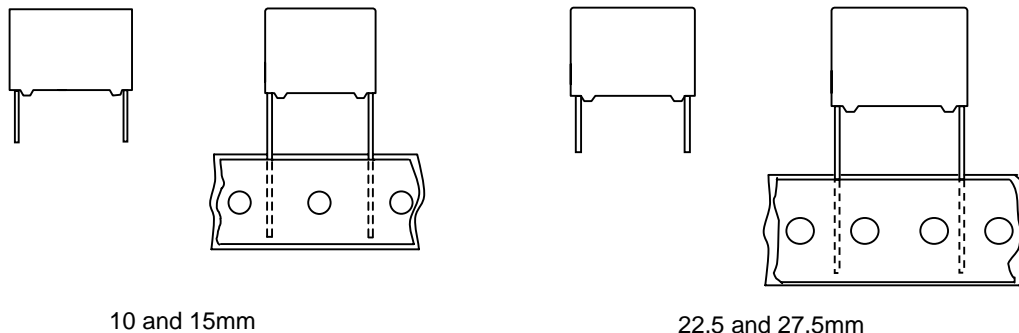


MKP RADIAL POTTED CAPACITORS

Pitch 10.0/15.0/22.5/27.5mm



**QUICK REFERENCE DATA**

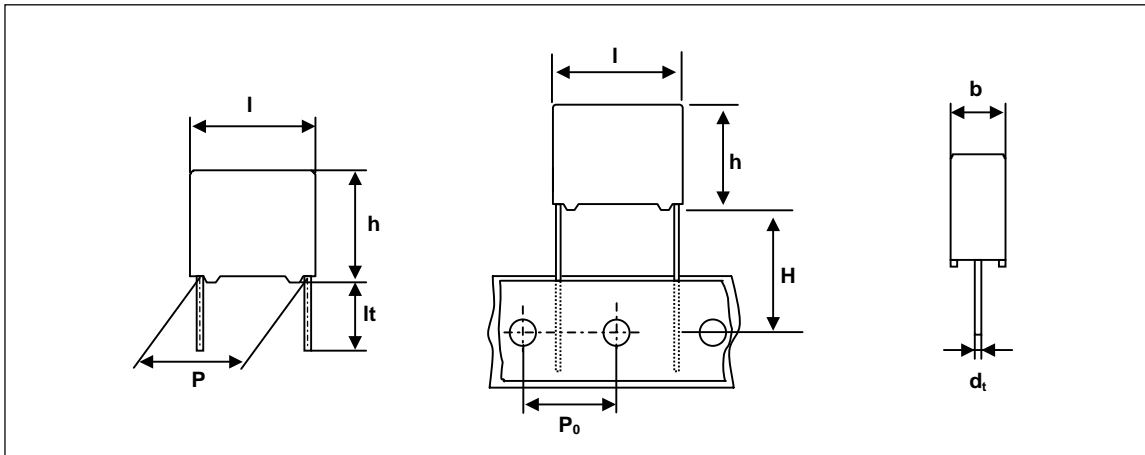
Capacitance range (E6 series) *	0.01 $\mu$ F to 3.3 $\mu$ F
Capacitance tolerance	$\pm 10 \%$ , $\pm 20 \%$
Rated (AC) voltage 50 to 60 Hz	275 V $\sim$
Climatic category	40/105/21
Temperature range	-40 ~ +105
Reference IEC specification	IEC 60384-14(3rd edition) and EN 60384-14
Safety approvals	UL1414 & CSA-C 22.2 NO. 1, ENEC, CQC UL1283 & CSA-C 22.2 NO. 8
Potting & Encapsulation material	Qualified in accordance with UL 94V-0
Safety class	X2

\* Intermediate values of the E12 series are available to special order

<p><b>FEATURES</b></p> <ul style="list-style-type: none"> <li>. 10.0 to 27.5 mm lead pitch</li> <li>. Supplied loose in box and taped on reel</li> <li>. Consist of a low-inductive wound cell of Metallized Polypropylene film, potted in a flame retardant case</li> </ul>	<p><b>APPLICATIONS</b></p> <ul style="list-style-type: none"> <li>. For X2-electromagnetic interference suppression</li> <li>. Specially designed to meet the <b>NEW REQUIREMENTS</b> in new IEC 60384-14 specification(3rd edition)/EN 60384-14 requiring for X2 a 2.5kV peak pulse voltage test and the UL1414 and CSA-C22.2 No 1 specification</li> </ul>
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• Please refer to caution and warning at <http://www.pilkor.co.kr/download/Introductions.pdf> before using these products.

