

Metallized Polypropylene (PP) - Capacitors for DC-Link Applications

Special Features

- Capacitances up to 150 μF
- High volume/capacitance ratio
- Excellent self-healing properties
- Very low dissipation factor
- High reliability
- 2-pin and 4-pin contact configuration (plate versions on request)
- According to RoHS 2011/65/EC

Typical Applications

As intermediate circuit capacitor e.g. in high power converter technology, power supplies, solar inverters etc.

Construction

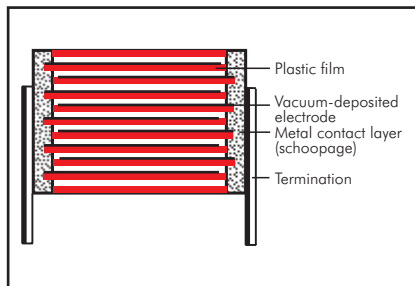
Dielectric:

Polypropylene (PP) 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 (plate versions on request).

Marking:

Colour: Red. Marking: Black.

Epoxy resin seal: Red

Electrical Data

Capacitance range: 2 μF to 150 μF (intermediate values on request)

Rated voltages: 600 VDC, 800 VDC, 900 VDC, 1100 VDC, 1300 VDC

Capacitance tolerances: $\pm 20\%$, $\pm 10\%$, $\pm 5\%$

Operating temperature range:

-55°C to $+105^\circ\text{C}$ (hot spot including self-heating)

Climatic test category: 55/085/56

in accordance with IEC

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

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

(mean value: 100 000 sec)

Measuring voltage: 100 V/1 min.

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

$\tan \delta \leq 10 \times 10^{-4}$ at 1 kHz ($IC \leq 50 \mu\text{F}$)

$\tan \delta \leq 15 \times 10^{-4}$ at 1 kHz ($IC > 50 \mu\text{F}$)

Voltage and current derating:

A derating factor of 1.35% per K must be applied from $+85^\circ\text{C}$ for DC voltages and from $+70^\circ\text{C}$ for AC currents (I_{rms}). Additionally a derating factor of 4.5% per K must be applied from $+85^\circ\text{C}$ for AC currents (I_{rms})

Reliability: Operational life $> 100\,000$ hours (U_r and 70°C)

Failure rate λ_0 ($0.5 \times U_r$ and 40°C)

$\Pi = [C_N [\mu\text{F}] \times U_r [\text{V}]]$	λ_0
$\Pi \leq 10\,000$	$< 2 \text{ fit}$
$10\,000 < \Pi \leq 25\,000$	$< 5 \text{ fit}$
$25\,000 < \Pi \leq 50\,000$	$< 10 \text{ fit}$
$50\,000 < \Pi \leq 100\,000$	$< 20 \text{ fit}$
$\Pi > 100\,000$	$< 30 \text{ fit}$

Maximum pulse rise time:

PCM	max. pulse rise time V/ μsec at $T_A < 40^\circ\text{C}$				
	600 VDC	800 VDC	900 VDC	1100 VDC	1300 VDC
27.5	19	21	25	31	36
37.5	14	15	16	21	25
52.5	10	12	13	15	18

for pulses equal to the rated voltage

Test voltage: $1.2 U_r$, 2sec

Dielectric absorption: 0.05 %

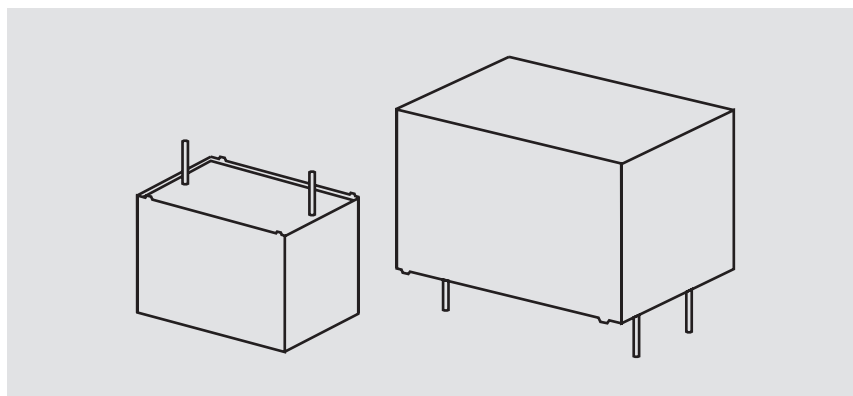
Specific dissipation:

