WIMA MKS 4

Metallized Polyester (PET) Capacitors
PCM 7.5 mm to 37.5 mm

Special Features

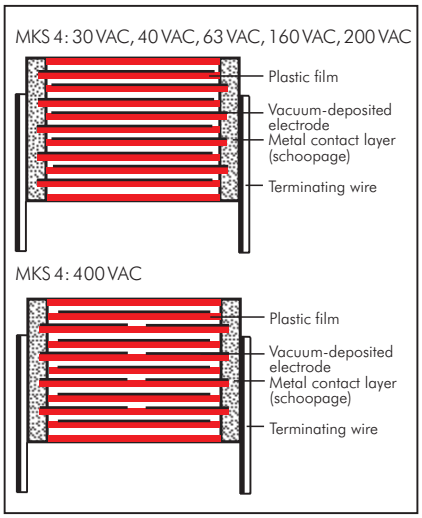
- **High volume/capacitance ratio**
- **Self-healing**
- **According to RoHS 2002/95/EC**

Typical Applications

For general DC-applications e.g.
- **By-pass**
- **Blocking**
- **Coupling and decoupling**
- **Timing**

Construction

Dielectric:
Polyethylene-terephthalate (PET) film
Capacitor electrodes:
Vacuum-deposited
Internal construction:



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

Electrical Data

Capacitance range:
1000 pF to 220 µF (E12-values on request)
Rated voltages:
50 VDC, 63 VDC, 100 VDC, 250 VDC, 400 VDC, 630 VDC, 1000 VDC, 1500 VDC, 2000 VDC
Capacitance tolerances:
±20%, ±10% ±5%
Operating temperature range:
–55° C to +100° C
Climatic test category:
55/100/56 in accordance with IEC
Insulation resistance at +20° C:

Test voltage: 1.6 U_r, 2 sec.
Test specifications:
In accordance with IEC 60384-2 and EN 130400
Voltage derating:
A voltage derating factor of 1.25 % per K must be applied from +85° C for DC voltages and from +75° C for AC voltages.
Reliability:
Operating life > 300000 hours
Failure rate < 2 fit (0.5 x U_r and 40° C)

U_r	U_{test}	C ⩽ 0.33 µF	0.33 µF < C ⩽ 220 µF
50 VDC	100 V	⩾5 x 10^3 MΩ (mean value: 3 x 10^4 MΩ)	⩾1500 sec (MΩ x µF) (mean value: 4500 sec)
63 VDC	100 V	⩾1 x 10^4 MΩ (mean value: 5 x 10^4 MΩ)	⩾3000 sec (MΩ x µF) (mean value: 6000 sec)
100 VDC	200 V	⩾1.5 x 10^4 MΩ (mean value: 5 x 10^4 MΩ)	⩾5000 sec (MΩ x µF) (mean value: 15000 sec)
⩾250 VDC	100 V	⩾3 x 10^4 MΩ (mean value: 1 x 10^5 MΩ)	⩾10000 sec (MΩ x µF) (mean value: 40000 sec)

Measuring time: 1 min.
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	⩽ 8 x 10^{-3}	⩽ 8 x 10^{-3}	⩽ 10 x 10^{-3}
10 kHz	⩽ 15 x 10^{-3}	⩽ 15 x 10^{-3}	–
100 kHz	⩽ 30 x 10^{-3}	–	–

Maximum pulse rise time:

Capacitance pF/µF	Pulse rise time V/µsec max. operation/test								
	50VDC	63VDC	100VDC	250VDC	400VDC	630VDC	1000VDC	1500VDC	2000VDC
1000 ... 6800	–	–	50/500	60/600	60/600	60/600	70/700	90/900	100/1000
0.01 ... 0.022	–	30/300	30/300	35/350	38/380	40/400	50/500	50/500	60/600
0.033 ... 0.068	–	15/150	15/150	20/200	25/250	32/320	26/260	35/350	40/400
0.1 ... 0.22	10/100	10/100	12/120	15/150	15/150	17/170	20/200	35/350	40/400
0.33 ... 0.68	9/90	9/90	9/90	10/100	10/100	13/130	20/200	20/200	38/380
1.0 ... 2.2	6/60	6/60	5/50	6/60	9/90	13/130	14/140	15/150	–
3.3 ... 6.8	2.5/25	3/30	3/30	6/60	6/60	9/90	12/120	–	–
10 ... 220	2.5/25	2.5/25	2.5/25	3/30	6/60	–	–	–	–

for pulses equal to the rated voltage

Mechanical Tests

Pull test on leads:
d ⩽ 0.8 ø: 10 N in direction of leads
d > 0.8 ø: 20 N in direction of leads
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.

