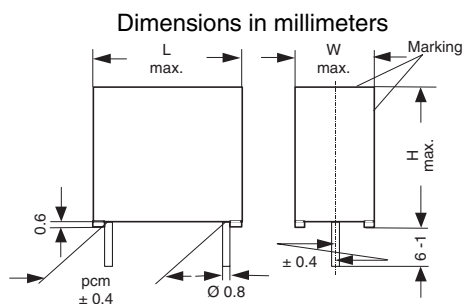


Metallized Polypropylene Capacitor, Mini-Version (-M)

Related Document: CECC 31 200



PCM	W	Ø d
5		0.5
7.5 - 10		0.6
15 - 37.5	< 16.0	0.8
15 - 37.5	≥ 16.0	1.0

MAIN APPLICATIONS

High frequency and pulse operations. Deflection circuits in TV-sets (S-correction). SMPS, loudspeaker crossover networks, electronic ballast, storage, filter, timing and sample and hold circuits.

MARKING

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

DIELECTRIC

Polypropylene film

ELECTRODES

Vacuum deposited

COATING

Flame retardant plastic case material (UL-class 94 V-0), color blue, epoxy resin sealed

CONSTRUCTION

Extended metallized film, (Pb)-free, internal series connection (1000 VDC to 2000 VDC), selfhealing

CONTACTS

Tinned wire (Pb)-free

IEC TEST CLASSIFICATION

55/100/56, according to IEC 60068

OPERATING TEMPERATURE RANGE

- 55 °C to + 100 °C

CAPACITANCE RANGE

1000 pF to 6.8 µF

MAXIMUM PULSE RISE TIME

PCM (mm)	Maximum Pulse Rise Time d_v/d_t [V/µs]					
	250 VDC	400 VDC	630 VDC	1000 VDC	1600 VDC	2000 VDC
5	360	540	1080	—	—	—
7.5	215	325	510	—	—	—
10	150	240	340	1365	4100	—
15	90	135	185	680	1340	3075
22.5	55	80	110	370	620	1365
27.5	40	65	85	285	455	—
37.5	30	45	60	195	300	—

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

FEATURES

Product is completely lead (Pb)-free
Product is RoHS compliant
Miniaturized with extensive voltage, pitch and capacitance ranges

CAPACITANCE TOLERANCES

± 10 % (K), ± 5 % (J), ± 2.5 % (H)

RATED VOLTAGES (U_R)

250 VDC, 400 VDC, 630 VDC, 1000 VDC, 1600 VDC, 2000 VDC

PERMISSIBLE AC VOLTAGES (RMS) UP TO 60 Hz

160 VAC, 220 VAC, 250 VAC, 400 VAC, 500 VAC, 600 VAC, 700 VAC

TEST VOLTAGE

1.6 x U_R for 2 s

INSULATION RESISTANCE

Measured at 100 VDC after one minute

For $C \leq 0.33 \mu F$:

100000 MΩ minimum value (150000 MΩ typical value)

TIME CONSTANT

Measured at 100 VDC after one minute

For $C > 0.33 \mu F$:

30000 s minimum value (50000 s typical value)

TEMPERATURE COEFFICIENT

- 250 x 10⁻⁶/°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_C

At + 85 °C: $U_C = 1.0 U_R$

At + 100 °C: $U_C = 0.7 U_R$

SELF INDUCTANCE

~ 6 nH measured with 2 mm long leads

PULL TEST ON LEADS

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

RELIABILITY

Operational life > 300000 h

Failure rate < 5 FIT (40 °C and 0.5 U_R)

For further details, please refer to the general information available at www.vishay.com/doc?26033.



