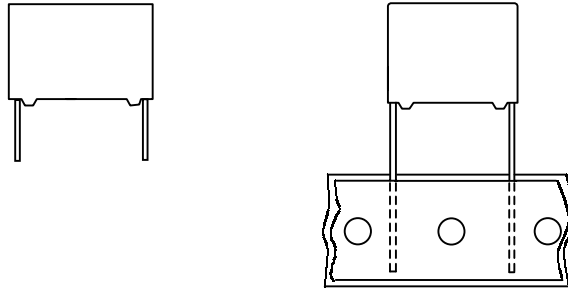


AC and Pulse Metallized Polypropylene film capacitors

PCKP 376

KP/MMKP and KP/MKP RADIAL POTTED CAPACITORS

Pitch 15.0/22.5/27.5 mm



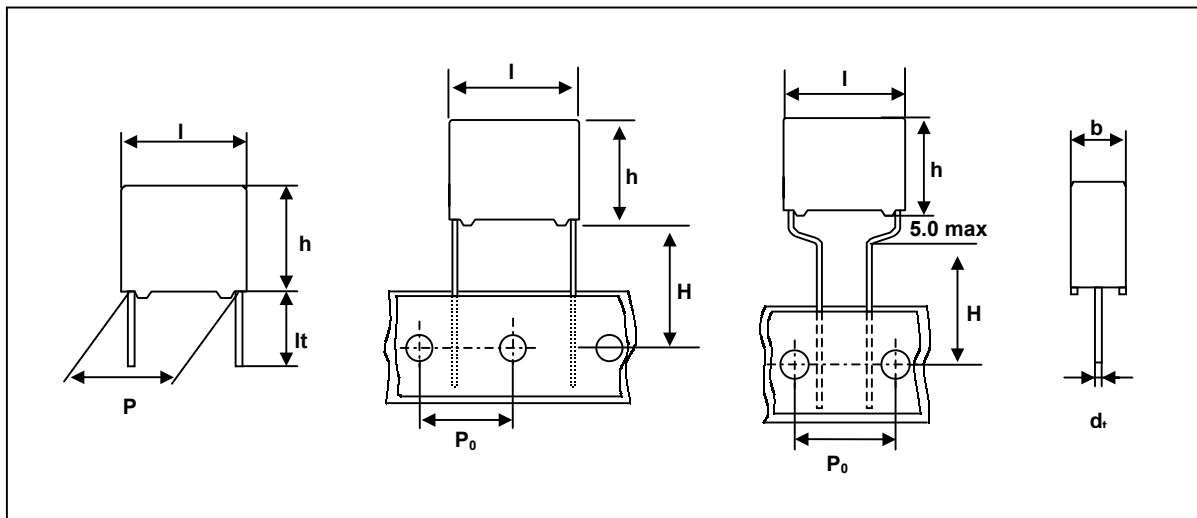
QUICK REFERENCE DATA

Capacitance range (E24 series)	0.001 to 0.27 μF
Capacitance tolerance	$\pm 5\%$, $\pm 3.5\%$
Rated voltage (DC)	630 V, 1000 V, 1600 V, 2000 V
Climatic category	55/100/56
Rated temperature	85°C
Reference specification	IEC 60384-17 for 630V to 2000V versions

FEATURES <ul style="list-style-type: none"> . 15mm to 27.5mm lead pitch . Supplied loose in box and taped on reel 	APPLICATIONS <ul style="list-style-type: none"> . Where very high currents and steep pulses occur . For deflection circuits in television receiver . Electronic ballast, SMPS and motor control
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**AC and Pulse
Metallized Polypropylene film capacitors**

Ordering Information



PCKP 376

Type series

X X XXX

Capacitance

Code	Voltage
6	630V
7	1000V
8	1600V
9	2000V

Available versions					Product (I_{max})		
Code	Packing method	C-tol.	Lead length & Height	Hole to hole (P_0)	18.0	26.0	31.0
					Pitch (P)		
2	Loose in box	$\pm 5\%$	$lt = 5.0 \pm 1.0mm$	-	15	22.5	27.5
3	Loose in box	$\pm 3.5\%$	$lt = 5.0 \pm 1.0mm$	-	15	22.5	27.5
5	Taped on reel	$\pm 5\%$	$H = 18.5mm$	12.7mm	15	22.5	27.5
6	Taped on reel	$\pm 3.5\%$	$H = 18.5mm$	12.7mm	15	22.5	27.5
A	Ammo packing	$\pm 5\%$	$H = 18.5mm$	12.7mm	15	22.5	27.5
8	Loose in box	$\pm 5\%$	$lt = 25 \pm 2.0mm$	-	15	22.5	27.5
P	Arrange packing	$\pm 5\%$	$lt = 5.0 \pm 1.0mm$	-	15	22.5	27.5