Box size WxHxL in mm	Specific dissipation in Watts per K above the ambient temperature
9x19x31.5	0.021
11x21x31.5	0.025
13x24x31.5	0.030
15x26x31.5	0.034
17x29x31.5	0.039
17x34.5x31.5	0.044
20x39.5x31.5	0.053
19x32x41.5	0.054
20x39.5x41.5	0.065
24x45.5x41.5	0.080
31x46x41.5	0.092
35x50x41.5	0.106
40x55x41.5	0.123
35x50x57	0.132
45x55x57	0.164

Packing

Packing units at the end of the catalogue

For further details and graphs please refer to Technical Information.



Continuation

General Data

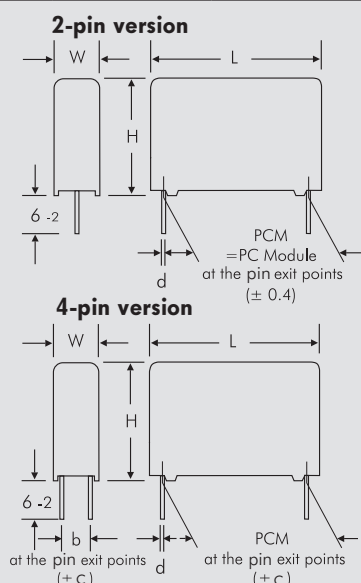
Capacitance	600 VDC (70° C) / 450 VDC (85° C)								Part number
	W	H	L	PCM**	Pin	I _S A	I _{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	
2 µF	9	19	31.5	27.5	2	38	2	56	DCP4I042006A_____
5 "	13	24	31.5	27.5	2/4	95	3.5	22	DCP4I045006D_____
7 "	15	26	31.5	27.5	2/4	133	4.5	16	DCP4I047006F_____
10 µF	17	29	31.5	27.5	2/4	190	6	11	DCP4I051006G_____
15 "	17	34.5	31.5	27.5	2/4	285	7.5	7.4	DCP4I051506I_____
20 "	20	39.5	31.5	27.5	2/4	380	9	6.2	DCP4I052006J_____
	20	39.5	41.5	37.5	2/4	280	10	6.2	DCP4I052007G_____
25 "	20	39.5	41.5	37.5	2/4	350	11.5	5	DCP4I052507G_____
30 "	24	45.5	41.5	37.5	2/4	420	14	4.1	DCP4I053007H_____
35 "	24	45.5	41.5	37.5	2/4	490	14.5	3.8	DCP4I053507H_____
40 "	31	46	41.5	37.5	2/4	560	16.5	3.3	DCP4I054007I_____
45 "	31	46	41.5	37.5	2/4	630	17	3.2	DCP4I054507I_____
50 "	35	50	41.5	37.5	2/4	700	19	2.9	DCP4I055007J_____
55 "	35	50	41.5	37.5	2/4	770	17	3.8	DCP4I055507J_____
60 "	35	50	41.5	37.5	2/4	840	17.5	3.4	DCP4I056007J_____
65 "	40	55	41.5	37.5	2/4	910	19.5	3.3	DCP4I056507K_____
	35	50	57	52.5	4	650	20	3.3	DCP4I056509F_____
70 "	40	55	41.5	37.5	2/4	980	20	3.1	DCP4I057007K_____
	35	50	57	52.5	4	700	20.5	3.1	DCP4I057009F_____
75 "	40	55	41.5	37.5	2/4	1050	20.5	3	DCP4I057507K_____
	35	50	57	52.5	4	750	21	3	DCP4I057509F_____
80 "	40	55	41.5	37.5	2/4	1120	22	2.6	DCP4I058007K_____
	35	50	57	52.5	4	800	22	2.6	DCP4I058009F_____
85 "	35	50	57	52.5	4	850	22.5	2.1	DCP4I058509F_____
90 "	35	50	57	52.5	4	900	23.5	1.9	DCP4I059009F_____
95 "	45	55	57	52.5	4	950	24	2.8	DCP4I059509H_____
100 µF	45	55	57	52.5	4	1000	25	2.6	DCP4I061009H_____
110 "	45	55	57	52.5	4	1100	26.5	2.3	DCP4I061109H_____
115 "	45	65	57	52.5	4	1150	27.5	2.5	DCP4I061159J_____
120 "	45	65	57	52.5	4	1200	28	2.3	DCP4I061209J_____
130 "	45	65	57	52.5	4	1300	29.5	2.1	DCP4I061309J_____
140 "	45	65	57	52.5	4	1400	31	1.9	DCP4I061409J_____
150 "	45	65	57	52.5	4	1500	33	1.7	DCP4I061509J_____

