

## Metallized Polypropylen (PP) Filter Capacitors in PCM 27.5 mm to 52.5 mm. Capacitances from 0.68 $\mu\text{F}$ to 75 $\mu\text{F}$ . Rate Voltages from 230 VAC to 440 VAC.

### Special Features

- High volume/capacitance ratio
- High peak current capabilities
- Self-healing
- Long lifetime
- According to RoHS 2011/65/EU

### Typical Applications

- For high frequency applications e.g.
- AC filtering in UPS systems
  - Harmonic filter
  - Welding equipment
  - Renewable energy - grid interface

### Construction

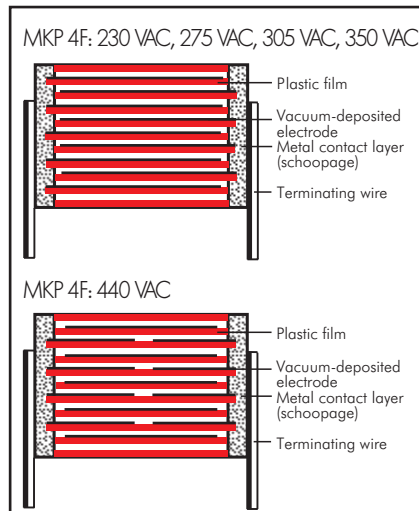
#### Dielectric:

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.

#### Marking:

Colour: Red. Marking: Black.

### Electrical Data

#### Capacitance range:

0.68  $\mu\text{F}$  to 75  $\mu\text{F}$

**Rated voltages:** 230 VAC, 275 VAC, 305 VAC, 350 VAC, 440 VAC

#### Capacitance tolerances:

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

#### Operating temperature range:

$-55^\circ\text{C}$  to  $+105^\circ\text{C}$

#### Climatic test category:

55/105/56 in accordance with IEC

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

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

Measuring voltage: 100 V/1 min.

#### Test voltage:

$1.5 U_{r,DC}$ , 10sec.

#### Test specifications:

In accordance with IEC 61071 and 60068

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

at f	PCM 27.5	PCM 37.5	PCM 52.5
1 kHz	$\leq 5 \times 10^{-4}$	$\leq 10 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
10 kHz	$\leq 20 \times 10^{-4}$	$\leq 45 \times 10^{-4}$	$\leq 90 \times 10^{-4}$

Reference frequency 1 kHz in accordance with IEC 60384-1

#### Maximum pulse rise time:

PCM	max. pulse rise time V/ $\mu\text{sec}$ at $T_A < 40^\circ\text{C}$				
	230 VAC	275 VAC	305 VAC	350 VAC	440 VAC
27.5	45	55	68	100	110
37.5	20	30	35	50	70
52.5	10	13	15	25	40

for pulses equal to the rated voltage ( $U_{r,DC}$ )

### Mechanical Tests

#### Pull test on pins:

10 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:

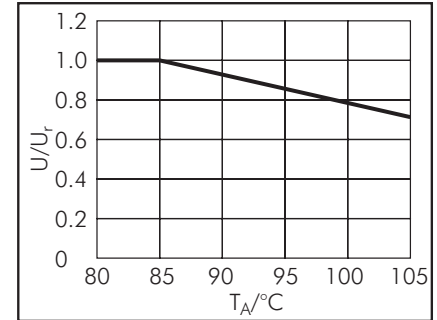
1kPa = 10 mbar in accordance with IEC 60068-2-13

#### Bump test:

4000 bumps at 390 m/sec<sup>2</sup> in accordance with IEC 60068-2-29

#### Voltage derating:

A voltage derating factor must be applied according to the graph:



#### Reliability:

Operational life > 60000 hours at  $U_r$   
Failure rate < 10 fit ( $0.5 \times U_r$  and  $40^\circ\text{C}$ )

### 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	W	H	L	PCM**	Pin	230 VAC*/450 VDC		Part number
						I <sub>s</sub> A	I <sub>rms</sub> (10 kHz) at 85° C A	
1.0 μF	9	19	31.5	27.5	2	45	2.5	MKPF3Y41006A_____
1.5 "	11	21	31.5	27.5	2/4	70	3	MKPF3Y41506B_____
2.2 "	11	21	31.5	27.5	2/4	100	3.5	MKPF3Y42206B_____
3.3 "	13	24	31.5	27.5	2/4	150	5	MKPF3Y43306D_____
4.7 "	15	26	31.5	27.5	2/4	210	7.5	MKPF3Y44706F_____
6.8 "	17	29	31.5	27.5	2/4	300	8.5	MKPF3Y46806G_____
10 μF	20	39.5	31.5	27.5	2/4	450	11.5	MKPF3Y51006J_____
	19	32	41.5	37.5	2/4	200	8	MKPF3Y51007F_____
12 "	19	32	41.5	37.5	2/4	240	10	MKPF3Y51207F_____
15 "	20	39.5	41.5	37.5	2/4	300	12	MKPF3Y51507G_____
20 "	24	45.5	41.5	37.5	2/4	400	14	MKPF3Y52007H_____
22 "	24	45.5	41.5	37.5	2/4	440	15	MKPF3Y52207H_____
25 "	31	46	41.5	37.5	2/4	500	17	MKPF3Y52507I_____
30 "	31	46	41.5	37.5	2/4	600	19	MKPF3Y53007I_____
	25	45	57	52.5	2/4	300	15	MKPF3Y53009D_____
35 "	35	50	41.5	37.5	2/4	700	20.5	MKPF3Y53507J_____
	25	45	57	52.5	2/4	350	15	MKPF3Y53509D_____
40 "	30	45	57	52.5	2/4	400	17.5	MKPF3Y54009E_____
45 "	30	45	57	52.5	2/4	450	18.5	MKPF3Y54509E_____
50 "	35	50	57	52.5	4	500	21	MKPF3Y55009F_____
55 "	35	50	57	52.5	4	550	22	MKPF3Y55509F_____
60 "	45	55	57	52.5	4	600	23	MKPF3Y56009H_____
65 "	45	55	57	52.5	4	650	25.5	MKPF3Y56509H_____
70 "	45	55	57	52.5	4	700	26	MKPF3Y57009H_____
75 "	45	65	57	52.5	4	750	27	MKPF3Y57509J_____

