



# Product Approval Sheet






Customer : Ropla

Issued no : 2025. 01. 23.

Revision no :

- Product description : Series Impedance film capacitors
- Product code : PCX2 347S00044
- Application :

CUSTOMER			
PILKOR	Checked	Confirmed	Approved
			

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\* Please send it back to us before placing order.

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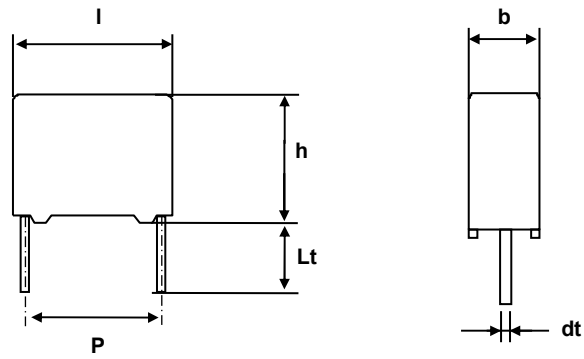
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**Safety**

- |                                                    |               |
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**\* Construction**



$$dt = 0.8 +0.08/-0.05\text{mm}$$

Voltage V~	Cap. $\mu\text{F}$	Code PCX2 347 .....	C-tol.	Dimensions b x h x l mm	P mm	Lt mm
310	0.47	S00044	$\pm 10 \%$	11.0 x 18.5 x 18.0	15.0 $\pm$ 0.4	3.4 $\pm$ 0.3

Same as PCX2 347F31474

< BUT >

- Lt = 3.4  $\pm$  0.3 mm

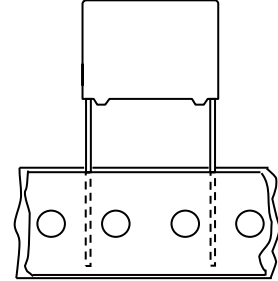
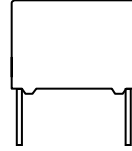
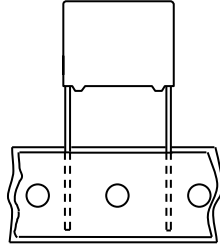
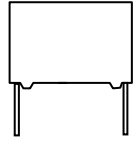
- Packing Method (TRAY PACKING)

Packing method	Sponge	Tray	PQ ( Outer box )
8242 450 40284	8242 456 20025	220 ( 8242 451 31211 )	2200 ( 8242 451 31241 )



**MKT RADIAL POTTED CAPACITORS**

Pitch 10.0/15.0/22.5/27.5mm



10.0 and 15.0mm

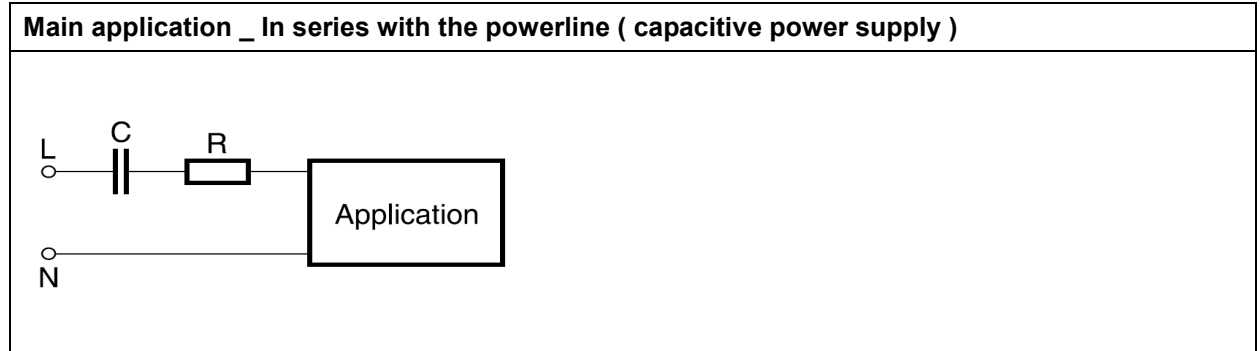
22.5 and 27.5mm

**QUICK REFERENCE DATA**

Capacitance range (E6 series) *	0.01 $\mu$ F to 2.2 $\mu$ F
Capacitance tolerance	$\pm 10\%$ , $\pm 20\%$
Rated (AC) voltage 50 to 60 Hz	310 V $\sim$
Climatic category	55/110/56
Temperature range	-55 $^{\circ}$ C ~ +110 $^{\circ}$ C
Reference IEC, UL specification	IEC 60384-14(3rd edition) and UL60384-14
Safety approvals	ENEC, KC, CQC UL60384-14
Potting & Encapsulation material	Qualified in accordance with UL 94V-0
Safety class	X2

