		740	
	5	11	18	4B	2400	–		600		1200		–		1150	
	5	13	19	FC	1000	–		600		1200		–		1200	
	6	12.5	18	4C	2000	–		500		1000		–		1000	
	6	14	19	FD	1000	–		500		1000		–		1000	
	7	14	18	4D	1600	–		450		900		–		850	
	7	15	19	FE	1000	–		450		900		–		850	
	8	15	18	4F	1200	–		400		800		–		740	
	8	17	19	FF	500	–		400		800		–		740	
	9	14	18	4H	1200	–		350		700		–		650	
	9	16	18	4J	900	–		350		700		–		650	
22.5 mm	10	18	19	FG	500	–		300		650		–		590	
	11	14	18	4M	1000	–		300		600		–		540	
	5	14	26.5	5A	1200	–		–		800		–		770	
	6	15	26.5	5B	1000	–		–		700		–		640	
	7	16.5	26.5	5D	760	–		–		600		–		550	
	8	20	28	FH	500	–		–		500		–		480	
	8.5	18.5	26.5	5F	500	–		–		480		–		450	
	10	22	28	FI	540*	–		–		420		–		380	
	10.5	19	26.5	5G	680*	–		–		400		–		360	
	10.5	20.5	26.5	5H	680*	–		–		400		–		360	
11	21	26.5	5I	680*	–		–		380		–		350		
12	24	28	FJ	450*	–		–		350		–		310		

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

■ Moulded versions.

Rights reserved to amend design data without prior notification.

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



PCM	Size				bulk	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*	–	–	–	–	–	–	–	–	–	–
	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*	–	–	–	–	–	–	–	–	–	–
	27	15	41.5	7M	100*	–	–	–	–	–	–	–	–	–	–
	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.

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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: Pin 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				2.5×6.5×7.2		-		20%	bulk	6 -2					
Type description: SMD-PET = SMDT SMD-PEN = SMDN SMD-PPS = SMDI FKP 02 = FKPO 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-X1 R = MKX1 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 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				Rated voltage: 50 VDC = B0 63 VDC = C0 100 VDC = D0 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 305 VAC = AW 400 VAC = 3W 440 VAC = 4W 500 VAC = 5W ...		Capacitance: 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 ...				Size: 4.8×3.3×3 Size 1812 = KA 4.8×3.3×4 Size 1812 = KB 5.7×5.1×3.5 Size 2220 = QA 5.7×5.1×4.5 Size 2220 = QB 7.2×6.1×3 Size 2824 = TA 7.2×6.1×5 Size 2824 = TB 10.2×7.6×5 Size 4030 = VA 12.7×10.2×6 Size 5040 = XA 15.3×13.7×7 Size 6054 = YA 2.5×7×4.6 PCM 2.5 = 0B 3×7.5×4.6 PCM 2.5 = 0C 2.5×6.5×7.2 PCM 5 = 1A 3×7.5×7.2 PCM 5 = 1B 2.5×7×10 PCM 7.5 = 2A 3×8.5×10 PCM 7.5 = 2B 3×9×13 PCM 10 = 3A 4×9×13 PCM 10 = 3C 5×11×18 PCM 15 = 4B 6×12.5×18 PCM 15 = 4C 5×14×26.5 PCM 22.5 = 5A 6×15×26.5 PCM 22.5 = 5B 9×19×31.5 PCM 27.5 = 6A 11×21×31.5 PCM 27.5 = 6B 9×19×41.5 PCM 37.5 = 7A 11×22×41.5 PCM 37.5 = 7B 19×31×56 PCM 48.5 = 8D 35×50×57 PCM 52.5 = 9F ...				Tolerance: ±20% = M ±10% = K ±5% = J ±2.5% = H ±1% = E ...				Packing: AMMO H16.5 340×340 = A AMMO H16.5 490×370 = B AMMO H18.5 340×340 = C AMMO H18.5 490×370 = 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 ...			

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.