AC and Pulse Metallized Polypropylene film capacitors

Packaging Information

SMALLEST PACKING QUANTITIES	Loose in box	Taped on reel
DIMENSIONS	SPQ	SPQ
5.0 x 11.0 x 18.0	1000	1100
6.0 x 12.0 x 18.0	1000	900
7.0 x 13.5 x 18.0	1000	800
8.5 x 15.0 x 18.0	1000	650
6.0 x 15.5 x 26.0	1000	600
7.0 x 16.5 x 26.0	1000	550
8.5 x 18.0 x 26.0	500	450
10.0 x 19.5 x 26.0	500	350
11.5 x 21.0 x 26.0	500	to be fixed
9.0 x 19.0 x 31.0	500	400
11.0 x 21.0 x 31.0	500	300
13.0 x 23.0 x 31.0	250	250
15.0 x 25.0 x 31.0	250	200
18.0 x 28.0 x 31.0	200	150

AC and Pulse Metallized Polypropylene film capacitors

PCKP 376

 $V_{Rdc} = 630 V$ $V_{Rac} = 300 V$

Cap. (μF)	b x h x l (mm)	Mass (g)	CATALOGUE NUMBER	
			PCKP 376	
			loose in box	ammo packing
			lt = 5.0 \pm 1.0 mm	H = 18.5 mm
C - tol. \pm 5%		C - tol. \pm 5%		
Pitch = 15.0 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.0068 0.0075 0.0082 0.0091	5.0 X 11.0 X 18.0	1.1	PCKP 376 62682 PCKP 376 62752 PCKP 376 62822 PCKP 376 62912	PCKP 376 6A682 PCKP 376 6A752 PCKP 376 6A822 PCKP 376 6A912
0.01 0.011 0.012 0.013	6.0 X 12.0 X 18.0	1.4	PCKP 376 62103 PCKP 376 62113 PCKP 376 62123 PCKP 376 62133	PCKP 376 6A103 PCKP 376 6A113 PCKP 376 6A123 PCKP 376 6A133
0.015 0.016 0.018	7.0 X 13.5 X 18.0	1.8	PCKP 376 62153 PCKP 376 62163 PCKP 376 62183	PCKP 376 6A153 PCKP 376 6A163 PCKP 376 6A183
0.02 0.022	8.5 X 15.0 X 18.0	2.6	PCKP 376 62203 PCKP 376 62223	PCKP 376 6A203 PCKP 376 6A223
Pitch = 22.5 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.024 0.027 0.03	6.0 X 15.5 X 26.0	2.8	PCKP 376 62243 PCKP 376 62273 PCKP 376 62303	PCKP 376 6A243 PCKP 376 6A273 PCKP 376 6A303
0.033 0.036 0.039	7.0 X 16.5 X 26.0	3.5	PCKP 376 62333 PCKP 376 62363 PCKP 376 62393	PCKP 376 6A333 PCKP 376 6A363 PCKP 376 6A393
0.043 0.047 0.051 0.056	8.5 X 18.0 X 26.0	4.4	PCKP 376 62433 PCKP 376 62473 PCKP 376 62513 PCKP 376 62563	PCKP 376 6A433 PCKP 376 6A473 PCKP 376 6A513 PCKP 376 6A563
Pitch = 27.5 \pm 0.4 mm			dt = 0.8 mm (+ 0.08 / - 0.05)	
0.062 0.068 0.075	9.0 X 19.0 X 31.0	7.4	PCKP 376 62623 PCKP 376 62683 PCKP 376 62753	PCKP 376 6A623 PCKP 376 6A683 PCKP 376 6A753
0.082 0.091 0.1 0.11	11.0 X 21.0 X 31.0	7.4	PCKP 376 62823 PCKP 376 62913 PCKP 376 62104 PCKP 376 62114	PCKP 376 6A823 PCKP 376 6A913 PCKP 376 6A104 PCKP 376 6A114
0.12 0.13 0.15 0.16	13.0 X 23.0 X 31.0	10.2	PCKP 376 62124 PCKP 376 62134 PCKP 376 62154 PCKP 376 62164	PCKP 376 6A124 PCKP 376 6A134 PCKP 376 6A154 PCKP 376 6A164
0.18 0.2	15.0 X 25.0 X 31.0	12.8	PCKP 376 62184 PCKP 376 62204	PCKP 376 6A184 PCKP 376 6A204
0.22 0.24 0.27	18.0 X 28.0 X 31.0	18.2	PCKP 376 62224 PCKP 376 62244 PCKP 376 62274	PCKP 376 6A224 PCKP 376 6A244 PCKP 376 6A274

