

Snubber MKP Capacitors for Pulse Applications with Double-Sided Metallized Electrodes, Schoopage Contacts and Internal Series Connection

Special Features

- Pulse duty construction
- Self-healing
- Particularly reliable contact-configurations: 4-pin versions and screwable plate connections
- Internal series connection from 400 VAC
- Very low dissipation factor
- Negative capacitance change versus temperature
- According to RoHS 2011/65/EC

Typical Applications

For high pulse and high frequency applications requiring extremely reliable contacts e.g.

- IGBT-applications

Construction

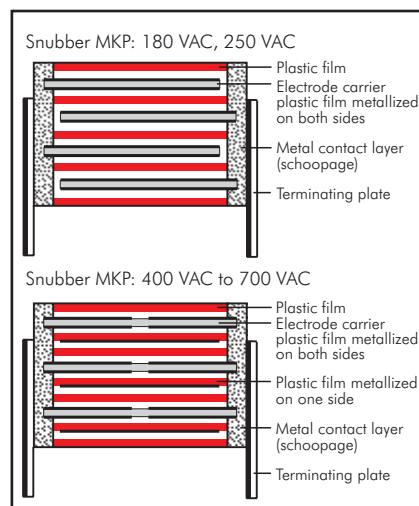
Dielectric:

Polypropylene (PP) film

Capacitor electrodes:

Double-sided metallized plastic film

Internal construction:



Encapsulation:

Solvent-resistant, flame-retardant plastic case with epoxy resin seal, UL 94 V-0

Terminations:

Tinned wire or plates.

Marking:

Colour: Red. Marking: Black.
Epoxy resin seal: Red

Electrical Data

Capacitance range: 0.047 μ F to 25 μ F

Rated voltages:

250 VDC, 400 VDC, 630 VDC, 1000 VDC, 1600 VDC, 2000 VDC, 3000 VDC

Capacitance tolerances:

$\pm 20\%$, $\pm 10\%$, $\pm 5\%$ (other tolerances are available subject to special enquiry)

Operating temperature range:

-55°C to $+100^{\circ}\text{C}$

Insulation resistance at $+20^{\circ}\text{C}$:

$C \leq 0.33 \mu\text{F}$: $\geq 1 \times 10^5 \text{ M}\Omega$

(mean value: $5 \times 10^5 \text{ M}\Omega$)

$C > 0.33 \mu\text{F}$: $\geq 30000 \text{ sec (M}\Omega \times \mu\text{F)}$

(mean value: 100 000 sec)

Measuring voltage: 100 V/1 min.

Test voltage: 2 sec

L	$\leq 2000 \text{ VDC}$	3000 VDC
< 41.5	$1.6 U_r$	$1.2 U_r$
41.5	$1.4 U_r$	$1.2 U_r$
56	$1.2 U_r$	$1.2 U_r$

Dissipation factors at $+20^{\circ}\text{C}$: $\tan \delta$

at f	$C \leq 0.1 \mu\text{F}$	$0.1 \mu\text{F} < C \leq 1.0 \mu\text{F}$	$C > 1.0 \mu\text{F}$
1 kHz	$\leq 3 \times 10^{-4}$	$\leq 3 \times 10^{-4}$	$\leq 3 \times 10^{-4}$
10 kHz	$\leq 4 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	–
100 kHz	$\leq 15 \times 10^{-4}$	–	–

Maximum pulse rise time:

Capacitance μF	max. pulse rise time V/ μsec at $T_A < 40^{\circ}\text{C}$						
	250 VDC	400 VDC	630 VDC	1000 VDC	1600 VDC	2000 VDC	3000 VDC
0.047 ... 0.22	500	500	900	1400	1400	1400	1400
0.33 ... 0.68	300	400	700	900	900	900	900
1.0 ... 2.2	200	200	400	400	500	500	500
2.5 ... 6.8	80	100	150	300	400	–	–
7.0 ... 10	50	70	75	–	–	–	–
15 ... 25	35	50	–	–	–	–	–

for pulses equal to the rated voltage

Mounting Recommendation

Excessive mechanical strain, e.g. pressure or shock onto the capacitor body, is to be avoided during mounting and usage of the capacitors. When fixing the plates the screw torque is to be limited to max. 5 Nm.

