

Polypropylene (PP) Capacitors for Pulse Applications with Double-Sided Metallized Electrodes in PCM 7.5 mm to 52.5 mm. Capacitances from 1000 pF to 47 µF. Rated Voltages from 100 VDC to 3000 VDC.

Special Features

- Pulse duty construction
- Self-healing
- Very low dissipation factor
- Negative capacitance change versus temperature
- AEC-Q200 qualified
- According to RoHS 2015/863/EU

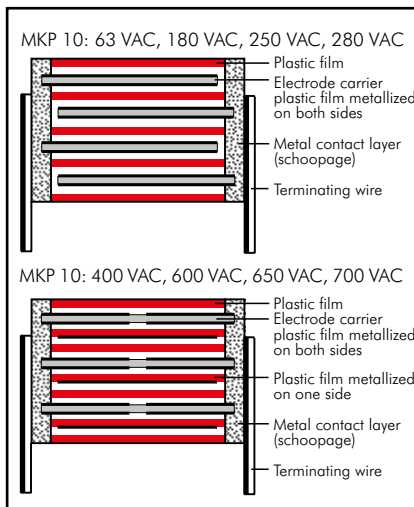
Typical Applications

For pulse applications e.g.

- Switch mode power supplies
- TV and monitor sets
- Lighting
- Audio/video equipment

Construction

Dielectric: Polypropylene (PP) film
Capacitor electrodes:
 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.

Electrical Data

Capacitance range:

1000 pF to 47 µF

Rated voltages: 100VDC, 250VDC, 400VDC, 630VDC, 850VDC, 1000VDC, 1600VDC, 2000VDC, 2500VDC, 3000 VDC

Capacitance tolerances:

±20%, ±10%, ±5%

Operating temperature range:

–55° C to +105° C

Insulation resistance at +20° C:

$C \leq 0.33 \mu\text{F}: \geq 1 \times 10^5 \text{ M}\Omega$

$C > 0.33 \mu\text{F}: \geq 30000 \text{ sec (M}\Omega \times \mu\text{F)}$

Measuring voltage: 100 V/1 min.

Test voltage: 2 sec.

L	$\leq 2000\text{VDC}$	2500VDC	$\geq 3000\text{VDC}$
< 41.5	1.6 U_r	1.4 U_r	1.2 U_r
41.5	1.4 U_r	1.4 U_r	1.2 U_r
57	1.2 U_r	1.2 U_r	1.2 U_r

Climatic test category:

55/100/56 in accordance with IEC

Dielectric absorption: 0.05 %

Voltage derating:

A voltage derating factor of 1.35 % per K must be applied from +85° C for DC voltages and from +75° C for AC voltages.

Reliability:

Operational life > 300 000 hours

Failure rate < 1 fit ($0.5 \times U_r$ and 40° C)

Specific dissipation:

Box size* WxHxL in mm	Specific dissipation in Watts per K above the ambient temperature
35 x 50 x 57	0.132
45 x 55 x 57	0.164
45 x 65 x 57	0.184

* other box sizes see page 11.

Dissipation factors at +20° 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	$\leq 6 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 6 \times 10^{-4}$
10 kHz	$\leq 6 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	–
100 kHz	$\leq 15 \times 10^{-4}$	–	–

Maximum pulse rise time:

Capacitance pF/µF	max. pulse rise time V/µsec at $T_A < 40^\circ \text{C}$									
	100VDC	250VDC	400VDC	630VDC	850VDC	1000VDC	1600VDC	2000VDC	2500VDC	3000VDC
1000 ... 2200	1250	2300	2300	2300	3500	3500	7000	11500	11500	–
3300 ... 6800	1150	1500	1500	1500	3500	3500	7000	11500	11500	–
0.01 ... 0.022	900	1400	1500	1500	2700	2700	3800	4400	11500	–
0.033 ... 0.068	500	1000	1150	1400	2700	2700	2700	2700	2700	2700
0.1 ... 0.22	250	650	650	1150	1800	1800	1800	1800	1800	1800
0.33 ... 0.68	130	390	500	900	1150	1150	1150	1150	1150	1150
1.0 ... 2.2	90	250	250	500	500	500	650	650	650	500
3.3 ... 4.7	65	100	130	190	230	230	330	–	–	–
6.8 ... 15	45	65	90	160	–	–	–	–	–	–
22 ... 47	30	45	45	–	–	–	–	–	–	–

Mechanical Tests

Pull test on pins:

$d \leq 0.8 \text{ Ø}$: 10 N in direction of pins

$d > 0.8 \text{ Ø}$: 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: 1kPa = 10 mbar in accordance with IEC 60068-2-13

Bump test: 4000 bumps at 390 m/sec² in accordance with IEC 60068-2-29

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	100 VDC/63 VAC					250 VDC/180 VAC				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.01 µF	4	9	10	7.5	MKP1D021002C-----	4	9	10	7.5	MKP1F021002C-----
0.015 "	4	9	10	7.5	MKP1D021502C-----	4	9	13	10	MKP1F021003C-----
0.022 "	4	9	10	7.5	MKP1D022202C-----	4	9	10	7.5	MKP1F021502C-----
0.033 "	4	9	10	7.5	MKP1D022202C-----	4	9	13	10	MKP1F021503C-----
0.033 "	5	10.5	10.3	7.5	MKP1D023302E-----	4	9	10	7.5	MKP1F022202C-----
0.047 "	4	9	13	10	MKP1D023303C-----	4	9	13	10	MKP1F022203C-----
0.047 "	5	10.5	10.3	7.5	MKP1D024702E-----	5	10.5	10.3	7.5	MKP1F023302E-----
0.068 "	4	9	13	10	MKP1D024703C-----	4	9	13	10	MKP1F023303C-----
	5	11	13	10	MKP1D026803F-----	4	9	13	10	MKP1F024702E-----
						5	11	13	10	MKP1F024703C-----
						5	11	18	15	MKP1F026803F-----
0.1 µF	6	12	13	10	MKP1D031003G-----	5	11	18	15	MKP1F026804B-----
0.12 "	6	12.5	18	15	MKP1D031204C-----	6	12.5	18	15	MKP1F031003G-----
0.15 "	6	12.5	18	15	MKP1D031504C-----	6	12.5	18	15	MKP1F031004B-----
0.18 "	7	14	18	15	MKP1D031804D-----	6	12.5	18	15	MKP1F031204C-----
0.22 "	7	14	18	15	MKP1D032204D-----	6	15	26.5	22.5	MKP1F031504C-----
0.27 "	8	15	18	15	MKP1D032704F-----	6	15	26.5	22.5	MKP1F031505B-----
0.33 "	8	15	18	15	MKP1D033304F-----	7	14	18	15	MKP1F031804D-----
0.39 "	9	16	18	15	MKP1D033904J-----	7	14	18	15	MKP1F032204D-----
0.47 "	9	16	18	15	MKP1D034704J-----	6	15	26.5	22.5	MKP1F032704F-----
	7	16.5	26.5	22.5	MKP1D034705D-----	8	15	18	15	MKP1F033304F-----
0.56 "	8.5	18.5	26.5	22.5	MKP1D035605F-----	8	15	18	15	MKP1F033305B-----
0.68 "	8.5	18.5	26.5	22.5	MKP1D036805F-----	6	15	26.5	22.5	MKP1F033904J-----
0.82 "	10.5	19	26.5	22.5	MKP1D038205G-----	9	16	18	15	MKP1F034704J-----
1.0 µF	10.5	19	26.5	22.5	MKP1D041005G-----	9	16	18	15	MKP1F034705D-----
1.2 "	11	21	31.5	27.5	MKP1D041206B-----	7	16.5	26.5	22.5	MKP1F035605F-----
1.5 "	11	21	31.5	27.5	MKP1D041506B-----	8.5	18.5	26.5	22.5	MKP1F036805F-----
1.8 "	13	24	31.5	27.5	MKP1D041806D-----	8.5	18.5	26.5	22.5	MKP1F036806A-----
2.2 "	13	24	31.5	27.5	MKP1D042206D-----	9	19	31.5	27.5	MKP1F038205G-----
2.7 "	17	29	31.5	27.5	MKP1D042706G-----	11	21	26.5	22.5	MKP1F041005L-----
3.3 "	17	29	31.5	27.5	MKP1D043306G-----	11	21	31.5	27.5	MKP1F041006B-----
3.9 "	20	39.5	31.5	27.5	MKP1D043906J-----	13	24	31.5	27.5	MKP1F041206D-----
4.7 "	20	39.5	31.5	27.5	MKP1D044706J-----	13	24	31.5	27.5	MKP1F041506D-----
	17	29	41.5	37.5	MKP1D044707E-----	15	26	31.5	27.5	MKP1F041806F-----
5.6 "	19	32	41.5	37.5	MKP1D045607F-----	15	26	31.5	27.5	MKP1F042206F-----
6.8 "	19	32	41.5	37.5	MKP1D046807F-----	13	24	41.5	37.5	MKP1F042207C-----
8.2 "	20	39.5	41.5	37.5	MKP1D048207G-----	17	34.5	31.5	27.5	MKP1F042706I-----
						17	34.5	31.5	27.5	MKP1F043306I-----
						17	29	41.5	37.5	MKP1F043307E-----
						20	39.5	31.5	27.5	MKP1F043906J-----
						20	39.5	31.5	27.5	MKP1F044706J-----
						19	32	41.5	37.5	MKP1F044707F-----
						20	39.5	41.5	37.5	MKP1F045607G-----
						20	39.5	41.5	37.5	MKP1F046807G-----
						24	45.5	41.5	37.5	MKP1F048207H-----

* 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:

Version code: 2-pin = 00
4-pin = D4
Tolerance: 20 % = M
10 % = K
5 % = J
Packing: bulk = S
Pin length: 6-2 = SD

Taped version see page 157.