Continuation

General Data

Capacitance	50 VDC/30 VAC*				63 VDC/40 VAC*				100 VDC/63 VAC*				250 VDC/160 VAC*				400 VDC/200 VAC*			
	W	H	L	PCM**	W	H	L	PCM**	W	H	L	PCM**	W	H	L	PCM**	W	H	L	PCM**
1000 pF									2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
									3	9	13	10*	3	9	13	10*	3	9	13	10*
1500 "									2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
									3	9	13	10*	3	9	13	10*	3	9	13	10*
2200 "									2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
									3	9	13	10*	3	9	13	10*	3	9	13	10*
3300 "									2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
									3	9	13	10*	3	9	13	10*	3	9	13	10*
4700 "									2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
									3	9	13	10*	3	9	13	10*	3	9	13	10*
6800 "									2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
									3	9	13	10*	3	9	13	10*	3	9	13	10*
0.01 µF					2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***
					3	9	13	10*	3	9	13	10*	3	9	13	10*	3	9	13	10*
0.015 "					2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***	3	8.5	10	**7.5***
					3	9	13	10*	3	9	13	10*	3	9	13	10*	4	9	13	10*
0.022 "					2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***	4	9	10	**7.5***
					3	9	13	10*	3	9	13	10*	3	9	13	10*	4	9	13	10*
0.033 "					2.5	7	10	**7.5***	2.5	7	10	**7.5***	2.5	7	10	**7.5***	4	9	10	**7.5***
					3	9	13	10*	3	9	13	10*	3	9	13	10*	4	9	13	10*
0.047 "					2.5	7	10	**7.5***	2.5	7	10	**7.5***	3	8.5	10	**7.5***	5	10.5	10.3	**7.5***
					3	9	13	10*	3	9	13	10*	4	9	13	10*	4	9	13	10*
0.068 "					2.5	7	10	**7.5***	2.5	7	10	**7.5***	4	9	10	**7.5***	5	10.5	10.3	**7.5***
					3	9	13	10*	3	9	13	10*	4	9	13	10*	4	9	13	10*
0.1 µF	2.5	7	10	**7.5**	2.5	7	10	**7.5***	2.5	7	10	**7.5***	4	9	10	**7.5***	5	10.5	10.3	**7.5***
					3	9	13	10*	3	9	13	10*	4	9	13	10*	5	11	13	10*
0.15 "	2.5	7	10	**7.5**	2.5	7	10	**7.5***	3	8.5	10	**7.5***	5	10.5	10.3	**7.5***	5.7	12.5	10.3	**7.5***
					3	9	13	10*	4	9	13	10*	4	9	13	10*	6	12	13	10*
0.22 "	2.5	7	10	**7.5**	3	8.5	10	**7.5***	3	8.5	10	**7.5***	5	10.5	10.3	**7.5***	6	12	13	10*
					4	9	13	10*	4	9	13	10*	5	11	13	10*	6	12.5	18	15*