* General guide

** PCM = Printed circuit module = pin spacing

Dims. in mm.

Part number completion:	
Version code:	2-pin = D2 4-pin = D4
Tolerance:	20 % = M 10 % = K 5 % = J
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 148.	



PCM	d
27.5	0.8
37.5	1

W	PCM	b	d	c
11	27.5	5	0.8	0.4
13	27.5	7.5	0.8	0.4
15	27.5	7.5	0.8	0.4
17	27.5	10	0.8	0.4
20	27.5	12.5	0.8	0.4
19	37.5	10	1	0.4
20	37.5	12.5	1	0.4
24	37.5	12.5	1	0.4
31	37.5	20	1	0.4
35	37.5	20	1	0.4
40	37.5	20	1	0.4
35	52.5	20	1.2	0.8
45	52.5	20	1.2	0.8

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General Data

Capacitance	800 VDC (70° C) / 700 VDC (85° C)								
	W	H	L	PCM**	Pin	I _S A	I _{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
2 µF	9	19	31.5	27.5	2	42	2	52	DCP4L042006A_____
5 "	13	24	31.5	27.5	2/4	105	4	21	DCP4L045006D_____
7 "	17	29	31.5	27.5	2/4	147	5	15	DCP4L047006G_____
10 µF	17	34.5	31.5	27.5	2/4	210	6.5	10	DCP4L051006I_____
15 "	20	39.5	31.5	27.5	2/4	315	9	6.9	DCP4L051506J_____
	20	39.5	41.5	37.5	2/4	225	9.5	6.9	DCP4L051507G_____
20 "	20	39.5	41.5	37.5	2/4	300	10	6.2	DCP4L052007G_____
25 "	24	45.5	41.5	37.5	2/4	375	12.5	5	DCP4L052507H_____
30 "	24	45.5	41.5	37.5	2/4	450	14	4.1	DCP4L053007H_____
35 "	31	46	41.5	37.5	2/4	525	15.5	3.8	DCP4L053507I_____
40 "	31	46	41.5	37.5	2/4	600	16.5	3.3	DCP4L054007I_____
45 "	35	50	41.5	37.5	2/4	675	17.5	3.4	DCP4L054507J_____
50 "	35	50	41.5	37.5	2/4	750	19	3	DCP4L055007J_____
55 "	40	55	41.5	37.5	2/4	825	19.5	3.2	DCP4L055507K_____
	35	50	57	52.5	4	660	20.4	3.2	DCP4L055509F_____
60 "	40	55	41.5	37.5	2/4	900	20.5	2.9	DCP4L056007K_____
	35	50	57	52.5	4	720	21.5	2.9	DCP4L056009F_____
65 "	35	50	57	52.5	4	780	22.5	2.2	DCP4L056509F_____
70 "	45	55	57	52.5	4	840	23.5	3	DCP4L057009H_____
