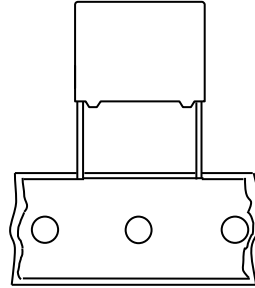
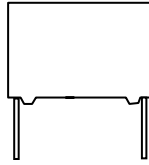


MKP RADIAL POTTED CAPACITORS

Pitch 10.0/15.0/22.5/27.5 mm



QUICK REFERENCE DATA

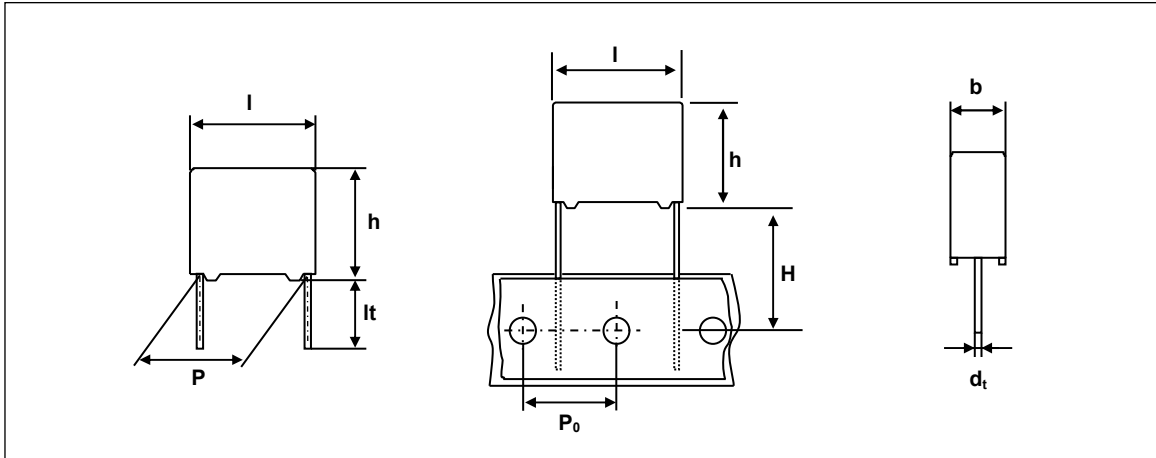
| | |
|----------------------------------|--|
| Capacitance range (E6 series) * | 0.01 μ F to 3.3 μ F |
| Capacitance tolerance | $\pm 10 \%$, $\pm 20 \%$ |
| Rated (AC) voltage 50 to 60 Hz | 275 V \sim |
| Climatic category | 40/100/21 |
| Temperature range | -40 $^{\circ}$ C ~ +100 $^{\circ}$ C |
| 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

| | |
|---|--|
| <p>FEATURES</p> <ul style="list-style-type: none"> . 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 | <p>APPLICATIONS</p> <ul style="list-style-type: none"> . 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 |
|---|--|

• 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

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 (l _{max}) | | | |
|--------------------|----------------|----------|----------------------|---------------------------------|-----------------------------|------|------|------|
| Code | Packing method | C – tol. | Lead length & Height | Hole to hole (P ₀) | 12.5 | 18.0 | 26.0 | 31.0 |
| | | | | | Pitch (P) | | | |
| 0 | Loose in box | ± 20 % | It = 5.0±1.0mm | - | 10.0 | 15.0 | 22.5 | 27.5 |
| 1 | Loose in box | ± 10 % | It = 5.0±1.0mm | - | 10.0 | 15.0 | 22.5 | 27.5 |
| 4 | Loose in box | ± 20 % | It =25.0±2.0mm | - | 10.0 | 15.0 | 22.5 | 27.5 |
| 5 | Loose in box | ± 10 % | It =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.

**EMI Suppression
film capacitors****PCX2 337x1
(Standard)****SAFETY APPROVALS**

| SAFETY APPROVALS | Voltage | Value | File Number |
|--|----------|---------------------|----------------|
| UL 60384-14 & CSA E60384-14:09(cUL) | 305V(AC) | 10nF to 3.3 μ F | E165646 |
| ENEC(SEMKO) * | 275V(AC) | 10nF to 3.3 μ F | SE/0256-1 |
| EK | 275V(AC) | 10nF to 3.3 μ F | SH03001-2003 |
| CQC | 275V(AC) | 10nF to 3.3 μ 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 |
| DIMENSIONS | | |
| 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 |

EMI Suppression film capacitors

PCX2 337x1 (Standard)

SPECIFIC REFERENCE DATA FOR 275 V_{AC}

| Tangent of loss angle | at 1 khz | at 10 khz |
|--|--|---|
| $C \leq 470 \text{ nF}$ $470 \text{ nF} < C \leq 1 \text{ } \mu\text{F}$ $C > 1 \text{ } \mu\text{F}$ | $\leq 10 \times 10^{-4}$ $\leq 20 \times 10^{-4}$ $\leq 30 \times 10^{-4}$ | $\leq 20 \times 10^{-4}$ $\leq 70 \times 10^{-4}$ - |
| Rated voltage pulse slope (dV/dt) _R P = 10.0mm P = 15.0mm P = 22.5mm P = 27.5mm | 550 V/ μ s 400 V/ μ s 200 V/ μ s 150 V/ μ s | |
| R between leads, for $C \leq 0.33 \text{ } \mu\text{F}$ | > 15 000 M Ω | |
| RC between leads, for $C > 0.33 \text{ } \mu\text{F}$ | > 5 000 s | |
| Withstanding(DC) Voltage (cut-off current 10mA) $C \leq 1 \text{ } \mu\text{F}$ $1 \text{ } \mu\text{F} < C \leq 3.3 \text{ } \mu\text{F}$ | 2250 V, 1 min 1850 V, 1 min | |
| Withstanding(AC) Voltage between leads and case | 2400 V ; 1 min | |

