

## Metallized Polypropylene Film Capacitor

### Related Document: IEC 60384-16

**MAIN APPLICATIONS:**

Pulse operations, deflection circuits in TV sets (S-correction), SMPS and thyristor circuits, storage, filter, timing, sample and hold circuits.

**MARKING:**

Manufacturer's logo/type/C-value/rated voltage/tolerance/date of manufacture

**DIELECTRIC:**

Polypropylene film

**ELECTRODES:**

Vacuum deposited aluminum

**COATING:**

Flame retardant plastic case (UL-class 94 V-0), blue, epoxy resin sealed  
Flame class B according to IEC 60065 available on request

**CONSTRUCTION:**

Extended metallized film (refer to general information)

**LEADS:**

Tinned wire

**IEC TEST CLASSIFICATION:**

55/100/56, according to IEC 60068

**OPERATING TEMPERATURE RANGE:**

- 55°C to + 100°C

**CAPACITANCE RANGE:**

4700pF to 10µF

**CAPACITANCE TOLERANCES:**

± 20% (M), ± 10% (K), ± 5% (J)

**RATED VOLTAGES (U<sub>R</sub>):**

100 VDC, 160 VDC, 250 VDC, 400 VDC, 630 VDC

**PERMISSIBLE AC VOLTAGES (RMS) UP TO 60Hz:**

63 VAC, 100 VAC, 160 VAC, 220 VAC, 250 VAC

**TEST VOLTAGE (ELECTRODE/ELECTRODE):**

1.6 x U<sub>R</sub> for 2 s

**INSULATION RESISTANCE:**

Measured at 100 VDC after one minute

**For C ≤ 0.33µF:**

100,000 MΩ minimum value

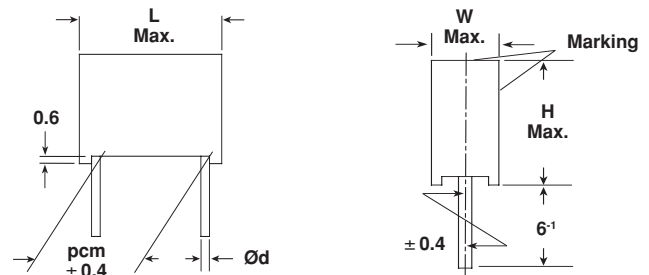
25,000 MΩ (U<sub>R</sub> = 100 VDC)

**MAXIMUM PULSE RISE TIME**

PCM (mm)	Maximum pulse rise time d <sub>v</sub> /d <sub>t</sub> [V/µs]				
	100 VDC	160 VDC	250 VDC	400 VDC	630 VDC
5	390	—	—	—	—
7.5	—	240	300	—	—
10	—	175	220	380	510
15	—	100	125	200	280
22.5	—	60	75	120	160
27.5	—	45	60	95	120
37.5	—	30	40	65	85

If the maximum pulse voltage is less than the rated voltage higher d<sub>v</sub>/d<sub>t</sub> values can be permitted.

Dimensions in millimeters



PCM	W	Ø d
5		0.5
7.5/10		0.6
15 - 37.5	< 16	0.8
15 - 37.5	≥ 16	1.0

**TIME CONSTANT:**

Measured at 100 VDC after one minute

**For C > 0.33µF:**

30,000 s minimum value

**TEMPERATURE COEFFICIENT:**

- 250 x 10<sup>-6</sup>/°C (typical value)

**CAPACITANCE DRIFT:**

Up to + 40°C, < 0.5% for a period of two years

**DIELECTRIC ABSORPTION:**

0.05% (typical value) according to IEC 60384-1

**DERATING FOR DC AND AC.**

**CATEGORY VOLTAGE U<sub>C</sub>:**

At + 85°C: U<sub>C</sub> = 1.0 U<sub>R</sub>

At + 100°C: U<sub>C</sub> = 0.7 U<sub>R</sub>

**SELF INDUCTANCE:**

~ 6 nH measured with 2mm long leads

**PULL TEST ON LEADS:**

≥ 30 N in direction of leads according to IEC 60068-2-21

**RELIABILITY:**

Operational life > 300,000 h

Failure rate < 5 FIT (40°C and 0.5 x U<sub>R</sub>)

For further details, please refer to the general information provided in this catalog.