75 "	45	55	57	52.5	4	900	24	2.9	DCP4L057509H_____
80 "	45	55	57	52.5	4	960	24.5	3	DCP4L058009H_____
85 "	45	65	57	52.5	4	1020	25	2.6	DCP4L058509J_____
90 "	45	65	57	52.5	4	1080	25.5	2.5	DCP4L059009J_____
95 "	45	65	57	52.5	4	1140	26	2.4	DCP4L059509J_____
100 µF	45	65	57	52.5	4	1200	26.5	2.3	DCP4L061009J_____
110 "	45	65	57	52.5	4	1320	27.5	2.2	DCP4L061109J_____
115 "	45	65	57	52.5	4	1380	28	2.1	DCP4L061159J_____
Capacitance	900 VDC (70° C) / 760 VDC (85° C)								
	W	H	L	PCM**	Pin	I _S A	I _{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
2 µF	11	21	31.5	27.5	2/4	50	2.5	44	DCP4N042006B_____
5 "	17	29	31.5	27.5	2/4	125	4.5	18	DCP4N045006G_____
7 "	17	34.5	31.5	27.5	2/4	175	6	13	DCP4N047006I_____
10 µF	20	39.5	31.5	27.5	2/4	250	8	8.8	DCP4N051006J_____
	20	39.5	41.5	37.5	2/4	160	8.5	8.8	DCP4N051007G_____
15 "	20	39.5	41.5	37.5	2/4	240	10.5	5.8	DCP4N051507G_____
20 "	24	45.5	41.5	37.5	2/4	320	13	4.8	DCP4N052007H_____
25 "	31	46	41.5	37.5	2/4	400	15.5	3.8	DCP4N052507I_____
30 "	31	46	41.5	37.5	2/4	480	15.5	3.7	DCP4N053007I_____
35 "	35	50	41.5	37.5	2/4	560	18	3.2	DCP4N053507J_____
40 "	40	55	41.5	37.5	2/4	640	19.5	3.2	DCP4N054007K_____
	35	50	57	52.5	4	520	20.5	3.2	DCP4N054009F_____
45 "	35	50	57	52.5	4	585	21	2.8	DCP4N054509F_____
50 "	35	50	57	52.5	4	650	22	3.3	DCP4N055009F_____
55 "	45	55	57	52.5	4	715	22.5	3.2	DCP4N055509H_____
60 "	45	55	57	52.5	4	780	23	3	DCP4N056009H_____
65 "	45	55	57	52.5	4	845	24	2.9	DCP4N056509H_____
70 "	45	65	57	52.5	4	910	24.5	3.3	DCP4N057009J_____
75 "	45	65	57	52.5	4	975	25	2.9	DCP4N057509J_____
80 "	45	65	57	52.5	4	1040	25.5	2.8	DCP4N058009J_____
New value * General guide ** PCM = Printed circuit module = pin spacing Dims. in mm. Rights reserved to amend design data without prior notification.									