AC and Pulse Metallized Polypropylene film capacitors

PCKP 376

 $V_{Rdc} = 1000 V$ $V_{Rac} = 400 V$

Cap. (μF)	b x h x l (mm)	Mass (g)	CATALOGUE NUMBER	
			PCKP 376	
			loose in box	ammo packing
			lt = 5.0 \pm 1.0 mm	H = 18.5 mm
			C - tol. \pm 5%	C - tol. \pm 5%
Pitch = 15.0 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.0047 0.0051 0.0056	5.0 X 11.0 X 18.0	1.1	PCKP 376 72472 PCKP 376 72512 PCKP 376 72562	PCKP 376 7A472 PCKP 376 7A512 PCKP 376 7A562
0.0062 0.0068 0.0075 0.0082	6.0 X 12.0 X 18.0	1.4	PCKP 376 72622 PCKP 376 72682 PCKP 376 72752 PCKP 376 72822	PCKP 376 7A622 PCKP 376 7A682 PCKP 376 7A752 PCKP 376 7A822
0.0091 0.01 0.011 0.012	7.0 X 13.5 X 18.0	1.8	PCKP 376 72912 PCKP 376 72103 PCKP 376 72113 PCKP 376 72123	PCKP 376 7A912 PCKP 376 7A103 PCKP 376 7A113 PCKP 376 7A123
Pitch = 22.5 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.013	6.0 X 15.5 X 26.0	2.8	PCKP 376 72133	PCKP 376 7A133
0.015 0.016 0.018	7.0 X 16.5 X 26.0	3.5	PCKP 376 72153 PCKP 376 72163 PCKP 376 72183	PCKP 376 7A153 PCKP 376 7A163 PCKP 376 7A183
0.02 0.022 0.024 0.027 0.03 0.033 0.036	8.5 X 18.0 X 26.0	4.4	PCKP 376 72203 PCKP 376 72223 PCKP 376 72243 PCKP 376 72273 PCKP 376 72303 PCKP 376 72333 PCKP 376 72363	PCKP 376 7A203 PCKP 376 7A223 PCKP 376 7A243 PCKP 376 7A273 PCKP 376 7A303 PCKP 376 7A333 PCKP 376 7A363
0.039	10.0 X 19.5 X 26.0	5.1	PCKP 376 72393	PCKP 376 7A393
Pitch = 27.5 \pm 0.4 mm			dt = 0.8 mm (+ 0.08 / - 0.05)	
0.043 0.047 0.051	9.0 X 19.0 X 31.0	7.4	PCKP 376 72433 PCKP 376 72473 PCKP 376 72513	PCKP 376 7A433 PCKP 376 7A473 PCKP 376 7A513
0.056 0.062 0.068 0.075	11.0 X 21.0 X 31.0	7.4	PCKP 376 72563 PCKP 376 72623 PCKP 376 72683 PCKP 376 72753	PCKP 376 7A563 PCKP 376 7A623 PCKP 376 7A683 PCKP 376 7A753
0.082 0.091 0.1	13.0 X 23.0 X 31.0	10.2	PCKP 376 72823 PCKP 376 72913 PCKP 376 72104	PCKP 376 7A823 PCKP 376 7A913 PCKP 376 7A104
0.11 0.12 0.13 0.15	15.0 X 25.0 X 31.0	12.8	PCKP 376 72114 PCKP 376 72124 PCKP 376 72134 PCKP 376 72154	PCKP 376 7A114 PCKP 376 7A124 PCKP 376 7A134 PCKP 376 7A154
0.16 0.18	18.0 X 28.0 X 31.0	18.2	PCKP 376 72164 PCKP 376 72184	PCKP 376 7A164 PCKP 376 7A184

