

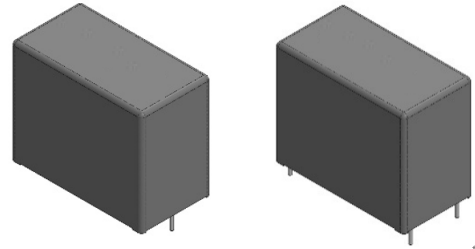
Snubber Capacitors

Metallized Polypropylene Film Capacitors

PCPW238
MMKP

CONSTRUCTION

- Dielectric : Double side metallized PET film & Metallized polypropylene film
- Case : PBT (UL94 V-0)
- Filling : Epoxy resin (UL94 V-0)
- Terminals : Tinned copper wire (2-pin / 4-pin)



FEATURE

- Self-Healing
- Low contact resistance
- Low loss dielectric
- High ripple current
- High contact reliability

APPLICATION

- Snubber Capacitor for IGBT
- Protection circuits in SMPS
- Energy conversion and control in power electronics

QUICK REFERENCE DATA

Capacitance range	0.10 to 3.3 μ F
Capacitance tolerance	\pm 5%, \pm 10%,
Rated voltage (DC)	850V, 1000V, 1250V, 1600V, 2000V
Dissipation factor (DF)	0.0005 at 1KHz(0.1 μ F < C \leq 3.3 μ F)
Insulation resistance (IR)	10,000s after 1minute of electrification at 500Vdc(C > 0.33 μ F)
Climatic category	40 / 85 / 56
Temperature range	-40 $^{\circ}$ C ~+105 $^{\circ}$ C
Max permissible ambient temperature	85 $^{\circ}$ C (operation at rated power, rated current and natural cooling)
Reference	IEC 60384-16 / IEC61071
Potting & Encapsulation material	Qualified in accordance with UL94V-0

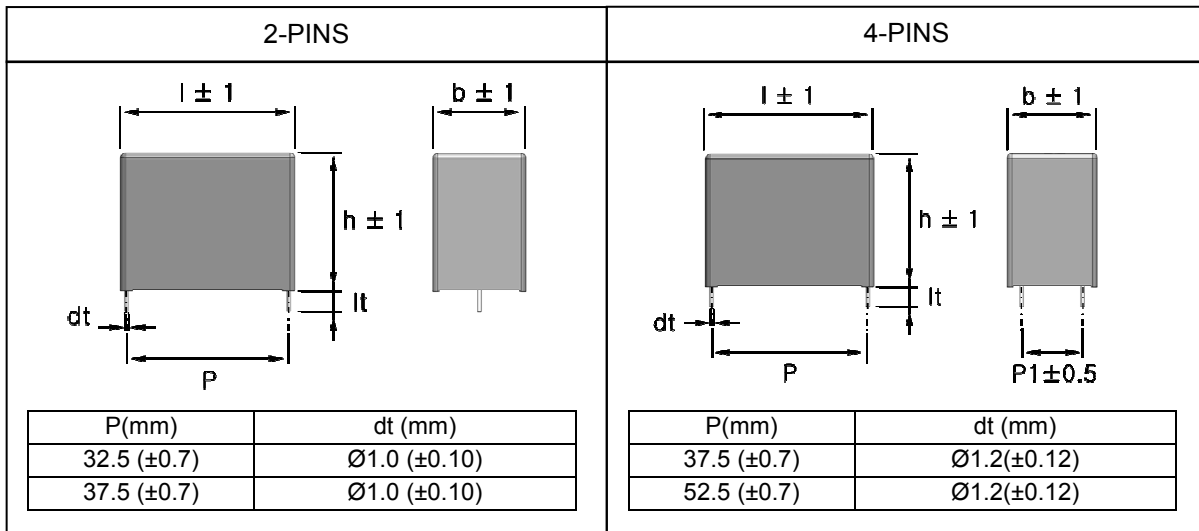
- Design and specifications are subjected to change without notice. Please refer to caution and warning at <http://www.pilkor.co.kr/sub/download/Introductions.pdf> before using these products.