RoHS
COMPLIANT

MAXIMUM PULSE RISE TIME

MEASURED AT	$C \leq 0.1 \mu\text{F}$	$0.1 \mu\text{F} < C \leq 1.0 \mu\text{F}$	$C > 1.0 \mu\text{F}$
1 kHz	0.4×10^{-3}	0.4×10^{-3}	1.0×10^{-3}
10 kHz	0.6×10^{-3}	0.6×10^{-3}	—
100 kHz	4.0×10^{-3}	—	—
Maximum values			

METALLIZED POLYPROPYLENE FILM CAPACITOR, MKP 1840, MINI-VERSION (-M)
RELATED DOCUMENT: CECC 31 200

CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 25 250 VDC / 160 VAC**				VOLTAGE CODE 40 400 VDC / 220 VAC**				VOLTAGE CODE 63 630 VDC / 250 VAC**				VOLTAGE CODE 63 630 VDC / 400 VAC**			
		W	H	L	PCM	W	H	L	PCM	W	H	L	PCM	W	H	L	PCM
1000 pF	- 210	—	—	—	—	—	—	—	—	3.0	6.5	7.5	5.0	—	—	—	—
1500 pF	- 215	—	—	—	—	—	—	—	—	3.0	6.5	7.5	5.0	—	—	—	—
2200 pF	- 222	—	—	—	—	—	—	—	—	3.5	8.5	7.5	5.0	—	—	—	—
3300 pF	- 233	—	—	—	—	—	—	—	—	3.0	8.5	10.0	7.5	—	—	—	—
4700 pF	- 247	—	—	—	—	—	—	—	—	3.0	8.5	10.0	7.5	—	—	—	—
6800 pF	- 268	—	—	—	—	3.0	6.5	7.5	5.0	3.0	8.5	10.0	7.5	—	—	—	—
0.01 μF	- 310	3.0	6.5	7.5	5.0	3.5	8.5	7.5	5.0	4.0	9.0	10.0	7.5	4.5	9.5	13.0	10*
0.015 μF	- 315	3.0	6.5	7.5	5.0	3.0	8.5	10.0	7.5	4.5	9.5	10.3	7.5	5.5	10.5	13.0	10*
0.022 μF	- 322	3.5	8.5	7.5	5.0	4.0	9.0	10.0	7.5	4.5	9.5	13.0	10.0	6.5	11.5	13.0	10*
0.033 μF	- 333	3.5	8.5	7.5	5.0	4.5	9.5	10.3	7.5	5.5	10.5	13.0	10.0	5.5	10.5	18.0	15*
0.047 μF	- 347	4.0	9.0	10.0	7.5	5.0	10.5	10.3	7.5	6.5	11.5	13.0	10.0	6.5	12.5	18.0	15*
0.068 μF	- 368	4.0	9.0	10.0	7.5	5.7	11.5	10.3	7.5	6.0	12.0	18.0	15.0	7.5	13.5	18.0	15*
0.10 μF	- 410	5.0	10.5	10.3	7.5	5.5	10.5	18.0	15.0	6.0	12.0	18.0	15.0	6.5	14.5	26.5	22.5*
0.15 μF	- 415	5.5	10.5	13.0	10.0	6.0	12.0	18.0	15.0	8.5	14.5	18.0	15.0	7.5	15.5	26.5	22.5*
0.22 μF	- 422	6.5	11.5	13.0	10.0	7.5	13.5	18.0	15.0	8.5	17.5	18.0	15.0	8.5	16.5	26.5	22.5*
0.33 μF	- 433	6.5	12.5	18.0	15.0	8.5	17.5	18.0	15.0	9.0	17.0	26.5	22.5	11.0	21.0	26.5	22.5*
0.47 μF	- 447	7.5	13.5	18.0	15.0	7.5	15.5	26.5	22.5	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5*
0.68 μF	- 468	8.5	14.5	18.0	15.0	10.5	18.5	26.5	22.5	11.5	20.5	31.5	27.5	13.5	23.5	31.5	27.5*
1.0 μF	- 510	8.5	16.5	26.5	22.5	11.0	21.0	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	13.5	23.5	31.5	27.5	16.5	29.5	31.5	27.5	—	—	—	—
2.2 μF	- 522	11.0	21.0	26.5	22.5	15.0	24.5	31.5	27.5	18.0	33.0	31.5	27.5	—	—	—	—
3.3 μF	- 533	13.5	23.5	31.5	27.5	18.0	28.0	31.5	27.5	20.0	40.0	42.5	37.5	—	—	—	—
4.7 μF	- 547	15.0	24.5	31.5	27.5	18.0	32.5	41.5	37.5	20.0	40.0	42.5	37.5	—	—	—	—
6.8 μF	- 568	14.5	24.5	41.5	37.5	20.0	40.0	42.5	37.5	—	—	—	—	—	—	—	—

