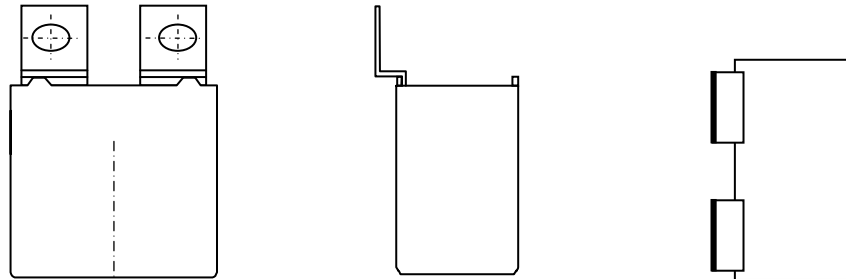


Snubber Capacitors (Metallized Polypropylene Film Capacitors)

PCPW 235
MMKP

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QUICK REFERENCE DATA

Capacitance range	0.47 to 2.2 μ F
Capacitance tolerance	\pm 5%, \pm 10%,
Rated voltage (DC)	850V, 1000V, 1250V,
Max. repetitive peak voltage (V _{pkr})	1.15 x V _R (max. 30min. within one day)
Max. non-repetitive peak current (I _{pk})	1.15 x I _{pk}
Dissipation factor (DF)	0.0005 at 1KHz (C \leq 5 μ F), 0.0008 at 1KHz (5 μ F < C \leq 25 μ F)
Insulation resistance (IR)	30,000s after 1minute of electrification at 500Vdc (V _{Rdc} \geq 500Vdc)
Climatic category	40 / 85 / 56 according to IEC 60068-1
Temperature range	-40°C ~ +85°C
Max permissible ambient temperature	85°C (operation at rated power, rated current and natural cooling)
Life time expectancy	> 40,000 hours at V _R , 85°C
Potting & Encapsulation material	Qualified in accordance with UL94V-0

FEATURES	APPLICATIONS
<ul style="list-style-type: none"> - Self-Healing - Low contact resistance - Low loss dielectric - High ripple current - High contact reliability 	<ul style="list-style-type: none"> . Snubber Capacitor for IGBT .

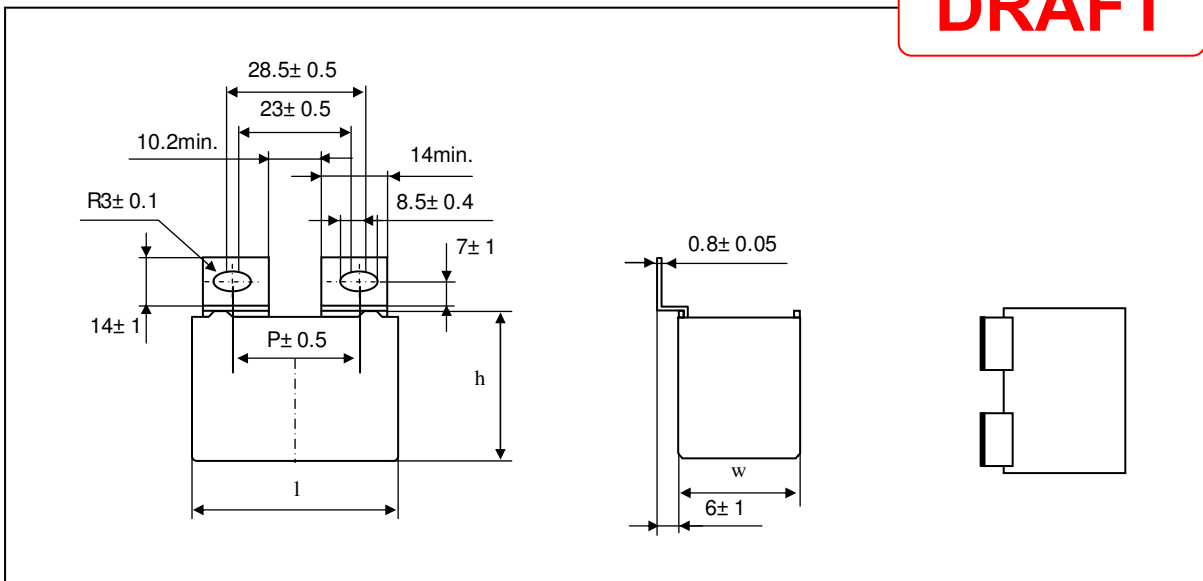
- Please refer to caution and warning at <http://www.pilkor.co.kr/download/Introductions.pdf> before using these products.