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Continuation

General Data

100 VDC/63 VAC*						250 VDC/180 VAC*					
Capacitance	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number	
10 μ F	20	39.5	41.5	37.5	MKP1D051007G	24	45.5	41.5	37.5	MKP1F051007H	
						28	38	41.5	37.5	MKP1F051007L	
12 "	24	45.5	41.5	37.5	MKP1D051207H	35	50	41.5	37.5	MKP1F051207J	
15 "	24	45.5	41.5	37.5	MKP1D051507H	35	50	41.5	37.5	MKP1F051507J	
	28	38	41.5	37.5	MKP1D051507L	35	50	57	52.5	MKP1F051509F	
18 "	35	50	41.5	37.5	MKP1D051807J	35	50	57	52.5	MKP1F051809F	
22 "	35	50	41.5	37.5	MKP1D052207J	35	50	57	52.5	MKP1F052209F	
27 "	40	55	41.5	37.5	MKP1D052707K	45	65	57	52.5	MKP1F052709J	
33 "	40	55	41.5	37.5	MKP1D053307K	45	65	57	52.5	MKP1F053309J	
	35	50	57	52.5	MKP1D053309F						
39 "	45	65	57	52.5	MKP1D053909J						
47 "	45	65	57	52.5	MKP1D054709J						

400 VDC/250 VAC*						630 VDC/400 VAC*					
Capacitance	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number	
1000 pF	4	9	10	7.5	MKP1G011002C	4	9	10	7.5*	MKP1J011002C	
1200 "	4	9	10	7.5	MKP1G011202C	4	9	10	7.5*	MKP1J011202C	
1500 "	4	9	10	7.5	MKP1G011502C	4	9	10	7.5*	MKP1J011502C	
1800 "	4	9	10	7.5	MKP1G011802C	4	9	10	7.5*	MKP1J011802C	
2200 "	4	9	10	7.5	MKP1G012202C	4	9	10	7.5*	MKP1J012202C	
2700 "	4	9	10	7.5	MKP1G012702C	4	9	10	7.5*	MKP1J012702C	
3300 "	4	9	10	7.5	MKP1G013302C	4	9	10	7.5*	MKP1J013302C	
3900 "	4	9	10	7.5	MKP1G013902C	4	9	10	7.5*	MKP1J013902C	
4700 "	4	9	10	7.5	MKP1G014702C	4	9	10	7.5*	MKP1J014702C	
5600 "	4	9	10	7.5	MKP1G015602C	4	9	10	7.5*	MKP1J015602C	
6800 "	4	9	10	7.5	MKP1G016802C	4	9	10	7.5*	MKP1J016802C	
						4	9	13	10	MKP1J016803C	
8200 "	4	9	10	7.5	MKP1G018202C	5	10.5	10.3	7.5*	MKP1J018202E	
0.01 μ F	4	9	10	7.5	MKP1G021002C	5	10.5	10.3	7.5*	MKP1J021002E	
	4	9	13	10	MKP1G021003C	4	9	13	10	MKP1J021003C	
0.012 "	5	10.5	10.3	7.5	MKP1G021202E	5	11	13	10	MKP1J021203F	
0.015 "	5	10.5	10.3	7.5	MKP1G021502E	5	11	13	10	MKP1J021503F	
	4	9	13	10	MKP1G021503C	5	11	18	15	MKP1J021504B	
0.018 "	5	10.5	10.3	7.5	MKP1G021802E	5	11	13	10	MKP1J021803F	
0.022 "	5	10.5	10.3	7.5	MKP1G022202E	5	11	13	10	MKP1J022203F	
	4	9	13	10	MKP1G022203C	5	11	18	15	MKP1J022204B	
0.027 "	5.7	12.5	10.3	7.5	MKP1G022702F	6	12	13	10	MKP1J022703G	
0.033 "	5.7	12.5	10.3	7.5	MKP1G023302F	6	12	13	10	MKP1J023303G	
	5	11	13	10	MKP1G023303F	5	11	18	15	MKP1J023304B	
0.039 "	6	12	13	10	MKP1G023903G	6	12.5	18	15	MKP1J023904C	
0.047 "	6	12	13	10	MKP1G024703G	6	12.5	18	15	MKP1J024704C	
	5	11	18	15	MKP1G024704B	6	15	26.5	22.5	MKP1J024705B	
0.056 "	6	12.5	18	15	MKP1G025604C	7	14	18	15	MKP1J025604D	
0.068 "	6	12.5	18	15	MKP1G026804C	7	14	18	15	MKP1J026804D	
	6	15	26.5	22.5	MKP1G026805B	6	15	26.5	22.5	MKP1J026805B	
0.082 "	7	14	18	15	MKP1G028204D	9	16	18	15	MKP1J028204J	

* 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

* Admissible AC voltage 280 VAC.

Dims. in mm.

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

Part number completion:

Version code: 2-pin = 00
 4-pin = D4
 Tolerance: 20 % = M
 10 % = K
 5 % = J
 Packing: bulk = S
 Pin length: 6-2 = SD

Taped version see page 157.

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Continuation

General Data

Capacitance	400 VDC/250 VAC*					630 VDC/400 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.1 μ F	7	14	18	15	MKP1G031004D	9	16	18	15	MKP1J031004J
	6	15	26.5	22.5	MKP1G031005B	7	16.5	26.5	22.5	MKP1J031005D
0.12 "	8	15	18	15	MKP1G031204F	8.5	18.5	26.5	22.5	MKP1J031205F
0.15 "	8	15	18	15	MKP1G031504F	8.5	18.5	26.5	22.5	MKP1J031505F
	6	15	26.5	22.5	MKP1G031505B	9	19	31.5	27.5	MKP1J031506A
0.18 "	9	16	18	15	MKP1G031804J	8.5	18.5	26.5	22.5	MKP1J031805F
0.22 "	9	16	18	15	MKP1G032204J	8.5	18.5	26.5	22.5	MKP1J032205F
	7	16.5	26.5	22.5	MKP1G032205D	9	19	31.5	27.5	MKP1J032206A
0.27 "	8.5	18.5	26.5	22.5	MKP1G032705F	11	21	26.5	22.5	MKP1J032705I
0.33 "	8.5	18.5	26.5	22.5	MKP1G033305F	11	21	26.5	22.5	MKP1J033305I
	9	19	31.5	27.5	MKP1G033306A	11	21	31.5	27.5	MKP1J033306B
0.39 "	10.5	19	26.5	22.5	MKP1G033905G	11	21	31.5	27.5	MKP1J033906B
0.47 "	10.5	19	26.5	22.5	MKP1G034705G	11	21	31.5	27.5	MKP1J034706B
	9	19	31.5	27.5	MKP1G034706A					
0.56 "	11	21	26.5	22.5	MKP1G035605I	15	26	31.5	27.5	MKP1J035606F
0.68 "	11	21	26.5	22.5	MKP1G036805I	15	26	31.5	27.5	MKP1J036806F
	11	21	31.5	27.5	MKP1G036806B	13	24	41.5	37.5	MKP1J036807C
0.82 "	13	24	31.5	27.5	MKP1G038206D	17	29	31.5	27.5	MKP1J038206G
1.0 μ F	13	24	31.5	27.5	MKP1G041006D	17	29	31.5	27.5	MKP1J041006G
						15	26	41.5	37.5	MKP1J041007D
1.2 "	17	29	31.5	27.5	MKP1G041206G	20	39.5	31.5	27.5	MKP1J041206J
1.5 "	17	29	31.5	27.5	MKP1G041506G	20	39.5	31.5	27.5	MKP1J041506J
	13	24	41.5	37.5	MKP1G041507C	19	32	41.5	37.5	MKP1J041507F
1.8 "	20	39.5	31.5	27.5	MKP1G041806J	20	39.5	41.5	37.5	MKP1J041807G
2.2 "	20	39.5	31.5	27.5	MKP1G042206J	20	39.5	41.5	37.5	MKP1J042207G
	17	29	41.5	37.5	MKP1G042207E					
2.7 "	20	39.5	41.5	37.5	MKP1G042707G	24	45.5	41.5	37.5	MKP1J042707H
3.3 "	20	39.5	41.5	37.5	MKP1G043307G	24	45.5	41.5	37.5	MKP1J043307H
						28	38	41.5	37.5	MKP1J043307L
3.9 "	20	39.5	41.5	37.5	MKP1G043907G	35	50	41.5	37.5	MKP1J043907J
4.7 "	20	39.5	41.5	37.5	MKP1G044707G	35	50	41.5	37.5	MKP1J044707J
5.6 "	24	45.5	41.5	37.5	MKP1G045607H	40	55	41.5	37.5	MKP1J045607K
6.8 "	24	45.5	41.5	37.5	MKP1G046807H	40	55	41.5	37.5	MKP1J046807K
	28	38	41.5	37.5	MKP1G046807L	35	50	57	52.5	MKP1J046809F
8.2 "	35	50	41.5	37.5	MKP1G048207J	45	55	57	52.5	MKP1J048209H
10 μ F	35	50	41.5	37.5	MKP1G051007J	45	55	57	52.5	MKP1J051009H
	35	50	57	52.5	MKP1G051009F					
12 "	40	55	41.5	37.5	MKP1G051207K					
15 "	40	55	41.5	37.5	MKP1G051507K					
	35	50	57	52.5	MKP1G051509F					
18 "	45	65	57	52.5	MKP1G051809J					
22 "	45	65	57	52.5	MKP1G052209J					

* 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:

Version code:	2-pin	= 00
	4-pin	= D4
Tolerance:	20 %	= M
	10 %	= K
	5 %	= J
Packing:	bulk	= S
Pin length:	6-2	= SD
Taped version see page 157.		