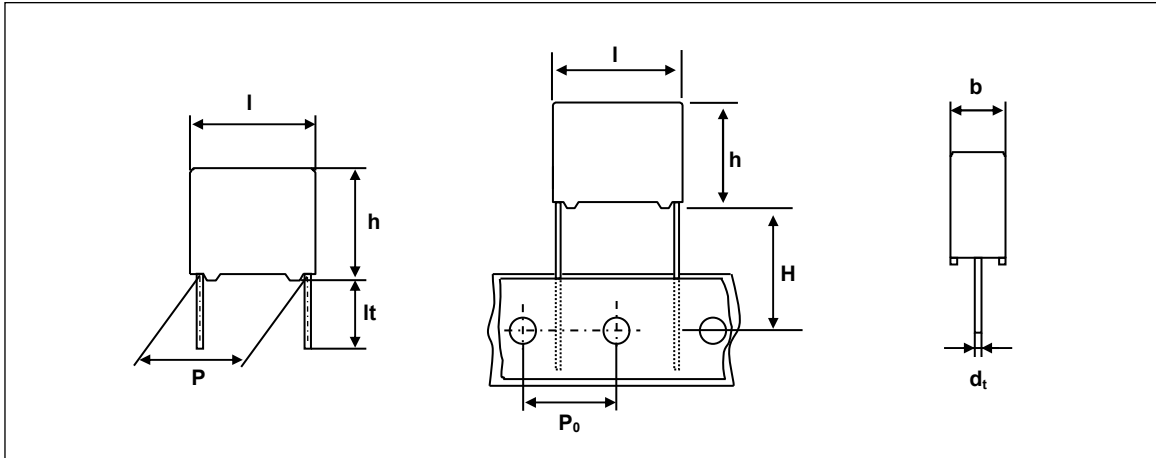
\* Intermediate values of the E12 series are available to special order

<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 Polyester 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)/UL 60384-14 requiring for X2 a 2.5kV peak pulse voltage test</li> <li>. Energy meter</li> <li>. Stable capacitance in damp environment 85<math>^{\circ}</math>C85%RH, 240Vac, 1000hours</li> </ul>
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**Ordering Information**



PCX2 347 X X X XXX

Capacitance

Code	Voltage
3	310V

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

Available versions					Product (l <sub>max</sub> )			
code	Packing method	C – tol.	Lead length & Height	Hole to hole (Po)	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.



## SAFETY APPROVALS

SAFETY APPROVALS	Voltage	Value	File Number
UL60384-14	310V(AC)	0.01 $\mu$ F to 2.2 $\mu$ F	E165646
ENEC(SEMKO) *	310V(AC)	0.01 $\mu$ F to 2.2 $\mu$ F	SE-ENEC-2401009
KC	310V(AC)	C $\leq$ 0.1 $\mu$ F 0.1 $\mu$ F < C $\leq$ 0.33 $\mu$ F 0.33 $\mu$ F < C $\leq$ 1.0 $\mu$ F 1.0 $\mu$ F < C $\leq$ 2.2 $\mu$ F	SH03001-14001 SH03001-14002 SH03001-14003 SH03001-20001
CQC	310V(AC)	4.7nF to 2.2 $\mu$ F	CQC16001153987

\* 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

\* Approval number (File No.) of safety regulations are subject to revision without notice

## 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	1000
5.0 x 11.0 x 12.5	1500	1000
6.0 x 12.0 x 12.5	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 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
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
12.0 x 22.0 x 26.0	500	500
16.5 x 22.0 x 26.0	250	250
9.0 x 18.0 x 31.0	500	500
10.0 x 20.0 x 31.0	500	250
11.0 x 21.0 x 31.0	500	250
13.0 x 23.0 x 31.0	250	250
21.0 x 31.0 x 31.0	150	150



**SPECIFIC REFERENCE DATA FOR 310 V<sub>AC</sub>**

Tangent of loss angle	at 1 khz	at 10 khz
C ≤ 1 μF	≤ 80 x 10 <sup>-4</sup>	≤ 150 x 10 <sup>-4</sup>
C > 1 μF	≤ 80 x 10 <sup>-4</sup>	-
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)	4.3* V <sub>R</sub> , 1min	
Withstanding(AC) Voltage between leads and case	2400V 1min	

