WIMA FKP 1

Polypropylene (PP) Capacitors for Pulse Applications with Metal Foil Electrodes and Metallized Internal Series Connection in PCM 15 mm to 52.5 mm. Capacitances from 100 pF to 4.7 µF. Rated Voltages from 400 VDC to 6000 VDC.

Special Features

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

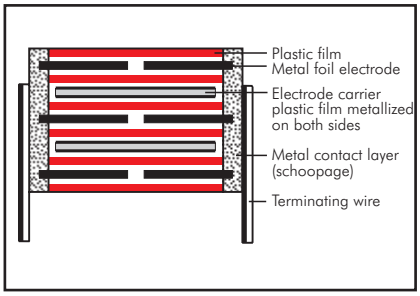
Typical Applications

For high pulse and high frequency applications e.g.

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

Construction

Dielectric:
Polypropylene (PP) film
Capacitor electrodes:
Aluminium foil and double-sided metallized plastic film
Internal construction:



Encapsulation:
Solvent-resistant, flame-retardant plastic case with epoxy resin seal, UL 94 V-0
Terminations:
Tinned wire.
Marking:
Colour: Red. Marking: Black.

Electrical Data

Capacitance range:
100 pF to 4.7 µF (E12-values on request)
Rated voltages:
400 VDC, 630 VDC, 850 VDC, 1000 VDC, 1250 VDC, 1600 VDC, 2000 VDC, 4000 VDC, 6000 VDC
Capacitance tolerances:
±20%, ±10%, ±5% (other tolerances are available subject to special enquiry)
Operating temperature range:
–55° C to +100° C
Climatic test category:
55/100/56 in accordance with IEC
Test voltage: 2 U_r, 2 sec / 6 kV: PCM < 37.5
1.6 U_r, 2 sec, PCM 37.5 1.2 U_r, 2 sec.
Dielectric absorption: 0.05 %
Dissipation factors at +20° C: tan δ

at f	C ⩽ 0.1 µF	0.1 µF < C ⩽ 1.0 µF	C > 1.0 µF
1 kHz	⩽ 5×10^{-4}	⩽ 5×10^{-4}	⩽ 5×10^{-4}
10 kHz	⩽ 6×10^{-4}	⩽ 6×10^{-4}	-
100 kHz	⩽ 10×10^{-4}	-	-

Insulation resistance at +20° C:
C ⩽ 0.1 µF: ⩾ 1 x 10^5 MΩ
C > 0.1 µF: ⩾ 30 000 sec (MΩ x µF)
Measuring voltage: 100 V/1 min.
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 x U_r and 40° C)

Maximum pulse rise time: for pulses equal to the rated voltage

Capacitance pF/µF	max. pulse rise time V/µsec at T_A < 40° C								
	400 VDC	630 VDC	850 VDC	1000 VDC	1250 VDC	1600 VDC	2000 VDC	4000 VDC	6000 VDC
100 ... 220	–	–	–	–	–	56000	56000	–	–
330 ... 680	–	–	–	–	–	51000	56000	56000	56000
1000 ... 2200	29000	29000	29000	29000	29000	46000	51000	51000	51000
3300 ... 6800	9000	14000	27000	27000	29000	29000	29000	29000	29000
0.01 ... 0.022	9000	11000	11000	11000	11000	11000	13000	13000	13000
0.033 ... 0.068	9000	11000	11000	11000	11000	11000	11000	13000	13000
0.1 ... 0.22	7000	11000	11000	11000	11000	11000	11000	13000	13000
0.33 ... 0.68	6000	10000	11000	11000	11000	11000	11000	–	–
1.0 ... 2.2	5000	6600	8300	8300	9500	11000	–	–	–
3.3 ... 4.7	2500	–	–	–	–	–	–	–	–

Mechanical Tests

Pull test on pins:
d ⩽ 0.8 ø: 10 N in direction of pins
d > 0.8 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/sec^2
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.