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Continuation

General Data

Capacitance	850 VDC/450 VAC*					1000 VDC/600 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1000 pF	4	9	10	7.5	MKP1M011002C-----	4	9	10	7.5	MKP1O111002C-----
	4	9	13	10	MKP1M011003C-----	4	9	13	10	MKP1O111003C-----
1200 "	4	9	10	7.5	MKP1M011202C-----	4	9	10	7.5	MKP1O111202C-----
1500 "	4	9	10	7.5	MKP1M011502C-----	4	9	10	7.5	MKP1O111502C-----
	4	9	13	10	MKP1M011503C-----	4	9	13	10	MKP1O111503C-----
1800 "	4	9	10	7.5	MKP1M011802C-----	4	9	10	7.5	MKP1O111802C-----
2200 "	4	9	10	7.5	MKP1M012202C-----	4	9	10	7.5	MKP1O112202C-----
	4	9	13	10	MKP1M012203C-----	4	9	13	10	MKP1O112203C-----
2700 "	4	9	10	7.5	MKP1M012702C-----	4	9	10	7.5	MKP1O112702C-----
3300 "	4	9	10	7.5	MKP1M013302C-----	4	9	10	7.5	MKP1O113302C-----
	4	9	13	10	MKP1M013303C-----	4	9	13	10	MKP1O113303C-----
3900 "	4.5	9.5	10.3	7.5	MKP1M013902D-----	4.5	9.5	10.3	7.5	MKP1O113902D-----
4700 "	4.5	9.5	10.3	7.5	MKP1M014702D-----	4.5	9.5	10.3	7.5	MKP1O114702D-----
	4	9	13	10	MKP1M014703C-----	4	9	13	10	MKP1O114703C-----
5600 "	5.7	12.5	10.3	7.5	MKP1M015602F-----	5.7	12.5	10.3	7.5	MKP1O115602F-----
6800 "	5.7	12.5	10.3	7.5	MKP1M016802F-----	5.7	12.5	10.3	7.5	MKP1O116802F-----
	5	11	13	10	MKP1M016803F-----	5	11	13	10	MKP1O116803F-----
8200 "	5	11	13	10	MKP1M018203F-----	5	11	13	10	MKP1O118203F-----
0.01 µF	5	11	13	10	MKP1M021003F-----	5	11	13	10	MKP1O121003F-----
	5	11	18	15	MKP1M021004B-----	5	11	18	15	MKP1O121004B-----
0.012 "	6	12	13	10	MKP1M021203G-----	6	12	13	10	MKP1O121203G-----
0.015 "	6	12	13	10	MKP1M021503G-----	6	12	13	10	MKP1O121503G-----
	5	11	18	15	MKP1M021504B-----	5	11	18	15	MKP1O121504B-----
0.018 "	6	12.5	18	15	MKP1M021804C-----	6	12.5	18	15	MKP1O121804C-----
0.022 "	6	12.5	18	15	MKP1M022204C-----	6	12.5	18	15	MKP1O122204C-----
	6	15	26.5	22.5	MKP1M022205B-----	6	15	26.5	22.5	MKP1O122205B-----
0.027 "	7	14	18	15	MKP1M022704D-----	7	14	18	15	MKP1O122704D-----
0.033 "	7	14	18	15	MKP1M023304D-----	7	14	18	15	MKP1O123304D-----
	6	15	26.5	22.5	MKP1M023305B-----	6	15	26.5	22.5	MKP1O123305B-----
0.039 "	8	15	18	15	MKP1M023904F-----	8	15	18	15	MKP1O123904F-----
0.047 "	8	15	18	15	MKP1M024704F-----	8	15	18	15	MKP1O124704F-----
	6	15	26.5	22.5	MKP1M024705B-----	6	15	26.5	22.5	MKP1O124705B-----
0.056 "	7	16.5	26.5	22.5	MKP1M025605D-----	7	16.5	26.5	22.5	MKP1O125605D-----
0.068 "	7	16.5	26.5	22.5	MKP1M026805D-----	7	16.5	26.5	22.5	MKP1O126805D-----
0.08 "	7	16.5	26.5	22.5	MKP1M028205D-----	8.5	18.5	26.5	22.5	MKP1O128205F-----
0.1 µF	7	16.5	26.5	22.5	MKP1M031005D-----	8.5	18.5	26.5	22.5	MKP1O131005F-----
	11	21	31.5	27.5	MKP1M031006B-----	11	21	31.5	27.5	MKP1O131006B-----
0.12 "	8.5	18.5	26.5	22.5	MKP1M031205F-----	11	21	26.5	22.5	MKP1O131205I-----
0.15 "	8.5	18.5	26.5	22.5	MKP1M031505F-----	11	21	26.5	22.5	MKP1O131505I-----
	11	21	31.5	27.5	MKP1M031506B-----	11	21	31.5	27.5	MKP1O131506B-----
0.18 "	11	21	26.5	22.5	MKP1M031805I-----	11	21	31.5	27.5	MKP1O131806B-----
0.22 "	11	21	26.5	22.5	MKP1M032205I-----	11	21	31.5	27.5	MKP1O132206B-----
	11	21	31.5	27.5	MKP1M032206B-----					
0.27 "	11	21	31.5	27.5	MKP1M033306B-----	15	26	31.5	27.5	MKP1O132706F-----
0.33 "	15	26	31.5	27.5	MKP1M033306F-----	15	26	31.5	27.5	MKP1O133306F-----
	13	24	41.5	37.5	MKP1M033307C-----	13	24	41.5	37.5	MKP1O133307C-----
0.39 "	17	29	31.5	27.5	MKP1M033906G-----	17	29	31.5	27.5	MKP1O133906G-----
0.47 "	17	29	31.5	27.5	MKP1M034706G-----	17	29	31.5	27.5	MKP1O134706G-----
	13	24	41.5	37.5	MKP1M034707C-----	13	24	41.5	37.5	MKP1O134707C-----
0.56 "	17	29	41.5	37.5	MKP1M035607E-----	20	39.5	31.5	27.5	MKP1O135606J-----
0.68 "	20	39.5	31.5	27.5	MKP1M036806J-----	20	39.5	31.5	27.5	MKP1O136806J-----
	17	29	41.5	37.5	MKP1M036807E-----	17	29	41.5	37.5	MKP1O136807E-----
0.82 "	19	32	41.5	37.5	MKP1M038207F-----	20	39.5	41.5	37.5	MKP1O138207G-----

* 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.

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Continuation

General Data

Capacitance	850 VDC/450 VAC*					1000 VDC/600 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1.0 μF	19	32	41.5	37.5	MKP1M041007F	20	39.5	41.5	37.5	MKP1O141007G
1.2 "	20	39.5	41.5	37.5	MKP1M041207G	24	45.5	41.5	37.5	MKP1O141207H
1.5 "	20	39.5	41.5	37.5	MKP1M041507G	24	45.5	41.5	37.5	MKP1O141507H
						28	38	41.5	37.5	MKP1O141507L
1.8 "	24	45.5	41.5	37.5	MKP1M041807H	31	46	41.5	37.5	MKP1O141807I
2.2 "	24	45.5	41.5	37.5	MKP1M042207H	31	46	41.5	37.5	MKP1O142207I
	28	38	41.5	37.5	MKP1M042207L					
2.7 "	35	50	41.5	37.5	MKP1M042707J	40	55	41.5	37.5	MKP1O142707K
3.3 "	35	50	41.5	37.5	MKP1M043307J	40	55	41.5	37.5	MKP1O143307K
	35	50	57	52.5	MKP1M043309F	35	50	57	52.5	MKP1O143309F
3.9 "	35	50	57	37.5	MKP1M043909F	45	55	57	52.5	MKP1O143909H
4.7 "	45	55	57	52.5	MKP1M044709H	45	55	57	52.5	MKP1O144709H
5.6 "	45	65	57	52.5	MKP1M045609J					