AC and Pulse Metallized Polypropylene film capacitors

PCKP 376

 $V_{Rdc} = 1600 V$ $V_{Rac} = 500 V$

Cap. (μF)	b x h x l (mm)	Mass (g)	CATALOGUE NUMBER	
			PCKP 376	
			loose in box	ammo packing
			It = 5.0 \pm 1.0 mm	H = 18.5 mm
		C - tol. \pm 5%	C - tol. \pm 5%	
Pitch = 15.0 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.0018	5.0 X 11.0 X 18.0	1.1	PCKP 376 82182	PCKP 376 8A182
0.002	6.0 X 12.0 X 18.0	1.4	PCKP 376 82202	PCKP 376 8A202
0.0022			PCKP 376 82222	PCKP 376 8A222
0.0024			PCKP 376 82242	PCKP 376 8A242
0.0027	7.0 X 13.5 X 18.0	1.8	PCKP 376 82272	PCKP 376 8A272
0.003			PCKP 376 82302	PCKP 376 8A302
0.0033			PCKP 376 82332	PCKP 376 8A332
0.0036	8.5 X 15.0 X 18.0	2.6	PCKP 376 82362	PCKP 376 8A362
0.0039			PCKP 376 82392	PCKP 376 8A392
0.0043			PCKP 376 82432	PCKP 376 8A432
0.0047			PCKP 376 82472	PCKP 376 8A472
Pitch = 22.5 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.0051	6.0 X 15.5 X 26.0	2.8	PCKP 376 82512	PCKP 376 8A512
0.0056			PCKP 376 82562	PCKP 376 8A562
0.0062			PCKP 376 82622	PCKP 376 8A622
0.0068			PCKP 376 82682	PCKP 376 8A682
0.0075	7.0 X 16.5 X 26.0	3.5	PCKP 376 82752	PCKP 376 8A752
0.0082			PCKP 376 82822	PCKP 376 8A822
0.0091			PCKP 376 82912	PCKP 376 8A912
0.01	8.5 X 18.0 X 26.0	5.0	PCKP 376 82103	PCKP 376 8A103
0.011			PCKP 376 82113	PCKP 376 8A113
0.012			PCKP 376 82123	PCKP 376 8A123
0.013			PCKP 376 82133	PCKP 376 8A133
0.015	10.0 X 19.5 X 26.0	5.1	PCKP 376 82153	PCKP 376 8A153
Pitch = 27.5 \pm 0.4 mm			dt = 0.8 mm (+ 0.08 / - 0.05)	
0.016	9.0 X 19.0 X 31.0	7.4	PCKP 376 82163	PCKP 376 8A163
0.018	11.0 X 21.0 X 31.0	7.4	PCKP 376 82183	PCKP 376 8A183
0.02			PCKP 376 82203	PCKP 376 8A203
0.022			PCKP 376 82223	PCKP 376 8A223
0.024			PCKP 376 82243	PCKP 376 8A243
0.027	13.0 X 23.0 X 31.0	10.2	PCKP 376 82273	PCKP 376 8A273
0.03			PCKP 376 82303	PCKP 376 8A303
0.033			PCKP 376 82333	PCKP 376 8A333
0.036			PCKP 376 82363	PCKP 376 8A363
0.039	15.0 X 25.0 X 31.0	12.8	PCKP 376 82393	PCKP 376 8A393
0.043			PCKP 376 82433	PCKP 376 8A433
0.047			PCKP 376 82473	PCKP 376 8A473
0.051	18.0 X 28.0 X 31.0	18.2	PCKP 376 82513	PCKP 376 8A513
0.056			PCKP 376 82563	PCKP 376 8A563

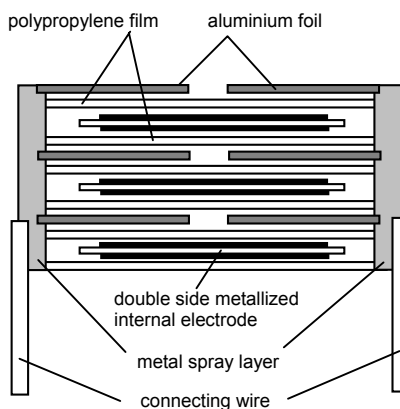
AC and Pulse Metallized Polypropylene film capacitors

PCKP 376

 $V_{Rdc} = 2000 V$ $V_{Rac} = 600 V$

Cap. (μF)	b x h x l (mm)	Mass (g)	CATALOGUE NUMBER	
			PCKP 376	
			loose in box	ammo packing
			lt = 5.0 \pm 1.0 mm	H = 18.5 mm
			C - tol. \pm 5%	C - tol. \pm 5%
Pitch = 15.0 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.001 0.0011	5.0 X 11.0 X 18.0	1.1	PCKP 376 92102 PCKP 376 92112	PCKP 376 9A102 PCKP 376 9A112
0.0012 0.0013 0.0015 0.0016	6.0 X 12.0 X 18.0	1.4	PCKP 376 92122 PCKP 376 92132 PCKP 376 92152 PCKP 376 92162	PCKP 376 9A122 PCKP 376 9A132 PCKP 376 9A152 PCKP 376 9A162
0.0018 0.002	7.0 X 13.5 X 18.0	1.8	PCKP 376 92182 PCKP 376 92202	PCKP 376 9A182 PCKP 376 9A202
0.0022 0.0024 0.0027 0.003	8.5 X 15.0 X 18.0	2.6	PCKP 376 92222 PCKP 376 92242 PCKP 376 92272 PCKP 376 92302	PCKP 376 9A222 PCKP 376 9A242 PCKP 376 9A272 PCKP 376 9A302
Pitch = 22.5 \pm 0.4 mm			dt = 0.8 +0.08/-0.05 mm	
0.0033 0.0036 0.0039	6.0 X 15.5 X 26.0	2.8	PCKP 376 92332 PCKP 376 92362 PCKP 376 92392	PCKP 376 9A332 PCKP 376 9A362 PCKP 376 9A392
0.0043 0.0047 0.0051	7.0 X 16.5 X 26.0	3.1	PCKP 376 92432 PCKP 376 92472 PCKP 376 92512	PCKP 376 9A432 PCKP 376 9A472 PCKP 376 9A512
0.0056 0.0062 0.0068 0.0075 0.0082	8.5 X 17.5 X 26.0	4.4	PCKP 376 92562 PCKP 376 92622 PCKP 376 92682 PCKP 376 92752 PCKP 376 92822	PCKP 376 9A562 PCKP 376 9A622 PCKP 376 9A682 PCKP 376 9A752 PCKP 376 9A822
0.0091 0.01	10.0 X 19.5 X 26.0	5.1	PCKP 376 92912 PCKP 376 92103	PCKP 376 9A912 PCKP 376 9A103
Pitch = 22.5 \pm 0.4 mm			dt = 0.8 mm (+ 0.08 / - 0.05)	
0.011 0.012 0.013 0.015	10.0 X 31.0	7.4	PCKP 376 92113 PCKP 376 92123 PCKP 376 92133 PCKP 376 92153	PCKP 376 9A113 PCKP 376 9A123 PCKP 376 9A133 PCKP 376 9A153
0.016 0.018 0.02 0.022	13.0 X 23.0 X 31.0	10.2	PCKP 376 92163 PCKP 376 92183 PCKP 376 92203 PCKP 376 92223	PCKP 376 9A163 PCKP 376 9A183 PCKP 376 9A203 PCKP 376 9A223
0.024 0.027	15.0 X 25.0 X 31.0	12.8	PCKP 376 92243 PCKP 376 92273	PCKP 376 9A243 PCKP 376 9A273
0.03 0.033	18.0 X 28.0 X 31.0	18.2	PCKP 376 92303 PCKP 376 92333	PCKP 376 9A303 PCKP 376 9A333