WIMA FKP 1

Continuation

General Data

Capacitance	400 VDC/250 VAC*					630 VDC/400 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1000 pF	5	11	18	15	FKP1G011004B_ _ _ _ _ _	5	11	18	15	FKP1J011004B_ _ _ _ _ _
1500 „	5	11	18	15	FKP1G011504B_ _ _ _ _ _	5	11	18	15	FKP1J011504B_ _ _ _ _ _
2200 „	5	11	18	15	FKP1G012204B_ _ _ _ _ _	5	11	18	15	FKP1J012204B_ _ _ _ _ _
3300 „	5	11	18	15	FKP1G013304B_ _ _ _ _ _	5	11	18	15	FKP1J013304B_ _ _ _ _ _
4700 „	5	11	18	15	FKP1G014704B_ _ _ _ _ _	5	11	18	15	FKP1J014704B_ _ _ _ _ _
6800 „	5	11	18	15	FKP1G016804B_ _ _ _ _ _	6	12.5	18	15	FKP1J016804C_ _ _ _ _ _
0.01 µF	5	11	18	15	FKP1G021004B_ _ _ _ _ _	7	14	18	15	FKP1J021004D_ _ _ _ _ _
						5	14	26.5	22.5	FKP1J021005A_ _ _ _ _ _
0.015 „	6	12.5	18	15	FKP1G021504C_ _ _ _ _ _	8	15	18	15	FKP1J021504F_ _ _ _ _ _
						6	15	26.5	22.5	FKP1J021505B_ _ _ _ _ _
0.022 „	7	14	18	15	FKP1G022204D_ _ _ _ _ _	7	16.5	26.5	22.5	FKP1J022205D_ _ _ _ _ _
	5	14	26.5	22.5	FKP1G022205A_ _ _ _ _ _					
0.033 „	8	15	18	15	FKP1G023304F_ _ _ _ _ _	8.5	18.5	26.5	22.5	FKP1J023305F_ _ _ _ _ _
	6	15	26.5	22.5	FKP1G023305B_ _ _ _ _ _					
0.047 „	7	16.5	26.5	22.5	FKP1G024705D_ _ _ _ _ _	10.5	20.5	26.5	22.5	FKP1J024705H_ _ _ _ _ _
						9	19	31.5	27.5	FKP1J024706A_ _ _ _ _ _
0.068 „	8.5	18.5	26.5	22.5	FKP1G026805F_ _ _ _ _ _	11	21	31.5	27.5	FKP1J026806B_ _ _ _ _ _
						9	19	41.5	37.5	FKP1J026807A_ _ _ _ _ _
0.1 µF	10.5	20.5	26.5	22.5	FKP1G031005H_ _ _ _ _ _	13	24	31.5	27.5	FKP1J031006D_ _ _ _ _ _
	9	19	31.5	27.5	FKP1G031006A_ _ _ _ _ _	11	22	41.5	37.5	FKP1J031007B_ _ _ _ _ _
0.15 „	11	21	31.5	27.5	FKP1G031506B_ _ _ _ _ _	13	24	41.5	37.5	FKP1J031507C_ _ _ _ _ _
0.22 „	13	24	31.5	27.5	FKP1G032206D_ _ _ _ _ _	15	26	41.5	37.5	FKP1J032207D_ _ _ _ _ _
	11	22	41.5	37.5	FKP1G032207B_ _ _ _ _ _					
0.33 „	13	24	41.5	37.5	FKP1G033307C_ _ _ _ _ _	19	32	41.5	37.5	FKP1J033307F_ _ _ _ _ _
0.47 „	17	29	41.5	37.5	FKP1G034707E_ _ _ _ _ _	20	39.5	41.5	37.5	FKP1J034707G_ _ _ _ _ _
0.68 „	19	32	41.5	37.5	FKP1G036807F_ _ _ _ _ _	24	45.5	41.5	37.5	FKP1J036807H_ _ _ _ _ _
1.0 µF	20	39.5	41.5	37.5	FKP1G041007G_ _ _ _ _ _	35	50	41.5	37.5	FKP1J041007J_ _ _ _ _ _
1.5 „	31	46	41.5	37.5	FKP1G041507I_ _ _ _ _ _	40	55	41.5	37.5	FKP1J041507K_ _ _ _ _ _
						35	50	57	52.5	FKP1J041509F_ _ _ _ _ _
2.2 „	35	50	41.5	37.5	FKP1G042207J_ _ _ _ _ _	45	55	57	52.5	FKP1J042209H_ _ _ _ _ _
3.3 „	35	50	57	52.5	FKP1G043309F_ _ _ _ _ _					
4.7 „	45	65	57	52.5	FKP1G044709J_ _ _ _ _ _					

* AC voltages: f ⩽ 1000 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

** PCM = Printed circuit module = pin spacing

Dims. in mm.