Capacitance	1600 VDC/650 VAC*					2000 VDC/700 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1000 pF	4	9	13	10	MKP1T011003C	4	9	13	10	MKP1U011003C
1200 "	4	9	13	10	MKP1T011203C	4	9	13	10	MKP1U011203C
1500 "	4	9	13	10	MKP1T011503C	4	9	13	10	MKP1U011503C
1800 "	4	9	13	10	MKP1T011803C	5	11	13	10	MKP1U011803F
2200 "	4	9	13	10	MKP1T012203C	5	11	13	10	MKP1U012203F
						5	11	18	15	MKP1U012204B
2700 "	4	9	13	10	MKP1T012703C	5	11	18	15	MKP1U012704B
3300 "	4	9	13	10	MKP1T013303C	5	11	18	15	MKP1U013304B
3900 "	5	11	13	10	MKP1T013903F	5	11	18	15	MKP1U013904B
4700 "	5	11	13	10	MKP1T014703F	5	11	18	15	MKP1U014704B
						6	15	26.5	22.5	MKP1U014705B
5600 "	6	12	13	10	MKP1T015603G	6	12.5	18	15	MKP1U015604C
6800 "	6	12	13	10	MKP1T016803G	6	12.5	18	15	MKP1U016804C
	5	11	18	15	MKP1T016804B	6	15	26.5	22.5	MKP1U016805B
6800 "	5	11	18	15	MKP1T018204B	7	14	18	15	MKP1U018204D

0.01 μF	5	11	18	15	MKP1T021004B	7	14	18	15	MKP1U021004D
						6	15	26.5	22.5	MKP1U021005B
0.012 "	6	12.5	18	15	MKP1T021204C	8	15	18	15	MKP1U021204F
0.015 "	6	12.5	18	15	MKP1T021504C	8	15	18	15	MKP1U021504F
	6	15	26.5	22.5	MKP1T021505B	6	15	26.5	22.5	MKP1U021505B
0.018 "	7	14	18	15	MKP1T022184D	9	16	18	15	MKP1U021804J
0.022 "	7	14	18	15	MKP1T022204D	9	16	18	15	MKP1U022204J
	6	15	26.5	22.5	MKP1T022205B	7	16.5	26.5	22.5	MKP1U022205D
0.027 "	8	15	18	15	MKP1T022704F	8.5	18.5	26.5	22.5	MKP1U022705F
0.033 "	8	15	18	15	MKP1T023304F	8.5	18.5	26.5	22.5	MKP1U023305F
	6	15	26.5	22.5	MKP1T023305B	9	19	31.5	27.5	MKP1U023306A
0.039 "	7	16.5	26.5	22.5	MKP1T023905D	10.5	19	26.5	22.5	MKP1U023905G
0.047 "	7	16.5	26.5	22.5	MKP1T024705D	10.5	19	26.5	22.5	MKP1U024705G
	9	19	31.5	27.5	MKP1T024706A	11	21	31.5	27.5	MKP1U024706B
0.056 "	10.5	19	26.5	22.5	MKP1T025605G	11	21	26.5	22.5	MKP1U025605I
0.068 "	10.5	19	26.5	22.5	MKP1T026805G	11	21	26.5	22.5	MKP1U026805I
	9	19	31.5	27.5	MKP1T026806A	11	21	31.5	27.5	MKP1U026806B
0.082 "	11	21	26.5	22.5	MKP1T028205I	13	24	31.5	27.5	MKP1U028206D

* 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.

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Continuation

General Data

Capacitance	1600 VDC/650 VAC*					2000 VDC/700 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.1 μ F	11	21	26.5	22.5	MKP1T031005L_____	13	24	31.5	27.5	MKP1U031006D_____
	11	21	31.5	27.5	MKP1T031006B_____					
0.12 "	13	24	31.5	27.5	MKP1T031206D_____	15	26	31.5	27.5	MKP1U031206F_____
0.15 "	13	24	31.5	27.5	MKP1T031506D_____	15	26	31.5	27.5	MKP1U031506F_____
						13	24	41.5	37.5	MKP1U031507C_____
0.18 "	15	26	31.5	27.5	MKP1T031806F_____	17	34.5	31.5	27.5	MKP1U031806I_____
0.22 "	15	26	31.5	27.5	MKP1T032206F_____	17	34.5	31.5	27.5	MKP1U032206L_____
	13	24	41.5	37.5	MKP1T032207C_____	17	29	41.5	37.5	MKP1U032207E_____
0.27 "	17	34.5	31.5	27.5	MKP1T032706I_____	19	32	41.5	37.5	MKP1U032707F_____
0.33 "	17	34.5	31.5	27.5	MKP1T033306L_____	19	32	41.5	37.5	MKP1U033307F_____
	17	29	41.5	37.5	MKP1T033307E_____					
0.39 "	20	39.5	31.5	27.5	MKP1T033906J_____	20	39.5	41.5	37.5	MKP1U033907G_____
0.47 "	20	39.5	31.5	27.5	MKP1T034706J_____	20	39.5	41.5	37.5	MKP1U034707G_____
	19	32	41.5	37.5	MKP1T034707F_____					
0.56 "	20	39.5	41.5	37.5	MKP1T035607G_____	24	45.5	41.5	37.5	MKP1U035607H_____
0.68 "	20	39.5	41.5	37.5	MKP1T036807G_____	24	45.5	41.5	37.5	MKP1U036807H_____
						28	38	41.5	37.5	MKP1U036807L_____
0.82 "	24	45.5	41.5	37.5	MKP1T038207H_____	35	50	41.5	37.5	MKP1U038207J_____
1.0 μ F	24	45.5	41.5	37.5	MKP1T041007H_____	35	50	41.5	37.5	MKP1U041007J_____
	28	38	41.5	37.5	MKP1T041007L_____					
1.2 "	31	46	41.5	37.5	MKP1T041207I_____	40	55	41.5	37.5	MKP1U041207K_____
1.5 "	31	46	41.5	37.5	MKP1T041507I_____	40	55	41.5	37.5	MKP1U041507K_____
						35	50	57	52.5	MKP1U041509F_____
1.8 "	40	55	41.5	37.5	MKP1T041807K_____	45	55	57	52.5	MKP1U041809H_____
2.2 "	40	55	41.5	37.5	MKP1T042207K_____	45	55	57	52.5	MKP1U042209H_____
	35	50	57	52.5	MKP1T042209F_____					
2.7 "	45	65	57	52.5	MKP1T042709J_____					
3.3 "	45	65	57	52.5	MKP1T043309J_____					

Capacitance	2500 VDC/700 VAC*					Dims. in mm.
	W	H	L	PCM**	Part number	
1000 pF	5	11	18	15	MKP1V011004B_____	Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.
	6	15	26.5	22.5	MKP1V011005B_____	
1200 "	5	11	18	15	MKP1V011204B_____	
1500 "	5	11	18	15	MKP1V011504B_____	
	6	15	26.5	22.5	MKP1V011505B_____	
1800 "	5	11	18	15	MKP1V011804B_____	
2200 "	5	11	18	15	MKP1V012204B_____	
	6	15	26.5	22.5	MKP1V012205B_____	
2700 "	5	11	18	15	MKP1V012704B_____	
3300 "	5	11	18	15	MKP1V013304B_____	
	6	15	26.5	22.5	MKP1V013305B_____	
3900 "	6	12.5	18	15	MKP1V013904C_____	
4700 "	6	12.5	18	15	MKP1V014704C_____	
	6	15	26.5	22.5	MKP1V014705B_____	
5600 "	7	14	18	15	MKP1V015604D_____	
6800 "	7	14	18	15	MKP1V016804D_____	
	7	16.5	26.5	22.5	MKP1V016805D_____	
8200 "	8.5	18.5	26.5	22.5	MKP1V018205F_____	

Part number completion:		
Version code:	2-pin	= 00
	4-pin	= D4
Tolerance:	20 %	= M
	10 %	= K
	5 %	= J
Packing:	bulk	= S
Pin length:	6-2	= SD
Taped version see page 157.		