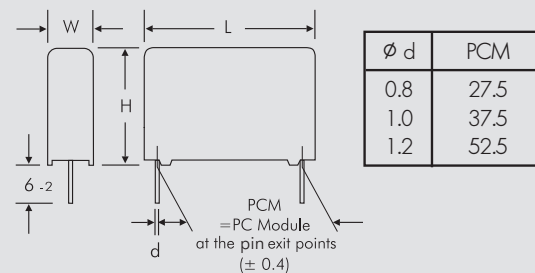
\* AC voltages:  $f \leq 100$  Hz

\*\* PCM = Printed circuit module = pin spacing

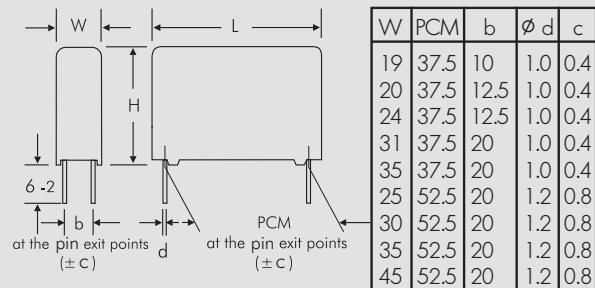
Dims. in mm.

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 149.	

#### 2-pin version



#### 4-pin version



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## Continuation

### General Data

Capacitance	W	H	L	PCM**	Pin	275 VAC*/600 VDC		Part number
						I <sub>s</sub> A	I <sub>rms</sub> (10 kHz) at 85° C A	
1.0 μF	9	19	31.5	27.5	2	55	2.5	MKPF1W41006A_____
1.5 "	11	21	31.5	27.5	2/4	80	3.5	MKPF1W41506B_____
2.2 "	13	24	31.5	27.5	2/4	120	5	MKPF1W42206D_____
3.3 "	15	26	31.5	27.5	2/4	180	5.5	MKPF1W43306F_____
4.7 "	17	34.5	31.5	27.5	2/4	260	8	MKPF1W44706I_____
6.8 "	20	39.5	31.5	27.5	2/4	370	10	MKPF1W46806J_____
10 μF	20	39.5	41.5	37.5	2/4	300	10	MKPF1W51007G_____
12 "	20	39.5	41.5	37.5	2/4	360	12	MKPF1W51207G_____
15 "	24	45.5	41.5	37.5	2/4	450	14	MKPF1W51507H_____
20 "	25	45	57	52.5	2/4	195	11	MKPF1W51509D_____
	31	46	41.5	37.5	2/4	600	16	MKPF1W52007I_____
22 "	25	45	57	52.5	2/4	260	12	MKPF1W52009D_____
	25	45	57	52.5	2/4	286	14	MKPF1W52209D_____
25 "	30	45	57	52.5	2/4	325	16	MKPF1W52509E_____
30 "	35	50	57	52.5	4	390	17	MKPF1W53009F_____
35 "	35	50	57	52.5	4	455	20	MKPF1W53509F_____
40 "	45	55	57	52.5	4	520	21	MKPF1W54009H_____
45 "	45	55	57	52.5	4	585	23	MKPF1W54509H_____
50 "	45	65	57	52.5	4	650	24	MKPF1W55009J_____

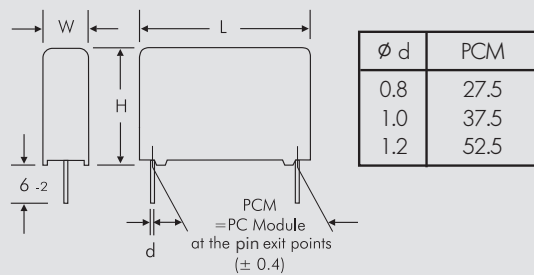
\* AC voltages:  $f \leq 100$  Hz

\*\* PCM = Printed circuit module = pin spacing

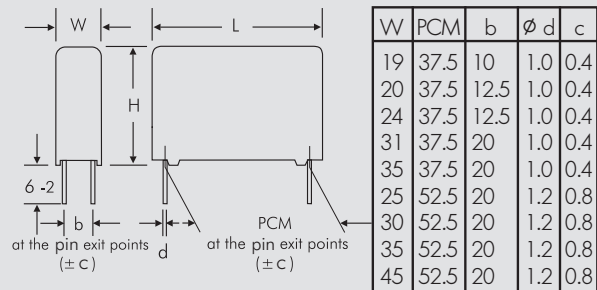
Dims. in mm.

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 149.	

#### 2-pin version



#### 4-pin version



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## Continuation

### General Data

Capacitance	W	H	L	PCM**	Pin	305 VAC*/630 VDC		Part number
						$I_s$ A	$I_{rms}$ (10 kHz) at 85° C A	
0.68 $\mu$ F	9	19	31.5	27.5	2	50	2	MKPFAW36806A_____
1.0 $\mu$ F	11	21	31.5	27.5	2/4	68	3	MKPFAW41006B_____
1.5 "	13	24	31.5	27.5	2/4	110	4	MKPFAW41506D_____
2.2 "	15	26	31.5	27.5	2/4	150	5	MKPFAW42206F_____
3.3 "	17	29	31.5	27.5	2/4	220	7	MKPFAW43306G_____
4.7 "	20	39.5	31.5	27.5	2/4	320	9	MKPFAW44706J_____
6.8 "	20	39.5	41.5	37.5	2/4	245	10	MKPFAW46807G_____
10 $\mu$ F	24	45.5	41.5	37.5	2/4	350	12	MKPFAW51007H_____
	25	45	57	52.5	2/4	150	10	MKPFAW51009D_____
12 "	24	45.5	41.5	37.5	2/4	420	13	MKPFAW51207H_____
15 "	31	46	41.5	37.5	2/4	525	15	MKPFAW51507I_____
	25	45	57	52.5	2/4	225	13	MKPFAW51509D_____
20 "	40	55	41.5	37.5	2/4	700	19	MKPFAW52007K_____
	30	45	57	52.5	2/4	300	14	MKPFAW52009E_____
22 "	35	50	57	52.5	4	330	16	MKPFAW52209F_____
25 "	35	50	57	52.5	4	375	17	MKPFAW52509F_____
30 "	45	55	57	52.5	4	450	21	MKPFAW53009H_____
35 "	45	65	57	52.5	4	525	22	MKPFAW53509J_____