For further details and graphs please refer to Technical Information.

Climatic test category:

55/100/56 in accordance with IEC

Voltage derating:

A voltage derating factor of 1.35 % per K must be applied from $+85^{\circ}\text{C}$ for DC voltages and from $+75^{\circ}\text{C}$ for AC voltages

Reliability:

Operational life $> 300\,000$ hours

Failure rate $< 1 \text{ fit } (0.5 \times U_r \text{ and } 40^{\circ}\text{C})$

Specific dissipation:

Box size* WxHxL in mm	Specific dissipation in Watts per K above the ambient temperature
19x31x56	0.068
23x34x56	0.079
27x37.5x56	0.092
33x48x56	0.122
37x54x56	0.142

* other box sizes see page 10.

Packing

Packing units at the end of the catalogue.

Packing quantities may vary depending on the plate version.

Continuation

General Data

Capacitance	250 VDC/180 VAC*				400 VDC/250 VAC*				630 VDC/400 VAC*			
	W	H	L	Part number	W	H	L	Part number	W	H	L	Part number
0.1 μF					7	14	18	SNMPG031004D_____	7	16.5	26.5	SNMPJ031005D_____
0.15 "					8	15	18	SNMPG031504F_____	8.5	18.5	26.5	SNMPJ031505F_____
0.22 "	7	14	18	SNMPF032204D_____	7	16.5	26.5	SNMPG032205D_____	10.5	19	26.5	SNMPJ032205G_____
0.33 "	8	15	18	SNMPF033304F_____	8.5	18.5	26.5	SNMPG033305F_____	11	21	26.5	SNMPJ033305I_____
0.47 "	7	16.5	26.5	SNMPF034705D_____	10.5	19	26.5	SNMPG034705G_____	11	21	31.5	SNMPJ034706B_____
0.68 "	8.5	18.5	26.5	SNMPF036805F_____	11	21	31.5	SNMPG036806B_____	15	26	31.5	SNMPJ036806F_____
									13	24	41.5	SNMPJ036807C_____
1.0 μF	11	21	26.5	SNMPF041005I_____	13	24	31.5	SNMPG041006D_____	17	29	31.5	SNMPJ041006G_____
					13	24	41.5	SNMPG041007C_____	15	26	41.5	SNMPJ041007D_____
1.5 "	13	24	31.5	SNMPF041506D_____	17	29	31.5	SNMPG041506G_____	19	32	41.5	SNMPJ041507F_____
	11	22	41.5	SNMPF041507B_____	15	26	41.5	SNMPG041507D_____				
2.0 "	15	26	31.5	SNMPF042006F_____	17	29	41.5	SNMPG042007E_____	20	39.5	41.5	SNMPJ042007G_____
	13	24	41.5	SNMPF042007C_____								
2.2 "	15	26	31.5	SNMPF042206F_____	17	29	41.5	SNMPG042207E_____	20	39.5	41.5	SNMPJ042207G_____
	13	24	41.5	SNMPF042207C_____								
2.5 "	17	29	31.5	SNMPF042506G_____	19	32	41.5	SNMPG042507F_____	24	45.5	41.5	SNMPJ042507H_____
	15	26	41.5	SNMPF042507D_____								
3.0 "	17	34.5	31.5	SNMPF043006I_____	20	39.5	41.5	SNMPG043007G_____	24	45.5	41.5	SNMPJ043007H_____
	15	26	41.5	SNMPF043007D_____								
3.3 "	17	34.5	31.5	SNMPF043306I_____	20	39.5	41.5	SNMPG043307G_____	24	45.5	41.5	SNMPJ043307H_____
	15	26	41.5	SNMPF043307D_____								
4.0 "	19	32	41.5	SNMPF044007F_____	24	45.5	41.5	SNMPG044007H_____	31	46	41.5	SNMPJ044007I_____
4.7 "	19	32	41.5	SNMPF044707F_____	24	45.5	41.5	SNMPG044707H_____	31	46	41.5	SNMPJ044707I_____
5.0 "	20	39.5	41.5	SNMPF045007G_____	24	45.5	41.5	SNMPG045007H_____	31	46	41.5	SNMPJ045007I_____
6.0 "	20	39.5	41.5	SNMPF046007G_____	31	46	41.5	SNMPG046007I_____	35	50	41.5	SNMPJ046007J_____
									33	48	56	SNMPJ046008J_____
6.8 "									40	55	41.5	SNMPJ046807K_____
7.0 "	24	45.5	41.5	SNMPF047007H_____	31	46	41.5	SNMPG047007I_____	33	48	56	SNMPJ047008J_____
8.0 "	24	45.5	41.5	SNMPF048007H_____	33	48	56	SNMPG048008J_____	37	54	56	SNMPJ048008L_____
10.0 μF	31	46	41.5	SNMPF051007I_____	35	50	41.5	SNMPG051007J_____				
					33	48	56	SNMPG051008J_____				
15.0 "	35	50	41.5	SNMPF051507J_____	40	55	41.5	SNMPG051507K_____				
	33	48	56	SNMPF051508J_____	37	54	56	SNMPG051508L_____				
20.0 "	37	54	56	SNMPF052008L_____								
25.0 "	37	54	56	SNMPF052508L_____								

* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

 New box sizes

Dims in mm.

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

Versions and dimensional drawings see page 93.

Rights reserved to amend design data without prior notification.

Part number completion:

Version codes see page 96.

Tolerance: 20 % = M

10 % = K

5 % = J

Packing: bulk = S

Pin length: 6-2 = SD

none = 00 (for plate versions)

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Continuation

General Data

Capacitance	1000 VDC/600 VAC*				1600 VDC/650 VAC*			
	W	H	L	Part number	W	H	L	Part number
0.068 µF	7	16.5	26.5	SNMPO126805D_____	10.5	19	26.5	SNMPT026805G_____
0.1 µF	8.5	18.5	26.5	SNMPO131005F_____	11	21	26.5	SNMPT031005I_____
0.15 "	11	21	26.5	SNMPO131505I_____	13	24	31.5	SNMPT031506D_____
					11	22	41.5	SNMPT031507B_____
0.22 "	11	21	31.5	SNMPO132206B_____	15	26	31.5	SNMPT032206F_____
					13	24	41.5	SNMPT032207C_____
0.33 "	15	26	31.5	SNMPO133306F_____	17	34.5	31.5	SNMPT033306I_____
	13	24	41.5	SNMPO133307C_____	15	26	41.5	SNMPT033307D_____
0.47 "	17	29	31.5	SNMPO134706G_____	19	32	41.5	SNMPT034707F_____
	15	26	41.5	SNMPO134707D_____				
0.68 "	17	29	41.5	SNMPO136807E_____	20	39.5	41.5	SNMPT036807G_____
1.0 µF	20	39.5	41.5	SNMPO141007G_____	24	45.5	41.5	SNMPT041007H_____
	23	34	56	SNMPO141008E_____				
1.5 "	24	45.5	41.5	SNMPO141507H_____	31	46	41.5	SNMPT041507I_____
	23	34	56	SNMPO141508E_____				
2.0 "	31	46	41.5	SNMPO142007I_____	40	55	41.5	SNMPT042007K_____
	27	37.5	56	SNMPO142008H_____	33	48	56	SNMPT042008J_____
2.2 "	31	46	41.5	SNMPO142207I_____	40	55	41.5	SNMPT042207K_____
	27	37.5	56	SNMPO142208H_____	33	48	56	SNMPT042208J_____
2.5 "	35	50	41.5	SNMPO142507J_____	37	54	56	SNMPT042508L_____
	33	48	56	SNMPO142508J_____				
3.0 "	40	55	41.5	SNMPO143007K_____	37	54	56	SNMPT043008L_____
	33	48	56	SNMPO143008J_____				
3.3 "	40	55	41.5	SNMPO143307K_____				
	33	48	56	SNMPO143308J_____				
4.0 "	37	54	56	SNMPO144008L_____				
4.7 "	37	54	56	SNMPO144708L_____				
5.0 "	37	54	56	SNMPO145008L_____				

* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_r$

New box sizes

Dims. in mm.

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

Versions and dimensional drawings see page 93.

Part number completion:

Version codes see page 96.

Tolerance: 20 % = M

10 % = K

5 % = J

Packing: bulk = S

Pin length: 6-2 = SD

none = 00 (for plate versions)

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Continuation

General Data

Capacitance	2000 VDC/700 VAC*				3000 VDC/700 VAC*			
	W	H	L	Part number	W	H	L	Part number
0.047 μF	10.5	19	26.5	SNMPU024705G	11	21	31.5	SNMPW024706B
0.068 "	11	21	26.5	SNMPU026805I	13	24	31.5	SNMPW026806D
					11	22	41.5	SNMPW026807B
0.1 μF	13	24	31.5	SNMPU031006D	15	26	31.5	SNMPW031006F
	11	22	41.5	SNMPU031007B	13	24	41.5	SNMPW031007C
0.15 "	15	26	31.5	SNMPU031506F	15	26	41.5	SNMPW031507D
	13	24	41.5	SNMPU031507C				
0.22 "	17	34.5	31.5	SNMPU032206I	19	32	41.5	SNMPW032207F
	15	26	41.5	SNMPU032207D				
0.33 "	19	32	41.5	SNMPU033307F	24	45.5	41.5	SNMPW033307H
					19	31	56	SNMPW033308D
0.47 "	20	39.5	41.5	SNMPU034707G	31	46	41.5	SNMPW034707I
					27	37.5	56	SNMPW034708H
0.68 "	24	45.5	41.5	SNMPU036807H	35	50	41.5	SNMPW036807J
					33	48	56	SNMPW036808J
1.0 μF	35	50	41.5	SNMPU041007J	40	55	41.5	SNMPW041007K
	33	48	56	SNMPU041008J	33	48	56	SNMPW041008J
1.5 "	40	55	41.5	SNMPU041507K	37	54	56	SNMPW041508L
	33	48	56	SNMPU041508J				
2.0 "	37	54	56	SNMPU042008L				

* AC voltage: $f \leq 1000 \text{ Hz}$; $1.4 \times U_{\text{rms}} + U_{\text{DC}} \leq U_{\text{r}}$

New box sizes

Dims. in mm.

Ionisation inception level in isolated cases may be lower than admissible rated AC voltage.

Versions and dimensional drawings see page 93.

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Part number completion:

Version codes see page 96.

