

## Polypropylene Film Capacitors

### Related Document: IEC 60384-17 Grade 1.2

**MAIN APPLICATIONS:**

High voltage, very high current and high pulse operations, deflection circuits in TV sets (fly-back tuning). Electronic ballasts, protection circuits in SMPS's. Snubber and SCR commutating circuits.

**MARKING:**

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

**DIELECTRIC:**

Polypropylene film

**ELECTRODES:**

Aluminum foil

**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 aluminum foil, internal series connection, double-sided metallized, polyester carrier 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:**

100pF to 0.22μF

**CAPACITANCE TOLERANCES:**

± 10% (K), ± 5% (J)

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

630 VDC, 1000 VDC, 1250 VDC, 1600 VDC, 2000 VDC

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

300 VAC, 350 VAC, 400 VAC, 500 VAC, 600 VAC

**TEST VOLTAGE (ELECTRODE/ELECTRODE)**

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

**INSULATION RESISTANCE:**

Measured at 500 VDC after one minute  
100,000 MΩ minimum value, (1000 GΩ typical value)

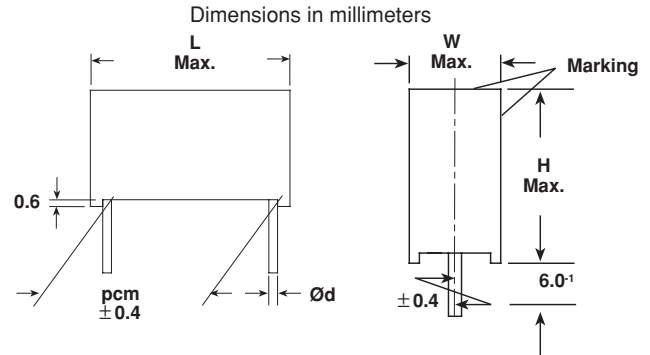
**MAXIMUM PULSE RISE TIME**

PCM (mm)	Maximum pulse rise time $d_v/d_t$ [V/μs]				
	630 VDC	1000 VDC	1250 VDC	1600 VDC	2000 VDC
15	6500	8200	11,100	13,900	13,900
22.5	2600	3200	4600	6000	9800
27.5	1800	2300	3100	4000	6000
37.5	1200	1500	1900	2400	3500

If the maximum pulse voltage is less than the rated voltage higher  $d_v/d_t$  values can be permitted.

**DISSIPATION FACTOR TAN δ**

MEASURED AT	C ≤ 0.1μF	C > 0.1μF
1kHz	0.3 x 10 <sup>-3</sup>	0.3 x 10 <sup>-3</sup>
10kHz	0.4 x 10 <sup>-3</sup>	0.4 x 10 <sup>-3</sup>
100kHz	1 x 10 <sup>-3</sup>	—
Maximum values		