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

** PCM = Printed circuit module = pin spacing

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Continuation

General Data

Capacitance	2500 VDC/700 VAC*					3000 VDC/700 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.01 μ F	8.5	18.5	26.5	22.5	MKP1V021005F	8.5	18.5	26.5	22.5	MKP1W021005F
0.012 "	10.5	19	26.5	22.5	MKP1V021205G	10.5	19	26.5	22.5	MKP1W021205G
0.015 "	10.5	19	26.5	22.5	MKP1V021505G	10.5	19	26.5	22.5	MKP1W021505G
0.018 "	11	21	26.5	22.5	MKP1V021805L	11	21	26.5	22.5	MKP1W021805L
0.022 "	11	21	26.5	22.5	MKP1V022205L	11	21	26.5	22.5	MKP1W022205L
0.027 "	11	21	26.5	22.5	MKP1V022705L	11	21	26.5	22.5	MKP1W022705L
0.033 "	11	21	26.5	22.5	MKP1V023305L	11	21	26.5	22.5	MKP1W023305L
	9	19	31.5	27.5	MKP1V023306A	9	19	31.5	27.5	MKP1W023306A
0.039 "	11	21	31.5	27.5	MKP1V023906B	11	21	31.5	27.5	MKP1W023906B
0.047 "	11	21	31.5	27.5	MKP1V024706B	11	21	31.5	27.5	MKP1W024706B
0.056 "	13	24	31.5	27.5	MKP1V025606D	13	24	31.5	27.5	MKP1W025606D
0.068 "	13	24	31.5	27.5	MKP1V026806D	13	24	31.5	27.5	MKP1W026806D
0.082 "	15	26	31.5	27.5	MKP1V028206F	15	26	31.5	27.5	MKP1W028206F
0.1 μ F	15	26	31.5	27.5	MKP1V031006F	15	26	31.5	27.5	MKP1W031006F
	13	24	41.5	37.5	MKP1V031007C	13	24	41.5	37.5	MKP1W031007C
0.12 "	17	34.5	31.5	27.5	MKP1V031206L	17	34.5	31.5	27.5	MKP1W031206L
0.15 "	17	34.5	31.5	27.5	MKP1V031506L	17	34.5	31.5	27.5	MKP1W031506L
	15	26	41.5	37.5	MKP1V031507D	15	26	41.5	37.5	MKP1W031507D
0.18 "	19	32	41.5	37.5	MKP1V031807F	19	32	41.5	37.5	MKP1W031807F
0.22 "	19	32	41.5	37.5	MKP1V032207F	19	32	41.5	37.5	MKP1W032207F
0.27 "	24	45.5	41.5	37.5	MKP1V032707H	24	45.5	41.5	37.5	MKP1W032707H
0.33 "	24	45.5	41.5	37.5	MKP1V033307H	24	45.5	41.5	37.5	MKP1W033307H
	28	38	41.5	37.5	MKP1V033307L	28	38	41.5	37.5	MKP1W033307L
0.39 "	31	46	41.5	37.5	MKP1V033907L	31	46	41.5	37.5	MKP1W033907L
0.47 "	31	46	41.5	37.5	MKP1V034707L	31	46	41.5	37.5	MKP1W034707L
0.56 "	35	50	41.5	37.5	MKP1V035607J	35	50	41.5	37.5	MKP1W035607J
0.68 "	35	50	41.5	37.5	MKP1V036807J	35	50	41.5	37.5	MKP1W036807J
0.82 "	40	55	41.5	37.5	MKP1V038207K	40	55	41.5	37.5	MKP1W038207K
1.0 μ F	40	55	41.5	37.5	MKP1V041007K	40	55	41.5	37.5	MKP1W041007K
	35	50	57	52.5	MKP1V041009F	35	50	57	52.5	MKP1W041009F
1.2 "	45	55	57	52.5	MKP1V041209H	45	55	57	52.5	MKP1W041209H
1.5 "	45	55	57	52.5	MKP1V041509H	45	55	57	52.5	MKP1W041509H

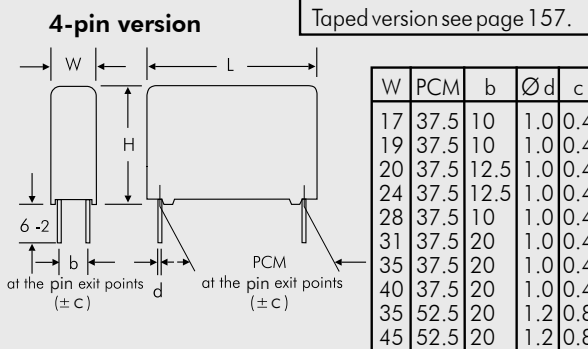
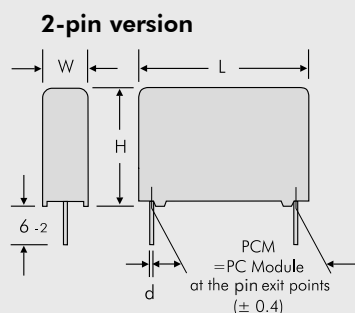
* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

** 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:	
Version code:	2-pin = 00 4-pin = D4
Tolerance:	20 % = M 10 % = K 5 % = J
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 157.	

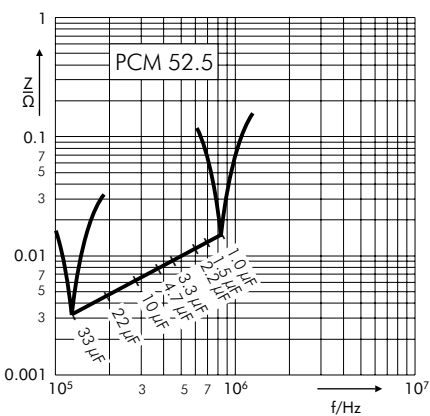
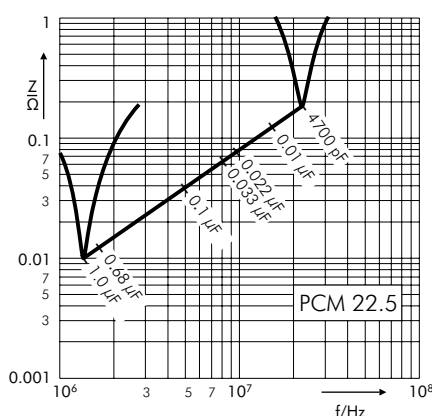
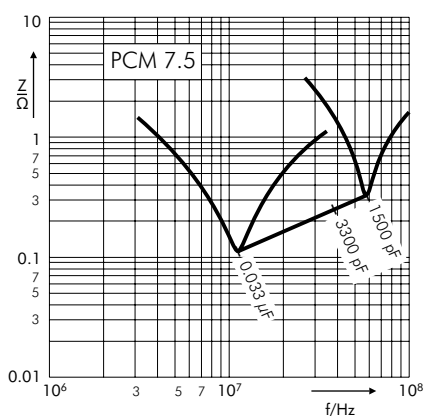
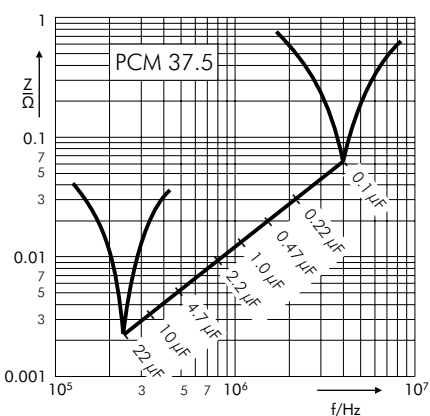
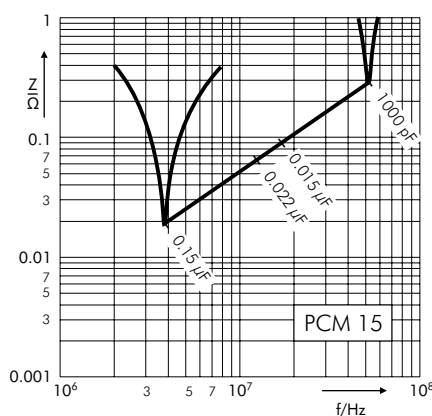
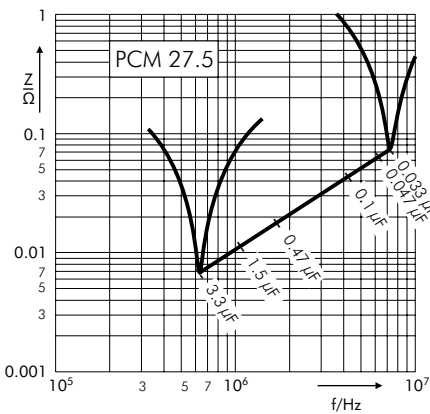
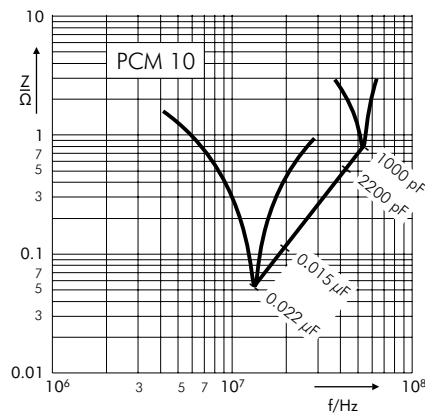