**V<sub>Rac</sub> = 310V~ X2**

**loose and taped**

Cap. (μF)	b x h x l (mm)	MASS (g)	CATALOGUE NUMBER			
			PCX2 347.....			
			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			
0.068	6.0 x 12.0 x 12.5	1.0	D30683	D31683	D34683	D35683
0.082	6.0 x 12.0 x 12.5	1.0	D30823	D31823	D34823	D35823
0.1	6.0 x 12.0 x 12.5	1.0	D30104	D31104	D34104	D35104
Pitch = 15.0 ± 0.4 mm			dt = 0.8 +0.08/-0.05 mm			
0.1	6.0 x 12.0 x 18.0	1.4	F30104	F31104	F34104	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 ± 0.4 mm			dt = 0.8 +0.08/-0.05 mm			
0.33	7.0 x 16.5 x 26.0	3.2	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	12.0 x 22.0 x 26.0	9.0	J30105	J31105	J34105	J35105
1.5	16.5 x 22.0 x 26.0	10.0	J30155	J31155	J34155	J35155
Pitch = 27.5 ± 0.4 mm			dt = 0.8 +0.08/-0.05 mm			
0.47	9.0 x 19.0 x 31.0	5.5	L30474	L31474	L34474	L35474
0.68	10.0 x 20.0 x 31.0	6.5	L30684	L31684	L34684	L35684
1.0	11.0 x 21.0 x 31.0	7.8	L30105	L31105	L34105	L35105
1.5	13.0 x 23.0 x 31.0	10.4	L30155	L31155	L34155	L35155
2.2	21.0 x 31.0 x 31.0	20.5	L30225	L31225	L34225	L35225



**MOUNTING**

**NORMAL USE**

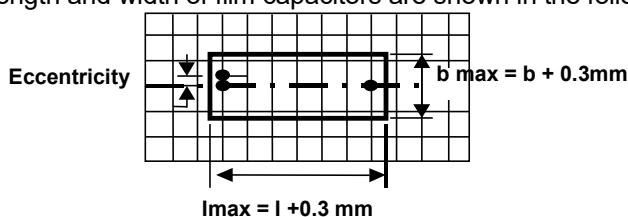
The capacitors are designed for mounting on printed-circuit boards.  
 The capacitors packed in bandoliers are designed for mounting on printed-circuit boards by means of automatic insertion machines.  
 For detailed specifications refer to chapter "PACKAGING".

**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 ;



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

**STORAGE TEMPERATURE**

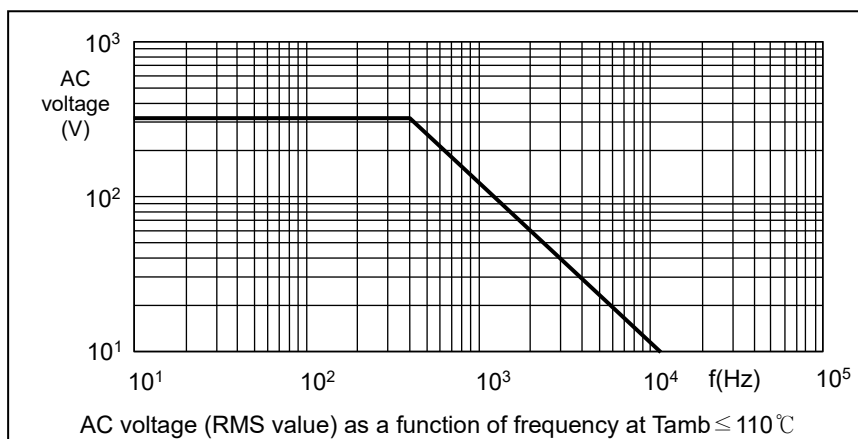
. Storage temperature :  $T_{stg} = -25 \text{ to } +40 \text{ }^\circ\text{C}$  with RH maximum 80% without condensation.

**RATINGS AND CHARACTERISTICS**

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

For reference testing, a conditioning period shall be applied of  $96 \pm 4$  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**



**APPLICATION NOTE**

To ensure withstanding high humidity requirements in the application it is recommended not to damage the epoxy adhesion at the leads. Therefore the leads may not be damaged or bent before soldering.