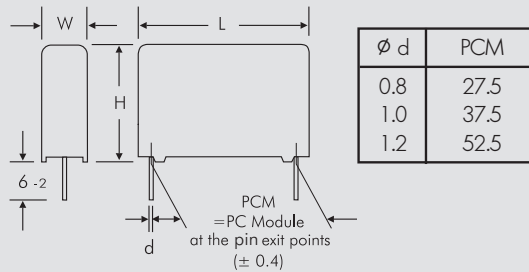
\* AC voltages:  $f \leq 100$  Hz

\*\* PCM = Printed circuit module = pin spacing

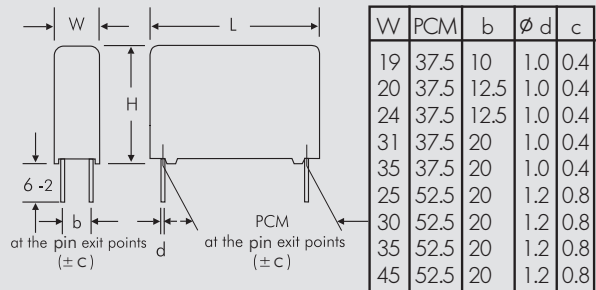
Dims. in mm.

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 149.	

#### 2-pin version



#### 4-pin version



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## Continuation

### General Data

Capacitance	W	H	L	PCM**	Pin	350 VAC*/700 VDC		Part number
						I <sub>s</sub> A	I <sub>rms</sub> (10 kHz) at 85° C A	
0.68 μF	9	19	31.5	27.5	2	70	1.5	MKPFBW36806A_
1.0 μF	11	21	31.5	27.5	2/4	100	3	MKPFBW41006B_
1.5 "	13	24	31.5	27.5	2/4	150	4	MKPFBW41506D_
2.2 "	15	26	31.5	27.5	2/4	220	5	MKPFBW42206F_
3.3 "	17	29	31.5	27.5	2/4	330	7	MKPFBW43306G_
4.7 "	20	39.5	31.5	27.5	2/4	470	11	MKPFBW44706J_
6.8 "	20	39.5	41.5	37.5	2/4	340	10	MKPFBW46807G_
10 μF	24	45.5	41.5	37.5	2/4	500	13	MKPFBW51007H_
	25	45	57	52.5	2/4	250	11	MKPFBW51009D_
12 "	24	45.5	41.5	37.5	2/4	600	14	MKPFBW51207H_
15 "	31	46	41.5	37.5	2/4	750	16	MKPFBW51507I_
	25	45	57	52.5	2/4	375	13	MKPFBW51509D_
20 "	40	55	41.5	37.5	2/4	1000	18	MKPFBW52007K_
	30	45	57	52.5	2/4	500	16	MKPFBW52009E_
22 "	35	50	57	52.5	4	550	18	MKPFBW52209F_
25 "	35	50	57	52.5	4	625	19	MKPFBW52509F_
30 "	45	55	57	52.5	4	750	22	MKPFBW53009H_
35 "	45	65	57	52.5	4	870	25	MKPFBW53509J_

Capacitance	W	H	L	PCM**	Pin	440 VAC*/1000 VDC		Part number
						I <sub>s</sub> A	I <sub>rms</sub> (10 kHz) at 85° C A	
0.68 "	13	24	31.5	27.5	2/4	74.8	3	MKPF4W36806D_
1.0 μF	13	24	31.5	27.5	2/4	110	4	MKPF4W41006D_
1.5 "	17	29	31.5	27.5	2/4	165	5	MKPF4W41506G_
2.2 "	20	39.5	31.5	27.5	2/4	240	6	MKPF4W42206J_
3.3 "	20	39.5	41.5	37.5	2/4	230	7.5	MKPF4W43307G_
4.7 "	24	45.5	41.5	37.5	2/4	330	8.5	MKPF4W44707H_
6.8 "	31	46	41.5	37.5	2/4	480	11.5	MKPF4W46807I_
10 μF	30	45	57	52.5	2/4	400	16	MKPF4W51009E_
12 "	35	50	57	52.5	4	480	17	MKPF4W51209F_

\* AC voltages:  $f \leq 100$  Hz

\*\* PCM = Printed circuit module = pin spacing

Dims. in mm.