The values of the WIMA FKP 4 range according to main catalogue 2015 are still available on request.

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

Part number completeion:		
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.

Continuation page 74

WIMA FKP 1

Capacitance	850 VDC/450 VAC*					1000 VDC/600 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
1000 pF	5	11	18	15	FKP1M011004B_____	5	11	18	15	FKP1O111004B_____
1500 „	5	11	18	15	FKP1M011504B_____	5	11	18	15	FKP1O111504B_____
2200 „	5	11	18	15	FKP1M012204B_____	5	11	18	15	FKP1O112204B_____
3300 „	5	11	18	15	FKP1M013304B_____	5	11	18	15	FKP1O113304B_____
4700 „	6	12.5	18	15	FKP1M014704C_____	6	12.5	18	15	FKP1O114704C_____
6800 „	7	14	18	15	FKP1M016804D_____	7	14	18	15	FKP1O116804D_____
0.01 µF	8	15	18	15	FKP1M021004F_____	8	15	18	15	FKP1O121004F_____
	6	15	26.5	22.5	FKP1M021005B_____	6	15	26.5	22.5	FKP1O121005B_____
0.015 „	6	15	26.5	22.5	FKP1M021505B_____	6	15	26.5	22.5	FKP1O121505B_____
0.022 „	8.5	18.5	26.5	22.5	FKP1M022205F_____	8.5	18.5	26.5	22.5	FKP1O122205F_____
0.033 „	10.5	20.5	26.5	22.5	FKP1M023305H_____	10.5	20.5	26.5	22.5	FKP1O123305H_____
	9	19	31.5	27.5	FKP1M023306A_____	9	19	31.5	27.5	FKP1O123306A_____
0.047 „	11	21	31.5	27.5	FKP1M024706B_____	11	21	31.5	27.5	FKP1O124706B_____
0.068 „	13	24	31.5	27.5	FKP1M026806D_____	13	24	31.5	27.5	FKP1O126806D_____
	11	22	41.5	37.5	FKP1M026807B_____	11	22	41.5	37.5	FKP1O126807B_____
0.1 µF	13	24	41.5	37.5	FKP1M031007C_____	13	24	41.5	37.5	FKP1O131007C_____
0.15 „	15	26	41.5	37.5	FKP1M031507D_____	15	26	41.5	37.5	FKP1O131507D_____
0.22 „	19	32	41.5	37.5	FKP1M032207F_____	19	32	41.5	37.5	FKP1O132207F_____
0.33 „	20	39.5	41.5	37.5	FKP1M033307G_____	20	39.5	41.5	37.5	FKP1O133307G_____
0.47 „	31	46	41.5	37.5	FKP1M034707I_____	31	46	41.5	37.5	FKP1O134707I_____
0.68 „	35	50	41.5	37.5	FKP1M036807J_____	35	50	41.5	37.5	FKP1O136807J_____
1.0 µF	40	55	41.5	37.5	FKP1M041007K_____	40	55	41.5	37.5	FKP1O141007K_____
	35	50	57	52.5	FKP1M041009F_____	35	50	57	52.5	FKP1O141009F_____
1.5 „	45	55	57	52.5	FKP1M041509H_____	45	55	57	52.5	FKP1O141509H_____
2,2 „	45	65	57	52,5	FKP1M042209J_____	45	65	57	52,5	FKP1O142209J_____

* AC voltages: f ⩽ 1000 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

New range

** PCM = Printed circuit module = pin spacing

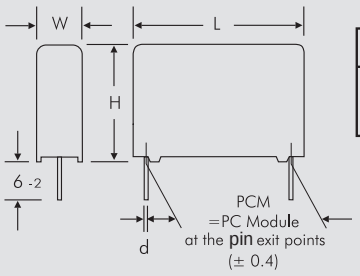
Dims. in mm.