## DISSIPATION FACTOR TAN δ

MEASURED AT	C ≤ 0.1μF	0.1μF < C ≤ 1.0μF	C > 1.0μF
1kHz	0.4 x 10 <sup>-3</sup>	0.4 x 10 <sup>-3</sup>	1 x 10 <sup>-3</sup>
10kHz	0.6 x 10 <sup>-3</sup>	0.6 x 10 <sup>-3</sup>	—
100kHz	4 x 10 <sup>-3</sup>	—	—
Maximum values			

CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 01 100 VDC/ 63 VAC				VOLTAGE CODE 16 160 VDC/ 100 VAC				VOLTAGE CODE 25 250 VDC/ 160 VAC				VOLTAGE CODE 40 400 VDC/ 220 VAC*				VOLTAGE CODE 63 630 VDC/ 250 VAC*			
		W	H	L	PCM	W	H	L	PCM	W	H	L	PCM	W	H	L	PCM	W	H	L	PCM
4700 pF	- 247	3.5	8.5	7.5	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6800 pF	- 268	3.5	8.5	7.5	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0.01 μF	- 310	3.5	8.5	7.5	5	—	—	—	—	4.0	9.0	10.0	7.5	4.0	9.0	13.0	10	4.5	9.5	13.0	10
0.015 μF	- 315	3.5	8.5	7.5	5	—	—	—	—	4.0	9.0	10.0	7.5	4.5	9.5	13.0	10	5.5	10.5	13.0	10
0.022 μF	- 322	3.5	8.5	7.5	5	—	—	—	—	4.0	9.0	10.0	7.5	5.5	10.5	13.0	10	6.5	11.5	13.0	10
0.033 μF	- 333	4.5	9.5	7.5	5	4.0	9.0	10.0	7.5	4.0	9.0	13.0	10	6.5	11.5	13.0	10	5.5	10.5	18.0	15
0.047 μF	- 347	4.5	9.5	7.5	5	4.5	9.5	10.0	7.5	4.5	9.5	13.0	10	5.5	10.5	18.0	15	6.5	12.5	18.0	15
0.068 μF	- 368	5.0	10.0	7.5	5	4.5	9.5	13.0	10	5.5	10.5	13.0	10	6.5	12.5	18.0	15	7.5	13.5	18.0	15
0.1 μF	- 410	5.5	11.5	7.5	5	5.5	10.5	13.0	10	6.5	11.5	13.0	10	7.5	13.5	18.0	15	8.5	17.5	18.0	15
0.15 μF	- 415	—	—	—	—	6.5	11.5	13.0	10	6.5	12.5	18.0	15	8.5	17.5	18.0	15	8.5	16.5	26.5	22.5
0.22 μF	- 422	—	—	—	—	6.5	12.5	18.0	15	7.5	13.5	18.0	15	10.5	17.5	18.0	15	10.5	18.5	26.5	22.5
0.33 μF	- 433	—	—	—	—	6.5	12.5	18.0	15	8.5	14.5	18.0	15	10.5	18.5	26.5	22.5	11.0	21.0	26.5	22.5
0.47 μF	- 447	—	—	—	—	7.5	13.5	18.0	15	8.5	17.5	18.0	15	11.0	21.0	26.5	22.5	13.5	23.5	31.5	27.5
0.68 μF	- 468	—	—	—	—	8.5	17.5	18.0	15	8.5	16.5	26.5	22.5	11.5	20.5	31.5	27.5	16.5	29.5	31.5	27.5
1.0 μF	- 510	—	—	—	—	7.5	15.5	26.5	22.5	10.5	18.5	26.5	22.5	13.5	23.5	31.5	27.5	16.5	29.5	31.5	27.5
1.5 μF	- 515	—	—	—	—	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5	16.5	29.5	31.5	27.5	18.0	32.5	41.5	37.5
2.2 μF	- 522	—	—	—	—	11.5	20.5	31.5	27.5	13.5	23.5	31.5	27.5	16.0	28.5	41.5	37.5	20.0	40.0	42.5	37.5
3.3 μF	- 533	—	—	—	—	13.5	23.5	31.5	27.5	16.5	29.5	31.5	27.5	20.0	40.0	42.5	37.5	—	—	—	—
4.7 μF	- 547	—	—	—	—	12.5	22.5	41.5	37.5	16.0	28.5	41.5	37.5	20.0	40.0	42.5	37.5	—	—	—	—
6.8 μF	- 568	—	—	—	—	16.0	28.5	41.5	37.5	18.0	32.5	41.5	37.5	—	—	—	—	—	—	—	—
10.0 μF	- 610	—	—	—	—	18.0	32.5	41.5	37.5	20.0	40.0	42.5	37.5	—	—	—	—	—	—	—	—