Snubber Capacitors (Metallized Polypropylene Film Capacitors)

**PCPW 235
MMKP**

Ordering Information

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PCPW 235

Type series

X X XXX

Capacitance

Code	Voltage
X	850 V
X	1000 V
X	1250 V

available versions				Product (I _{max})	
Code	Packing method	C-tol.	Terminal Style	41.1	41.6
				Pitch (P)	
X	Loose in box	± 10%	PB	37.5	37.5
X	Loose in box	± 5%	PB	37.5	37.5

Snubber Capacitors (Metallized Polypropylene Film Capacitors)

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 $V_{Rdc} = 850V$ $V_{Rac} = 450V$ $V_{peak} = 1200V$

Cap (μF)	b x h x l (mm)	d_t (mm) or Terminal	P (mm)	dv/dt (V/us)	I_{peak} (A)	I_{Rms} (A)*	ESR (m Ω)**	Code
								$\pm 10\%$, $l_t = 5 \pm 1$ mm
1.0	19.5 x 36.5 x 41.1	-	37.5	758	758	22	4.0	PCPW 235****
1.5	24.0 x 39.0 x 42.0	-	37.5	758	1138	29	2.7	PCPW 235****
2.2	27.5 x 36.5 x 41.1	-	37.5	758	1668	37	1.9	PCPW 235****

 $V_{Rdc} = 1000V$ $V_{Rac} = 480V$ $V_{peak} = 1300V$

Cap (μF)	b x h x l (mm)	d_t (mm) or Terminal	P (mm)	dv/dt (V/us)	I_{peak} (A)	I_{Rms} (A)*	ESR (m Ω)**	Code
								$\pm 10\%$, $l_t = 5 \pm 1$ mm
1.0	24.0 x 39.0 x 42.0	-	37.5	827	827	23	3.7	PCPW 235****
1.5	27.5 x 36.5 x 41.1	-	37.5	827	1241	23	2.5	PCPW 235****
2.0	29.6 x 44.6 x 41.6	-	37.5	827	1655	36	2.0	PCPW 235****

 $V_{Rdc} = 1250V$ $V_{Rac} = 500V$ $V_{peak} = 1600V$

Cap (μF)	b x h x l (mm)	d_t (mm) or Terminal	P (mm)	dv/dt (V/us)	I_{peak} (A)	I_{Rms} (A)*	ESR (m Ω)**	Code
								$\pm 10\%$, $l_t = 5 \pm 1$ mm
0.47	19.5 x 36.5 x 41.1	-	37.5	965	454	18	6.7	PCPW 235****
0.68	19.5 x 36.5 x 41.1	-	37.5	965	656	21	4.7	PCPW 235****
1.0	24.0 x 39.0 x 42.0	-	37.5	965	965	27	3.3	PCPW 235****
1.5	29.6 x 44.6 x 41.6	-	37.5	965	1158	29	2.8	PCPW 235****

(*)100kHz@70°C

(**)max@100kHz

Snubber Capacitors (Metallized Polypropylene Film Capacitors)

PCPW 235
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CHARACTERISTICS

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● Test Voltage

- . Test Voltage (between terminations) : $1.5 \times V_{Rdc}$, 10s (1 min for type test)
- . Test Voltage (between leads and case) : 3KV- 50Hz(or 60Hz) for 60 seconds

● Dissipation Factor

Rated voltage	Capacitance	Tangent of loss angle ($\times 10^{-4}$)		
		1 kHz	10 kHz	100 kHz
V	$C \leq 0.1 \mu F$	-	-	≤ 5
	$0.1 \mu F < C \leq 1.0 \mu F$	≤ 5	≤ 8	-
	$1.0 \mu F < C \leq 25 \mu F$	≤ 5	≤ 15	-

● Insulation Resistance

The insulation resistance is measured for 1min \pm 5s, at 100V
 $RC (\Omega \cdot F) > 30,000 s$

● Typical capacitance change versus operating

- 5% after 30,000hrs at V_{rms} or after 100,000hrs at V_{rdc}

● Damp heat test

TEST	CONDITIONS	REQUIREMENTS
Damp heat test (Steady state)	Temp. = 40 ± 2 °C Relative humidity = $93 \pm 2\%$ Test Duration = 56 days	$\Delta C/C \leq 2\%$ $\Delta \tan \delta < 0.0010$ (@ 1kHz) $R_{ins} \geq 50\%$ specified value

PRODUCT MARKING

Capacitors are marked on the top or on the top and one side with the following information :

- . Rated capacitance code in accordance with IEC 60062
- . Tolerance on rated capacitance : J : $\pm 5\%$ K : $\pm 10\%$
- . Rated (DC) Voltage (e.g. 400 V)
- . Code for dielectric material (MKP)
- . Manufacturer's type designation (PCPW235)
- . Manufacturer's name (PILKOR)

Example of marking

1u0	K	850V	PILKOR
PCPW235	MMKP	WK...	