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

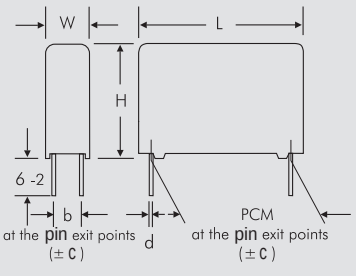
Taped version see page 149.

2-pin version



Ø d	PCM
0.8	15 - 27.5
1.0	37.5

4-pin version



W	PCM	b	Ø d	c
17	37.5	10	1.0	0.4
19	37.5	10	1.0	0.4
20	37.5	12.5	1.0	0.4
24	37.5	12.5	1.0	0.4
31	37.5	20	1.0	0.4
35	37.5	20	1.0	0.4
40	37.5	20	1.0	0.4
35	52.5	20	1.2	0.8
45	52.5	20	1.2	0.8

Continuation page 75

WIMA FKP 1

Capacitance	1250 VDC/600 VAC*					1600 VDC/650 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
100 pF						5	11	18	15	FKP1T001004B_____
150 „						5	11	18	15	FKP1T001504B_____
220 „						5	11	18	15	FKP1T002204B_____
330 „						5	11	18	15	FKP1T003304B_____
470 „						5	11	18	15	FKP1T004704B_____
680 „						5	11	18	15	FKP1T006804B_____
1000 pF	5	11	18	15	FKP1R011004B_____	6	12.5	18	15	FKP1T011004C_____
						5	14	26.5	22.5	FKP1T011005A_____
1500 „	5	11	18	15	FKP1R011504B_____	7	14	18	15	FKP1T011504D_____
						5	14	26.5	22.5	FKP1T011505A_____
2200 „	5	11	18	15	FKP1R012204B_____	8	15	18	15	FKP1T012204F_____
						5	14	26.5	22.5	FKP1T012205A_____
3300 „	6	12.5	18	15	FKP1R013304C_____	6	15	26.5	22.5	FKP1T013305B_____
4700 „	7	14	18	15	FKP1R014704D_____	7	16.5	26.5	22.5	FKP1T014705D_____
6800 „	8	15	18	15	FKP1R016804F_____	8.5	18.5	26.5	22.5	FKP1T016805F_____
	5	14	26.5	22.5	FKP1R016805A_____					
0.01 µF	7	16.5	26.5	22.5	FKP1R021005D_____	10.5	20.5	26.5	22.5	FKP1T021005H_____
0.015 „	8.5	18.5	26.5	22.5	FKP1R021505F_____	11	21	31.5	27.5	FKP1T021506B_____
0.022 „	10.5	20.5	26.5	22.5	FKP1R022205H_____	11	21	31.5	27.5	FKP1T022206B_____
0.033 „	11	21	31.5	27.5	FKP1R023306B_____	13	24	31.5	27.5	FKP1T023306D_____
	9	19	41.5	37.5	FKP1R023307A_____	13	24	41.5	37.5	FKP1T023307C_____
0.047 „	13	24	31.5	27.5	FKP1R024706D_____	13	24	41.5	37.5	FKP1T024707C_____
	11	22	41.5	37.5	FKP1R024707B_____					
0.068 „	11	22	41.5	37.5	FKP1R026807B_____	15	26	41.5	37.5	FKP1T026807D_____
0.1 µF	15	26	41.5	37.5	FKP1R031007D_____	17	29	41.5	37.5	FKP1T031007E_____
0.15 „	17	29	41.5	37.5	FKP1R031507E_____	20	39.5	41.5	37.5	FKP1T031507G_____
0.22 „	19	32	41.5	37.5	FKP1R032207F_____	24	45.5	41.5	37.5	FKP1T032207H_____
0.33 „	24	45.5	41.5	37.5	FKP1R033307H_____	31	46	41.5	37.5	FKP1T033307I_____
0.47 „	31	46	41.5	37.5	FKP1R034707I_____	40	55	41.5	37.5	FKP1T034707K_____
0.68 „	40	55	41.5	37.5	FKP1R036807K_____	35	50	57	52.5	FKP1T036809F_____
1.0 µF	35	50	57	52.5	FKP1R041009F_____	45	55	57	52.5	FKP1T041009H_____
1.5 „	45	65	57	52.5	FKP1R041509J_____					

* AC voltages: f ⩽ 1000 Hz; 1.4 x U_{rms} + UDC ⩽ 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 149.

