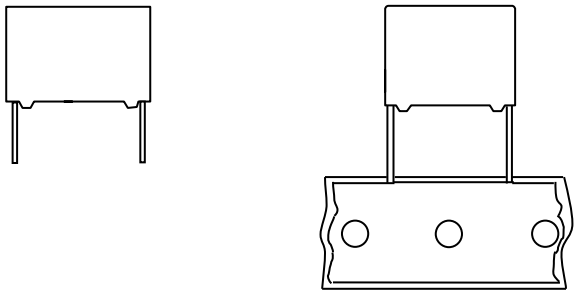
EMI Suppression film capacitors

PCX2 337x1 (Standard)

MKP RADIAL POTTED CAPACITORS **Pitch 10.0/15.0/22.5/27.5 mm**



QUICK REFERENCE DATA

Capacitance range (E6 series) *	0.01μF to 3.3μF
Capacitance tolerance	± 10 %, ± 20 %
Rated (AC) voltage 50 to 60 Hz	275 V~
Climatic category	40/100/21
Temperature range	-40℃ ~ +100℃
Reference IEC specification	IEC 60384-14(3rd edition) and EN 60384-14
Safety approvals	UL60384-14 & CSA E60384-14:09(cUL), ENEC, EK, CQC
Potting & Encapsulation material	Qualified in accordance with UL 94V-0
Safety class	X2

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

FEATURES

. 10 to 27.5 mm lead pitch
. Supplied loose in box and taped on reel
. Consist of a low-inductive wound cell of Metallized (PP) film
. potted in a flame retardant case

APPLICATIONS

. For X2-electromagnetic interference suppression
. Specially designed to meet the NEW REQUIREMENTS of new IEC 60384-14 Specification(3rd edition)/ EN 60384-14/UL60384-14 requiring a 2.5kV peak pulse voltage test
. Not for use in series with the mains

• Design and specifications are subjected to change without notice. Please refer to caution and warning at http://www.pilkor.co.kr/sub/download/Introductions.pdf before using these products.

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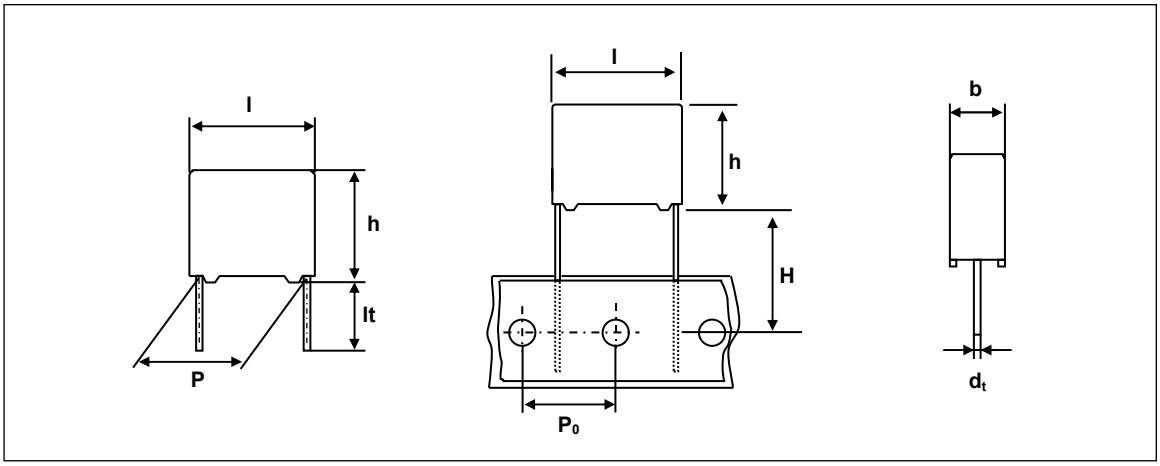
Ordering Information



PCX2 337 (X) X X X X

- Type series
- Capacitance

Code	Version & Voltage
1	Standard / 275V

*Code	Original pitch
F	15.0mm
J	22.5mm
L	27.5mm

**** In case of overlapping the value, use the 13NC with pitch information.***

Available versions					Product (I_{max})			
Code	Packing method	C – tol.	Lead length & Height	Hole to hole (P_o)	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

* H ; intape height ; for detailed specifications refer to chapter PACKAGING

****** Some values do not follow coding rule.

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SAFETY APPROVALS

SAFETY APPROVALS	Voltage	Value	File Number
UL 60384-14 & CSA E60384-14:09(cUL)	305V(AC)	10nF to 3.3μF	E165646
ENEC(SEMKO) *	275V(AC)	10nF to 3.3μF	SE/0256-1
EK	275V(AC)	10nF to 3.3μF	SH03001-2003
CQC	275V(AC)	10nF to 3.3μF	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	
DIMENSIONS	lt = 5.0 ± 1.0 mm	lt = 25 ± 2.0 mm
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
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
12.0 x 20.0 x 18.0	1000	1000
6.0 x 15.5 x 26.5	1000	1000
7.0 x 16.5 x 26.5	1000	1000
8.5 x 18.0 x 26.5	500	500
10.0 x 19.5 x 26.0	500	500
13.0 x 23.0 x 26.0	500	500
11.0 x 21.0 x 31.5	500	250
13.0 x 23.0 x 31.5	250	250
15.0 x 25.0 x 31.5	250	250
18.0 x 28.0 x 31.5	200	200
21.0 x 31.0 x 31.5	150	150