W	Ø d
≥ 16	1.0
< 16.0	0.8

**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

**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 < 1 FIT (0.5 x U<sub>R</sub> and 40°C)

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

CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 63 630 VDC/ 300 VAC				VOLTAGE CODE 10 1000 VDC/ 350 VAC				VOLTAGE CODE 12 1250 VDC/ 400 VAC			
		W	H	L	PCM	W	H	L	PCM	W	H	L	PCM
100 pF	- 110	—	—	—	—	—	—	—	—	—	—	—	—
150 pF	- 115	—	—	—	—	—	—	—	—	—	—	—	—
220 pF	- 122	—	—	—	—	—	—	—	—	—	—	—	—
330 pF	- 133	—	—	—	—	—	—	—	—	—	—	—	—
470 pF	- 147	—	—	—	—	—	—	—	—	—	—	—	—
680 pF	- 168	—	—	—	—	—	—	—	—	—	—	—	—
1000 pF	- 210	—	—	—	—	—	—	—	—	—	—	—	—
1200 pF	- 212	—	—	—	—	—	—	—	—	5.5	10.5	18.0	15
1500 pF	- 215	—	—	—	—	—	—	—	—	5.5	10.5	18.0	15
1800 pF	- 218	—	—	—	—	5.5	10.5	18.0	15	6.5	12.5	18.0	15
2200 pF	- 222	—	—	—	—	5.5	10.5	18.0	15	6.5	12.5	18.0	15
2700 pF	- 227	5.5	10.5	18.0	15	6.5	12.5	18.0	15	7.5	13.5	18.0	15
3300 pF	- 233	5.5	10.5	18.0	15	6.5	12.5	18.0	15	7.5	13.5	18.0	15
3900 pF	- 239	6.5	12.5	18.0	15	7.5	13.5	18.0	15	6.5	14.5	26.5	22.5
4700 pF	- 247	6.5	12.5	18.0	15	7.5	13.5	18.0	15	6.5	14.5	26.5	22.5
5600 pF	- 256	7.5	13.5	18.0	15	8.5	14.5	18.0	15	6.5	14.5	26.5	22.5
6800 pF	- 268	7.5	13.5	18.0	15	8.5	14.5	18.0	15	6.5	14.5	26.5	22.5
8200 pF	- 282	8.5	14.5	18.0	15	6.5	14.5	26.5	22.5	7.5	15.5	26.5	22.5
0.01 µF	- 310	8.5	14.5	18.0	15	6.5	14.5	26.5	22.5	7.5	15.5	26.5	22.5
0.012 µF	- 312	8.5	17.5	18.0	15	7.5	15.5	26.5	22.5	10.5	18.5	26.5	22.5
0.015 µF	- 315	10.5	17.5	18.0	15	7.5	15.5	26.5	22.5	10.5	18.5	26.5	22.5
0.018 µF	- 318	7.5	15.5	26.5	22.5	8.5	16.5	26.5	22.5	11.0	21.0	26.5	22.5
0.022 µF	- 322	7.5	15.5	26.5	22.5	8.5	16.5	26.5	22.5	11.0	21.0	26.5	22.5
0.027 µF	- 327	8.5	16.5	26.5	22.5	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5
0.033 µF	- 333	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5	11.5	20.5	31.5	27.5
0.039 µF	- 339	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5	13.5	23.5	31.5	27.5
0.047 µF	- 347	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5	13.5	23.5	31.5	27.5
0.056 µF	- 356	11.5	20.5	31.5	27.5	12.5	22.5	41.5	37.5	12.5	23.5	41.5	37.5
0.068 µF	- 368	11.5	20.5	31.5	27.5	12.5	22.5	41.5	37.5	12.5	22.5	41.5	37.5
0.082 µF	- 382	11.5	20.5	31.5	27.5	12.5	22.5	41.5	37.5	14.5	24.5	41.5	37.5
0.1 µF	- 410	13.5	23.5	31.5	27.5	14.5	24.5	41.5	37.5	14.5	24.5	41.5	37.5
0.12 µF	- 412	12.5	22.5	41.5	37.5	14.5	24.5	41.5	37.5	16.0	28.5	41.5	37.5
0.15 µF	- 415	12.5	22.5	41.5	37.5	16.0	28.5	41.5	37.5	16.0	28.5	41.5	37.5
0.18 µF	- 418	14.5	24.5	41.5	37.5	16.0	28.5	41.5	37.5	20.0	40.0	42.5	37.5
0.22 µF	- 422	14.5	24.5	41.5	37.5	18.0	32.5	41.5	37.5	20.0	40.0	42.5	37.5

Further C-values upon request.

**RECOMMENDED PACKAGING**

LETTER CODE	TYPE OF PACKAGING	HEIGHT (H) (mm)	REEL DIAMETER (mm)	ORDERING CODE EXAMPLE	PCM 15	PCM 22.5 - 27.5	PCM 37.5
D	AMMO	16.5	S*	KP 1836-168/205-D	X	—	—
G	AMMO	18.5	S*	KP 1836-168/205-G	X	—	—
F	REEL	16.5	350	KP 1836-168/205-F	X	—	—
W	REEL	18.5	350	KP 1836-168/205-W	X	—	—
V	REEL	18.5	500	KP 1836-310/134-V	X	X	—
G	AMMO	18.5	L*	KP 1836-310/134-G	—	X	—
—	BULK	—	—	KP 1836-310/134	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)



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		W	H	L	PCM	W	H	L	PCM
100 pF	- 110	—	—	—	—	5.5	10.5	18.0	15
150 pF	- 115	—	—	—	—	5.5	10.5	18.0	15
220 pF	- 122	—	—	—	—	5.5	10.5	18.0	15
330 pF	- 133	—	—	—	—	5.5	10.5	18.0	15
470 pF	- 147	—	—	—	—	5.5	10.5	18.0	15
680 pF	- 168	5.5	10.5	18.0	15	5.5	10.5	18.0	15
1000 pF	- 210	5.5	10.5	18.0	15	6.5	14.5	26.5	22.5
1200 pF	- 212	6.5	12.5	18.0	15	6.5	14.5	26.5	22.5
1500 pF	- 215	6.5	12.5	18.0	15	6.5	14.5	26.5	22.5
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3300 pF	- 233	6.5	14.5	26.5	22.5	7.5	15.5	26.5	22.5
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0.1 µF	- 410	16.0	28.5	41.5	37.5	—	—	—	—
0.12 µF	- 412	—	—	—	—	—	—	—	—
0.15 µF	- 415	—	—	—	—	—	—	—	—
0.18 µF	- 418	—	—	—	—	—	—	—	—
0.22 µF	- 422	—	—	—	—	—	—	—	—