Continuation page 76

WIMA FKP 1

Capacitance	2000 VDC/700 VAC~* W	H	L	PCM**	Part number	4000 VDC/700 VAC* W	H	L	PCM**	Part number
100 pF	5	11	18	15	FKP1U001004B_ _ _ _ _ _					
150 „	5	11	18	15	FKP1U001504B_ _ _ _ _ _					
220 „	5	11	18	15	FKP1U002204B_ _ _ _ _ _					
330 „	6	12.5	18	15	FKP1U003304C_ _ _ _ _ _					
470 „	6	12.5	18	15	FKP1U004704C_ _ _ _ _ _	5	14	26.5	22.5	FKP1X004705A_ _ _ _ _ _
680 „	6	12.5	18	15	FKP1U006804C_ _ _ _ _ _	5	14	26.5	22.5	FKP1X006805A_ _ _ _ _ _
1000 pF	7	14	18	15	FKP1U011004D_ _ _ _ _ _	5	14	26.5	22.5	FKP1X011005A_ _ _ _ _ _
	5	14	26.5	22.5	FKP1U011005A_ _ _ _ _ _					
1500 „	6	15	26.5	22.5	FKP1U011505B_ _ _ _ _ _	7	16.5	26.5	22.5	FKP1X011505D_ _ _ _ _ _
2200 „	7	16.5	26.5	22.5	FKP1U012205D_ _ _ _ _ _	8.5	18.5	26.5	22.5	FKP1X012205F_ _ _ _ _ _
3300 „	7	16.5	26.5	22.5	FKP1U013305D_ _ _ _ _ _	10.5	20.5	26.5	22.5	FKP1X013305H_ _ _ _ _ _
4700 „	8.5	18.5	26.5	22.5	FKP1U014705F_ _ _ _ _ _	11	21	31.5	27.5	FKP1X014706B_ _ _ _ _ _
6800 „	10.5	20.5	26.5	22.5	FKP1U016805H_ _ _ _ _ _	13	24	31.5	27.5	FKP1X016806D_ _ _ _ _ _
0.01 µF	11	21	31.5	27.5	FKP1U021006B_ _ _ _ _ _	15	26	31.5	27.5	FKP1X021006F_ _ _ _ _ _
0.015 „	13	24	31.5	27.5	FKP1U021506D_ _ _ _ _ _	13	24	41.5	37.5	FKP1X021507C_ _ _ _ _ _
0.022 „	15	26	31.5	27.5	FKP1U022206F_ _ _ _ _ _	17	29	41.5	37.5	FKP1X022207E_ _ _ _ _ _
	13	24	41.5	37.5	FKP1U022207C_ _ _ _ _ _					
0.033 „	13	24	41.5	37.5	FKP1U023307C_ _ _ _ _ _	20	39.5	41.5	37.5	FKP1X023307G_ _ _ _ _ _
0.047 „	17	29	41.5	37.5	FKP1U024707E_ _ _ _ _ _	24	45.5	41.5	37.5	FKP1X024707H_ _ _ _ _ _
0.068 „	19	32	41.5	37.5	FKP1U026807F_ _ _ _ _ _	31	46	41.5	37.5	FKP1X026807I_ _ _ _ _ _
0.1 µF	20	39.5	41.5	37.5	FKP1U031007G_ _ _ _ _ _	35	50	41.5	37.5	FKP1X031007J_ _ _ _ _ _
0.15 „	24	45.5	41.5	37.5	FKP1U031507H_ _ _ _ _ _	40	55	41.5	37.5	FKP1X031507K_ _ _ _ _ _
0.22 „	35	50	41.5	37.5	FKP1U032207J_ _ _ _ _ _	45	55	57	52.5	FKP1X032209H_ _ _ _ _ _
0.33 „	40	55	41.5	37.5	FKP1U033307K_ _ _ _ _ _					
0.47 „	45	55	57	52.5	FKP1U034709H_ _ _ _ _ _					
0.68 „	45	65	57	52.5	FKP1U036809J_ _ _ _ _ _					