**Ordering Information**



PCX2 337 X X X XXX

Capacitance

Code	Voltage
6	275V

Code	Original Pitch
D	10.0 mm
F	15.0 mm
J	22.5 mm
L	27.5 mm

Available versions					Product (I <sub>max</sub> )			
code	Packing method	C - tol.	Lead length & Height	Hole to hole (P <sub>0</sub> )	12.5	18.0	26.0	31.0
					Pitch (P)			
0	Loose in box	± 20%	lt = 5.0 ± 1.0mm	-	10.0	15.0	22.5	27.5
1	Loose in box	± 10%	lt = 5.0 ± 1.0mm	-	10.0	15.0	22.5	27.5
4	Loose in box	± 20%	lt = 25.0 ± 2.0mm	-	10.0	15.0	22.5	27.5
5	Loose in box	± 10%	lt = 25.0 ± 2.0mm	-	10.0	15.0	22.5	27.5
6	Ammopack	± 20%	H = 18.5mm	12.7mm	10.0	15.0	22.5	27.5
7	Ammopack	± 10%	H = 18.5mm	12.7mm	10.0	15.0	22.5	27.5

## Interference Suppression Film capacitors

**PCX2 337x6  
(Mini)**

### SAFETY APPROVALS

SAFETY APPROVALS	Voltage	Value	File Number
UL1414 & CSA C22.2 NO 1	250V(AC)	10nF to 1.0 $\mu$ F	E165646
UL1283 & CSA C22.2 No.8	275V(AC)	C > 1 $\mu$ F	E208404
ENEC(SEMKO) *	275V(AC)	10nF to 3.3 $\mu$ F	SE/0256-1
EK	275V(AC)	10nF to 3.3 $\mu$ F	SH03001-2003
CQC	275V(AC)	10nF to 3.3 $\mu$ F	CQC04001009332

\* The ENEC-approval together with the CB-Certificate replace all national approval marks of the following countries(they have already signed the ENEC-Agreement): Austria; Belgium; Czech. Republic; Denmark; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Luxembourg; Netherlands; Norway; Portugal; Slovenian; Spain; Sweden; Switzerland and United Kingdom

### Packaging Information

SMALLEST PACKING QUANTITIES (SPQ)	LOOSE IN BOX	
	It = 5.0 $\pm$ 1.0 mm	It = 25 $\pm$ 2.0 mm
<b>DIMENSIONS</b>		
4.0 x 10.0 x 12.5	2000	1200
5.0 x 11.0 x 12.5	1500	1000
6.0 x 12.0 x 12.5	1000	1000
5.0 x 11.0 x 18.0	1000	1000
6.0 x 12.0 x 18.0	1000	1000
7.0 x 13.5 x 18.0	1000	1000
8.5 x 15.0 x 18.0	1000	1000
10.0 x 16.5 x 18.0	1000	1000
11.0 x 18.5 x 18.0	1000	1000
6.0 x 15.5 x 26.0	1000	1000
7.0 x 16.5 x 26.0	1000	1000
8.5 x 18.0 x 26.0	500	500
10.0 x 19.5 x 26.0	500	500
11.5 x 21.0 x 26.0	500	500
13.0 x 23.0 x 26.0	500	500
9.0 x 18.0 x 31.0	500	500
11.0 x 21.0 x 31.0	500	250
13.0 x 23.0 x 31.0	250	250
15.0 x 25.0 x 31.0	250	250
18.0 x 28.0 x 31.0	200	200