**PRODUCT MARKING**

Capacitors are marked with having following information;

- 1.Manufacturer (PILKOR)
  - 2.Manufacturer's type designation (PCX2 347)
  - 3.Rated capacitance in code according to IEC 60062
  - 4.Rated (AC) voltage (310V~)
  - 5.Sub class (X2)
  - 6.Tolerance on rated capacitance M = ± 20 % K = ± 10 %
  - 7.Climatic category (55/110/56)
  - 8.Metallized polyester film (MKT)
  - 9.Year and week of manufacturing (e.g. 2001)
  - 10.Safety approvals
- \* white or black color

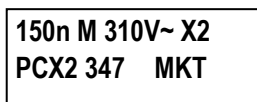
**Example of marking**



Marking on the side or top



Marking on the side or top



Marking on the top



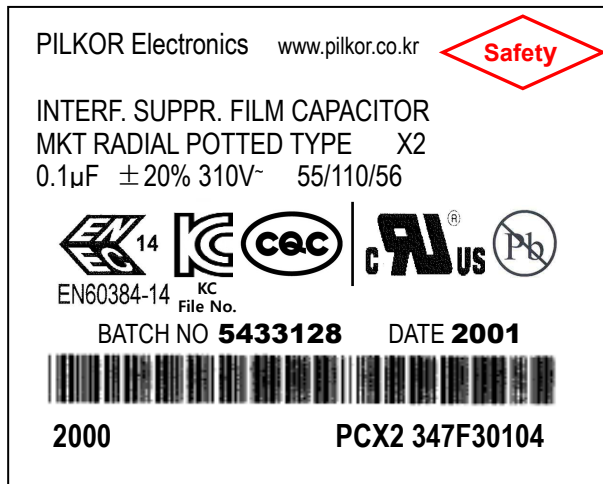
Marking on the side



Marking on the top

**Safety****PACKAGE MARKING**

The package containing the capacitors in marking as shown.



- 1 Manufacturer's name
- 2 Sub-family
- 3 Type description and safety class X2
- 4 Capacitance value, tolerance, voltage and climatic category (IEC)
- 5 Safety approvals & Lead free marking(JEDEC-STD-97)
- 6 Batch nr. & production period year and week code
- 7 Quantity and Product code (12NC)

\*\*\* Color of Label : White

Color of  Marking : Red



**INSPECTION REQUIREMENTS**

**Note 1 :** Sub-clause numbers of tests and performance requirements refer to the Sectional Specification, IEC 384-14 and Section One this specification.

**Note 2 :** Inspection levels are selected from IEC-Publication 410: Sampling Plans and Procedures for inspection by attributes.

**Note 3 :** In this table : p = periodicity in months  
 n = sample size  
 D = destructive  
 ND = non-destructive  
 IL = inspection level ) IEC 410  
 AQL = acceptance quality level )

**Note 4 :** For this capacitors, considered as a solid construction, the periodicity of the vibration and shock test is reduced from 36 months to 6 months.

Clause number and Test	D or ND	Condition	IL	n	Performance Requirements
Group A inspection (lot by lot)					
Sub-Group A1	ND				
4.1 Visual examination		Detail	S4	1)	No visual damage , legible marking and as specified in Marking specification
4.1 Dimensions 2)			S3	1)	As specified in dimension table of this specification
Sub-Group A2 3)	ND				
4.2.2 capacitance		At 1kHz			Within specified tolerance
4.2.3 Tangent of loss angle		At 10kHz $C \leq 1\mu F$ At 1kHz $C > 1\mu F$			As in rating and characteristics of this specification
4.2.1 Voltage proof (test A)		$4.3 \cdot V_R$ 1min			No permanent breakdown (cut-off current 10mA) or flash over
4.2.5 Insulation resistance (test A)		At 100V 1min			Self-healing allowed As in rating and characteristics of this specification

**1) Number to be tested :** Sample size as directly allotted to the code letter for IL in Table 2A of IEC 410 (Single sampling plan for normal inspection)  
 The acceptance number complies with AQL value : 0.65 %

**2) This test may be replaced by in-production testing, if SPC on dimensional measurements or other mechanisms to avoid parts exceeding the limits is installed.**

**3) The 100% End-of-line testing is followed by re-inspection by sampling in order to monitor outgoing quality level by defectives per million (DPM). The sampling level and the calculation of DPM values is in accordance with CECC 00 014, counting any parametric failure as a defective. In case one or more defectives occur in a lot, this lot shall be rejected.**



Clause number and Test	D or ND	Condition	n	Performance Requirements
Group C inspection (periodic)			6	
Sub-group C1A Part of a sample of sub-group C1	D			
4.1 dimension (detail)				As specified in dimension table of this specification
4.3.1 initial measurement		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$		
4.3 robustness of terminations		Tensile and bending		No visible damage
4.4 resistance to soldering heat		Method : 1A Solder bath : 260 °C Duration : 10 s		
4.14 component solvent resistance		Isopropylalcohol at room temperature Method : 2 Immersion time : 5± 0.5min Recovery time: min 1hour max 2hours		
4.4.2 final measurements		Visual examination		No visible damage Legible marking
		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$		$\Delta C/C \leq 5\%$ of the value measured initially Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050
		Insulation resistance		As in rating and characteristics of this specification