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SPECIFIC REFERENCE DATA FOR 275 V_{AC}

Tangent of loss angle	at 1 khz	at 10 khz
C ≤ 470 nF	≤ 10 x 10^{-4}	≤ 20 x 10^{-4}
470 nF < C ≤ 1 µF	≤ 20 x 10^{-4}	≤ 70 x 10^{-4}
C > 1 µF	≤ 30 x 10^{-4}	-
Rated voltage pulse slope $(dV/dt)_R$		
P = 10.0mm	550 V/µs	
P = 15.0mm	400 V/µs	
P = 22.5mm	200 V/µs	
P = 27.5mm	150 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	2250 V, 1 min	
1 µF < C ≤3.3 µF	1850 V, 1 min	
Withstanding(AC) Voltage between leads and case	2400 V ; 1 min	

V_{Rac} = 275 V~ X2 **loose and taped**

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	4.0 x 10.0 x 12.5	0.8	10103	11103	14103	15103
0.015	4.0 x 10.0 x 12.5	0.8	10153	11153	14153	15153
0.022	4.0 x 10.0 x 12.5	0.8	10223	11223	14223	15223
0.033	5.0 x 11.0 x 12.5	0.9	10333	11333	14333	15333
0.047	5.0 x 11.0 x 12.5	0.9	10473	11473	14473	15473
0.068	6.0 x 12.0 x 12.5	1.0	10683	11683	14683	15683
0.1	6.0 x 12.0 x 12.5	1.0	10104	11104	14104	15104
Pitch = 15.0 ± 0.4 mm dt = 0.8 +0.08/-0.05 mm						
0.01	5.0 x 11.0 x 18.0	1.6	F10103	F11103	F14103	F15103
0.015	5.0 x 11.0 x 18.0	1.6	F10153	F11153	F14153	F15153
0.022	5.0 x 11.0 x 18.0	1.6	F10223	F11223	F14223	F15223
0.033	5.0 x 11.0 x 18.0	1.6	F10333	F11333	F14333	F15333
0.047	5.0 x 11.0 x 18.0	1.6	F10473	F11473	F14473	F15473
0.068	5.0 x 11.0 x 18.0	1.6	F10683	F11683	F14683	F15683
0.1	5.0 x 11.0 x 18.0	1.6	FJ0104	FJ1104	FJ4104	FJ5104
0.1	6.0 x 12.0 x 18.0	1.8	F10104	F11104	F14104	F15104
0.15	7.0 x 13.5 x 18.0	1.9	10154	11154	14154	15154
0.22	8.5 x 15.0 x 18.0	2.6	10224	11224	14224	15224
0.33	10.0 x 16.5 x 18.0	3.1	10334	11334	14334	15334
0.47	11.0 x 18.5 x 18.0	4.1	99001	99002	99003	99004

; Mini Type (xJxxxx)

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V_{Rac} = 275 $V^{\sim}$ X2 **loose and taped**

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 = 22.5 ± 0.4 mm dt = 0.8 +0.08/-0.05 mm						
0.22	6.0 x 15.5 x 26.0	4.4	J10224	J11224	J14224	J15224
0.33	7.0 x 16.5 x 26.0	4.4	J10334	J11334	J14334	J15334
0.47	8.5 x 18.0 x 26.0	4.4	10474	11474	14474	15474
0.68	10.0 x 19.5 x 26.0	5.5	10684	11684	14684	15684
1.0	13.0 x 23.0 x 26.0	8.0	10105	11105	14105	15105
Pitch = 27.5 ± 0.4 mm dt = 0.8 +0.08/-0.05 mm						
0.68	11.0 x 21.0 x 31.0	7.8	L10684	L11684	L14684	L15684
1.0	13.0 x 23.0 x 31.0	10.4	L10105	L11105	L14105	L15105
1.5	15.0 x 25.0 x 31.0	12.8	10155	11155	14155	15155
2.2	18.0 x 28.0 x 31.0	17.2	10225	11225	14225	15225
3.3	21.0 x 31.0 x 31.0	20.4	10335	11335	14335	15335

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.

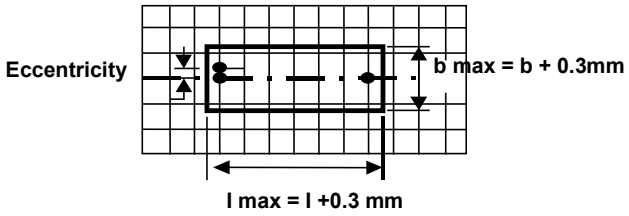
. For pitches of 15mm the capacitors shall be mechanically fixed by leads.