CONSTRUCTION



Description ;

- . Low - inductive wound cell of aluminum foil and polypropylene film.
- . Potted with blue epoxy resin in a blue flame-retardent polypropylene case.
- . Radial leads, tin - coated.
- . Small stand-off pips allow removal of solder flux etc. during cleaning of the printed-circuit board.

MOUNTING

NORMAL USE

The capacitors are designed for mounting on printed-circuit boards. The capacitors packed in bandoliers are designed for mounting on printed-circuit boards by means of automatic insertion machines.

SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATION AND SHOCK

- . For pitches of 15 mm the capacitors shall be mechanically fixed by the leads
- . For larger pitches the capacitors shall be mounted in the same way and the body clamped.

STORAGE TEMPERATURE

.Storage temperature : $T_{stg} = - 25$ to $+ 40^{\circ}\text{C}$ with RH maximum 80% without condensation.

RATINGS AND CHARACTERISTICS

Unless otherwise specified all electrical values apply at an ambient temperature of $23 \pm 1^{\circ}\text{C}$, an atmospheric pressure of 86 to 106 kPa and a relative humidity of $50 \pm 2\%$.

For reference testing a conditioning period shall be applied of 96 ± 4 hours by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20% .

CHARACTERISTICS

● Test Voltage

- . Test Voltage (between terminations) : $1.6 \times V_{Rdc}$, 1 min
(cut off current 10mA, rise time 100V/s)
- . Test Voltage (between leads and case) : $2840V_{dc}$, 1min

● Dissipation Factor

Rated voltage	Tangent of loss angle ($\times 10^{-4}$)					
	at 10 kHz			at 100 kHz		
	P = 15.0mm	P = 22.5mm	P = 27.5mm	P = 15.0mm	P = 22.5mm	P = 27.5mm
630 V	≤ 3	≤ 3	≤ 4	≤ 10	≤ 10	≤ 20
1000 V	≤ 3	≤ 3	≤ 3	≤ 10	≤ 10	≤ 15
1600 V	≤ 3	≤ 3	≤ 3	≤ 10	≤ 10	≤ 15
2000 V	≤ 3	≤ 3	≤ 3	≤ 10	≤ 10	≤ 15

● Insulation Resistance

The insulation resistance is measured for 1min $\pm 5s$, at 100V for $V_{Rdc} < 630V$, at 500V for $V_{Rdc} \geq 630V$