Tolerance: 20 % = M

10 % = K

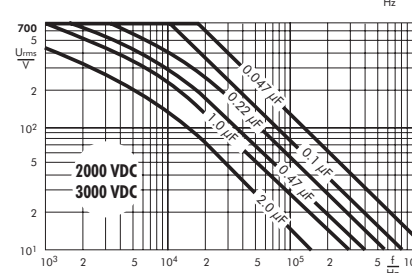
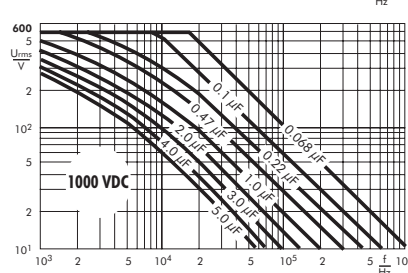
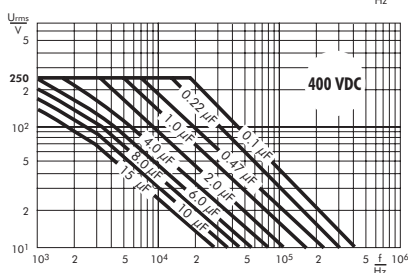
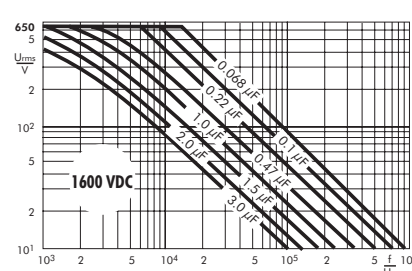
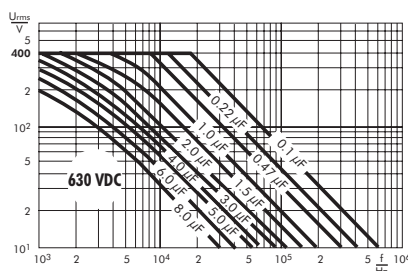
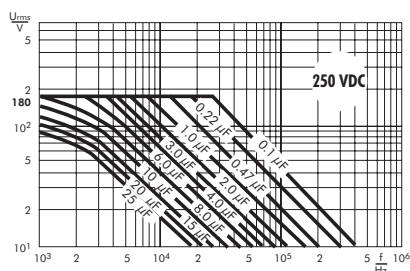
5 % = J

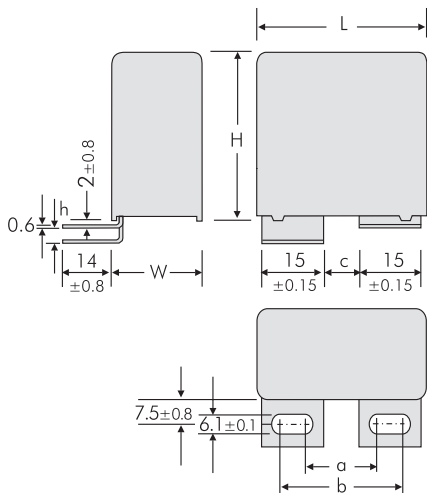
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Pin length: 6-2 = SD

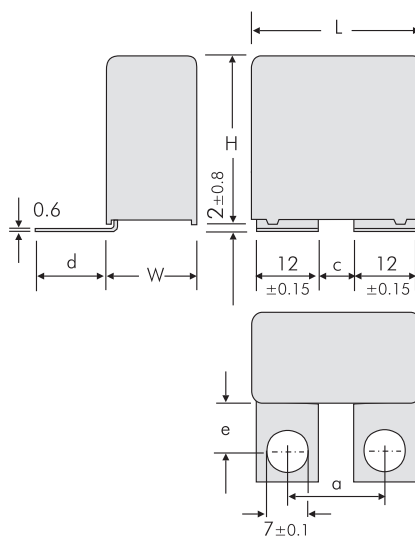
none = 00 (for plate versions)

Permissible AC voltage in relation to frequency at 10° C internal temperature rise (general guide).