TYPE SPECIFICATION

Snubber Capacitors Metallized Polypropylene Film Capacitors

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ORDERING INFORMATION



1	2	3	4	5	6	7	8	9	10	11	12	13	14
P	2	3	8	Q	8	5	1	0	5	K	A	S	2

Digits 1~4	
Code	Series name
P238	PCPW238

Digits 5	
Code	Pitch
N	32.5 mm
Q	37.5 mm
T	52.5 mm

Digits 6~7	
Code	Voltage
85	850Vdc
10	1000Vdc
12	1250Vdc
16	1600Vdc
20	2000Vdc

Digits 8~10	
Code	Capacitance
334	0.33uF
335	3.3uF
336	33uF

Digits 11	
Code	Cap. tolerance
J	5%
K	10%

Digits 12	
Code	Revision
A	Standard
M	Automotive
L	Low profile

Digits 13	
Code	Lead length
L	25.0± 1.0
S	5.0± 1.0
F	4.0± 0.5
8	3.8±0.5(0.3)*
7	3.7±0.5(0.3)*
5	3.5±0.5(0.3)*
4	3.4±0.5(0.3)*
2	3.2±0.5(0.3)*
T	3.0±0.5(0.3)*

Digits 14		
Code	Lead type	Packing
2	2-PIN	Arrange
4	4-PIN	Arrange

* dt(mm) = Ø0.8, ±0.3

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ELECTRICAL DATA AND ORDERING CODE

$V_{Rdc} = 850V$

CAP. (μF)	Dimension (mm)			P (mm)	P1 (mm)	dv/dt (V/us)	Ipk (A)	I _{rms} ⁽¹⁾ (A)		Ordering Code
	b	h	l					2P	4P	
0.68	16	26	37	32.5	-	450	306	6.0	-	P238N85684KA**
0.82	18	30	37	32.5	-	450	369	7.0	-	P238N85824KA**
1.0	20	34	37	32.5	-	450	450	8.0	-	P238N85105KA**
0.82	24	17	42	37.5	-	450	369	8.0	-	P238Q85824KL**
1.0	18	33	42	37.5	-	450	450	10.0	-	P238Q85105KA**
1.5	20	35	42	37.5	10.2	450	675	12.0	13.0	P238Q85155KA**
2.2	24	39	42	37.5	10.2	450	990	14.0	15.0	P238Q85225KA**
3.3	30	45	42	37.5	10.2	450	1485	17.0	18.0	P238Q85335KA**

$V_{Rdc} = 1000V$

CAP. (μF)	Dimension (mm)			P (mm)	P1 (mm)	dv/dt (V/us)	Ipk (A)	I _{rms} ⁽¹⁾ (A)		Ordering Code
	b	h	l					2P	4P	
0.47	16	26	37	32.5	-	450	148	6.0	-	P238N10474KA**
0.68	18	30	37	32.5	-	450	306	7.0	-	P238N10684KA**
0.82	20	34	37	32.5	-	450	369	8.0	-	P226N10824KA**
0.56	24	17	42	37.5	-	450	252	8.0	-	P238Q10564KL**
1.0	20	35	42	37.5	10.2	450	450	11.0	12.0	P238Q10105KA**
1.5	24	39	42	37.5	10.2	450	675	13.0	14.0	P238Q10155KA**
2.2	30	45	42	37.5	10.2	450	990	15.0	16.0	P238Q10225KA**

(1) Maximum RMS current at +70°C, 100KHz, $\Delta T = +15^\circ C$ (Hot spot temp. = $T_{amb} + \Delta T = 70^\circ C + 15^\circ C = 85^\circ C$)

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 $V_{Rdc} = 1250V$

CAP. (μF)	Dimension (mm)			P (mm)	P1 (mm)	dv/dt (V/us)	Ipk (A)	I _{rms} ⁽¹⁾ (A)		Ordering Code
	b	h	l					2P	4P	
0.22	16	26	37	32.5	-	700	306	6.0	-	P238N12224KA**
0.33	18	30	37	32.5	-	700	369	7.0	-	P238N12334KA**
0.47	20	34	37	32.5	-	700	450	8.0	-	P238N12474KA**
0.47	18	33	42	37.5	-	700	329	10.0	-	P238Q12474KA**
0.68	20	35	42	37.5	10.2	700	476	11.0	12.0	P238Q12684KA**
1.0	24	39	42	37.5	10.2	700	700	13.0	14.0	P238Q12105KA**
1.5	30	45	42	37.5	10.2	700	1050	15.0	16.0	P238Q12155KA**