Clause number and Test	D or ND	Condition	n	Performance Requirements
Group C inspection (periodic)				
Sub-group C1B Other part of a sample of sub-group C1	D		12	
4.6.1 initial measurement		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$		
4.6 rapid change of temperature		⊖ A = lower category temperature ⊖ B = upper category temperature 5 cycles duration time : 30 min		
4.7 vibration (see note 4)		Method of mounting : see the mounting of this specification Procedure : B4 Frequency range 10Hz to 55Hz amplitude : 0.75mm or acceleration 98m/s <sup>2</sup> (which is less severe) Total duration : 6 hours		
4.7.2 final examination		Visual examination		No visible damage
4.9 shock (see note 4)		Method of mounting : see the mounting of this specification Pulse shape : half sine Acceleration : 490 m/s <sup>2</sup> Duration of pulse : 11ms Visual examination		
4.9.3 final measurements		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$  Insulation resistance		No visible damage  $\Delta C/C \leq 5\%$ of the value measured initially Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050 As in rating and characteristics of this specification



Clause number and Test	D or ND	Condition	n	Performance Requirements
Group C inspection (periodic)				
Sub-group C1 Combined sample of specimens of sub-groups C1A and C1B	D		18	
4.11 climatic sequence  4.11.2 dry heat  4.11.3 damp heat cyclic test Db, first cycle 4.11.4 cold  4.11.6 damp heat cyclic test Db, remaining cycle  4.11.6.2 final measurements		<p><math>T = T_{\text{upper-category temperature}}</math> Duration : 16 hours</p> <p><math>T = T_{\text{lower-category temperature}}</math> Duration : 2 hours</p> <p>Visual examination</p> <p>1. Capacitance at 1kHz</p> <p>2. Tangent of loss angle at 10kHz <math>C \leq 1\mu\text{F}</math> at 1kHz <math>C &gt; 1\mu\text{F}</math></p> <p>Insulation resistance</p> <p>Voltage proof <math>4.3 \cdot V_R</math> (DC) for 1min</p>		<p>No visible damage Legible marking</p> <p><math>\Delta C/C \leq 5\%</math> of the value measured initially</p> <p>Increase of tanD For <math>C \leq 1\mu\text{F}</math> &lt; 0.0080 For <math>C &gt; 1\mu\text{F}</math> &lt; 0.0050 <math>\geq 50\%</math> of values in ratings and characteristics of this specification</p> <p>No permanent breakdown or flash over</p>



Clause number and Test	D or ND	Condition	n	Performance Requirements
Sub-group C2	D		10	
4.12 damp heat steady state		56 days, 40 °C 90 – 95% R.H		
4.12.1 initial measurements		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$		
4.12.3 final measurements		Visual examination  1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$  Voltage proof $4.3 \cdot V_R$ (DC) for 1min Insulation resistance		No visible damage Legible marking  $\Delta C/C \leq 5\%$ of the value measured initially  Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050 No permanent breakdown or flash over  $\geq 50\%$ of values in ratings and characteristics of this specification



Clause number and Test	D or ND	Condition	n	Performance Requirements
Sub-group C3	D		12	
4.13.1 initial measurements		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$		No selfhealing breakdown or flashover
4.13 peak impulse voltage		3 successive impulse, full wave, peak voltage : for $C \leq 1\mu F$ : 2.5kV for $C > 1\mu F$ : $2.5kV/\sqrt{C}$ ( C in $\mu F$ ) max : 24 pulses		
4.14 endurance test		Duration : 1000 hours $1.25 \times V_{Rac}$ at $85^\circ C$ $1.1 \times V_{Rac}$ at $110^\circ C$ via a resistor of $47\Omega \pm 5\%$  47ohm should be located outside of oven or 47ohm's location in oven should be selected that heat generation of 47ohm is not to influence the capacitor's temperature.		
4.12.3 final measurements		Visual examination		
		1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$  Insulation resistance  Voltage proof $4.3 \times V_R$ (DC) for 1min		
				No visible damage Legible marking  $\Delta C/C \leq 10\%$ of the value measured initially  Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050 $\geq 50\%$ of values in ratings and characteristics of this specification  No permanent breakdown or flashover