Continuation

General Data

1100 VDC (70° C) / 920 VDC (85° C)									
Capacitance	W	H	L	PCM**	Pin	I _S A	I _{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
2 µF	13	24	31.5	27.5	2/4	62	3	36	DCP4P042006D_____
5 "	17	34.5	31.5	27.5	2/4	155	5.5	14	DCP4P045006I_____
7 "	20	39.5	31.5	27.5	2/4	217	7.5	10	DCP4P047006J_____
	19	32	41.5	37.5	2/4	147	7.5	10	DCP4P047007F_____
10 µF	20	39.5	41.5	37.5	2/4	210	9.5	7.2	DCP4P051007G_____
15 "	31	46	41.5	37.5	2/4	315	13	5.4	DCP4P051507I_____
20 "	31	46	41.5	37.5	2/4	420	14	5.2	DCP4P052007I_____
	35	50	41.5	37.5	2/4	420	15	4.7	DCP4P052007J_____
25 "	40	55	41.5	37.5	2/4	525	16.5	4.6	DCP4P052507K_____
30 "	35	50	57	52.5	4	450	17.5	4.4	DCP4P053009F_____
35 "	35	50	57	52.5	4	525	18	4	DCP4P053509F_____
40 "	45	55	57	52.5	4	600	19	4.5	DCP4P054009H_____
45 "	45	55	57	52.5	4	675	20	4.1	DCP4P054509H_____
50 "	45	65	57	52.5	4	750	21	4.1	DCP4P055009J_____
55 "	45	65	57	52.5	4	825	22	3.8	DCP4P055509J_____
60 "	45	65	57	52.5	4	900	23	3.5	DCP4P056009J_____

1300 VDC (70° C) / 1100 VDC (85° C)									
Capacitance	W	H	L	PCM**	Pin	I _S A	I _{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
2 µF	15	26	31.5	27.5	2/4	72	3	36	DCP4R242006F_____
5 "	20	39.5	31.5	27.5	2/4	180	6	14	DCP4R245006J_____
	20	39.5	41.5	37.5	2/4	125	7	14	DCP4R245007G_____
7 "	20	39.5	41.5	37.5	2/4	175	8	10	DCP4R247007G_____
10 µF	24	45.5	41.5	37.5	2/4	250	10.5	7.2	DCP4R251007H_____
15 "	31	46	41.5	37.5	2/4	375	14	4.8	DCP4R251507I_____
20 "	40	55	41.5	37.5	2/4	500	17.5	4	DCP4R252007K_____
	35	50	57	52.5	4	360	18	4	DCP4R252009F_____
25 "	35	50	57	52.5	4	450	19	3.6	DCP4R252509F_____
30 "	45	55	57	52.5	4	540	20	4	DCP4R253009H_____
35 "	45	65	57	52.5	4	630	21	4.1	DCP4R253509J_____
40 "	45	65	57	52.5	4	720	22	3.7	DCP4R254009J_____

New value

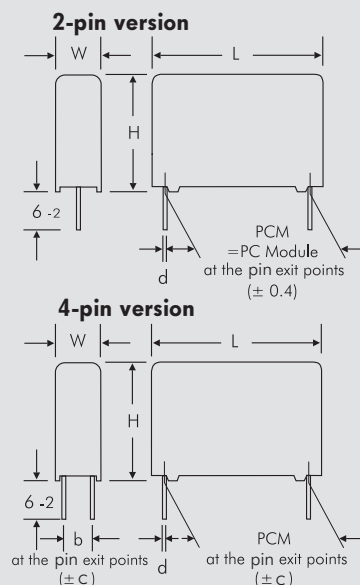
* General guide

** PCM = Printed circuit module = pin spacing

Dims. in mm.

Part number completion:

Version code:	2-pin	= D2
	4-pin	= D4
Tolerance:	20 %	= M
	10 %	= K
	5 %	= J
Packing:	bulk	= S
Pin length:	6-2	= SD
Taped version see page 148.		



PCM	d
27.5	0.8
37.5	1

W	PCM	b	d	c
11	27.5	5	0.8	0.4
13	27.5	7.5	0.8	0.4
15	27.5	7.5	0.8	0.4
17	27.5	10	0.8	0.4
20	27.5	12.5	0.8	0.4
19	37.5	10	1	0.4
20	37.5	12.5	1	0.4
24	37.5	12.5	1	0.4
31	37.5	20	1	0.4
35	37.5	20	1	0.4
40	37.5	20	1	0.4
35	52.5	20	1.2	0.8
45	52.5	20	1.2	0.8

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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 $t < 5\text{ min.}$ has been proven to be best.