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Continuation page 75

Continuation

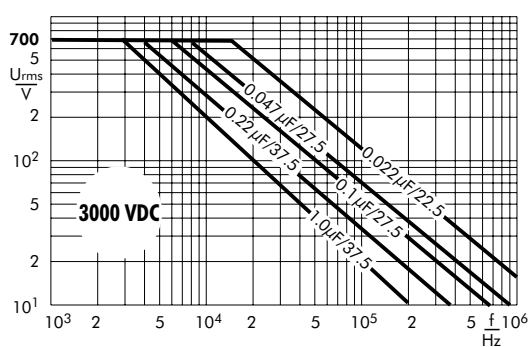
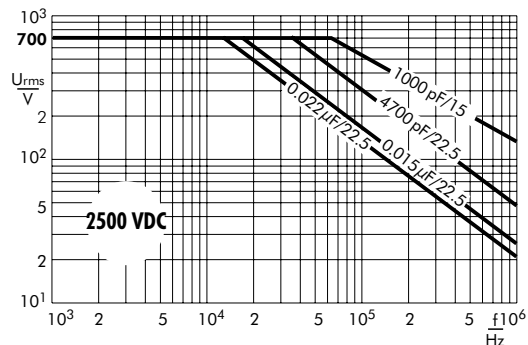
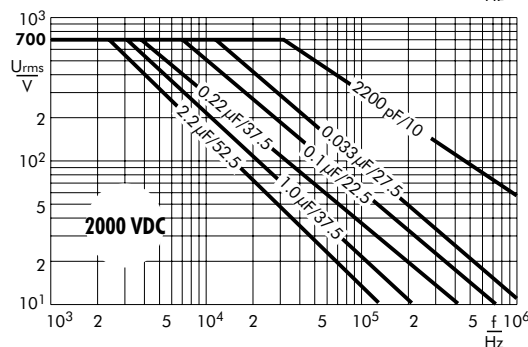
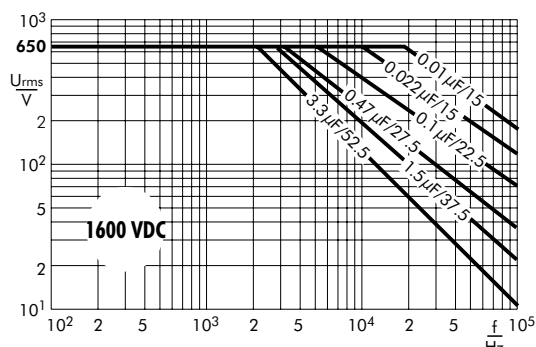
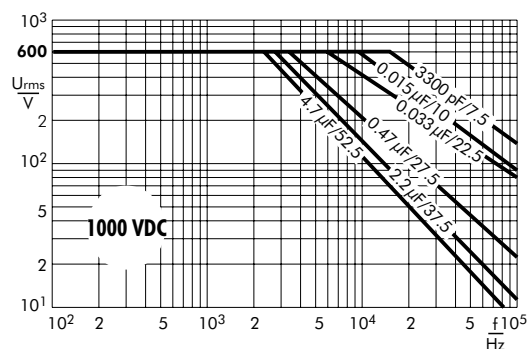
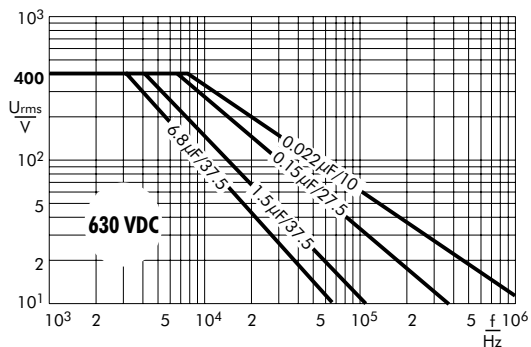
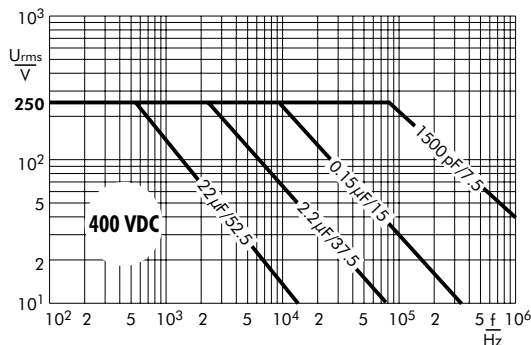
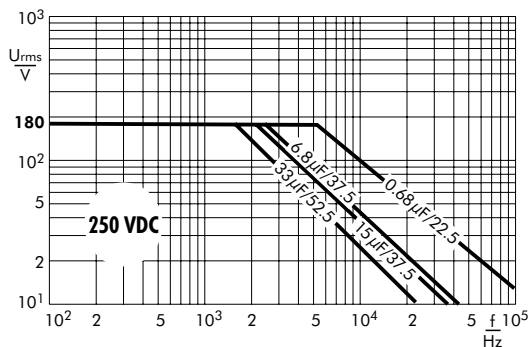
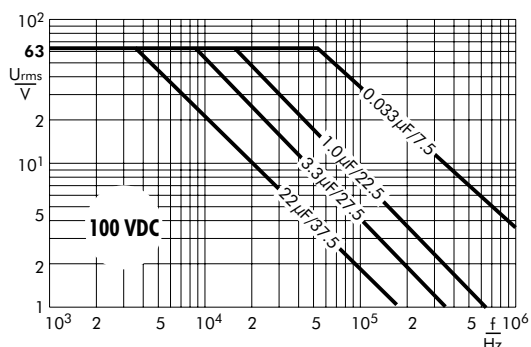
Impedance change with frequency
(general guide).



Continuation

Permissible AC voltage in relation to frequency till 15° C internal temperature rise (general guide).

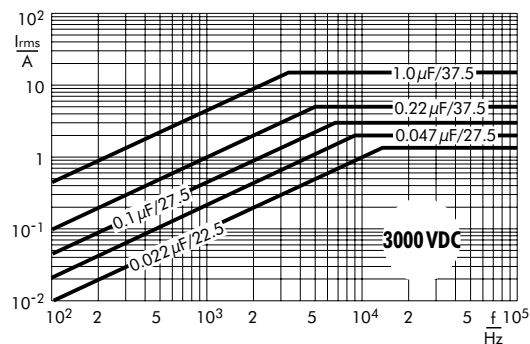
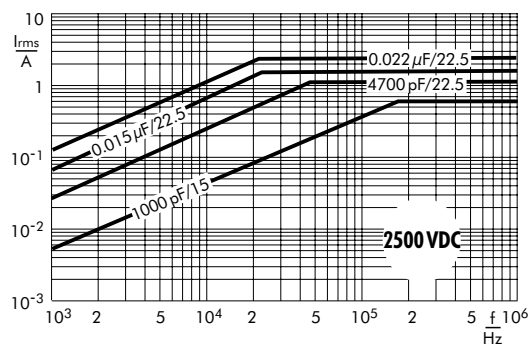
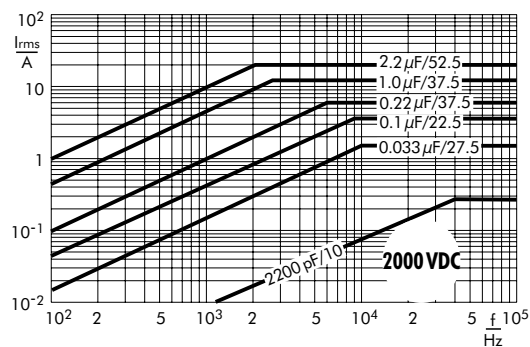
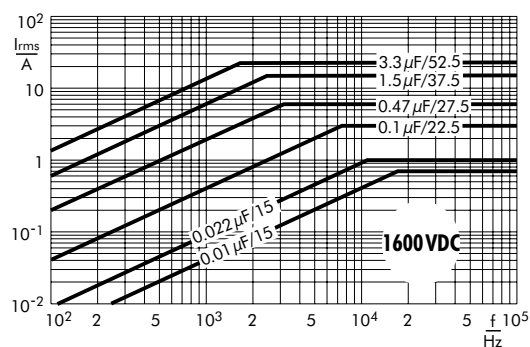
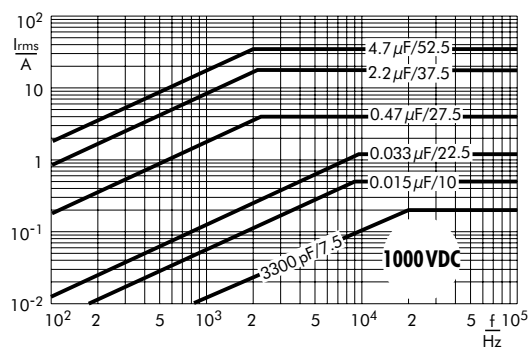
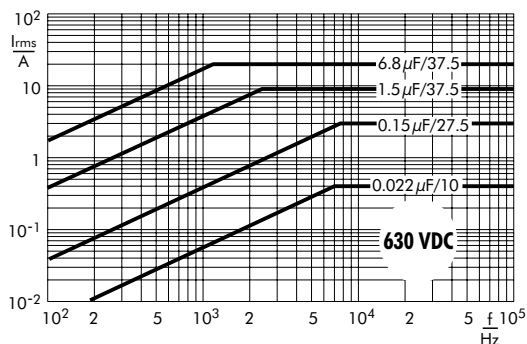
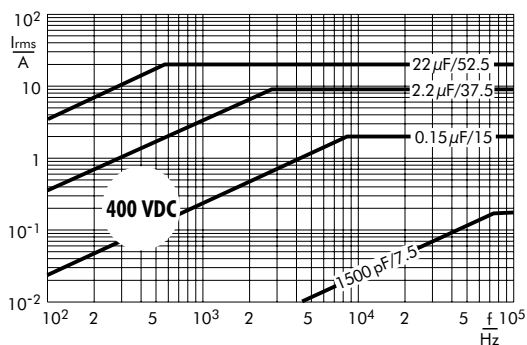
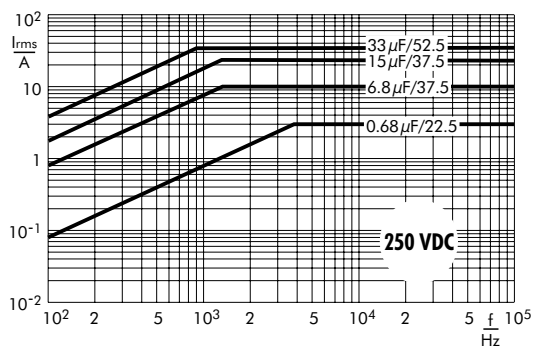
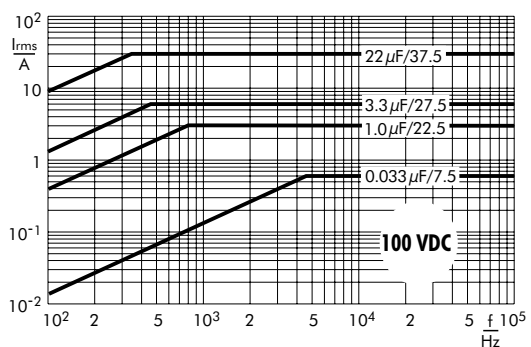
The information behind the cross bar denote the PCM of the measured value.