*Ordering Code - 2M (e.g. MKP 1840 410 635-2M)



CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 10 1000 VDC / 500 VAC**				VOLTAGE CODE 13 1600 VDC / 600 VAC**				VOLTAGE CODE 20 2000 VDC / 700 VAC**			
		W	H	L	PCM	W	H	L	PCM	W	H	L	PCM
1000 pF	- 210	—	—	—	—	—	—	—	—	5.5	10.5	18.0	15
1500 pF	- 215	—	—	—	—	—	—	—	—	5.5	10.5	18.0	15
2200 pF	- 222	—	—	—	—	—	—	—	—	5.5	10.5	18.0	15
3300 pF	- 233	—	—	—	—	—	—	—	—	6.0	12.0	18.0	15
4700 pF	- 247	4.0	9.0	13.0	10	—	—	—	—	6.0	12.0	18.0	15
6800 pF	- 268	4.0	9.0	13.0	10	5.5	10.5	18.0	15	7.5	13.5	18.0	15
0.01 µF	- 310	5.5	10.5	13.0	10	6.5	12.5	18.0	15	6.5	14.5	26.5	22.5
0.015 µF	- 315	6.5	11.5	13.0	10	7.5	13.5	18.0	15	7.5	15.5	26.5	22.5
0.022 µF	- 322	5.5	10.5	18.0	15	8.5	14.5	18.0	15	8.5	16.5	26.5	22.5
0.033 µF	- 333	6.0	12.0	18.0	15	8.5	17.5	18.0	15	10.5	18.5	26.5	22.5
0.047 µF	- 347	7.5	13.5	18.0	15	7.5	15.5	26.5	22.5	11.0	21.0	26.5	22.5
0.068 µF	- 368	8.5	14.5	18.0	15	8.5	16.5	26.5	22.5	—	—	—	—
0.10 µF	- 410	7.5	15.5	26.5	22.5	10.5	18.5	26.5	22.5	—	—	—	—
0.15 µF	- 415	9.0	17.0	26.5	22.5	11.5	20.5	31.5	27.5	—	—	—	—
0.22 µF	- 422	10.5	18.5	26.5	22.5	13.5	23.5	31.5	27.5	—	—	—	—
0.33 µF	- 433	11.5	20.5	31.5	27.5	16.5	29.5	31.5	27.5	—	—	—	—
0.47 µF	- 447	13.5	23.5	31.5	27.5	18.0	33.0	31.5	27.5	—	—	—	—
0.68 µF	- 468	16.5	29.5	31.5	27.5	18.0	32.5	41.5	37.5	—	—	—	—
1.0 µF	- 510	18.0	33.0	31.5	27.5	—	—	—	—	—	—	—	—
1.5 µF	- 515	18.0	32.5	41.5	37.5	—	—	—	—	—	—	—	—

Further C-values upon request

Other PCM on 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 EXAMPLES	PCM ≤ 15	PCM 22.5 - 27.5	PCM 37.5
D	AMMO	16.5	S*	MKP 1840-410/404-MD	X	—	—
G	AMMO	18.5	S*	MKP 1840-410/404-MG	X	—	—
F	REEL	16.5	350	MKP 1840-410/404-MF	X	—	—
W	REEL	18.5	350	MKP 1840-410/404-MW	X	—	—
V	REEL	18.5	500	MKP 1840-510/254-MV	—	X	—
G	AMMO	18.5	L*	MKP 1840-510/254-MG	—	X	—
—	BULK	—	—	MKP 1840-510/254-M	X	X	X

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

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

EXAMPLE OF ORDERING CODE

TYPE	CAPACITANCE CODE	VOLTAGE CODE	TOLERANCE CODE	MINI	PACKAGING CODE
MKP 1840	447	63	4	M	G
Tolerance codes: 4 = 5 % (J); 5 = 10 % (K); 3 = 2.5 % (H);					

