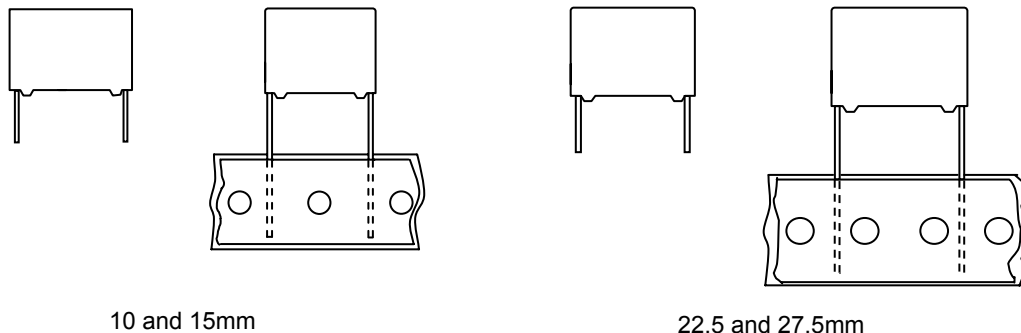


MKP RADIAL POTTED CAPACITORS

Pitch 10.0/15.0/22.5/27.5mm



QUICK REFERENCE DATA

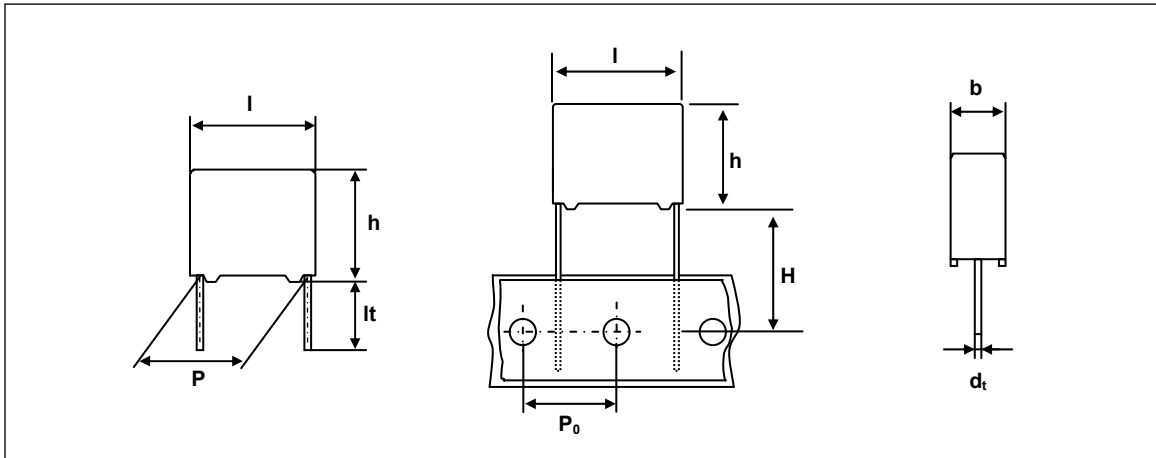
| | |
|----------------------------------|--|
| Capacitance range (E6 series) * | 0.001 μ F to 3.3 μ F |
| Capacitance tolerance | $\pm 10\%$, $\pm 20\%$ |
| Rated (AC) voltage 50 to 60 Hz | 305 V \sim |
| Climatic category | 55/105/21 |
| Temperature range | -55 $^{\circ}$ C ~ +105 $^{\circ}$ C |
| 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 339 X X X X X X

Type series

Capacitance

| Code | Version & Voltage |
|------|-------------------|
| 3 | Standard / 305V |

| Code | Original pitch |
|------|----------------|
| D | 10.0mm |
| F | 15.0mm |
| J | 22.5mm |
| L | 27.5mm |

| 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% | 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 is not following the coding rule.