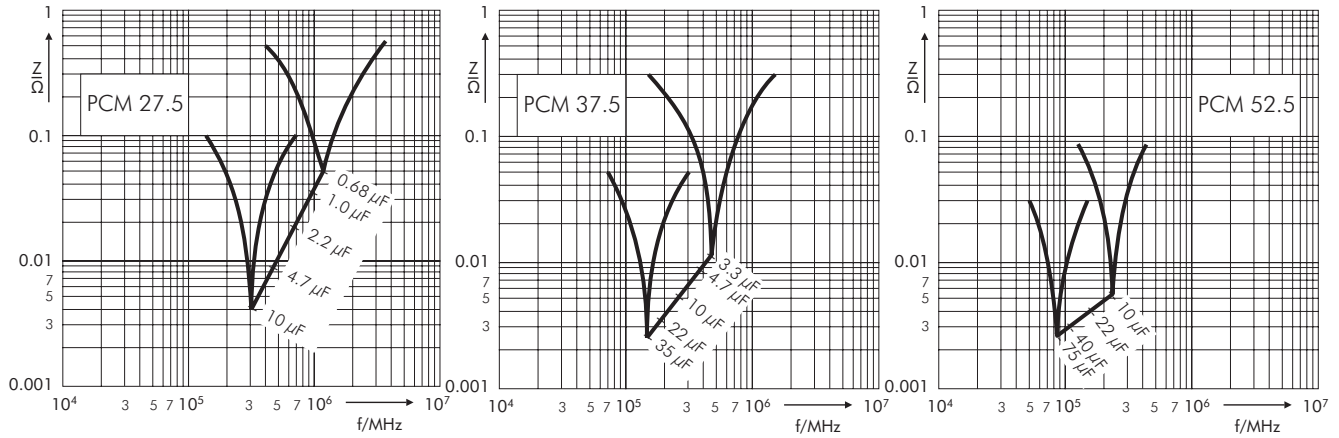
Part number completion:	
Version code:	2-pin = 00 4-pin = D4
Tolerance:	20 % = M 10 % = K 5 % = J
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 149.	

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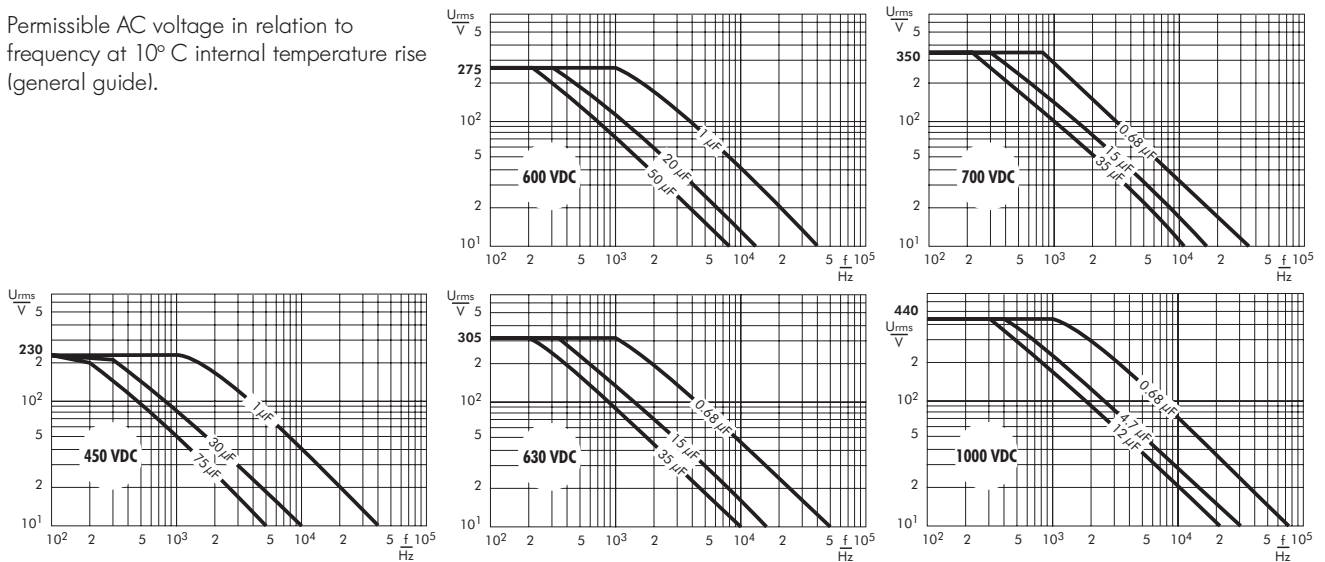
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## Continuation

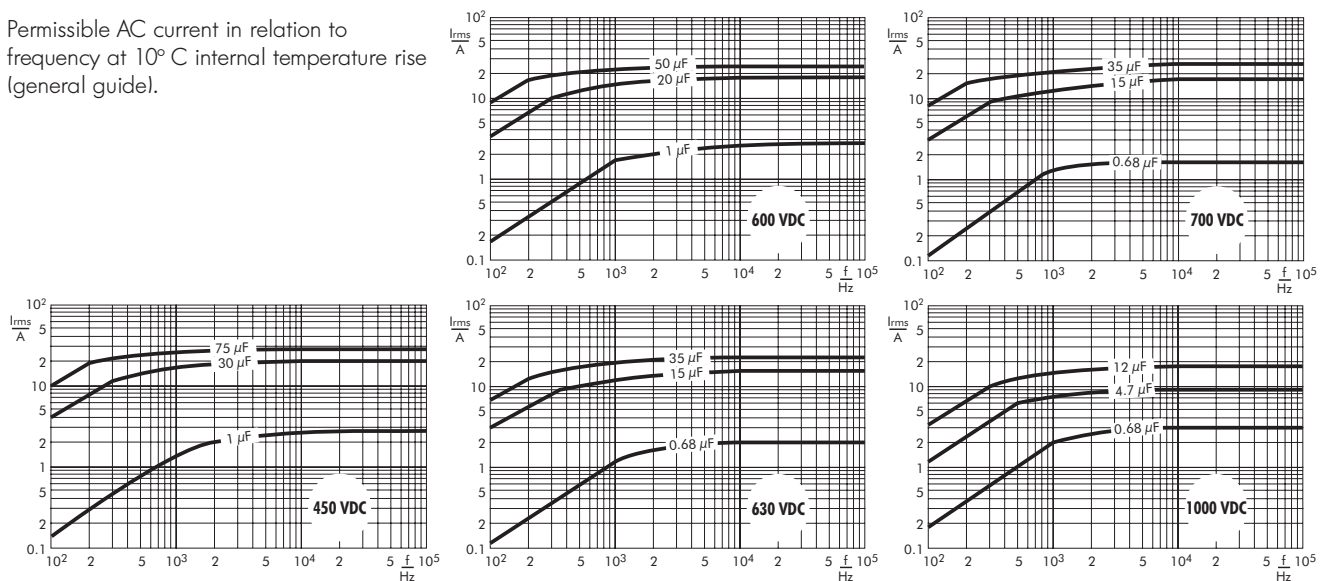
Impedance change with frequency  
(general guide).