METALLIZED POLYPROPYLENE FILM CAPACITOR, MKP 1840 PCM5, MINI-VERSION (-5M) RELATED DOCUMENT: CECC 31 200

CAPACITANCE	CAPACITANCE CODE	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
3300 pF	- 233	—	—	—	—	—	—	—	—	3.5	8.5	7.5	5
4700 pF	- 247	—	—	—	—	—	—	—	—	3.5	8.5	7.5	5
6800 pF	- 268	—	—	—	—	—	—	—	—	4.5	9.5	7.5	5
0.01 μ F	- 310	—	—	—	—	—	—	—	—	4.5	9.5	7.5	5
0.015 μ F	- 315	—	—	—	—	4.5	9.5	7.5	5	5.5	11.5	7.5	5
0.022 μ F	- 322	—	—	—	—	4.5	9.5	7.5	5	—	—	—	—
0.033 μ F	- 333	—	—	—	—	5.5	11.5	7.5	5	—	—	—	—
0.047 μ F	- 347	4.5	9.5	7.5	5	5.5	11.5	7.5	5	—	—	—	—
0.068 μ F	- 368	5.0	10.0	7.5	5	—	—	—	—	—	—	—	—
0.10 μ F	- 410	5.5	11.5	7.5	5	—	—	—	—	—	—	—	—

Further C-values upon request

*Not suitable for mains applications.

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

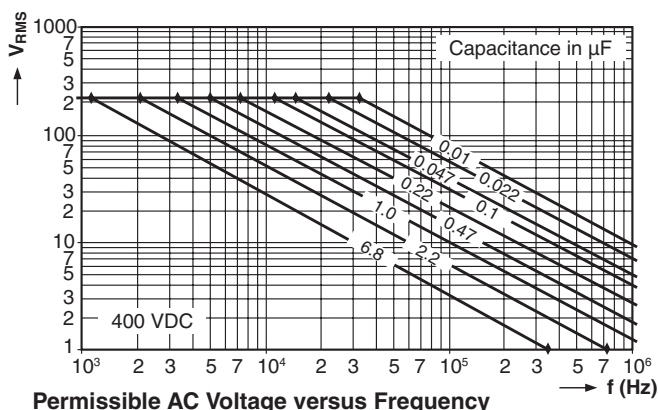
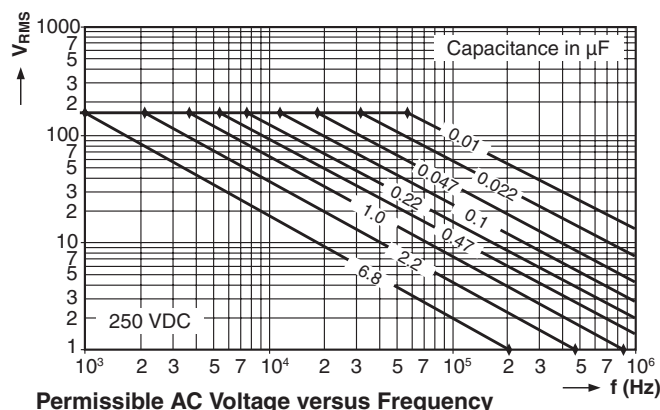
RECOMMENDED PACKAGING