R between terminations : $> 100\,000\ M\Omega$

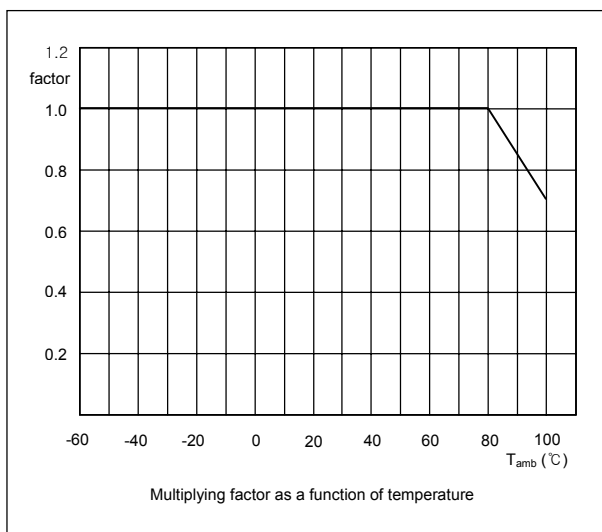
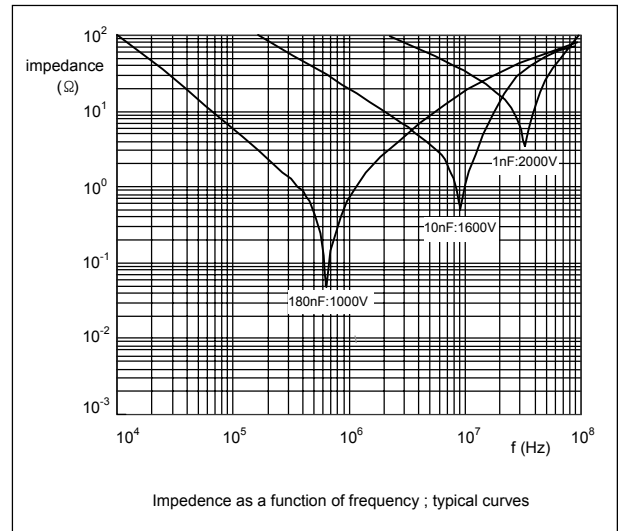
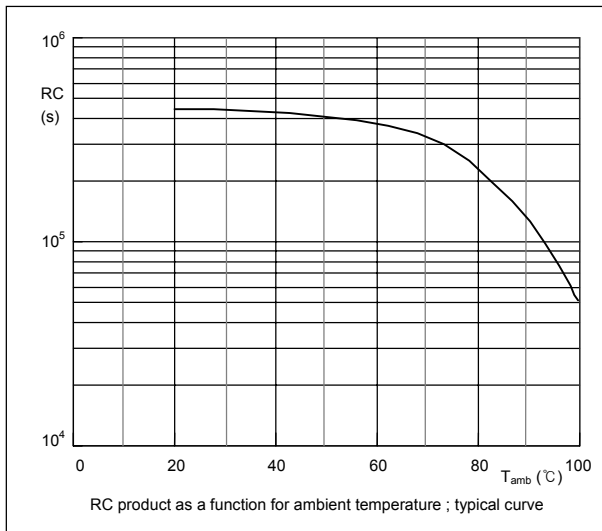
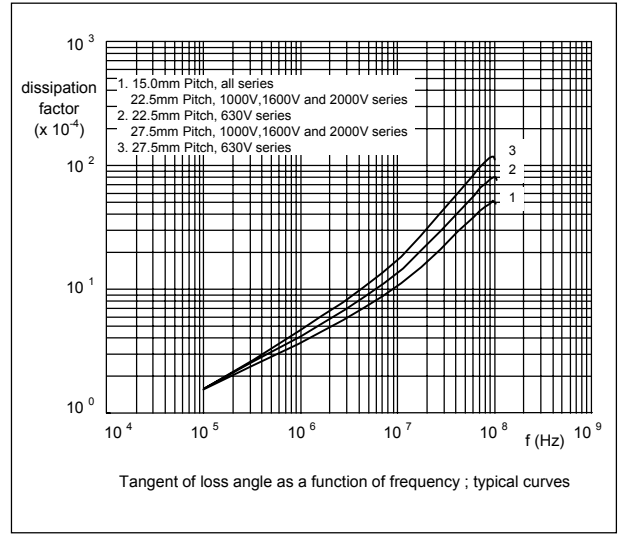
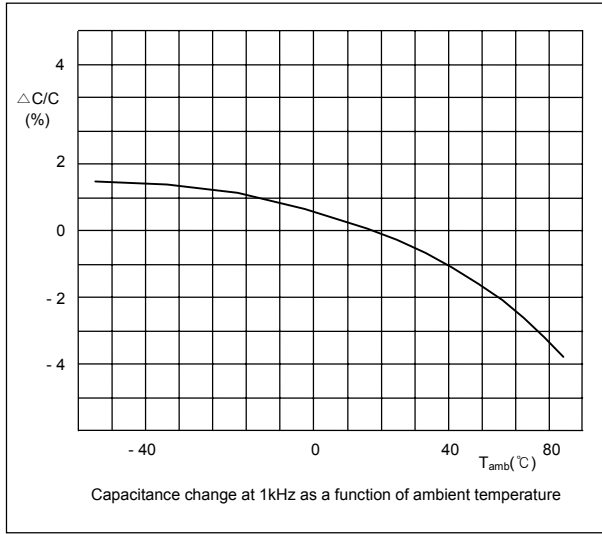
R between interconnected terminations and case : $> 100\,000\ M\Omega$