Continuation

Permissible AC current in relation to frequency till 15° C internal temperature rise (general guide).

The information behind the cross bar denote the PCM of the measured value.



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

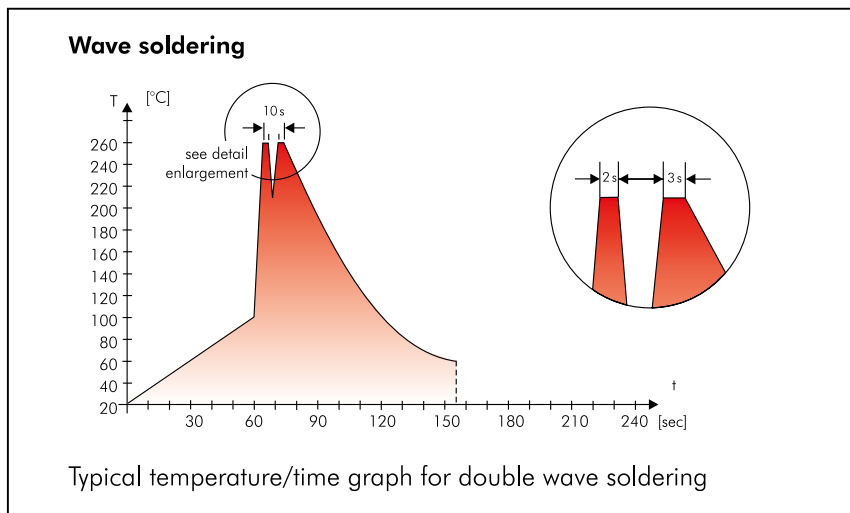
Dwell time: $t < 5\text{ sec}$

Double wave soldering

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

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

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



WIMA Quality and Environmental Philosophy

ISO 9001:2015 Certification

ISO 9001:2015 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2015 of our factories certifies that organisation, equipment and monitoring of quality assurance in our factories correspond to internationally recognized standards.

WIMA WPCS

The WIMA Process Control System (WPCS) is a quality surveillance and optimization system developed by WIMA. WPCS is a major part of the quality-oriented WIMA production. Points of application during production process:

- incoming material inspection
- metallization
- film inspection
- schoopage
- pre-healing
- pin attachment
- cast resin preparation/encapsulation
- 100% final inspection
- Testing as per customer requirements

WIMA Environmental Policy

All WIMA capacitors, irrespective of whether through-hole devices or SMD, are made of environmentally friendly materials. Neither during manufacture nor in the product itself any toxic substances are used, e.g.

- Lead
- PCB
- CFC
- Hydrocarbon chloride
- Chromium 6+
- PBB/PBDE
- Arsenic
- Cadmium
- Mercury
- etc.

We merely use pure, recyclable materials for packing our components, such as:

- carton
- cardboard
- adhesive tape made of paper
- polystyrene

We almost completely refrain from using packing materials such as:

- adhesive tapes made of plastic
- metal clips

RoHS Compliance

According to the RoHS Directive 2015/863/EU as amended from time to time certain hazardous substances like e.g. lead, cadmium, mercury must not be used any longer in electronic equipment as of July 1st, 2006. For the sake of the environment WIMA has re-frained from using such substances since years already.



WIMA Kondensatoren sind bleifrei konform RoHS 2015/863/EU

WIMA capacitors are lead free in accordance with RoHS 2015/863/EU

Tape for lead-free WIMA capacitors

DIN EN ISO 14001:2004

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

Typical Dimensions for Taping Configuration

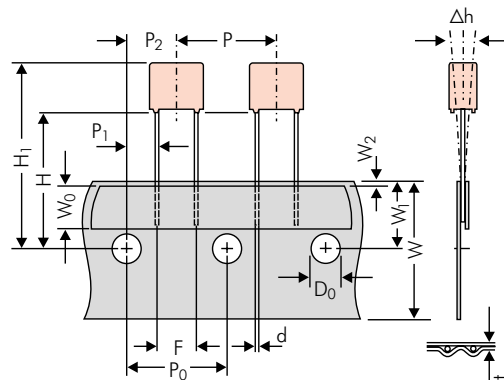


Diagram 1:
PCM 2.5/5/7.5mm

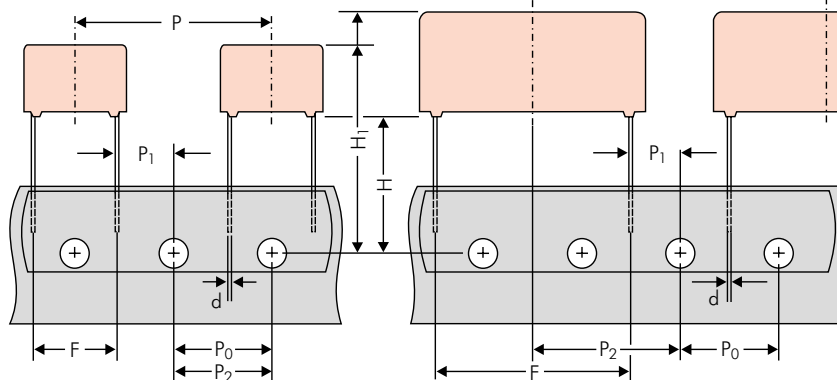


Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5*mm

*PCM 27.5 taping possible with two feed holes between components

Designation	Symbol	Dimensions for Radial Taping						
		PCM 2.5 taping	PCM 5 taping	PCM 7.5 taping	PCM 10 taping*	PCM 15 taping*	PCM 22.5 taping	PCM 27.5 taping
Carrier tape width	W	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5
Hold-down tape width	W 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 error max. 1.0 mm/20 pitch	12.7 ±0.3 error max. 1.0 mm/20 pitch	12.7 ±0.3 error max. 1.0 mm/20 pitch	12.7 ±0.3 error max. 1.0 mm/20 pitch	12.7 ±0.3 error max. 1.0 mm/20 pitch	12.7 ±0.3 error max. 1.0 mm/20 pitch	12.7 ±0.3 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 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.3 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	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2
Package (see also page 158)	▲	ROLL/AMMO			AMMO			
		REEL Ø 360 max. Ø 30 ±1	B 52 ±2 58 ±2 } depending on comp. dimensions		REEL Ø 360 max. Ø 30 ±1	B 52 ±2 58 ±2 66 ±2 } or REEL Ø 500 max. Ø 25 ±1	B 54 ±2 60 ±2 68 ±2 } depending on PCM and component dimensions	
Unit		see details page 159.						

▲ When ordering please specify dimension H and required packaging type.

Dims in mm.

• Diameter of pins see General Data.

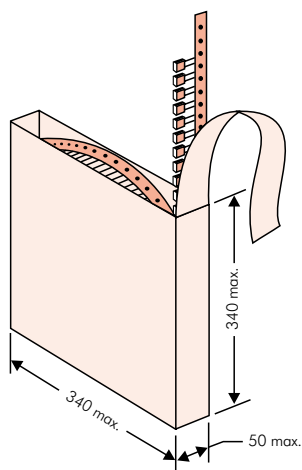
Please clarify customer-specific deviations with the manufacturer.

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

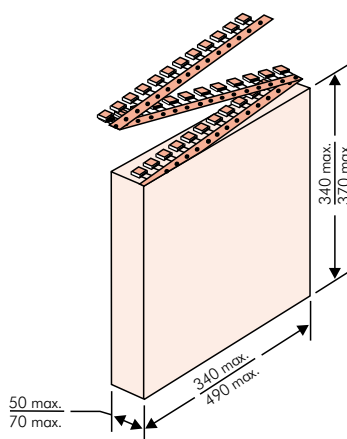
Position of components according to PCM 7.5 (sketch 1). P₀ = 12.7 or 15.0 is possible

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

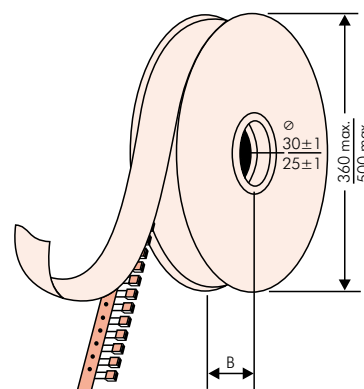
■ ROLL Packaging



■ AMMO Packaging



■ REEL Packaging



BAR CODE (Labelling)

Labelling of package units in plain text and with alphanumeric Bar Code

- WIMA supplier number
- Date code
- Customer's P/O number
- P/O line
- Customer's part number
- WIMA part number
- Quantity
- WIMA confirmation number
- Country of origin
- Customer name
- Handling unit number
- Week of delivery.