EMI Suppression film capacitors

PCX2 339x3 (Standard)

SAFETY APPROVALS

| SAFETY APPROVALS | Voltage | Value | File Number |
|--|----------|--|--|
| UL 60384-14 & CSA E60384-14:09(cUL) | 305V(AC) | 1nF to 3.3 μ F | E165646 |
| ENEC(SEMKO) * | 305V(AC) | 1nF to 3.3 μ F | SE/0256-4 |
| EK | 305V(AC) | C \leq 0.1 μ F 0.1 μ F < C \leq 0.33 μ F 0.33 μ F < C \leq 1.0 μ F 1.0 μ F < C \leq 3.0 μ F | SH03001-9001 SH03001-8001 SH03001-13001 SH03001-13002 |
| CQC | 305V(AC) | 1nF to 3.3 μ F | CQC08001023138 |

* 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 |
| 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 26.5 | 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 26.5 | 500 | 500 |
| 13.0 x 23.0 x 26.5 | 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 339x3 (Standard)

SPECIFIC REFERENCE DATA FOR 305 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 $C \leq 0.33 \text{ } \mu\text{F}$ | $> 15\ 000 \text{ M}\Omega$ | |
| RC between leads, for $C > 0.33 \text{ } \mu\text{F}$ | $> 5\ 000 \text{ s}$ | |
| Withstanding(DC) Voltage (cut-off current 10mA) $C \leq 1 \text{ } \mu\text{F}$ $C > 1 \text{ } \mu\text{F}$ | 2250 V ; 1 min 1850 V ; 1 min | |
| Withstanding(AC) Voltage between leads and case | 2400 V ; 1 min | |

V_{Rac} = 305 V X2
loose and taped

| Cap. (μF) | b x h x l (mm) | MASS (g) | CATALOGUE NUMBER | | | |
|---------------------------|-------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | | PCX2 339 | | | |
| | | | 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 | | | | |
| 0.001 | 4.0 x 10.0x 12.5 | 0.8 | D30102 | D31102 | D34102 | D35102 |
| 0.0015 | 4.0 x 10.0x 12.5 | 0.8 | D30152 | D31152 | D34152 | D35152 |
| 0.0022 | 4.0 x 10.0x 12.5 | 0.8 | D30222 | D31222 | D34222 | D35222 |
| 0.0033 | 4.0 x 10.0x 12.5 | 0.8 | D30332 | D31332 | D34332 | D35332 |
| 0.0047 | 4.0 x 10.0x 12.5 | 0.8 | D30472 | D31472 | D34472 | D35472 |
| 0.0068 | 4.0 x 10.0x 12.5 | 0.8 | D30682 | D31682 | D34682 | D35682 |
| 0.01 | 4.0 x 10.0x 12.5 | 0.8 | D30103 | D31103 | D34103 | D35103 |
| 0.015 | 4.0 x 10.0x 12.5 | 0.8 | D30153 | D31153 | D34153 | D35153 |
| 0.022 | 4.0 x 10.0x 12.5 | 0.8 | D30223 | D31223 | D34223 | D35223 |
| 0.033 | 5.0 x 11.0 x 12.5 | 0.9 | D30333 | D31333 | D34333 | D35333 |
| 0.047 | 5.0 x 11.0 x 12.5 | 0.9 | D30473 | D31473 | D34473 | D35473 |
| 0.068 | 6.0 x 12.0 x 12.5 | 1.0 | D30683 | D31683 | D34683 | D35683 |
| 0.1 | 6.0 x 12.0 x 12.5 | 1.0 | D30104 | D31104 | D34104 | D35104 |