# Interference Suppression Film capacitors

# PCX2 337x6 (Mini)

## SPECIFIC REFERENCE DATA FOR 275 V<sub>AC</sub>

Tangent of loss angle	at 1 khz	at 10 khz
C 470 nF 470 nF < C 1 μF C > 1 μF	$10 \times 10^{-4}$ $20 \times 10^{-4}$ $30 \times 10^{-4}$	$20 \times 10^{-4}$ $70 \times 10^{-4}$ -
Rated voltage pulse slope (dV/dt) <sub>R</sub>	100 V/μs	
R between leads, for C 0.33 μF	15 000 MΩ	
RC between leads, for C > 0.33 μF	5 000 s	
Withstanding(DC) Voltage (cut-off current 10mA)		
C 1 μF C > 1 μF	2250 V 1min 1850 V 1min	

## V<sub>Rac</sub> = 275 V X2

Cap. (μF)	b x h x l (mm)	MASS (g)	CATALOGUE NUMBER			
			PCX2 337 .....			
			loose in box			
			lt = 5 ± 1.0 mm		lt = 25 ± 2.0 mm	
			C – tol. ±20 %	C – tol. ±10 %	C – tol. ±20 %	C – tol. ±10 %
Pitch = 10.0 ± 0.4 mm			dt = 0.6 +0.06/-0.05 mm			
0.01	4.0x 10.0x 12.5	0.8	D60103	D61103	D64103	D65103
0.015	4.0x 10.0x 12.5	0.8	D60153	D61153	D64153	D65153
0.022	4.0x 10.0x 12.5	0.8	D60223	D61223	D64223	D65223
0.033	5.0x 11.0 x 12.5	0.9	D60333	D61333	D64333	D65333
0.047	5.0x 11.0 x 12.5	0.9	D60473	D61473	D64473	D65473
0.068	6.0 x 12.0 x 12.5	1.0	D60683	D61683	D64683	D65683
0.1	6.0 x 12.0 x 12.5	1.0	D60104	D61104	D64104	D65104

# Interference Suppression Film capacitors

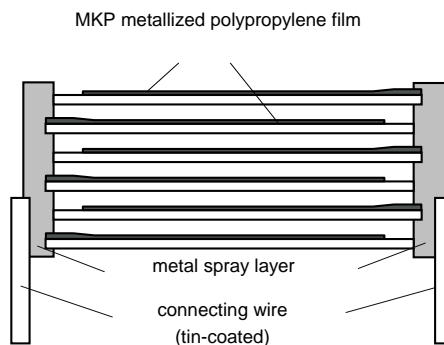
# PCX2 337x6 (Mini)