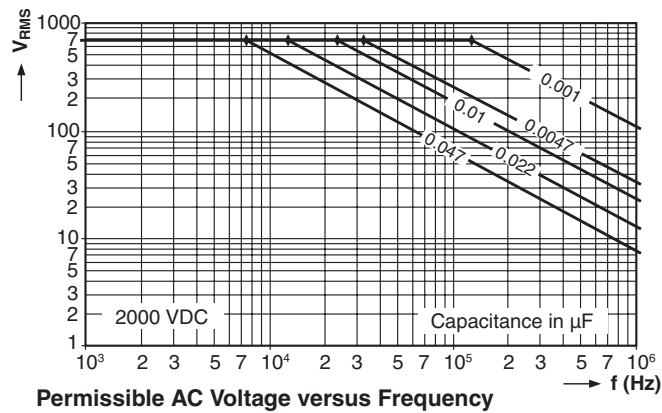
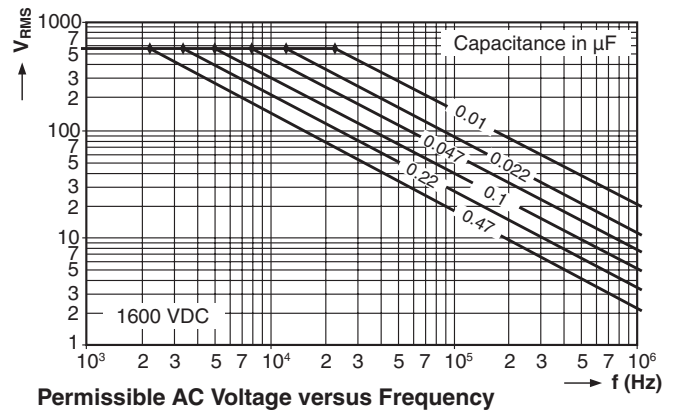
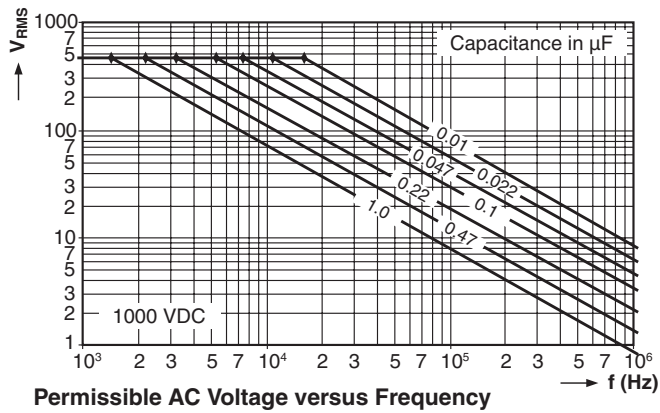
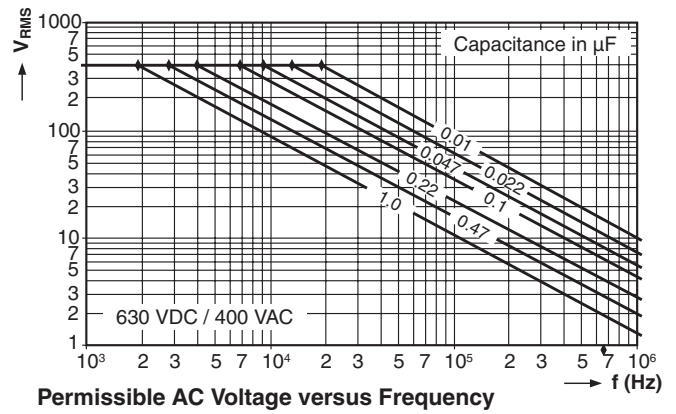
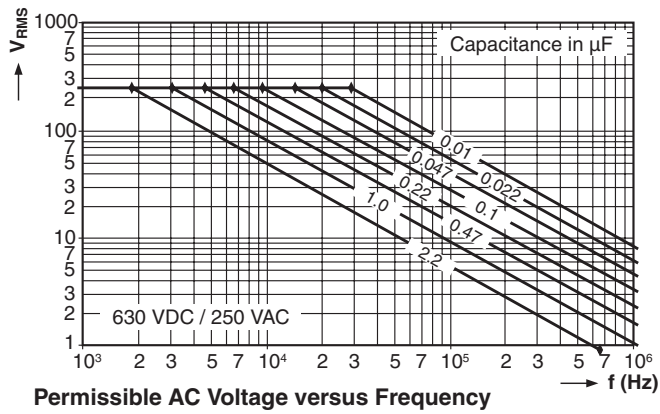
LETTER CODE	TYPE OF PACKAGING	HEIGHT (H) (mm)	REEL DIAMETER (mm)	ORDERING CODE EXAMPLES	PCM 5
D	AMMO	16.5	S*	MKP 1840-310/404-5MD	X
G	AMMO	18.5	S*	MKP 1840-310/404-5MG	X
F	REEL	16.5	350	MKP 1840-310/404-5MF	X
W	REEL	18.5	350	MKP 1840-310/404-5MW	X
—	BULK	—	—	MKP 1840-310/404-5M	X

EXAMPLE OF ORDERING CODE

TYPE	CAPACITANCE CODE	VOLTAGE CODE	TOLERANCE CODE	MINI	PACKAGING CODE
MKP 1840	347	25	4	5M	G

Tolerance codes: 4 = 5 % (J); 5 = 10 % (K); 3 = 2.5 % (H);







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