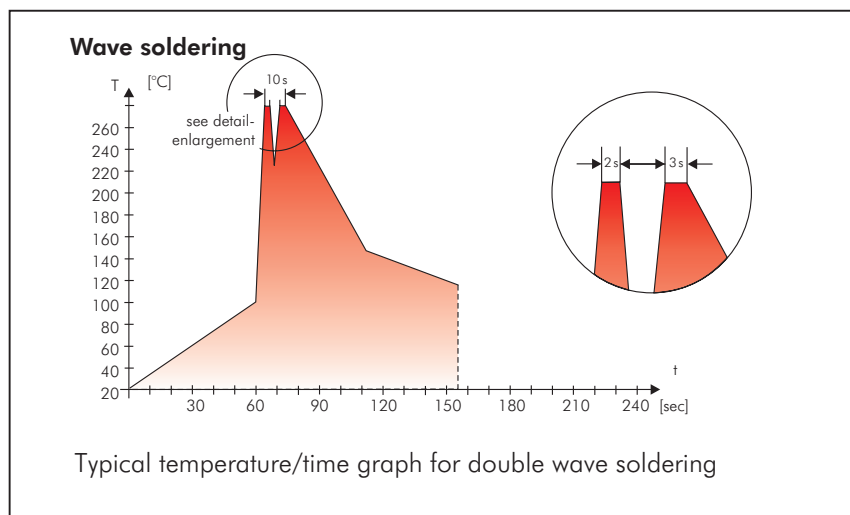
Single wave soldering

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

Double wave soldering

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

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
- 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

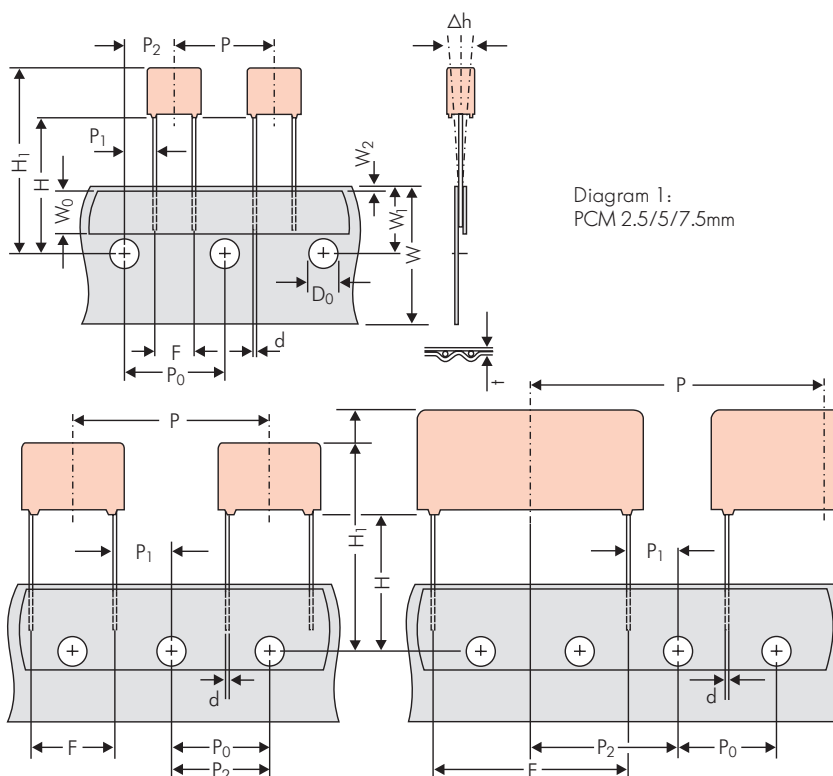


Diagram 2: PCM 10/15 mm

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 58 ±2 or 66 ±2	REEL ϕ 500 max. ϕ 25 ±1	54 ±2 60 ±2 68 ±2
see details page 150.								