**EMI Suppression
film capacitors**
**PCX2 339x3
(Standard)**
 $V_{Rac} = 305 V \text{ X2}$

loose and taped

| Cap. (μF) | b x h x l (mm) | MASS (g) | CATALOGUE NUMBER | | | |
|---------------------------|--------------------|-------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | | | PCX2 339 | | | |
| | | | loose in box | | | |
| | | | It = 5 \pm 1.0 mm | | It = 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 = 0.8 +0.08/-0.05 mm | | | |
| 0.01 | 5.0 x 11.0 x 18.0 | 1.6 | F30103 | F31103 | F34103 | F35103 |
| 0.015 | 5.0 x 11.0 x 18.0 | 1.6 | F30153 | F31153 | F34153 | F35153 |
| 0.022 | 5.0 x 11.0 x 18.0 | 1.6 | F30223 | F31223 | F34223 | F35223 |
| 0.033 | 5.0 x 11.0 x 18.0 | 1.6 | F30333 | F31333 | F34333 | F35333 |
| 0.047 | 5.0 x 11.0 x 18.0 | 1.6 | F30473 | F31473 | F34473 | F35473 |
| 0.068 | 5.0 x 11.0 x 18.0 | 1.6 | F30683 | F31683 | F34683 | F35683 |
| 0.1 | 5.0 x 11.0 x 18.0 | 1.6 | F30104 | - | F34104 | - |
| 0.1 | 6.0 x 12.0 x 18.0 | 1.8 | - | F31104 | - | F35104 |
| 0.15 | 7.0 x 13.5 x 18.0 | 1.9 | F30154 | F31154 | F34154 | F35154 |
| 0.22 | 8.5 x 15.0 x 18.0 | 2.6 | F30224 | F31224 | F34224 | F35224 |
| 0.33 | 10.0 x 16.5 x 18.0 | 3.1 | F30334 | F31334 | F34334 | F35334 |
| 0.47 | 11.0 x 18.5 x 18.0 | 4.1 | F30474 | F31474 | F34474 | F35474 |
| 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 | J30224 | J31224 | J34224 | J35224 |
| 0.33 | 7.0 x 16.5 x 26.0 | 3.5 | J30334 | J31334 | J34334 | J35334 |
| 0.47 | 8.5 x 18.0 x 26.0 | 4.4 | J30474 | J31474 | J34474 | J35474 |
| 0.68 | 10.0 x 19.5 x 26.0 | 5.5 | J30684 | J31684 | J34684 | J35684 |
| 1.0 | 13.0 x 23.0 x 26.0 | 8.0 | J30105 | J31105 | J34105 | J35105 |
| 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 | L30684 | L31684 | L34684 | L35684 |
| 1.0 | 13.0 x 23.0 x 31.0 | 10.4 | L30105 | L31105 | L34105 | L35105 |
| 1.5 | 15.0 x 25.0 x 31.0 | 12.8 | L30155 | L31155 | L34155 | L35155 |
| 2.2 | 18.0 x 28.0 x 31.0 | 17.2 | L30225 | L31225 | L34225 | L35225 |
| 3.3 | 21.0 x 31.0 x 31.0 | 20.4 | L30335 | L31335 | L34335 | L35335 |

| Original pitch | New Code | Old Code | Example |
|----------------|----------------|----------------|-------------------------------------|
| 10.0mm | PCX2 339D3xxxx | PCX2 339 3xxxx | PCX2 339 50474 => PCX2 339J30474 |
| 15.0mm | PCX2 339F3xxxx | PCX2 339 4xxxx | |
| 22.5mm | PCX2 339J3xxxx | PCX2 339 5xxxx | |
| 27.5mm | PCX2 339L3xxxx | PCX2 339 6xxxx | |

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

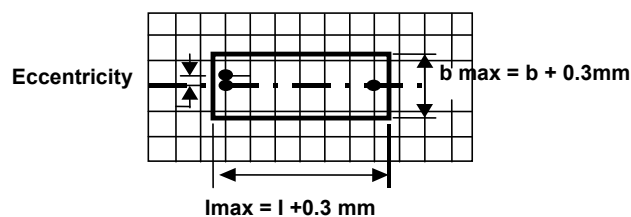
In order to withstand vibration and shock tests, it must be ensured that the stand-off pins are in good contact with the printed-circuit board.

. 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.