● Rated Voltage Pulse Load Slope(dV/dt)_R

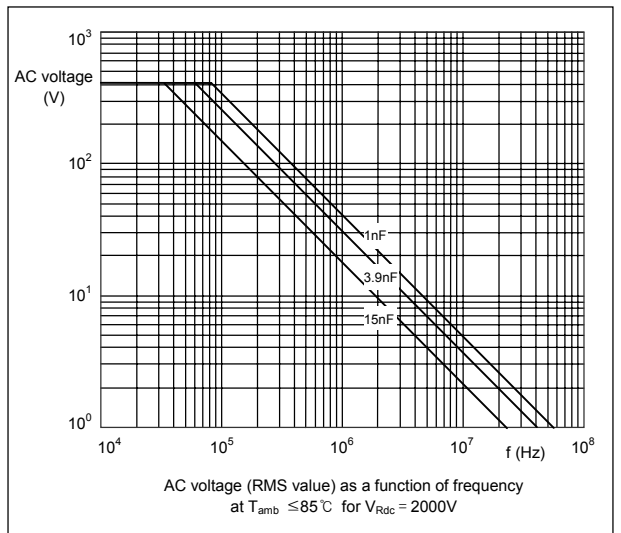
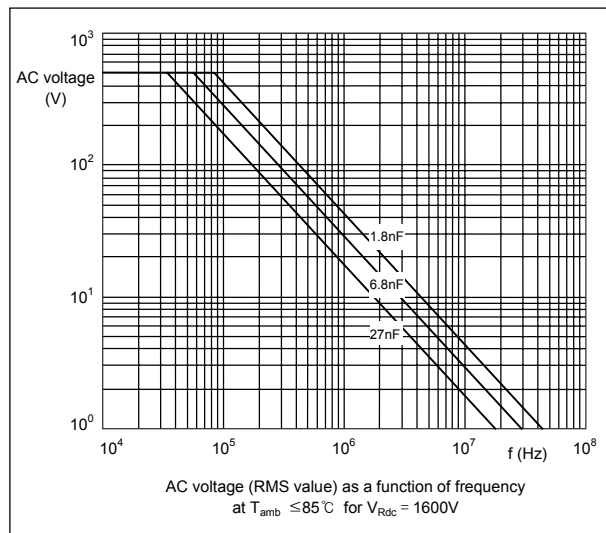
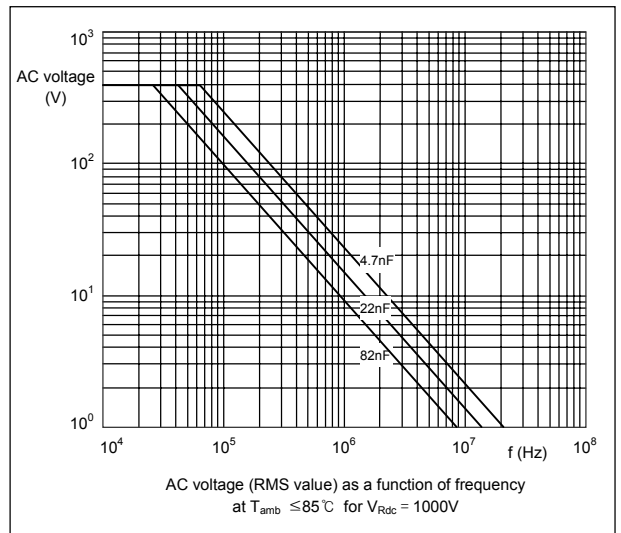
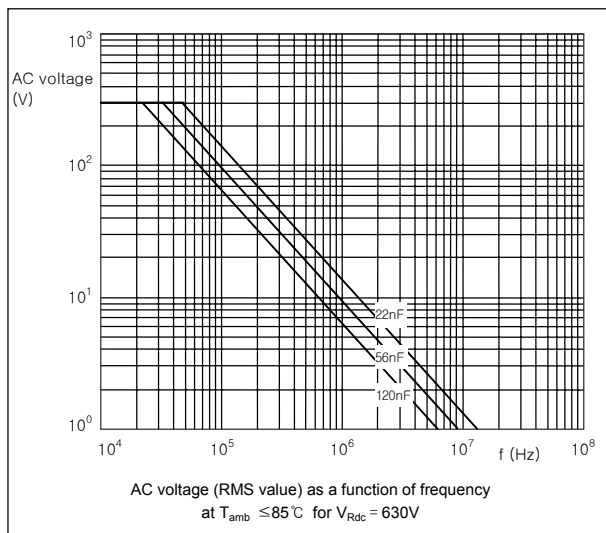
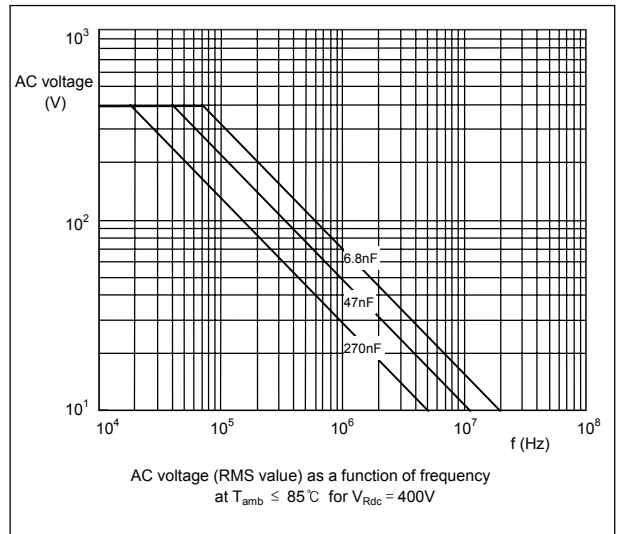
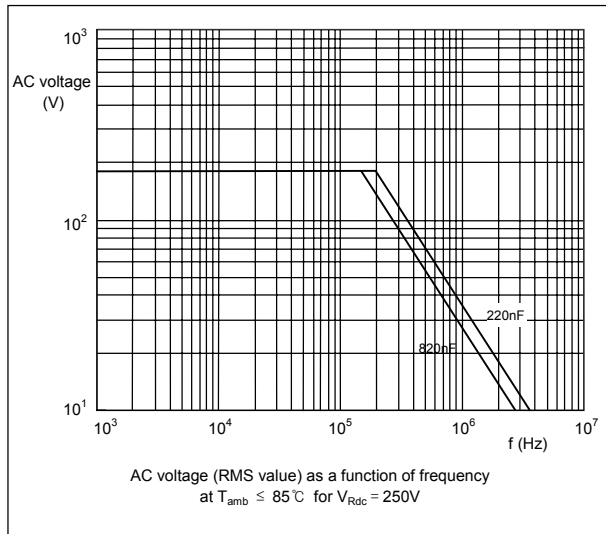
For values see specific reference data. If the pulse voltage is lower than the rated voltage, the values of the specific reference data must be multiplied by V_{Rdc} and divided by the applied voltage