. 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 : $h_{max.} \leq h + 0.3mm$

STORAGE TEMPERATURE

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

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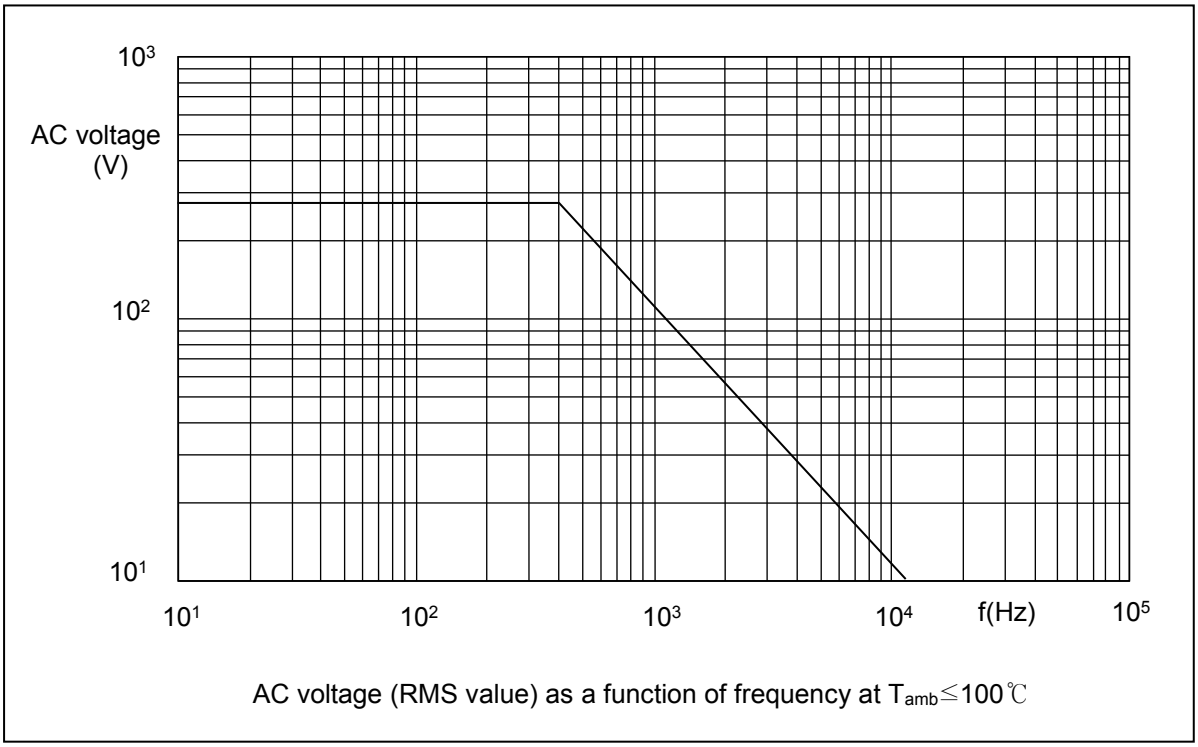
RATINGS AND CHARACTERISTICS

Unless otherwise specified all electrical values apply to an ambient temperature of 23±1℃, an atmospheric pressure of 86 to 106kPa and a relative humidity 50±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%.

Maximum RMS Voltage as a function of frequency



AC voltage (RMS value) as a function of frequency at $T_{amb} \leq 100$℃

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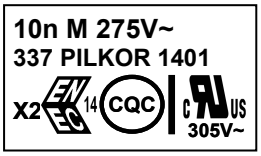
PRODUCT MARKING

Capacitors are marked with the following information ;

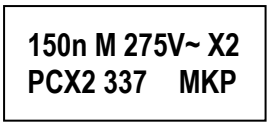
1.Manufacturer (PILKOR) for capacitors with original pitch ≥15mm,
PILKOR trade mark for pitch=10mm
2.Manufacturer's type designation (PCX2 337)
3.Rated capacitance in code according to IEC 60062
4.Rated (AC) voltage (275V~)
5.Sub class (X2)
6.Tolerance on rated capacitance M =± 20 % K =± 10 %
7.Climatic category (40/100/21)
8.Code for dielectric material (MKP) for capacitors with original pitch ≥15mm
9.Year and week of manufacturing (1401)
10.Safety approvals
* white or black color

Example of marking

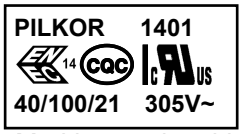


Marking on the side or

Marking on the side

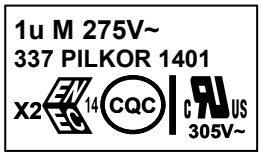


Marking on the top



Marking on the side

Marking on headface



Marking on the top