

## 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

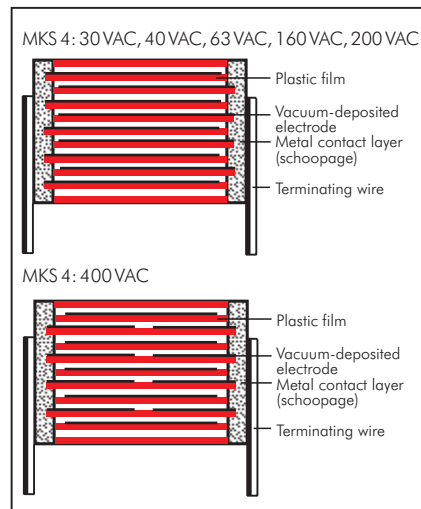
#### Dielectric:

Polyethylene-terephthalate (PET) film

#### Capacitor electrodes:

Vacuum-deposited

#### Internal construction:



#### Encapsulation:

Solvent-resistant, flame-retardant 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  $\mu$ F (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:

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

#### Operating temperature range:

$-55^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$

#### Climatic test category:

55/100/56 in accordance with IEC

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

$U_r$	$U_{\text{test}}$	$C \leq 0.33 \mu\text{F}$	$0.33 \mu\text{F} < C \leq 220 \mu\text{F}$
50 VDC	10V	$\geq 5 \times 10^3 \text{ M}\Omega$ (mean value: $3 \times 10^4 \text{ M}\Omega$ )	$\geq 1500 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 4500 sec)
63 VDC	50V	$\geq 1 \times 10^4 \text{ M}\Omega$ (mean value: $5 \times 10^4 \text{ M}\Omega$ )	$\geq 3000 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 6000 sec)
100 VDC	100V	$\geq 1.5 \times 10^4 \text{ M}\Omega$ (mean value: $5 \times 10^4 \text{ M}\Omega$ )	$\geq 5000 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 15000 sec)
$\geq 250 \text{ VDC}$	100V	$\geq 3 \times 10^4 \text{ M}\Omega$ (mean value: $1 \times 10^5 \text{ M}\Omega$ )	$\geq 10000 \text{ sec (M}\Omega \times \mu\text{F)}$ (mean value: 40000 sec)

Measuring time: 1 min.

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

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	$\leq 8 \times 10^{-3}$	$\leq 8 \times 10^{-3}$	$\leq 10 \times 10^{-3}$
10 kHz	$\leq 15 \times 10^{-3}$	$\leq 15 \times 10^{-3}$	—
100 kHz	$\leq 30 \times 10^{-3}$	—	—

#### 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:

$d \leq 0.8 \phi$ : 10 N in direction of leads  
 $d > 0.8 \phi$ : 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:

1 kPa = 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

### 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.

## 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*
1500 "									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*
3300 "									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*
6800 "									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*
0.015 "					3	9	13	10*	3	9	13	10*	3	9	13	10*	3	9	13	10*
0.022 "					2.5	7	10	7.5*	2.5	7	10	7.5*	2.5	7	10	7.5*	3	8.5	10	7.5*
0.033 "					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*	2.5	7	10	7.5*	4	9	10	7.5*
0.068 "					3	9	13	10*	3	9	13	10*	3	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*
0.15 "	2.5	7	10	7.5	3	9	13	10*	3	9	13	10*	4	9	13	10*	5	11	13	10*
0.22 "	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*
0.33 "	2.5	7	10	7.5	3	9	13	10*	4	9	13	10*	4	9	13	10*	6	12	13	10*
0.47 "	3	8.5	10	7.5	4	9	13	10*	4	9	13	10*	5	11	13	10*	6	12.5	18	15*
0.68 "	4	9	10	7.5	4	9	10	7.5*	4	9	13	10*	5	11	13	10*	8	15	18	15*
1.0 µF	4	9	10	7.5	4	9	13	10*	4	9	13	10*	6	12	13	10*	6	15	26.5	22.5*
1.5 "	5	10.5	10.3	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*
2.2 "	5.7	12.5	10.3	7.5	5	11	13	10*	6	12.5	18	15*	8	15	18	15*	8	15	18	15*
3.3 "	5.7	12.5	10.3	7.5	6	12	13	10*	7	14	18	15*	9	16	18	15*	9	16	18	15*
4.7 "	7.2	12.5	10.3	7.5*	7	14	18	15*	9	16	18	15*	11	21	26.5	22.5*	11	21	26.5	22.5*
6.8 "	6	12	13	10*	6	15	26.5	22.5*	7	14	18	15*	11	21	26.5	22.5*	11	21	26.5	22.5*
10 µF	9	16	18	15	7	16.5	26.5	22.5*	10.5	19	26.5	22.5*	13	24	31.5	27.5	13	24	31.5	27.5
15 "	11	21	26.5	22.5	11	21	26.5	22.5*	13	24	31.5	27.5	17	29	37.5	37.5	17	29	37.5	37.5
22 "	11	21	31.5	27.5	11	21	31.5	27.5*	15	26	31.5	27.5	17	29	37.5	37.5	17	29	37.5	37.5
33 "	13	24	31.5	27.5	13	24	31.5	27.5	17	29	31.5	27.5*	19	32	41.5	37.5	19	32	41.5	37.5
47 "	15	26	31.5	27.5*	15	26	31.5	27.5	17	29	31.5	27.5*	20	39.5	41.5	37.5	20	39.5	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	24	45.5	41.5	37.5	24	45.5	41.5	37.5
100 µF	19	32	41.5	37.5	19	32	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;  $1.4 \times U_{rms} + U_{DC} \leq U_r$

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

New values and box sizes.

Dims. in mm.

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## 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	<b>7.5**</b>	2.5	7	10	<b>7.5*</b>	4	9	13	10	4	9	13	10
	3	9	13	10*	3	9	13	10*								
1500 "	2.5	7	10	<b>7.5**</b>	2.5	7	10	<b>7.5*</b>	4	9	13	10	4	9	13	10
	3	9	13	10*	3	9	13	10*								
2200 "	2.5	7	10	<b>7.5**</b>	3	8.5	10	<b>7.5*</b>	4	9	13	10	5	11	13	10
	3	9	13	10*	4	9	13	10*								
3300 "	2.5	7	10	<b>7.5**</b>	4	9	10	<b>7.5*</b>	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	<b>7.5**</b>	4	9	10	<b>7.5*</b>	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	<b>7.5**</b>	4.5	9.5	10.3	<b>7.5*</b>	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	<b>7.5**</b>	5	10.5	10.3	<b>7.5*</b>	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	<b>7.5**</b>	5.7	12.5	10.3	<b>7.5*</b>	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	<b>7.5**</b>	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	<b>7.5**</b>	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	<b>7.5**</b>	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:  $f = 50 \text{ Hz}$ ;  $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

\*\* 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.

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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	