* AC voltages: f ⩽ 1000 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

** PCM = Printed circuit module = pin spacing

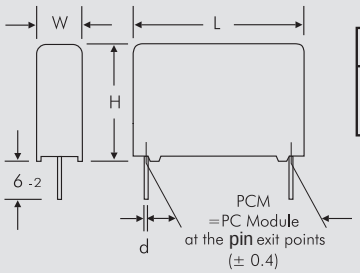
Dims. in mm.

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

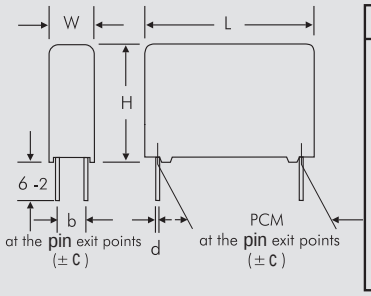
Taped version see page 149.

2-pin version



Ø d	PCM
0.8	15 - 27.5
1.0	37.5

4-pin version



W	PCM	b	Ø d	c
17	37.5	10	1.0	0.4
19	37.5	10	1.0	0.4
20	37.5	12.5	1.0	0.4
24	37.5	12.5	1.0	0.4
31	37.5	20	1.0	0.4
35	37.5	20	1.0	0.4
40	37.5	20	1.0	0.4
35	52.5	20	1.2	0.8
45	52.5	20	1.2	0.8

Continuation page 77

WIMA FKP 1

Capacitance	6000 VDC/700 VAC* W	H	L	PCM**	Part number
470 pF	5	14	26.5	22.5	FKP1Y004705A_ _ _ _ _ _
680 „	5	14	26.5	22.5	FKP1Y006805A_ _ _ _ _ _
1000 pF	5	14	26.5	22.5	FKP1Y011005A_ _ _ _ _ _
1500 „	7	16.5	26.5	22.5	FKP1Y011505D_ _ _ _ _ _
2200 „	10.5	20.5	26.5	22.5	FKP1Y012205H_ _ _ _ _ _
3300 „	10.5	20.5	26.5	22.5	FKP1Y013305H_ _ _ _ _ _
4700 „	11	21	31.5	27.5	FKP1Y014706B_ _ _ _ _ _
6800 „	13	24	31.5	27.5	FKP1Y016806D_ _ _ _ _ _
0.01 µF	15	26	31.5	27.5	FKP1Y021006F_ _ _ _ _ _
0.015 „	13	24	41.5	37.5	FKP1Y021507C_ _ _ _ _ _
0.022 „	17	29	41.5	37.5	FKP1Y022207E_ _ _ _ _ _
0.033 „	20	39.5	41.5	37.5	FKP1Y023307G_ _ _ _ _ _
0.047 „	24	45.5	41.5	37.5	FKP1Y024707H_ _ _ _ _ _
0.068 „	31	46	41.5	37.5	FKP1Y026807I_ _ _ _ _ _
0.1 µF	35	50	41.5	37.5	FKP1Y031007J_ _ _ _ _ _
0.15 „	40	55	41.5	37.5	FKP1Y031507K_ _ _ _ _ _
0.22 „	45	55	57	52.5	FKP1Y032209H_ _ _ _ _ _

* AC voltages: f ⩽ 1000 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

** PCM = Printed circuit module = pin spacing

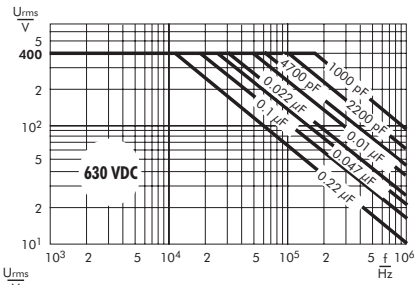
Dims. in mm.