Rated Voltage Pulse Load Slope (dV/dt)_R at $V_{Rdc} > 10\,000\ V/\mu s$

THE GRAPHS OF CHARACTERISTICS



MAXIMUM RMS VOLTAGE (SINEWAVE) AS A FUNCTION OF FREQUENCY



APPLICATION NOTE AND LIMITING CONDITIONS

These capacitors are not suitable for mains application as across-the-line capacitors without additional protection.

To select the capacitor for a certain application, the following conditions must be checked :

1. The peak voltage (V_p) shall not be greater than the rated DC voltage (V_{Rdc}).
2. The peak-to-peak voltage (V_{p-p}) shall not be greater than the maximum V_{p-p} to avoid the ionisation inception level.
3. The voltage pulse slope (dV/dt) shall not exceed the rated voltage pulse slope in an RC-circuit at rated voltage and without ringing. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by V_{Rdc} and divided by the applied voltage.

For all other pulses following equation must be fulfilled :

$$2 \times \int_0^T \left(\frac{dU}{dt} \right) \times dt < U_{Rdc} \times \left(\frac{dU}{dt} \right)_{rated}$$

T is the pulse duration.

4. The maximum component surface temperature rise must be lower than the limits.

PRODUCT MARKING

Capacitors with pitch 15 mm

The capacitors are marked on the top and one side by laser print with the following information :

- . Rated capacitance in code according to IEC 60062
- . Tolerance on rated capacitance J : $\pm 5\%$ A : $\pm 3.5\%$
- . Rated DC voltage (e.g. 630 V)
- . Code for dielectric material (KP/MMKP)
- . Manufacturer's type designation (376)
- . Manufacturer's name (PILKOR)
- . Year and week of manufacture (e.g. WK9705)

Example of marking

22n J 630V
376 KP/MMKP

Marking on the top

PILKOR
WK0235

Marking on the side

Capacitors with pitch 22.5 mm or 27.5 mm

The capacitors are marked on the top or on the top and one side by laser print with the following information :

- . Rated capacitance in code according to IEC 60062
- . Tolerance on rated capacitance J : $\pm 5\%$ A : $\pm 3.5\%$
- . Rated DC voltage (e.g. 1000 V)
- . Code for dielectric material (KP for 250V mini, 400V mini, 630V mini versions)
(KP/MMKP for 630V to 2000V versions)
- . Manufacturer's type designation (376)
- . Manufacturer's name (PILKOR)
- . Year and week of manufacture (e.g. WK9705)

Example of marking

33n J 1000V
376 KP/MMKP

Marking on the top

PILKOR
WK0235

Marking on the side

or

47n J 1000V PILKOR
376 KP/MMKP WK0235

Marking on the top