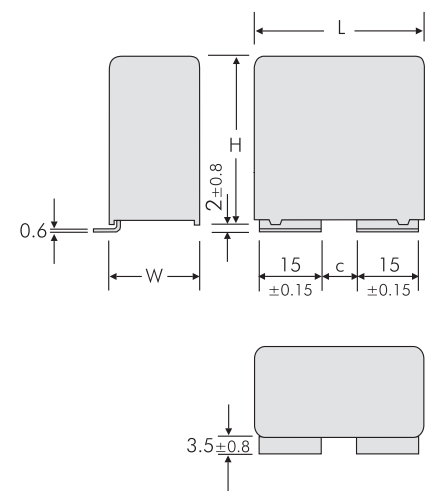




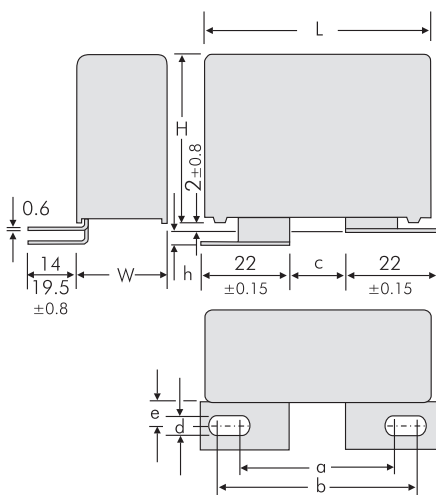
Version	L	a ±0.5	b ±0.5	c ±0.5	h ±0.8
A1	41.5	17.5	27.5	7.5	0
A1.5	41.5	17.5	27.5	7.5	3.5
A1	56	20	30	10	0
A1.1.1	56	28	38	18	0
A1.4	56	20	30	10	3.5
A1.4.1	56	28	38	18	3.5



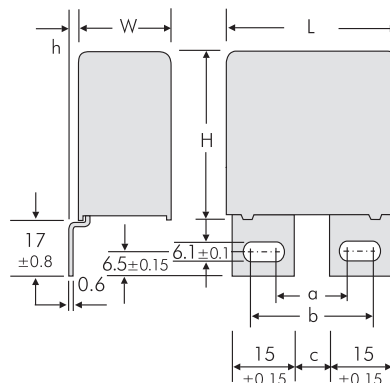
Version	L	a ±0.5	c ±0.5	d ±0.8	e ±0.8
A1.6	41.5	18	6	21.5	16
A1.6.1	41.5	22	10	18.5	13
A1.6	56	29	17	21.5	16



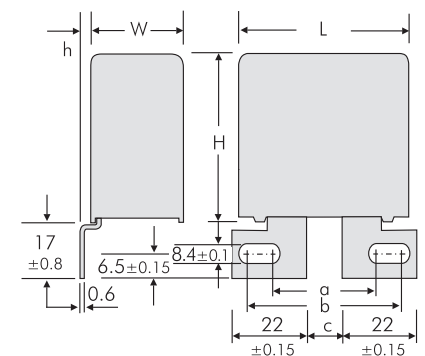
Version	L	c ±0.5
A1.7	41.5	7.5
A1.7	56	10
A1.7.1	56	18



Version	L	a ±0.5	b ±0.5	c ±0.5	d ±0.1	e ±0.8	h ±0.8
A2	41.5	40.5	46.5	14.5	8.4	7.5	0
A2.2	41.5	31	37	5	8.4	7.5	3.5
A2.3	41.5	31	37	5	8.4	13	3.5
A2.4	41.5	33.5	39.5	7.5	8.4	13	3.5
A2.4.1	41.5	33.5	39.5	7.5	8.4	13	0
A2.5	41.5	29.5	39.5	5.5	6.1	7.5	3.5
A2.6	41.5	31.5	41.5	7.5	6.1	13	3.5
A2.6.1	41.5	31.5	41.5	14	6.1	13	3.5
A2.6.2	41.5	31.5	41.5	14	6.1	13	0
A2.8	41.5	40.5	46.5	14.5	8.4	7.5	3.5
A2.1	56	39.5	45.5	13.5	8.4	7.5	0
A2.7	56	39.5	45.5	13.5	8.4	7.5	3.5

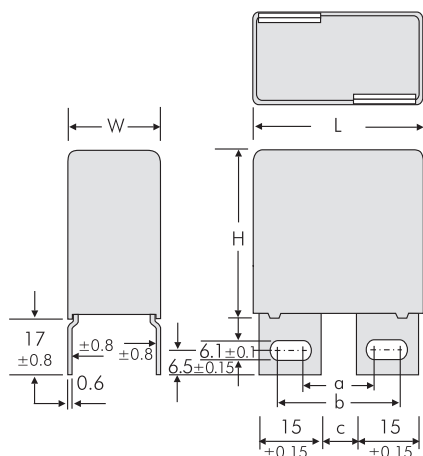


Version	L	a ±0.5	b ±0.5	c ±0.5	h ±0.8
A3	41.5	17.5	27.5	7.5	0
A3.5	41.5	17.5	27.5	7.5	3
A3	56	20	30	10	0
A3.1	56	28	38	18	0
A3.5	56	20	30	10	3
A3.10	56	28	38	18	3