 $V_{Rac} = 275 V \cdot X2$ 

loose and taped

Cap. ( $\mu F$ )	b x h x l (mm)	MASS (g)	CATALOGUE NUMBER			
			PCX2 337 .....			
			loose in box			
			lt = 5 $\pm$ 1.0 mm		lt = 25 $\pm$ 2.0 mm	
			C - tol. $\pm 20$ %	C - tol. $\pm 10$ %	C - tol. $\pm 20$ %	C - tol. $\pm 10$ %
Pitch = 15.0 $\pm$ 0.4 mm			dt = 0.6 +0.06/-0.05 mm			
0.01	5.0 x 11.0 x 18.0	1.6	F60103	F61103	F64103	F65103
0.015	5.0 x 11.0 x 18.0	1.6	F60153	F61153	F64153	F65153
0.022	5.0 x 11.0 x 18.0	1.6	F60223	F61223	F64223	F65223
0.033	5.0 x 11.0 x 18.0	1.6	F60333	F61333	F64333	F65333
0.047	5.0 x 11.0 x 18.0	1.6	F60473	F61473	F64473	F65473
0.068	5.0 x 11.0 x 18.0	1.6	F60683	F61683	F64683	F65683
0.1	5.0 x 11.0 x 18.0	1.6	F60104	F61104	F64104	F65104
0.15	6.0 x 12.0 x 18.0	1.7	F60154	F61154	F64154	F65154
Pitch = 15.0 $\pm$ 0.4 mm			dt = 0.8 +0.08/-0.05 mm			
0.22	7.0 x 13.5 x 18.0	1.9	F60224	F61224	F64224	F65224
0.33	8.5 x 15.0 x 18.0	2.6	F60334	F61334	F64334	F65334
0.47	10.0 x 16.5 x 18.0	3.1	F60474	F61474	F64474	F65474
0.68	11.0 x 18.5 x 18.0	4.1	F60684	F61684	F64684	F65684
Pitch = 22.5 $\pm$ 0.4 mm			dt = 0.8 +0.08/-0.05 mm			
0.22	6.0 x 15.5 x 26.0	3.0	J60224	J61224	J64224	J65224
0.33	6.0 x 15.5 x 26.0	3.0	J60334	J61334	J64334	J65334
0.47	7.0 x 16.5 x 26.0	3.5	J60474	J61474	J64474	J65474
0.68	8.5 x 18.0 x 26.0	4.4	J60684	J61684	J64684	J65684
1.0	10.0 x 19.5 x 26.0	5.5	J60105	-	J64105	-
1.0	11.5 x 21.0 x 26.0	6.5	-	J61105	-	J65105
1.5	13.0 x 23.0 x 26.0	8.0	J60155	J61155	J64155	J65155
Pitch = 27.5 $\pm$ 0.4 mm			dt = 0.8 +0.08/-0.05 mm			
0.68	9.0 x 19.0 x 31.0	5.5	L60684	L61684	L64684	L65684
1.0	11.0 x 21.0 x 31.0	7.8	L60105	L61105	L64105	L65105
1.5	13.0 x 23.0 x 31.0	10.4	L60155	L61155	L64155	L65155
2.2	15.0 x 25.0 x 31.0	12.8	L60225	L61225	L64225	L65225
3.3	18.0 x 28.0 x 31.0	17.2	L60335	L61335	L64335	L65335

## CONSTRUCTION



## 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.

For detailed specifications refer to chapter "PACKAGING".

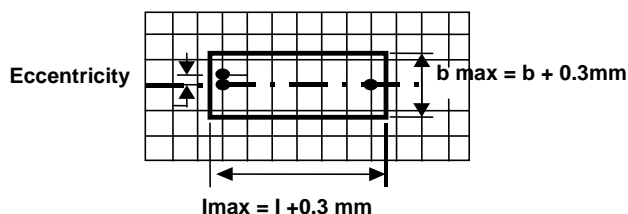
### SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATION AND SHOCK

In order to withstand vibration and shock tests, it must be ensured that the stand-off pips are in good contact with the printed-circuit board.

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

## SPACE REQUIREMENTS ON PRINTED-CIRCUIT BOARD

The maximum length and width of film capacitors are shown in the following drawing ;



- Eccentricity as in drawing.