0.33 "	2.5	7	10	**7.5**	4	9	10	**7.5***	4	9	10	**7.5***	5.7	12.5	10.3	**7.5***	8	15	18	15
					4	9	13	10*	4	9	13	10*	5	11	13	10*				
0.47 "	3	8.5	10	**7.5**	4	9	10	**7.5***	4.5	9.5	10.3	**7.5***	6	12	13	10*	8	15	18	15*
					4	9	13	10*	4	9	13	10*	6	12.5	18	15*	6	15	26.5	22.5*
0.68 "	4	9	10	**7.5**	5	10.5	10.3	**7.5***	5	10.5	10.3	**7.5***	7	14	18	15	7	16.5	26.5	22.5
					4	9	13	10*	4	9	13	10*								
1.0 µF	4	9	10	**7.5**	5	10.5	10.3	**7.5***	5.7	12.5	10.3	**7.5***	8	15	18	15*	10.5	19	26.5	22.5*
					4	9	13	10*	5	11	13	10*	6	15	26.5	22.5*	11	21	31.5	27.5*
1.5 "	5	10.5	10.3	**7.5**	5.7	12.5	10.3	**7.5***	6	12	13	10*	9	16	18	15*	11	21	26.5	22.5*
					5	11	13	10*	7	14	18	15*	7	16.5	26.5	22.5*	11	21	31.5	27.5*
2.2 "	5.7	12.5	10.3	**7.5**	5	11	13	10*	8	15	18	15*	10.5	19	26.5	22.5*	11	21	31.5	27.5
					6	12.5	18	15*	6	15	26.5	22.5*	9	19	31.5	27.5*				
3.3 "	5.7	12.5	10.3	**7.5**	6	12	13	10*	9	16	18	15*	11	21	26.5	22.5*	13	24	31.5	27.5
					7	14	18	15*	7	16.5	26.5	22.5*	11	21	31.5	27.5*				
4.7 "	7.2	12.5	10.3	**7.5***	7	14	18	15*	10.5	19	26.5	22.5*	11	21	31.5	27.5	17	29	31.5	27.5
	6	12	13	10*	6	15	26.5	22.5*	9	19	31.5	27.5*								
6.8 "	7.2	12.5	10.3	**7.5***	8	15	18	15*	10.5	19	26.5	22.5*	13	24	31.5	27.5	17	34.5	31.5	27.5*
	6	12	13	10*	7	16.5	26.5	22.5*	11	21	31.5	27.5*					13	24	41.5	37.5*
10 µF	9	16	18	15	8.5	18.5	26.5	22.5*	13	24	31.5	27.5	17	29	31.5	27.5	19	32	41.5	37.5
					11	21	31.5	27.5*												
15 "	11	21	26.5	22.5	11	21	26.5	22.5*	13	24	31.5	27.5	17	34.5	31.5	27.5*	20	39.5	41.5	37.5
					11	21	31.5	27.5*					17	29	41.5	37.5*				
22 "	11	21	31.5	27.5	13	24	31.5	27.5	15	26	31.5	27.5	19	32	41.5	37.5				
33 "	13	24	31.5	27.5	15	26	31.5	27.5	17	29	31.5	27.5*	24	45.5	41.5	37.5				
									13	24	41.5	37.5*								
47 "	15	26	31.5	27.5*	17	29	31.5	27.5*	17	29	41.5	37.5								
	13	24	41.5	37.5*	17	29	41.5	37.5*												
68 "	20	39.5	31.5	27.5*	20	39.5	31.5	27.5*	20	39.5	41.5	37.5								
	17	29	41.5	37.5*	19	32	41.5	37.5*												
100 µF	19	32	41.5	37.5	20	39.5	41.5	37.5	24	45.5	41.5	37.5								
150 "	20	39.5	41.5	37.5	24	45.5	41.5	37.5												
220 "	24	45.5	41.5	37.5																