Clause number and Test	D or ND	Condition	n	Performance Requirements
Sub-group C4	D		6	
4.15.1 initial measurements		1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$		
4.15 charge and discharge		10000 cycles : charge to $V_R$ half sine wave Duration : 5ms Discharge resistance $R = \frac{V_{RAC} \times \sqrt{2}}{1.5 \times C \times (dV/dt)}$ with a minimum : $2.2\Omega$		
4.15.3 final measurements		1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$  Insulation resistance		$\Delta C/C \leq 10\%$ of the value measured initially  Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050 $\geq 50\%$ of values in ratings and characteristics of this specification



Clause number and Test	D or ND	Condition	n	Performance Requirements										
Sub-group C6	D		18											
4.17 passive flammability		<p>Bore of gas jet : <math>\phi</math> 0.5 mm                      Fuel : Butane                      Test duration for actual volume V in mm<sup>3</sup></p> <p>class C</p> <table border="1"> <thead> <tr> <th>Volume(mm<sup>3</sup>)</th> <th>Gas jet</th> </tr> </thead> <tbody> <tr> <td><math>V \leq 250</math></td> <td>5s</td> </tr> <tr> <td><math>250 &lt; V \leq 500</math></td> <td>10s</td> </tr> <tr> <td><math>500 &lt; V \leq 1750</math></td> <td>20s</td> </tr> <tr> <td><math>V &gt; 1750</math></td> <td>30s</td> </tr> </tbody> </table> <p>One flame application</p>	Volume(mm <sup>3</sup> )	Gas jet	$V \leq 250$	5s	$250 < V \leq 500$	10s	$500 < V \leq 1750$	20s	$V > 1750$	30s		<p>1.class C                      After removing test flame from capacitor, the capacitor must not continue burn for more than 30 s.</p> <p>2.No burning particle must drop from the sample</p>
Volume(mm <sup>3</sup> )	Gas jet													
$V \leq 250$	5s													
$250 < V \leq 500$	10s													
$500 < V \leq 1750$	20s													
$V > 1750$	30s													
Sub-group C7	D		24											
4.18 active flammability		<p>20 discharges of a 3 uF tankcapacitor across the test capacitor. The test capacitor during the discharges connected to <math>V_R</math> (16A). <math>V_R</math> is maintained for 2 min after the last discharge</p>		<p>The cheese cloth around the capacitor shall not burn with a flame. Not electrical measurements are required.</p>										



Clause number and Test	D or ND	Condition	n	Performance Requirements
Sub-group ADD1	D		10	
A.1 Solder ability  Solvent resistance of the marking		Without aging Method : 1 Non-activated colophiny flux 501 Solder bath : 245°C Dwell time : 3 s  Isopropylalcohol at room temperature. Method : 1 Rubbing material cotton wool Immersion time : 5± 0.5min		Good tinning as evidenced by free flowing of the solder with wetting of the termination(> 95%)  Legible marking
Sub-group ADD2	D		12	
A.2 Heat storage  A.2.1 Initial measurement  A.2.2 Final measurement		Duration : 1000h Temperature : upper category temperature 1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz C ≤ 1μF at 1kHz C > 1μF 1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz C ≤ 1μF at 1kHz C > 1μF  Insulation resistance		Δ C/C ≤ 5% of the value measured initially  Increase of tanD For C ≤ 1μF < 0.0080 For C > 1μF < 0.0050 As in Rating and CHARACTERISTICS of this specification

Clause number and Test	D or ND	Condition	n	Performance Requirements
Sub-group ADD3	D		9	
A.3 Detergent resistance		Density 20g/L dishwasher detergent Temperature 70°C during 3 minutes followed by rinsing in clear water for 1 minute Recovery time : 1 to 2 hours		Good tinning as evidenced by free flowing of the solder with wetting of the termination (> 95%)
A.3.1 Initial measurement		1. Capacitance at 1kHz		
A.3.2 Final measurement		2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$ 1. Capacitance at 1kHz 2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$ Insulation resistance		$\Delta C/C \leq 5\%$ of the value measured initially Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050 $\geq 50\%$ of values in ratings and characteristics of this specification
Sub-group ADD4	D		10	
A.4 Resistance to soldering heat with preheating		Capacitors mounted on 1.6mm board with nonplated hole Body temp : 100°C Bath temp : < 260°C Dwell time : 10 s		
A.4.1 Initial measurement		1. Capacitance at 1kHz		
A.4.2 Final measurement		2. Tangent of loss angle at 10kHz $C \leq 1\mu F$ at 1kHz $C > 1\mu F$ 1. Capacitance at 1kHz		$\Delta C/C \leq 5\%$ of the value measured initially Increase of tanD For $C \leq 1\mu F$ < 0.0080 For $C > 1\mu F$ < 0.0050
Sub-group ADD5	D		10	
A.5 Thermal Shock		$\theta A$ = lower category temperature $\theta B$ = upper category temperature 100 cycles Duration t = 30 min		$\Delta C/C \leq 10\%$ $\Delta \tan \delta (1\text{kHz}) < 0.005$ $R_{ins} \geq 50\%$ specified value