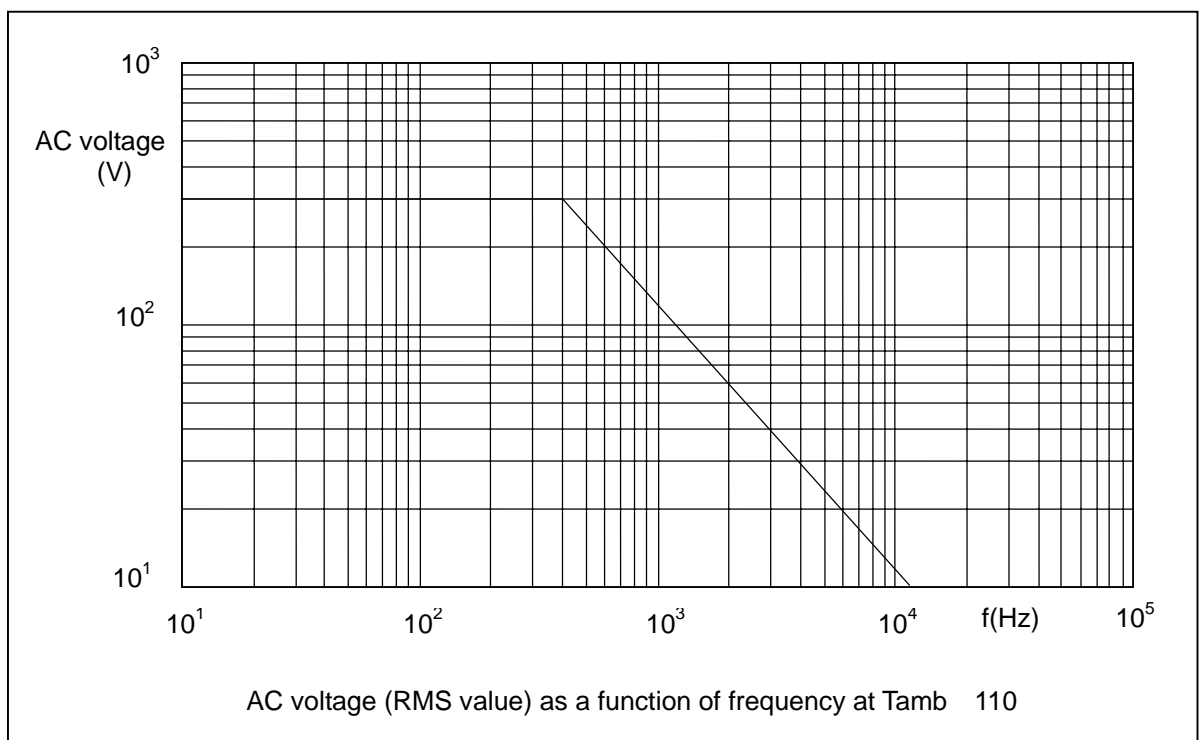
The maximum eccentricity is smaller than or equal to the lead diameter of the product concerned.

- Product height with seating plane as given by IEC 60717 as reference :  $h_{max} \quad h + 0.3 \text{ mm}$

**RATINGS AND CHARACTERISTICS**

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

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

**Maximum RMS Voltage as a function of frequency**

**PRODUCT MARKING**

Capacitors are marked with having following information;

1. Manufacturer (PILKOR)
2. Manufacturer's type designation (PCX2 337 )
3. Rated capacitance in code according to IEC 60062
4. Rated (AC) voltage (275V~)
5. Sub class (X2)
6. Tolerance on rated capacitance M = ±20 % K = ±10 %
7. Climatic category (40/105/21)
8. Code for dielectric material (MKP)
9. Year and week of manufacturing (e.g. 0901)
10. Safety approvals

Example of marking

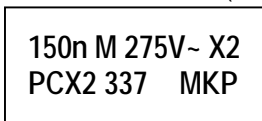
Pitch P = 10mm



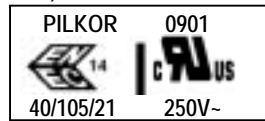
Marking on the side

Pitch P = 15.0mm or P = 22.5 mm or P = 27.5mm

(C ≤ 1µF)



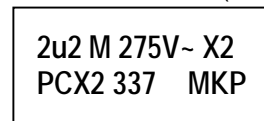
Marking on the top



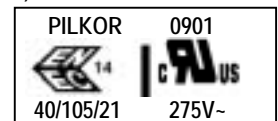
Marking on the side

or

(C > 1µF)

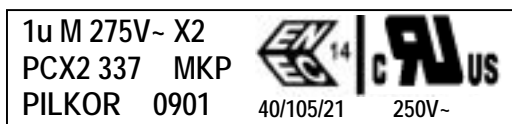


Marking on the top



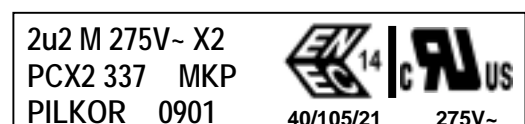
Marking on the side

Pitch P = 22.5 mm or P = 27.5mm



Marking on headface(C ≤ 1µF)

or



Marking on headface(C > 1µF)