Further C-values upon request.

\*Not suitable for mains applications.

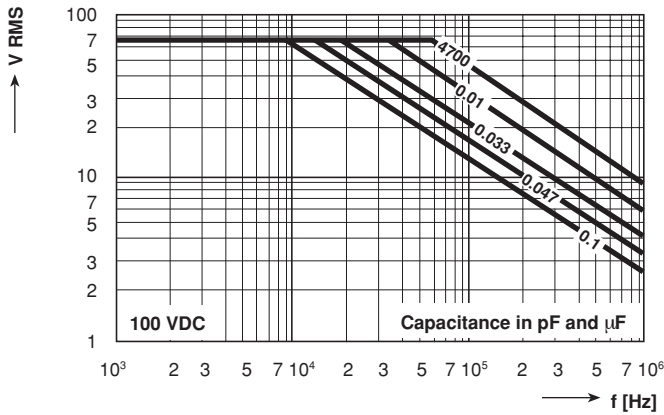
Please refer to X-capacitors in our catalog "RFI Suppression Components".

## RECOMMENDED PACKAGING

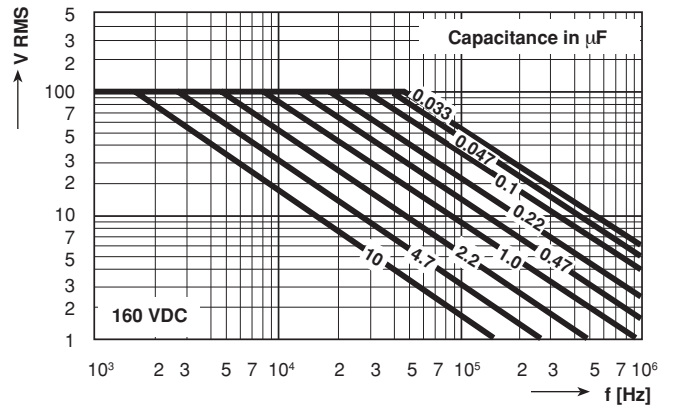
LETTER CODE	TYPE OF PACKAGING	HEIGHT (H) (mm)	REEL DIAMETER (mm)	ORDERING CODE EXAMPLE	PCM 5 - 10	PCM 15	PCM 22.5 - 27.5	PCM 37.5
D	AMMO	16.5	S*	MKP 1840-310-405-D	X	X	—	—
G	AMMO	18.5	S*	MKP 1840-310-405-G	X	X	—	—
F	REEL	16.5	350	MKP 1840-310-405-F	X	X	—	—
W	REEL	18.5	350	MKP 1840-310-405-W	X	X	—	—
V	REEL	18.5	500	MKP 1840-522-255-V	—	X	X	—
G	AMMO	18.5	L*	MKP 1840-522-255-G	—	—	X	—
—	BULK	—	—	MKP 1840-522-255	X	X	X	X

\*S = box size 55 x 210 x 340mm (W x H x L)