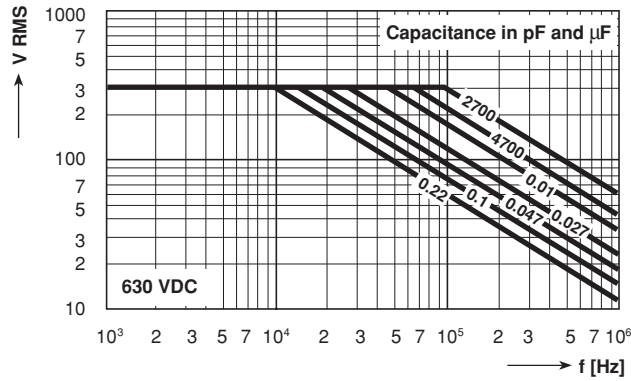
Further C-values upon request.

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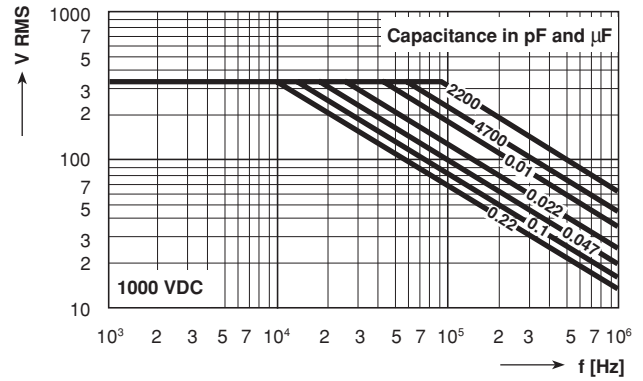
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W	REEL	18.5	350	KP 1836-168/205-W	X	—	—
V	REEL	18.5	500	KP 1836-310/134-V	X	X	—
G	AMMO	18.5	L*	KP 1836-310/134-G	—	X	—
—	BULK	—	—	KP 1836-310/134	X	X	X

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

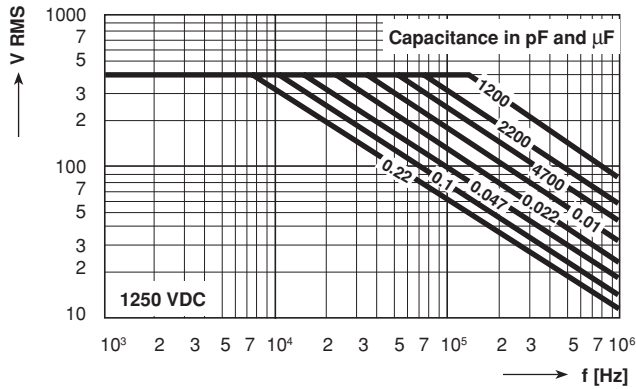
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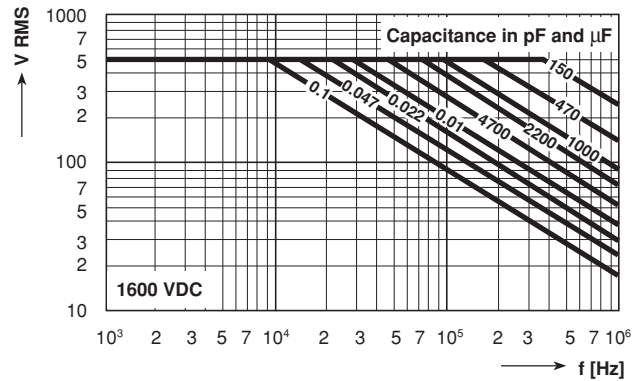
Permissible AC Voltage versus Frequency



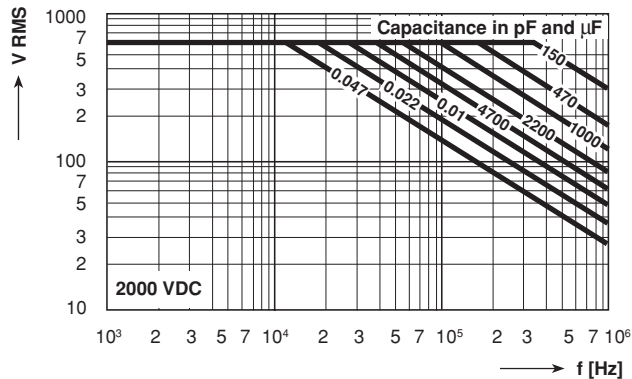
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