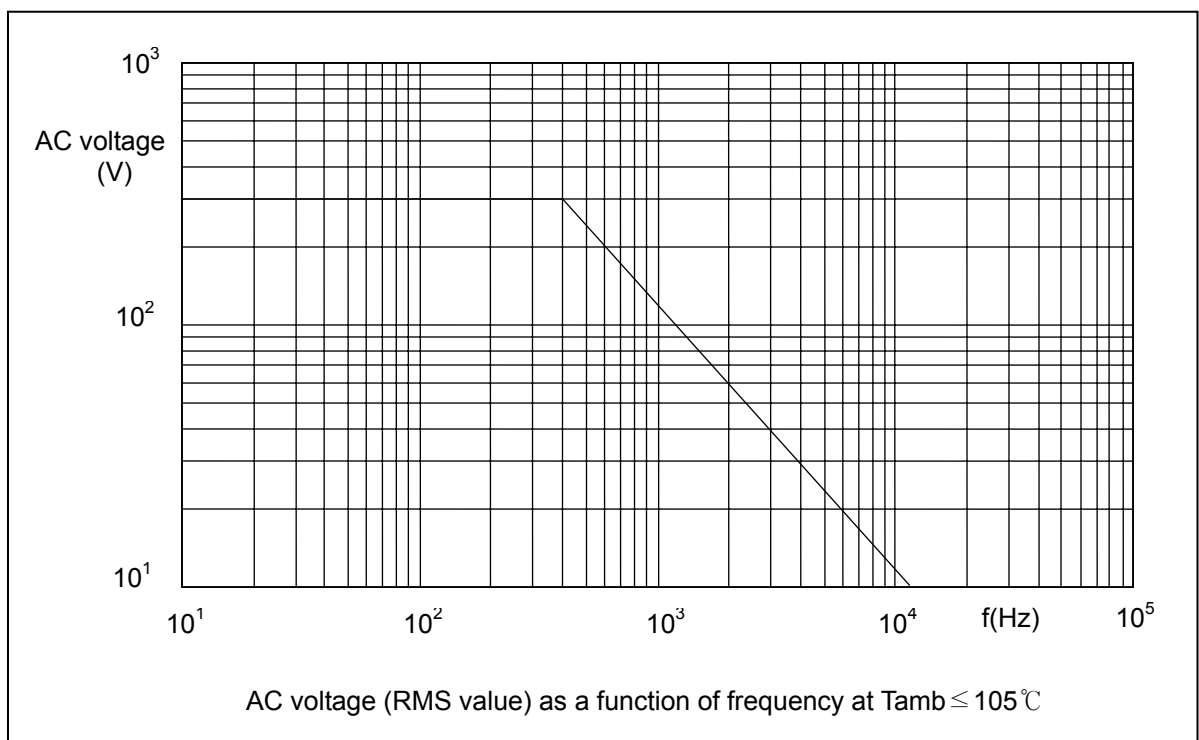
The maximum eccentricity is smaller than or equal to the lead diameter of the product concerned.

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

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 as having following information;

- 1.Manufacturer (PILKOR),
- 2.Manufacturer's type designation (PCX2 339)
- 3.Rated capacitance in code according to IEC 60062
- 4.Rated (AC) voltage (305V~)
- 5.Sub class (X2)
- 6.Tolerance on rated capacitance M =±20 % K = ±10 %
- 7.Climatic category (55/105/21)
- 8.Code for dielectric material (MKP)
- 9.Year and week of manufacturing (e.g. 1401)
- 10.Safety approvals

Example of marking

Pitch P = 7.5mm or 10mm or 15.0mm



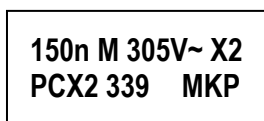
Marking on the side

or

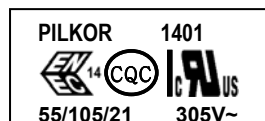


Marking on the side

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



Marking on the top



Marking on the side

Pitch P = 22.5 mm or P = 27.5mm



Marking on headface

Pitch P = 27.5mm



Marking on the top