V_{Rac} = 275 V X2
loose and taped

| Cap. (μ 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 = 10.0 \pm 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 \pm 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)

**EMI Suppression
film capacitors**
**PCX2 337x1
(Standard)**
 $V_{Rac} = 275 V \sim X2$

loose and taped

| Cap. (μF) | b x h x l (mm) | MASS (g) | CATALOGUE NUMBER | | | |
|---------------------------|--------------------|-------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | | PCX2 337 | | | |
| | | | loose in box | | | |
| | | | lt = 5 \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 = 22.5 \pm 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 \pm 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

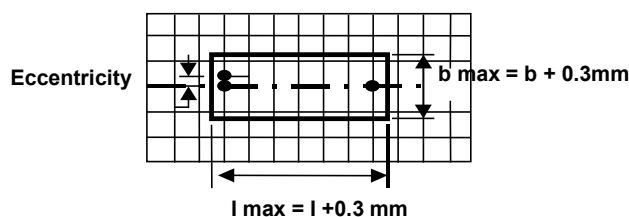
In order to withstand vibration and shock tests, it must be ensured that the stand-off pips are in good contact with the printed-circuit board.

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

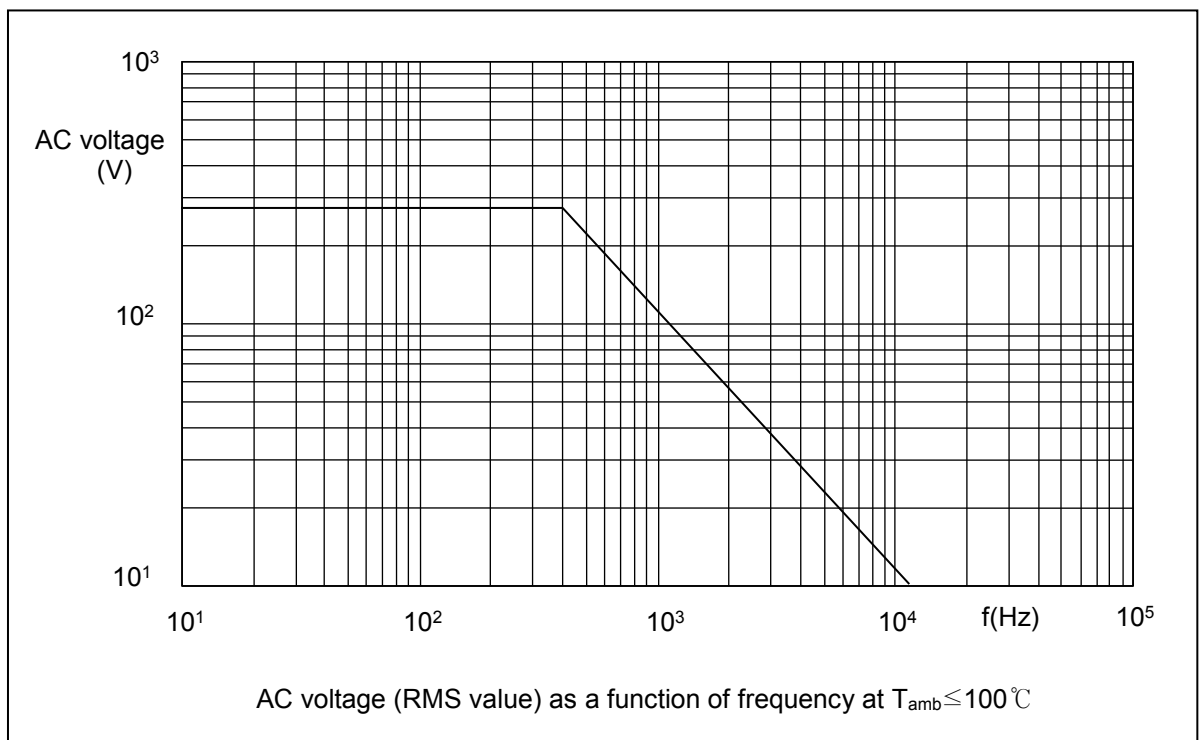
STORAGE TEMPERATURE

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

RATINGS AND CHARACTERISTICS

Unless otherwise specified all electrical values apply to an ambient temperature of $23 \pm 1^\circ\text{C}$, 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 ± 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 the following information ;

- 1.Manufacturer (PILKOR) for capacitors with original pitch $\geq 15\text{mm}$,
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 $=\pm 20\%$ K $=\pm 10\%$
 - 7.Climatic category (40/100/21)
 - 8.Code for dielectric material (MKP) for capacitors with original pitch $\geq 15\text{mm}$
 - 9.Year and week of manufacturing (1401)
 - 10.Safety approvals
- * white or black color

Example of marking

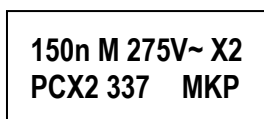


Marking on the side

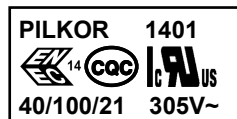


Marking on the side

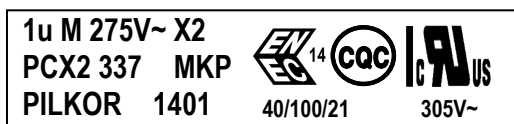
or



Marking on the top



Marking on the side



Marking on headface



Marking on the top