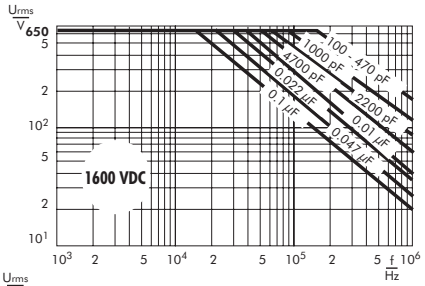
Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

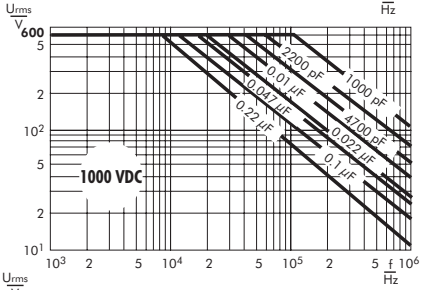
Part number completion:		
Version code:	2-pin	= 00
	4-pin	= D4
Tolerance:	20 %	= M
	10 %	= K
	5 %	= J
Packing:	bulk	= S
Pin length:	6-2	= SD

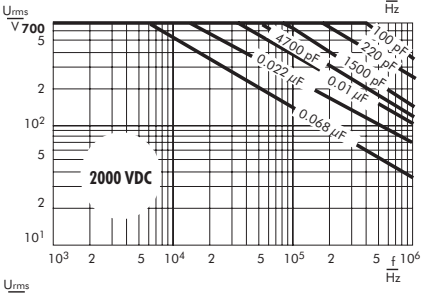
Taped version see page 149.

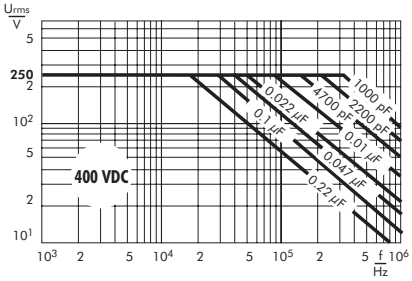
Permissible AC voltage in relation to frequency at 10° C internal temperature rise (general guide).

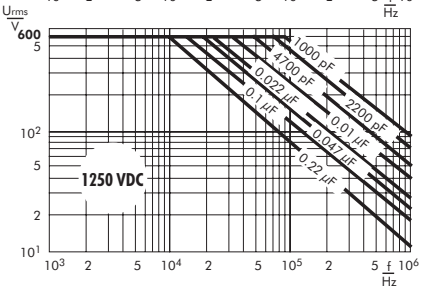


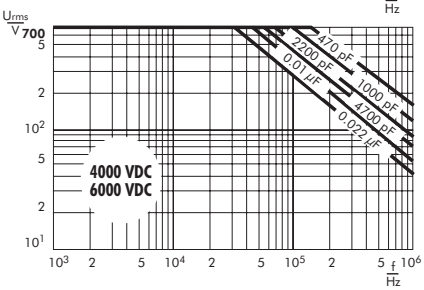












Recommendation for Processing and Application of Through-Hole Capacitors

Soldering Process

Internal temperature of the capacitor must be kept as follows:

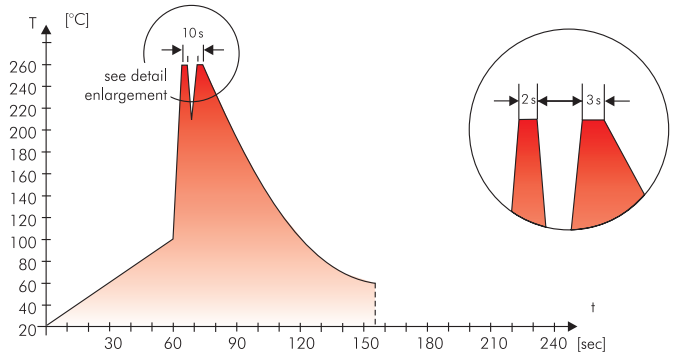
Polyester:	preheating:	$T_{max.} \leqslant 125°$ C
	soldering:	$T_{max.} \leqslant 135°$ C
Polypropylene:	preheating:	$T_{max.} \leqslant 100°$ C
	soldering:	$T_{max.} \leqslant 110°$ C

Single wave soldering
Soldering bath temperature: T < 260° C
Dwell time: t < 5 sec

Double wave soldering
Soldering bath temperature: T < 260° C
Dwell time: Σt < 5 sec

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

Wave soldering



Typical temperature/time graph for double wave soldering

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 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 refraind from using such substances since years already.