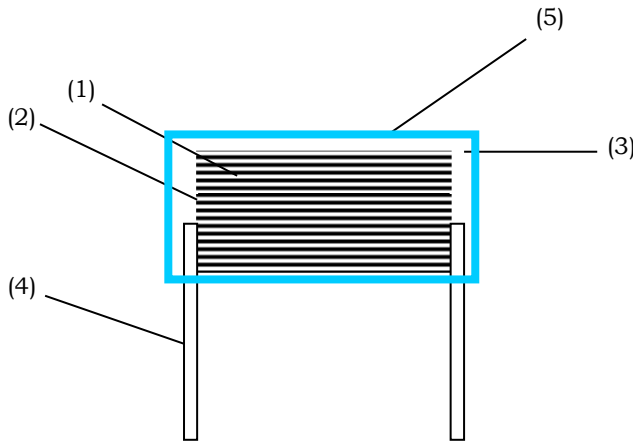
Clause number and Test	D or ND	Condition	n	Performance Requirements
Sub-group ADD6	D		9	
A.6 8585 load test		- 85°C, RH 85% - 240Vac - 1000 hours		
A3.1 Initial measurement		1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz $C \leq 1\mu\text{F}$ at 1kHz $C > 1\mu\text{F}$		
A.3.2 Final measurement		1. Capacitance at 1kHz  2. Tangent of loss angle at 10kHz $C \leq 1\mu\text{F}$ at 1kHz $C > 1\mu\text{F}$  Insulation resistance		$\Delta C/C \leq 10\%$ of the value measured initially  Increase of tanD For $C \leq 1\mu\text{F}$ < 0.0080 For $C > 1\mu\text{F}$ < 0.0050 $\geq 50\%$ of values in ratings and characteristics of this specification



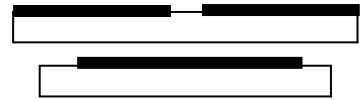
# CONSTRUCTION

- Product type ; Metallized Polyester film capacitors

- Model name ; PCX2 347 Series



Metallized Polyester film



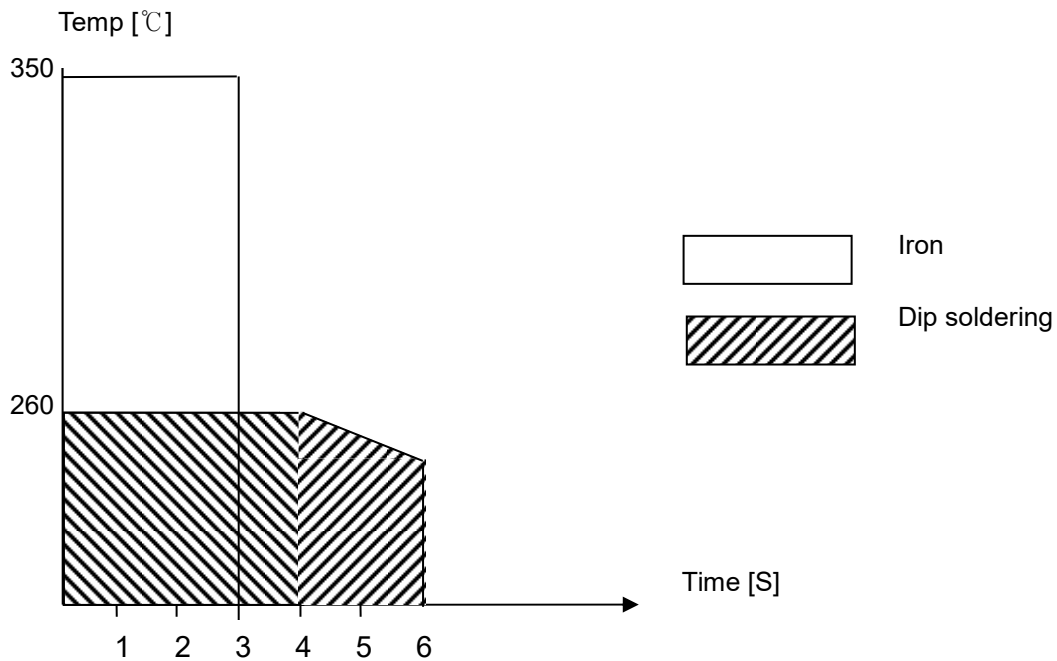
	Description	Material
1	MKT Film	Metallized polyester
2	Metal Spray	Tin-Zinc
3	Epoxy	UL94V-0
4	Lead wire	Tin plated Copper wire 0.6/0.8mm [Sn100%: 10 μm]
5	PP case	POLYPROPYLENE UL94-V0