* AC voltage:
f = 50 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

** PCM = Printed circuit module = lead spacing

New values and box sizes.

Dims. in mm.

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Continuation

General Data

Capacitance	630 VDC/400 VAC*				1000 VDC/400 VAC*				1500 VDC/400 VAC*				2000 VDC/400 VAC*			
	W	H	L	PCM**	W	H	L	PCM**	W	H	L	PCM**	W	H	L	PCM**
1000 pF	2.5	7	10	**7.5****	2.5	7	10	**7.5***	4	9	13	10	4	9	13	10
	3	9	13	10*	3	9	13	10*								
1500 "	2.5	7	10	**7.5****	2.5	7	10	**7.5***	4	9	13	10	4	9	13	10
	3	9	13	10*	3	9	13	10*								
2200 "	2.5	7	10	**7.5****	3	8.5	10	**7.5***	4	9	13	10	5	11	13	10
	3	9	13	10*	4	9	13	10*								
3300 "	2.5	7	10	**7.5****	4	9	10	**7.5***	4	9	13	10	6	12	13	10*
	3	9	13	10*	4	9	13	10*					5	11	18	15*
4700 "	2.5	7	10	**7.5****	4	9	10	**7.5***	4	9	13	10*	5	11	18	15
	3	9	13	10*	4	9	13	10*	5	11	18	15*				
6800 "	3	8.5	10	**7.5****	4.5	9.5	10.3	**7.5***	5	11	13	10*	6	12.5	18	15
	4	9	13	10*	4	9	13	10*	5	11	18	15*				
0.01 µF	3	8.5	10	**7.5****	5	10.5	10.3	**7.5***	6	12	13	10*	7	14	18	15*
	4	9	13	10*	5	11	13	10*	5	11	18	15*	6	15	26.5	22.5*
0.015 "	4	9	10	**7.5****	5.7	12.5	10.3	**7.5***	6	12.5	18	15	6	15	26.5	22.5
	4	9	13	10*	6	12	13	10*								
0.022 "	4.5	9.5	10.3	**7.5****	5	11	18	15	7	14	18	15*	7	16.5	26.5	22.5
	4	9	13	10*					6	15	26.5	22.5*				
0.033 "	5	10.5	10.3	**7.5****	6	12.5	18	15*	8	15	18	15*	10.5	19	26.5	22.5
	5	11	13	10*	6	15	26.5	22.5*	6	15	26.5	22.5*				
0.047 "	5.7	12.5	10.3	**7.5****	7	14	18	15*	7	16.5	26.5	22.5	11	21	26.5	22.5*
	6	12	13	10*	6	15	26.5	22.5*					11	21	31.5	27.5*
0.068 "	6	12	13	10*	8	15	18	15*	8.5	18.5	26.5	22.5	11	21	31.5	27.5
	5	11	18	15*	6	15	26.5	22.5*								
0.1 µF	6	12.5	18	15*	9	16	18	15*	10.5	19	26.5	22.5*	13	24	31.5	27.5
	6	15	26.5	22.5*	7	16.5	26.5	22.5*	9	19	31.5	27.5*				
0.15 "	7	14	18	15*	8.5	18.5	26.5	22.5	11	21	31.5	27.5	17	29	31.5	27.5*
	6	15	26.5	22.5*									13	24	41.5	37.5*
0.22 "	8	15	18	15*	10.5	19	26.5	22.5	13	24	31.5	27.5	17	29	41.5	37.5
	6	15	26.5	22.5*												
0.33 "	7	16.5	26.5	22.5*	11	21	26.5	22.5*	17	34.5	31.5	27.5*	20	39.5	41.5	37.5
	9	19	31.5	27.5*	11	21	31.5	27.5*	17	29	41.5	37.5*				
0.47 "	10.5	19	26.5	22.5*	13	24	31.5	27.5	20	39.5	31.5	27.5*	24	45.5	41.5	37.5
	9	19	31.5	27.5*					17	29	41.5	37.5*				
0.68 "	11	21	26.5	22.5*	15	26	31.5	27.5	20	39.5	41.5	37.5				
	11	21	31.5	27.5*												
1.0 µF	11	21	31.5	27.5	17	29	31.5	27.5*	24	45.5	41.5	37.5				
					17	29	41.5	37.5*								
1.5 "	15	26	31.5	27.5	19	32	41.5	37.5								
2.2 "	17	34.5	31.5	27.5*	20	39.5	41.5	37.5								
	15	26	41.5	37.5*												
3.3 "	20	39.5	31.5	27.5*	24	45.5	41.5	37.5								
	19	32	41.5	37.5*												
4.7 "	20	39.5	41.5	37.5												
6.8 "	24	45.5	41.5	37.5												

* AC voltage: f = 50 Hz; 1.4 x U_{rms} + UDC ⩽ U_r

** PCM = Printed circuit module = lead spacing

New values and box sizes.

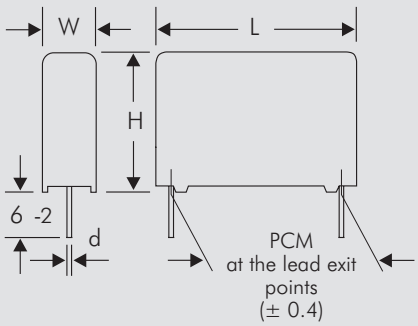
* On ordering please state the required PCM (lead spacing)!
If not specified, smaller PCM will be booked.

** Admissible AC voltage 250 VAC max.

Dims. in mm.

Taped version see page 100.

ø d	PCM	W
0.5	7.5	⩽ 3
0.7	7.5	⩾ 4
0.7	10	
0.8	15 - 22.5	
0.8	27.5	⩽ 15
1.0	27.5	> 15
1.0	37.5	



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AC voltage graphs see page 64