Permissible AC voltage in relation to frequency at 10° C internal temperature rise  
(general guide).



Permissible AC current 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:  $T_{max.} \leq 125^{\circ}C$   
soldering:  $T_{max.} \leq 135^{\circ}C$

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

### Single wave soldering

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

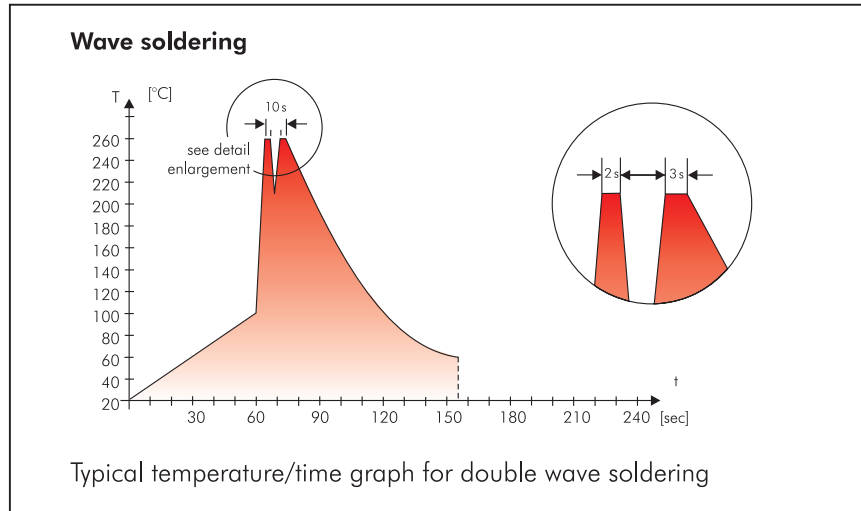
Dwell time:  $t < 5 \text{ sec}$

### Double wave soldering

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

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 9001:2015 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 by the infaz (Institut für Auditierung und Zertifizierung) 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 2011/65/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 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