## Soldering conditions

- Heat resisting temperature  
MKT : 160°C                      KP/MKP : 110°C

When mounting, set the soldering temperature so that the capacitor inside peak temperature is to be lower than the given above heat resisting temperature.

- Preheating temp : Max 110°C, 1min

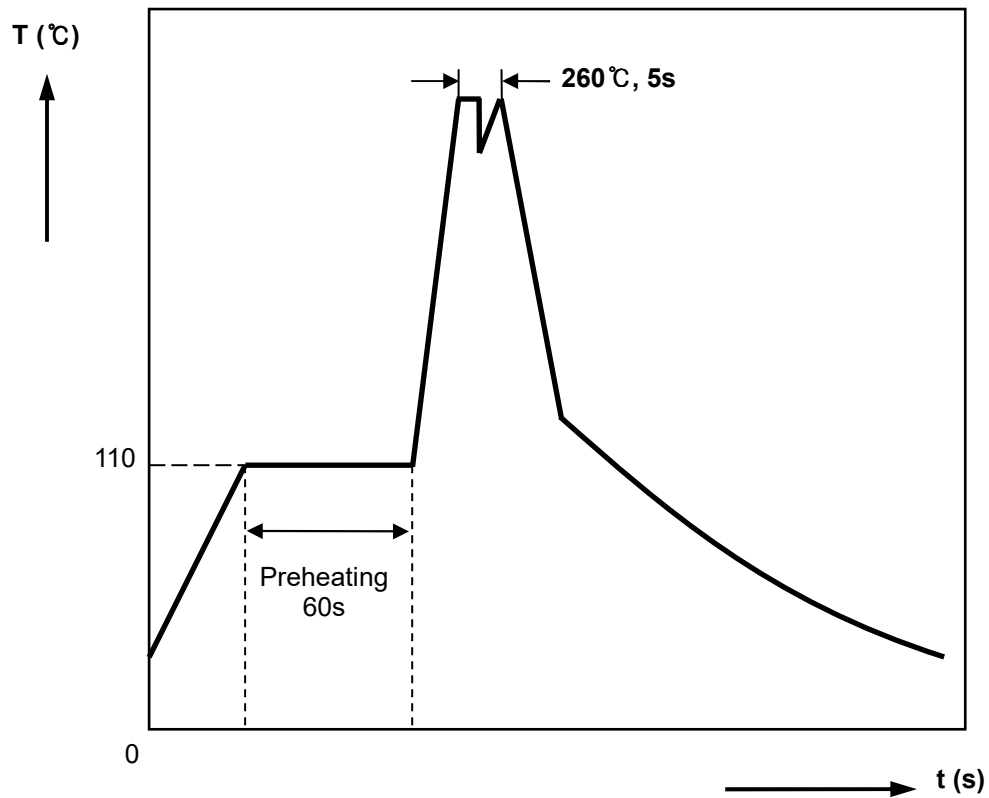


[If dipping a capacitor into solder twice, the second dipping shall be carried after the capacitor itself has returned to normal temperature]

- Not passing through adhesive curing oven in order to fix the SMD parts in combination with leads parts.
- Not reflow soldering by combine the lead parts with SMD parts.

When cleaning right after soldering, make sure the capacitor surface temperature is lower than 50°C

## Wave soldering profile (Recommendation)



- Solder bath Temperature :  $260^{\circ}\text{C}$  Max.
- Shield : Heat-absorbing board,  $(1.5\pm 0.5)\text{mm}$  thick, between capacitor body and liquid solder
- Visual inspection : No visible damage

### \* Soldering conditions

- When mounting, set the soldering temperature so that the capacitor inside peak temperature is to be lower than the given above heat resisting temperature.
- If dipping a capacitor into solder twice, the second dipping shall be carried after the capacitor itself has returned to normal temperature.
- Not passing through adhesive curing oven in order to fix the SMD parts in combination with leads parts. Not reflow soldering by combine the lead parts with SMD parts.
- When cleaning right after soldering, make sure the capacitor surface temperature is lower than  $50^{\circ}\text{C}$ .