Dims in mm.

* Diameter of pins see General Data.

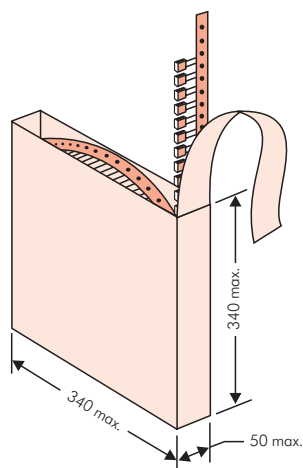
* PCM 10 and PCM 15 can be crimped to PCM 7.5.

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

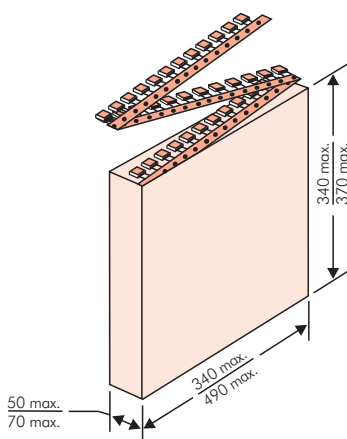
Please clarify customer-specific deviations with the manufacturer.

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

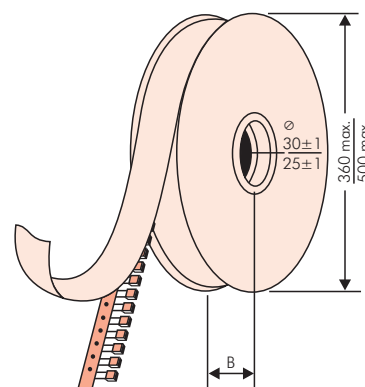
■ ROLL Packaging



■ 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			
	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	2200		2500		–		2800		–	
	3	7.5	4.6	0C	5000	2000		2300		–		2300		–	
	3.8	8.5	4.6	0D	5000	1500		1800		–		1800		–	
	4.6	9	4.6	0E	5000	1200		1500		–		1500		–	
	5.5	10	4.6	0F	5000	900		1200		–		1200		–	
5 mm	2.5	6.5	7.2	1A	5000	2200		2500		–		2800		–	
	3	7.5	7.2	1B	5000	2000		2300		–		2300		–	
	3.5	8.5	7.2	1C	5000	1600		2000		–		2000		–	
	4.5	6	7.2	1D	6000	1300		1500		–		1500		–	
	4.5	9.5	7.2	1E	4000	1300		1500		–		1500		–	
	5	10	7.2	1F	3500	1100		1400		–		1400		–	
	5.5	7	7.2	1G	4000	1000		1200		–		1200		–	
	5.5	11.5	7.2	1H	2500	1000		1200		–		1200		–	
	6.5	8	7.2	1I	2500	800		1000		–		1000		–	
	7.2	8.5	7.2	1J	2500	700		1000		–		1000		–	
	7.2	13	7.2	1K	2000	700		950		–		1000		–	
	8.5	10	7.2	1L	2000	600		800		–		800		–	
	8.5	14	7.2	1M	1500	600		800		–		800		–	
11	16	7.2	1N	1000	500		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	
8	12	13	3I	2000	–		400		800		–		740		
15 mm	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	
	10	18	19	FG	500	–		300		650		–		590	
11	14	18	4M	1000	–		300		600		–		540		
22.5 mm	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*	–	–	–	–	–	–	–	–	–	–
	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.

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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: 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	Packing:			
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	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 ...			
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:				Lead length (untaped)			
										Standard = 00				3.5 ±0.5 = C9			
										Version A1 = 1A				6 -2 = SD			
										Version A1.1.1 = 1B				16 ±1 = P1			
										Version A2 = 2A				...			

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.