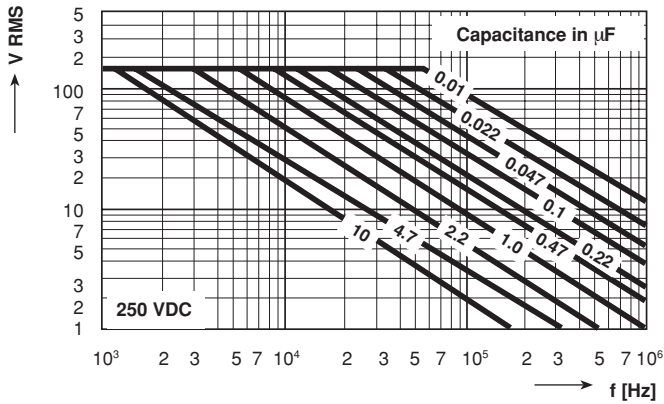
\*L = box size 60 x 360 x 510mm (W x H x L)



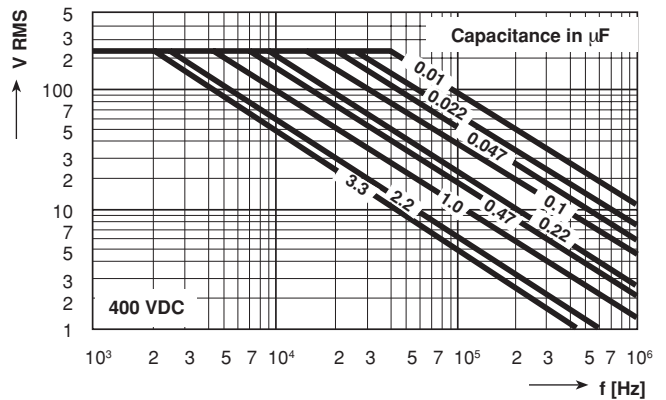
Permissible AC Voltage versus Frequency



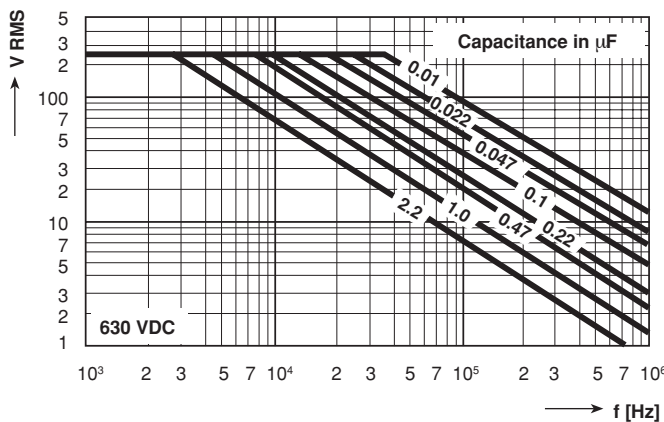
Permissible AC Voltage versus Frequency



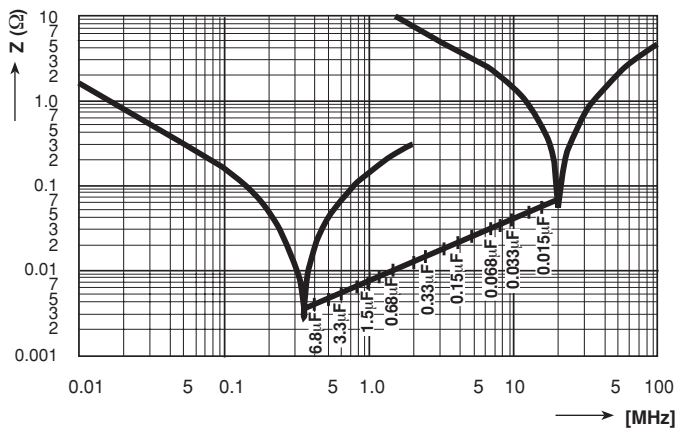
Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



Impedance versus Frequency  $Z = f(f)$   
(Lead length 2.0mm)