In addition part description of

- article
- capacitance value
- rated voltage
- dimensions
- technical note
- capacitance tolerance
- packing
- connecting information



BARCODE PDF417

BARCODE 2D Datamatrix

Packing Quantities for Capacitors with Radial Pins in PCM 2.5 mm to 27.5 mm



PCM	Size				bulk	ROLL		pcs. per packing unit				AMMO			
								REEL							
	W	H	L	Codes		H16.5	H18.5	Ø 360	Ø 500	340 x 340	490 x 370	H16.5	H18.5	H16.5	H18.5
					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		–		640		–	
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		3000	
	4.5	9.5	10.3	2D	3500	–		1500		2900		1400		2700	
	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	9	13	3C	3000	–		900		1600		–		1450	
	4	9.5	13	3D	3000	–		900		1600		–		1400	
	5	11	13	3F	3000	–		700		1300		–		1100	
	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	
	6	12.5	18	4C	2000	–		500		1000		–		1000	
	7	14	18	4D	1600	–		450		900		–		850	
	8	15	18	4F	1200	–		400		800		–		740	
	9	14	18	4H	1200	–		350		700		–		650	
	9	16	18	4J	900	–		350		700		–		650	
	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	
	8.5	18.5	26.5	5F	500	–		–		480		–		450	
	10.5	19	26.5	5G	594*	–		–		400		–		360	
	10.5	20.5	26.5	5H	594*	–		–		400		–		360	
	11	21	26.5	5I	561*	–		–		380		–		350	
27.5 mm	9	19	31.5	6A	567*	–		–		460/340*		–		–	
	11	21	31.5	6B	459*	–		–		380/280*		–		–	
	13	24	31.5	6D	378*	–		–		300		–		–	
	15	26	31.5	6F	324*	–		–		270		–		–	
	17	29	31.5	6G	198*	–		–		–		–		–	
	17	34.5	31.5	6I	198*	–		–		–		–		–	
	20	39.5	31.5	6J	162*	–		–		–		–		–	

* for 2-inch transport pitches.

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

Rights reserved to amend design data without prior notification.

Packing Quantities for Capacitors with Radial Pins in PCM 37.5 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 x 340	490 x 370	H16.5	H18.5	H16.5	H18.5
					S	N	O	F	I	H	J	A	C	B	D
37.5 mm**	9	19	41.5	7A	441*	—	—	—	—	—	—	—	—	—	—
	11	22	41.5	7B	357*	—	—	—	—	—	—	—	—	—	—
	13	24	41.5	7C	294*	—	—	—	—	—	—	—	—	—	—
	15	26	41.5	7D	252*	—	—	—	—	—	—	—	—	—	—
	17	29	41.5	7E	154*	—	—	—	—	—	—	—	—	—	—
	19	32	41.5	7F	140*	—	—	—	—	—	—	—	—	—	—
	20	39.5	41.5	7G	126*	—	—	—	—	—	—	—	—	—	—
	24	45.5	41.5	7H	112*	—	—	—	—	—	—	—	—	—	—
	28	38	41.5	7L	84*	—	—	—	—	—	—	—	—	—	—
	31	46	41.5	7I	84*	—	—	—	—	—	—	—	—	—	—
	35	50	41.5	7J	35*	—	—	—	—	—	—	—	—	—	—
	40	55	41.5	7K	28*	—	—	—	—	—	—	—	—	—	—
48.5 mm**	19	31	56	8D	120*	—	—	—	—	—	—	—	—	—	—
	23	34	56	8E	80*	—	—	—	—	—	—	—	—	—	—
	27	37.5	56	8H	84*	—	—	—	—	—	—	—	—	—	—
	33	48	56	8J	25*	—	—	—	—	—	—	—	—	—	—
	37	54	56	8L	25*	—	—	—	—	—	—	—	—	—	—
52.5 mm	25	45	57	9D	70*	—	—	—	—	—	—	—	—	—	—
	30	45	57	9E	60*	—	—	—	—	—	—	—	—	—	—
	35	50	57	9F	25*	—	—	—	—	—	—	—	—	—	—
	45	55	57	9H	20*	—	—	—	—	—	—	—	—	—	—
	45	65	57	9J	20*	—	—	—	—	—	—	—	—	—	—

* TPS (Tray-Packing-System). Plate versions may have different packing units.

**For Snubber capacitors in 2-pin version the PCM is changing to 38.5 respective 49.5 mm.
Samples and pre-production needs on request.

Rights reserved to amend design data without prior notification.

Updated data on www.wima.com

A WIMA part number consists of 18 digits and is composed as follows:

- Field 1 - 4: Type description
- Field 5 - 6: Rated voltage
- Field 7 - 10: Capacitance
- Field 11 - 12: Size and PCM
- Field 13 - 14: Version code (e.g. Snubber versions)
- Field 15: Capacitance tolerance
- Field 16: Packing
- Field 17 - 18: Pin length (untaped)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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				50 VDC = B0		22 pF = 0022			4.8x3.3x3 Size 1812 = KA					±20% = M			
SMD-PEN = SMDN				63 VDC = C0		47 pF = 0047			4.8x3.3x4 Size 1812 = KB					±10% = K			
SMD-PPS = SMDI				100 VDC = D0		100 pF = 0100			5.7x5.1x3.5 Size 2220 = QA					±5% = J			
FKP 02 = FKP0				250 VDC = F0		150 pF = 0150			5.7x5.1x4.5 Size 2220 = QB					±2.5% = H			
MKS 02 = MKS0				400 VDC = G0		220 pF = 0220			7.2x6.1x3 Size 2824 = TA					±1% = E			
FKS 2 = FKS2				450 VDC = H0		330 pF = 0330			7.2x6.1x5 Size 2824 = TB					...			
FKP 2 = FKP2				520 VDC = H2		470 pF = 0470			10.2x7.6x5 Size 4030 = VA								
FKS 3 = FKS3				600 VDC = I0		680 pF = 0680			12.7x10.2x6 Size 5040 = XA								
FKP 3 = FKP 3				630 VDC = J0		1000 pF = 1100			15.3x13.7x7 Size 6054 = YA								
MKS 2 = MKS2				700 VDC = K0		1500 pF = 1150			2.5x7x4.6 PCM2.5 = 0B					Packing:			
MKP 2 = MKP2				800 VDC = L0		2200 pF = 1220			3x7.5x4.6 PCM2.5 = 0C					AMMO H16.5 340x340 = A			
MKS 4 = MKS4				850 VDC = M0		3300 pF = 1330			2.5x6.5x7.2 PCM5 = 1A					AMMO H16.5 490x370 = B			
MKP 4 = MKP4				900 VDC = N0		4700 pF = 1470			2.5x6.5x7.2 PCM5 = 1B					AMMO H18.5 340x340 = C			
MKP 10 = MKP1				1000 VDC = O1		6800 pF = 1680			3x7.5x7.2 PCM5 = 1B					AMMO H18.5 490x370 = D			
FKP 4 = FKP4				1100 VDC = P0		0.01 µF = 2100			2.5x7x10 PCM7.5 = 2A					REEL H16.5 360 = F			
FKP 1 = FKP1				1200 VDC = Q0		0.01 µF = 2100			3x8.5x10 PCM7.5 = 2B					REEL H16.5 500 = H			
MKP-X2 = MKX2				1250 VDC = R0		0.022 µF = 2220			3x9x13 PCM10 = 3A					REEL H18.5 360 = I			
MKP-X1 R = MKX1				1500 VDC = S0		0.047 µF = 2470			4x9x13 PCM10 = 3C					REEL H18.5 500 = J			
MKP-Y2 = MKY2				1600 VDC = T0		0.1 µF = 3100			5x11x18 PCM15 = 4B					ROLL H16.5 = N			
MKP 4F = MKPF				1700 VDC = TA		0.22 µF = 3220			6x12.5x18 PCM15 = 4C					ROLL H18.5 = O			
Snubber MKP = SNMP				2000 VDC = U0		0.47 µF = 3470			5x14x26.5 PCM22.5 = 5A					BLISTER W12 180 = P			
Snubber FKP = SNFP				2500 VDC = V0		1 µF = 4100			6x15x26.5 PCM22.5 = 5B					BLISTER W12 330 = Q			
GTO MKP = GTOM				3000 VDC = W0		2.2 µF = 4220			9x19x31.5 PCM27.5 = 6A					BLISTER W16 330 = R			
DC-LINK MKP 4 = DCP4				4000 VDC = X0		4.7 µF = 4470			11x21x31.5 PCM27.5 = 6B					BLISTER W24 330 = T			
DC-LINK MKP 6 = DCP6				6000 VDC = Y0		10 µF = 5100			9x19x41.5 PCM37.5 = 7A					Bulk/TPS Standard = S			
DC-LINK HC = DCHC				230 VAC = 3Y		22 µF = 5220			11x22x41.5 PCM37.5 = 7B					...			
				275 VAC = 1W		47 µF = 5470			19x31x56 PCM 48.5 = 8D								
				300 VAC = 2W		100 µF = 6100			25x45x57 PCM 52.5 = 9D								
				305 VAC = AW		220 µF = 6220			...								
				350 VAC = BW		1000 µF = 7100											
				440 VAC = 4W		1500 µF = 7150											
				...		...											

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