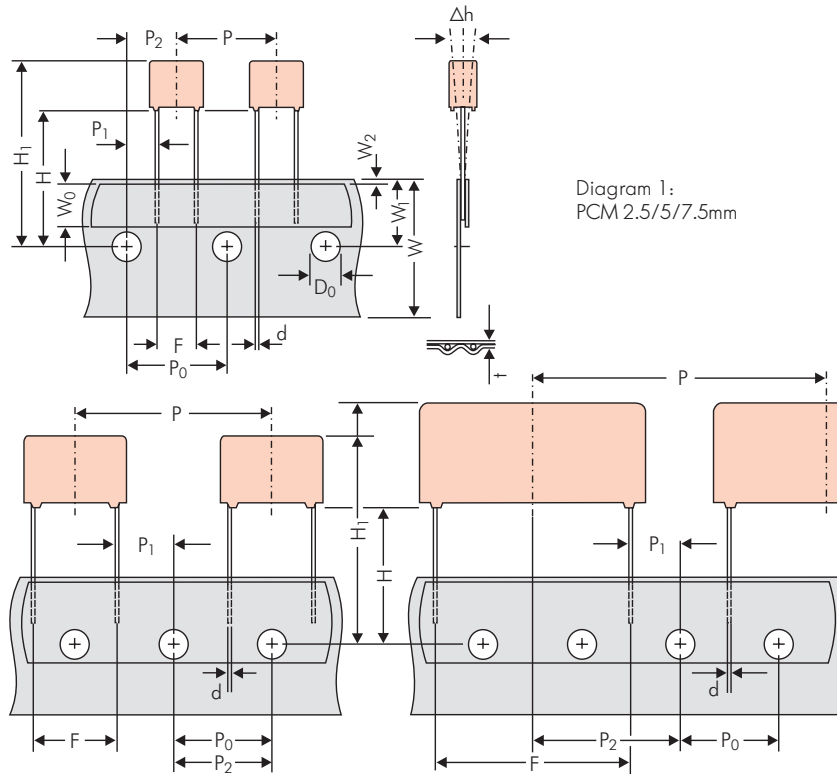


Diagram 1:  
PCM 2.5/5/7.5mm

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 <sub>0</sub>	6.0 for hot-sealing adhesive tape	6.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape
Hole position	W <sub>1</sub>	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5
Hold-down tape position	W <sub>2</sub>	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.
Feed hole diameter	D <sub>0</sub>	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2
Pitch of component	P	12.7 ±1.0	12.7 ±1.0	12.7 ±1.0	25.4 ±1.0	25.4 ±1.0	38.1 ±1.5	38.1 ±1.5 or 50.8 ±1.5
Feed hole pitch	P <sub>0</sub>	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch
Feed hole centre to pin	P <sub>1</sub>	5.1 ±0.5	3.85 ±0.7	2.6 ±0.7	7.7 ±0.7	5.2 ±0.7	7.8 ±0.7	5.3 ±0.7
Hole centre to component centre	P <sub>2</sub>	6.35 ±1.3	6.35 ±1.3	6.35 ±1.3	12.7 ±1.3	12.7 ±1.3	19.05 ±1.3	19.05 ±1.3
Feed hole centre to bottom edge of the component	H	16.5 ±0.3 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5
Feed hole centre to top edge of the component	H <sub>1</sub>	H+H <sub>component</sub> < H <sub>1</sub> 32.25 max.	H+H <sub>component</sub> < H <sub>1</sub> 32.25 max.	H+H <sub>component</sub> < H <sub>1</sub> 24.5 to 31.5	H+H <sub>component</sub> < H <sub>1</sub> 25.0 to 31.5	H+H <sub>component</sub> < H <sub>1</sub> 26.0 to 37.0	H+H <sub>component</sub> < H <sub>1</sub> 30.0 to 43.0	H+H <sub>component</sub> < H <sub>1</sub> 35.0 to 45.0
Pin spacing at upper edge of carrier tape	F	2.5 ±0.5	5.0 <sup>+0.8</sup> <sub>-0.2</sub>	7.5 ±0.8	10.0 ±0.8	15 ±0.8	22.5 ±0.8	27.5 ±0.8
Pin diameter	d	0.4 ±0.05	0.5 ±0.05	0.5 ±0.05 or 0.6 <sup>+0.06</sup> <sub>-0.05</sub>	0.5 ±0.05 or 0.6 <sup>+0.06</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>
Component alignment	Δh	± 2.0 max.	± 2.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.
Total tape thickness	t	0.6 ±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 150)	ROLL/AMMO			AMMO				
	REEL	φ 360 max. φ 30 ±1	B 52 ±2 B 58 ±2 } depending on comp. dimensions	REEL φ 360 max. φ 30 ±1	B 52 ±2 B 58 ±2 or B 66 ±2	REEL φ 500 max. φ 25 ±1	B 54 ±2 B 60 ±2 B 68 ±2 } depending on PCM and component dimensions	
Unit	see details page 151.							

Dims in mm.

\* Diameter of pins see General Data.

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

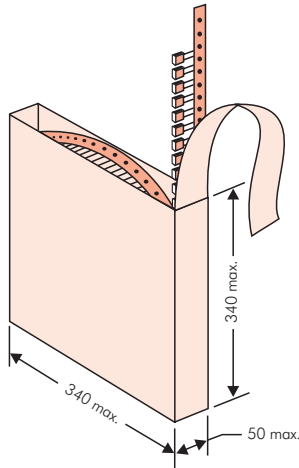
Position of components according to PCM 7.5 (sketch 11). P<sub>0</sub> = 12.7 or 15.0 is possible

Please clarify customer-specific deviations with the manufacturer.

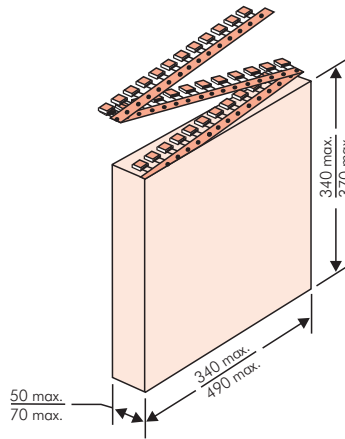


## Types of Tape Packaging of Capacitors for Automatic Radial Insertion

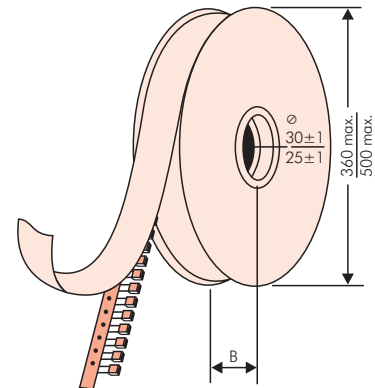
### ■ ROLL Packaging



### ■ 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.

BARCODE „Code 39“

<b>WIMA</b> Best Capacitors Made In Germany		Werk Unna	
Supplier-ID: 123456789	<b>RoHS</b> 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	
		Gross Weight [g]: 1870	
WIMA Confirmation No.: 0001004053000100	WIMA Part No.: MKS2C034701C00K8SD		
Handling Unit: <b>MKS 2</b>	<b>QTY: 5.000</b>	<b>COO: DE</b>	
	<b>MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RM5</b>		
<b>1000067326</b>	Standard 10% Loss - Standard Dichte 6-2		Week 03/2011
	Vorlage Debitor Inland		