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

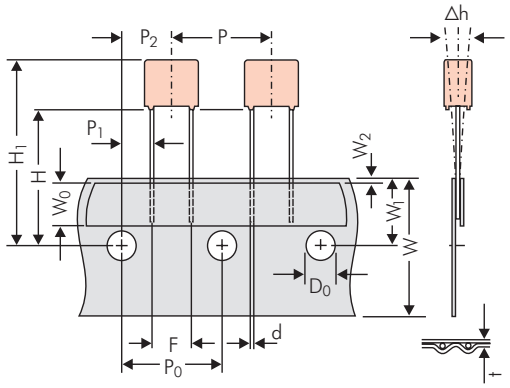


Diagram 1:
PCM 2.5/5/7.5mm

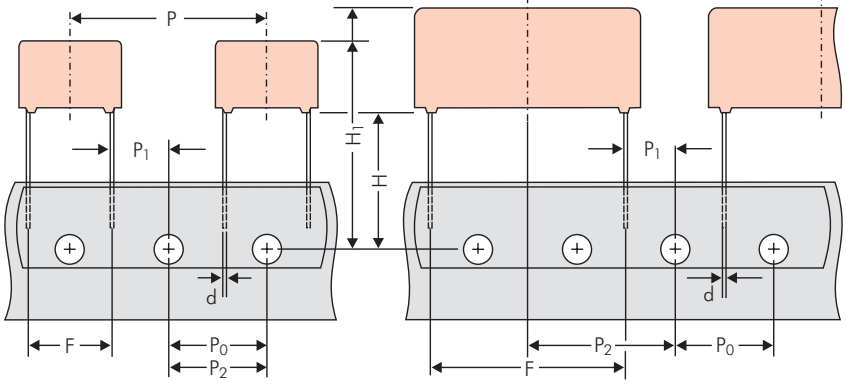


Diagram 2: PCM 10/15 mm

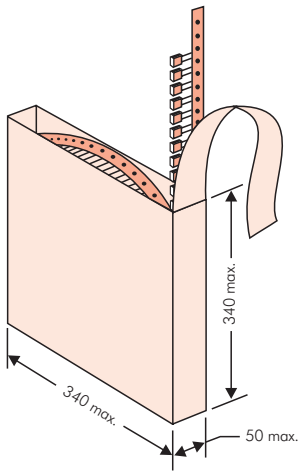
Diagram 3: PCM 22.5 and 27.5*mm
*PCM 27.5 taping possible with two feed holes between components

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 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 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_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

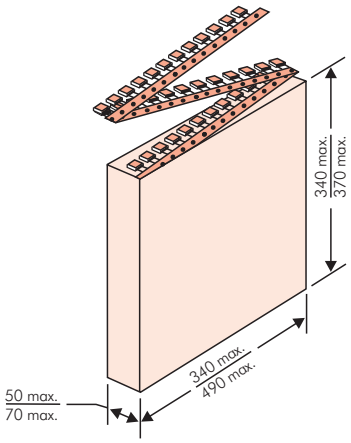
*

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

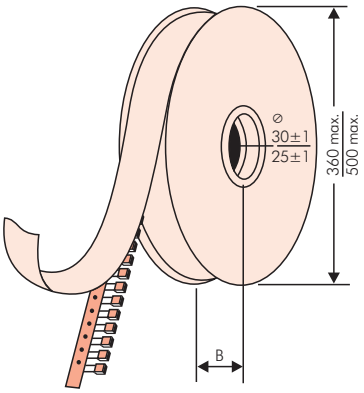
ROLL Packaging



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"