 $V_{Rdc} = 1600V$

CAP. (μF)	Dimension (mm)			P (mm)	P1 (mm)	dv/dt (V/us)	Ipk (A)	I _{rms} ⁽¹⁾ (A)		Ordering Code
	b	h	l					2P	4P	
0.18	16	26	37	32.5	-	1000	180	6.0	-	P238N16184KA**
0.22	18	30	37	32.5	-	1000	220	7.0	-	P238N16224KA**
0.30	20	34	37	32.5	-	1000	300	8.0	-	P238N16304KA**
0.22	24	17	42	37.5	-	1000	220	7.0	-	P238Q16224KL**
0.33	18	33	42	37.5	-	1000	330	8.0	8.5	P238Q16334KA**
0.47	20	35	42	37.5	10.2	1000	470	9.0	10.0	P238Q16474KA**
0.68	24	39	42	37.5	10.2	1000	680	11.0	12.0	P238Q16684KA**
1.0	30	45	42	37.5	10.2	1000	1000	13.0	14.0	P238Q16105KA**

(1) Maximum RMS current at +70°C, 100KHz, $\Delta T = +15^\circ C$ (Hot spot temp. = $T_{amb} + \Delta T = 70^\circ C + 15^\circ C = 85^\circ C$)

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 $V_{Rdc} = 2000V$

CAP. (μF)	Dimension (mm)			P (mm)	P1 (mm)	dv/dt (V/us)	Ipk (A)	I _{rms} ⁽¹⁾ (A)		Ordering Code
	b	h	l					2P	4P	
0.15	16	26	37	32.5	-	1000	150	6.0	-	P238N20154KA**
0.18	18	30	37	32.5	-	1000	180	7.0	-	P238N20184KA**
0.20	20	34	37	32.5	-	1000	200	8.0	-	P238N20204KA**
0.22	18	33	42	37.5	-	1000	220	9.0	-	P238Q20224KA**
0.33	20	35	42	37.5	10.2	1000	330	10.0	10.5	P238Q20334KA**
0.47	24	39	42	37.5	10.2	1000	470	11.0	11.5	P238Q20474KA**
0.68	30	45	42	37.5	10.2	1000	680	12.0	13.0	P238Q20684KA**

(1) Maximum RMS current at +70°C, 100KHz, $\Delta T = +15^\circ C$ (Hot spot temp. = $T_{amb} + \Delta T = 70^\circ C + 15^\circ C = 85^\circ C$)

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CHARACTERISTICS

● Test Voltage

- . Test Voltage (between terminations) : $1.6 \times V_{Rdc}$, 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
850~2000V	$0.1 \mu F < C \leq 3.3 \mu F$	≤ 5	≤ 8	-

● Insulation Resistance

The insulation resistance is measured for 1min \pm 5s, at 500V

Rated voltage	Minimum RC	Minimum Insulation
	Capacitance $> 0.33\mu F$	Capacitance $\leq 0.33\mu F$
$\geq 500V$	$> 10,000s$	$> 30G\Omega$

(R = insulation resistance between the terminations[Ω], C = capacitance[Farad])

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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. 1250 V)
- . Code for dielectric material (MMKP)
- . Manufacturer's type designation (PCPW 238)
- . Manufacturer's name (PILKOR)

Example of marking

1u5	K	1250V	PILKOR
PCPW238	MMKP	WK...	

Marking on the top or side

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PACKAGE MARKING

The package containing the capacitors is marked as shown.



LINE MARKING EXPLANATION

- 1 Manufacturer's name
- 2 Sub – family
3. Pb free marking(JEDEC-STD-97)
- 4 Type description
- 5 Capacitance value, tolerance,
Voltage and climatic category (IEC)
- 6 Batch no. & production period
year and week code
- 7 Quantity and Product code
- 8 Capacitance, tolerance and voltage

PACKING QUANTITY INFORMATION

SMALLEST PACKING QUANTITIES (SPQ)	Arrange Pack.
	It = 5.0 ± 1.0mm
16.0 x 26.0 x 37.0	88
18.0 x 30.0 x 37.0	80
20.0 x 34.0 x 37.0	72
18.0 x 33.0 x 42.0	100
20.0 x 35.0 x 42.0	90
24.0 x 17.0 x 42.0	65
24.0 x 39.0 x 42.0	75
28.0 x 43.0 x 42.0	65
30.0 x 45.0 x 42.0	60

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