# Packing Quantities for Capacitors with Radial Pins in PCM 2.5 mm to 22.5 mm



PCM	Size				bulk	pcs. per packing unit									
						ROLL		REEL				AMMO			
	W	H	L	Codes		S	H16.5	H18.5	ø 360	H16.5	H18.5	ø 500	H16.5	H18.5	340 × 340
					N	O	F	I	H	J	A	C	B	D	
<b>2.5 mm</b>	2.5	7	4.6	<b>0B</b>	5000		2200		2500		–		2800		–
	3	7.5	4.6	<b>0C</b>	5000		2000		2300		–		2300		–
	3.8	8.5	4.6	<b>0D</b>	5000		1500		1800		–		1800		–
	4.6	9	4.6	<b>0E</b>	5000		1200		1500		–		1500		–
	5.5	10	4.6	<b>0F</b>	5000		900		1200		–		1200		–
<b>5 mm</b>	2.5	6.5	7.2	<b>1A</b>	5000		2200		2500		–		2800		–
	3	7.5	7.2	<b>1B</b>	5000		2000		2300		–		2300		–
	3.5	8.5	7.2	<b>1C</b>	5000		1600		2000		–		2000		–
	4.5	6	7.2	<b>1D</b>	6000		1300		1500		–		1500		–
	4.5	9.5	7.2	<b>1E</b>	4000		1300		1500		–		1500		–
	5	10	7.2	<b>1F</b>	3500		1100		1400		–		1400		–
	5.5	7	7.2	<b>1G</b>	4000		1000		1200		–		1200		–
	5.5	11.5	7.2	<b>1H</b>	2500		1000		1200		–		1200		–
	6.5	8	7.2	<b>1I</b>	2500		800		1000		–		1000		–
	7.2	8.5	7.2	<b>1J</b>	2500		700		1000		–		1000		–
	7.2	13	7.2	<b>1K</b>	2000		700		950		–		1000		–
	8.5	10	7.2	<b>1L</b>	2000		600		800		–		800		–
8.5	14	7.2	<b>1M</b>	1500		600		800		–		800		–	
11	16	7.2	<b>1N</b>	1000		500		600		–		640		–	
<b>7.5 mm</b>	2.5	7	10	<b>2A</b>	5000		–		2500		4400		2500		–
	3	8.5	10	<b>2B</b>	5000		–		2200		4300		2300		4150
	4	9	10	<b>2C</b>	4000		–		1700		3200		1700		3100
	4.5	9.5	10.3	<b>2D</b>	3500		–		1500		2900		1400		2700
	5	10.5	10.3	<b>2E</b>	3000		–		1300		2500		1300		–
	5.7	12.5	10.3	<b>2F</b>	2000		–		1000		2200		1100		–
	7.2	12.5	10.3	<b>2G</b>	1500		–		900		1800		1000		–
<b>10 mm</b>	3	9	13	<b>3A</b>	3000		–		1100		2200		–		1900
	4	8.5	13.5	<b>FA</b>	3000		–		900		1600		–		1450
	4	9	13	<b>3C</b>	3000		–		900		1600		–		1450
	4	9.5	13	<b>3D</b>	3000		–		900		1600		–		1400
	5	10	13.5	<b>FB</b>	2000		–		700		1300		–		1200
	5	11	13	<b>3F</b>	3000		–		700		1300		–		1200
	6	12	13	<b>3G</b>	2400		–		550		1100		–		1000
	6	12.5	13	<b>3H</b>	2400		–		550		1100		–		1000
8	12	13	<b>3I</b>	2000		–		400		800		–		740	
<b>15 mm</b>	5	11	18	<b>4B</b>	2400		–		600		1200		–		1150
	5	13	19	<b>FC</b>	1000		–		600		1200		–		1200
	6	12.5	18	<b>4C</b>	2000		–		500		1000		–		1000
	6	14	19	<b>FD</b>	1000		–		500		1000		–		1000
	7	14	18	<b>4D</b>	1600		–		450		900		–		850
	7	15	19	<b>FE</b>	1000		–		450		900		–		850
	8	15	18	<b>4F</b>	1200		–		400		800		–		740
	8	17	19	<b>FF</b>	500		–		400		800		–		740
	9	14	18	<b>4H</b>	1200		–		350		700		–		650
	9	16	18	<b>4J</b>	900		–		350		700		–		650
	10	18	19	<b>FG</b>	500		–		300		650		–		590
11	14	18	<b>4M</b>	1000		–		300		600		–		540	
<b>22.5 mm</b>	5	14	26.5	<b>5A</b>	1200		–		–		800		–		770
	6	15	26.5	<b>5B</b>	1000		–		–		700		–		640
	7	16.5	26.5	<b>5D</b>	760		–		–		600		–		550
	8	20	28	<b>FH</b>	500		–		–		500		–		480
	8.5	18.5	26.5	<b>5F</b>	500		–		–		480		–		450
	10	22	28	<b>FI</b>	570*		–		–		420		–		380
	10.5	19	26.5	<b>5G</b>	594*		–		–		400		–		360
	10.5	20.5	26.5	<b>5H</b>	594*		–		–		400		–		360
	11	21	26.5	<b>5I</b>	561*		–		–		380		–		350
	12	24	28	<b>FJ</b>	480*		–		–		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	pcs. per packing unit											
						ROLL		REEL				AMMO					
	W	H	L	Codes		S	N	O	ø 360		ø 500		340 x 340		490 x 370		
								H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5
								F	I	H	J	A	C	B	D		
<b>27.5 mm</b>	9	19	31.5	<b>6A</b>	567*	-	-	-	-	460/340*	-	-	420				
	11	21	31.5	<b>6B</b>	459*	-	-	-	-	380/280*	-	-	350				
	13	24	31.5	<b>6D</b>	378*	-	-	-	-	300	-	-	290				
	13	25	33	<b>FK</b>	405*	-	-	-	-	-	-	-	-				
	15	26	31.5	<b>6F</b>	324*	-	-	-	-	270	-	-	250				
	15	26	33	<b>FL</b>	324*	-	-	-	-	-	-	-	-				
	17	29	31.5	<b>6G</b>	198*	-	-	-	-	-	-	-	-				
	17	34.5	31.5	<b>6I</b>	198*	-	-	-	-	-	-	-	-				
	20	32	33	<b>FM</b>	162*	-	-	-	-	-	-	-	-				
20	39.5	31.5	<b>6J</b>	162*	-	-	-	-	-	-	-	-					
<b>37.5 mm</b>	9	19	41.5	<b>7A</b>	441*	-	-	-	-	-	-	-	-				
	11	22	41.5	<b>7B</b>	357*	-	-	-	-	-	-	-	-				
	13	24	41.5	<b>7C</b>	294*	-	-	-	-	-	-	-	-				
	15	26	41.5	<b>7D</b>	252*	-	-	-	-	-	-	-	-				
	17	29	41.5	<b>7E</b>	154*	-	-	-	-	-	-	-	-				
	19	32	41.5	<b>7F</b>	140*	-	-	-	-	-	-	-	-				
	20	39.5	41.5	<b>7G</b>	126*	-	-	-	-	-	-	-	-				
	24	45.5	41.5	<b>7H</b>	112*	-	-	-	-	-	-	-	-				
	31	46	41.5	<b>7I</b>	84*	-	-	-	-	-	-	-	-				
	35	50	41.5	<b>7J</b>	35*	-	-	-	-	-	-	-	-				
	40	55	41.5	<b>7K</b>	28*	-	-	-	-	-	-	-	-				
<b>48.5 mm</b>	19	31	56	<b>8D</b>	120*	-	-	-	-	-	-	-	-				
	23	34	56	<b>8E</b>	80*	-	-	-	-	-	-	-	-				
	27	37.5	56	<b>8H</b>	84*	-	-	-	-	-	-	-	-				
	33	48	56	<b>8J</b>	25*	-	-	-	-	-	-	-	-				
	37	54	56	<b>8L</b>	25*	-	-	-	-	-	-	-	-				
<b>52.5 mm</b>	25	45	57	<b>9D</b>	70*	-	-	-	-	-	-	-	-				
	30	45	57	<b>9E</b>	60*	-	-	-	-	-	-	-	-				
	35	50	57	<b>9F</b>	25*	-	-	-	-	-	-	-	-				
	45	55	57	<b>9H</b>	20*	-	-	-	-	-	-	-	-				
	45	65	57	<b>9J</b>	20*	-	-	-	-	-	-	-	-				

\* for 2-inch transport pitches.