Marking on the top or side

Snubber Capacitors (Metallized Polypropylene Film Capacitors)

PCPW 235
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TEST REQUIREMENTS

No	ITEM	TEST Conditions	REQUIREMENTS												
1	Capacitance	1) Temperature : $25 \pm 2^\circ\text{C}$ 2) Frequency : $1\text{kHz} \pm 200\text{Hz}$ 3) Test voltage : $5V_{\text{rms}}$ Max.	Shall be with in prescribed tolerance range												
2	Dissipation factor	1) Temperature : $25 \pm 2^\circ\text{C}$ 2) Frequency : $1\text{kHz} \pm 200\text{Hz}$ 3) Test voltage : $5V_{\text{rms}}$ Max.	$\frac{C \leq 5\mu\text{F}}{< 5}$ $\frac{5\mu\text{F} < C \leq 25\mu\text{F}}{< 8}$ $\frac{C > 25\mu\text{F}}{< 10}$												
3	Dielectric strength	Lead-lead : $1.6 \times V_{\text{Rdc}}$, 1min Lead-case : $3\text{KV}(50\sim 60\text{Hz})$, 1min	no breakdown, flash over (cut-off current 10mA)												
4	Insulation Resistance	at 100V for $V_{\text{Rdc}} < 500\text{V}$ at 500V for $V_{\text{Rdc}} \geq 500\text{V}$	$RC (\Omega \cdot \text{F}) > 30,000 \text{ s}$												
5	Damp heat steady state	$40 \pm 2^\circ\text{C}$, 90~95%RH, 56days	$\Delta C/C < \pm 3\%$ at 1KHz $\Delta DF < 0.0010$ at 1KHz $IR < 50\%$ of specified limit												
6	Endurance	$85 \pm 2^\circ\text{C}$: $1.25 \times V_{\text{Rdc}}$, 1000hrs $105 \pm 2^\circ\text{C}$: $1.0 \times V_{\text{Rdc}}$, 1000hrs	$\Delta C/C < \pm 5\%$ at 1KHz $\Delta DF < 0.0010$ at 1KHz $IR < 50\%$ of specified limit												
7	Rapid change of temperature	$-40 \pm 2^\circ\text{C}$ = lower category temp. $+105 \pm 2^\circ\text{C}$ = upper category temp. Duration $t = 30\text{min}$ Five cycles	Visual : No abnormality $\Delta C/C < \pm 3\%$ at 1KHz $\Delta DF < 0.0010$ at 1KHz $IR < 50\%$ of specified limit												
8	Robustness of termination	1) 【Lead pull test】 <table border="1"> <thead> <tr> <th>Dia.(mm)</th> <th>Load (N)</th> <th>Time (sec)</th> </tr> </thead> <tbody> <tr> <td>$0.5 < d \leq 1.2$</td> <td>10</td> <td>$10 \pm 1(\text{s})$</td> </tr> </tbody> </table> 2) 【Lead bend test(2cycle)】 <table border="1"> <thead> <tr> <th>Dia.(mm)</th> <th>Load (N)</th> <th>Time (sec)</th> </tr> </thead> <tbody> <tr> <td>$0.5 < d \leq 1.2$</td> <td>5</td> <td>0.51(s)</td> </tr> </tbody> </table>	Dia.(mm)	Load (N)	Time (sec)	$0.5 < d \leq 1.2$	10	$10 \pm 1(\text{s})$	Dia.(mm)	Load (N)	Time (sec)	$0.5 < d \leq 1.2$	5	0.51(s)	No abnormality such as cutting, slack of termination
Dia.(mm)	Load (N)	Time (sec)													
$0.5 < d \leq 1.2$	10	$10 \pm 1(\text{s})$													
Dia.(mm)	Load (N)	Time (sec)													
$0.5 < d \leq 1.2$	5	0.51(s)													
9	Solderability	Non-activated colophony flux 501 Solder bath temp. : $245 \pm 5^\circ\text{C}$ Immerse time : $2 \pm 0.5\text{s}$	Good tinning as evidenced by free flowing of the solder with wetting of the terminations (>95%)												
10	Resistance to soldering heat	Solder bath temp. : $260 \pm 5^\circ\text{C}$ Immerse time : $10 \pm 0.5\text{s}$	Visual : No abnormality $\Delta C/C < \pm 3\%$ at 1KHz $\Delta DF < 0.0010$ at 1KHz $IR < 50\%$ of specified limit												
11	Vibration	10Hz to 55Hz Amplitude : 0.75mm or acceleration 98m/s^2 6hrs	Visual : No abnormality $\Delta C/C < \pm 3\%$ at 1KHz $\Delta DF < 0.0010$ at 1KHz $IR < 50\%$ of specified limit												