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

■ Moulded versions. Rights reserved to amend design data without prior notification.

Updated data on [www.wima.com](http://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
<b>M</b>	<b>K</b>	<b>S</b>	<b>2</b>	<b>C</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>A</b>	<b>0</b>	<b>0</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>D</b>
MKS 2				63 VDC		0.01 µF			2.5x6.5x7.2		-		20%	bulk	6 -2		

<p><b>Type description:</b></p> <p>SMD-PET = SMDT                  SMD-PEN = SMDN                  SMD-PPS = SMDI                  FKP 02 = FKPO                  MKS 02 = MKS0                  FKS 2 = FKS2                  FKP 2 = FKP2                  FKS 3 = FKS3                  FKP 3 = FKP 3                  MKS 2 = MKS2                  MKP 2 = MKP2                  MKS 4 = MKS4                  MKP 4C = MKPC                  MKP 4 = MKP4                  MKP 10 = MKP1                  FKP 1 = FKP1                  MKP-X2 = MKX2                  MKP-X1 R = MKX1                  MKP-Y2 = MKY2                  MP 3-X2 = MPX2                  MP 3-X1 = MPX1                  MP 3-Y2 = MPY2                  MP 3R-Y2 = MPRY                  MKP 4F = MKPF                  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                  DC-LINK HY = DCHY</p>	<p><b>Rated voltage:</b></p> <p>50 VDC = B0                  63 VDC = C0                  100 VDC = D0                  250 VDC = F0                  400 VDC = G0                  450 VDC = H0                  520 VDC = H2                  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                  350 VAC = BW                  440 VAC = 4W                  500 VAC = 5W                  ...</p>	<p><b>Capacitance:</b></p> <p>22 pF = 0022                  47 pF = 0047                  100 pF = 0100                  150 pF = 0150                  220 pF = 0220                  330 pF = 0330                  470 pF = 0470                  680 pF = 0680                  1000 pF = 1100                  1500 pF = 1150                  2200 pF = 1220                  3300 pF = 1330                  4700 pF = 1470                  6800 pF = 1680                  0.01 µF = 2100                  0.022 µF = 2220                  0.047 µF = 2470                  0.1 µF = 3100                  0.22 µF = 3220                  0.47 µF = 3470                  1 µF = 4100                  2.2 µF = 4220                  4.7 µF = 4470                  10 µF = 5100                  22 µF = 5220                  47 µF = 5470                  100 µF = 6100                  220 µF = 6220                  1000 µF = 7100                  1500 µF = 7150                  ...</p>	<p><b>Size:</b></p> <p>4.8x3.3x3 Size 1812 = KA                  4.8x3.3x4 Size 1812 = KB                  5.7x5.1x3.5 Size 2220 = QA                  5.7x5.1x4.5 Size 2220 = QB                  7.2x6.1x3 Size 2824 = TA                  7.2x6.1x5 Size 2824 = TB                  10.2x7.6x5 Size 4030 = VA                  12.7x10.2x6 Size 5040 = XA                  15.3x13.7x7 Size 6054 = YA                  2.5x7x4.6 PCM 2.5 = 0B                  3x7.5x4.6 PCM 2.5 = 0C                  2.5x6.5x7.2 PCM 5 = 1A                  3x7.5x7.2 PCM 5 = 1B                  2.5x7x10 PCM 7.5 = 2A                  3x8.5x10 PCM 7.5 = 2B                  3x9x13 PCM 10 = 3A                  4x9x13 PCM 10 = 3C                  5x11x18 PCM 15 = 4B                  6x12.5x18 PCM 15 = 4C                  5x14x26.5 PCM 22.5 = 5A                  6x15x26.5 PCM 22.5 = 5B                  9x19x31.5 PCM 27.5 = 6A                  11x21x31.5 PCM 27.5 = 6B                  9x19x41.5 PCM 37.5 = 7A                  11x22x41.5 PCM 37.5 = 7B                  19x31x56 PCM 48.5 = 8D                  25x45x57 PCM 52.5 = 9D                  ...</p> <p><b>Version code:</b></p> <p>Standard = 00                  Version A1 = 1A                  Version A1.1.1 = 1B                  Version A2 = 2A                  ...</p>	<p><b>Tolerance:</b></p> <p>±20% = M                  ±10% = K                  ±5% = J                  ±2.5% = H                  ±1% = E                  ...</p> <p><b>Packing:</b></p> <p>AMMO H16.5 340x340 = A                  AMMO H16.5 490x370 = B                  AMMO H18.5 340x340 = C                  AMMO H18.5 490x370 = D                  REEL H16.5 360 = F                  REEL H16.5 500 = H                  REEL H18.5 360 = I                  REEL H18.5 500 = J                  ROLL H16.5 = N                  ROLL H18.5 = O                  BLISTER W12 180 = P                  BLISTER W12 330 = Q                  BLISTER W16 330 = R                  BLISTER W24 330 = T                  Bulk/TPS Standard = S                  ...</p> <p><b>Pin length (untaped)</b></p> <p>3.5 ±0.5 = C9                  6 -2 = SD                  16 ±1 = P1                  ...</p> <p><b>Pin length (taped)</b></p> <p>none = 00</p>
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The data on this page is not complete and serves only to explain the part number system. Part number information is listed on the pages of the respective WIMA range.