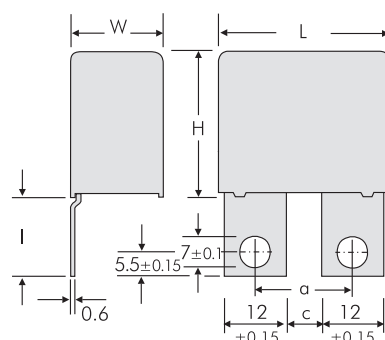


Version	L	a ±0.5	b ±0.5	c ±0.5	h ±0.8
A3.9	41.5	40.5	46.5	14.5	0
A3.11	41.5	40.5	46.5	14.5	3
A3.2	56	40.5	46.5	14.5	0
A3.3	56	40.5	46.5	14.5	3

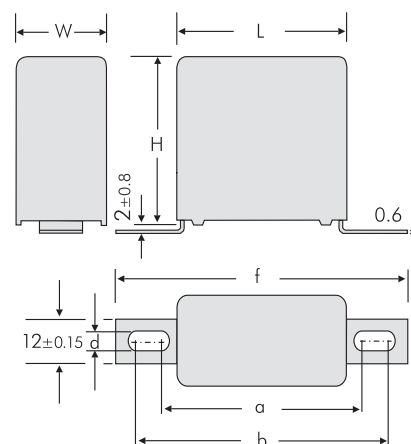
Versions of WIMA Snubber Capacitors



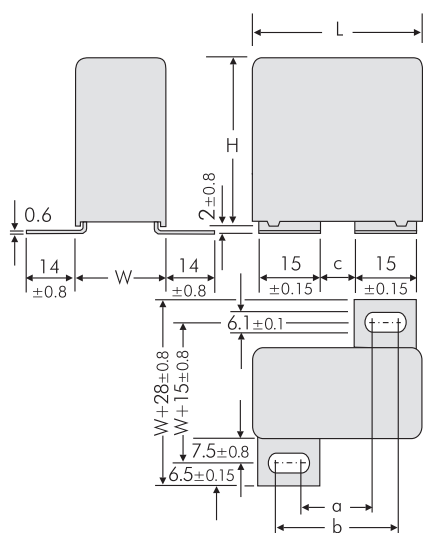
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A3.6	41.5	17.5	27.5	7.5
A3.7	56	20	30	10



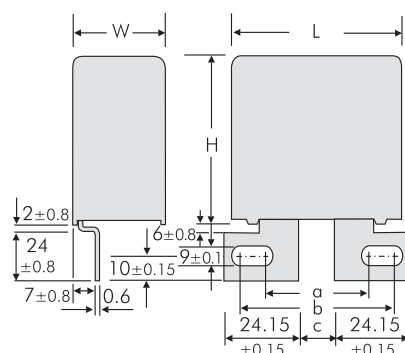
Version	L	a ±0.5	c ±0.5	l ±0.8
A3.8	41.5 W ≥ 17	18	6	23
A3.8.1	41.5 W ≥ 17	22	10	17.5



Version	L	a ±0.8	b ±0.8	f ±0.8	d ±0.1
A4.9	31.5 W ≥ 15	44	47	57	4.5
A4.10	31.5 W ≥ 15	43	59	69	6.1
A4.2	41.5 W ≥ 15	54	57	67	4.5
A4	41.5 W ≥ 15	53	69	79	6.1
A4.7	56	65	68	78	4.5
A4	56	64	80	90	6.1

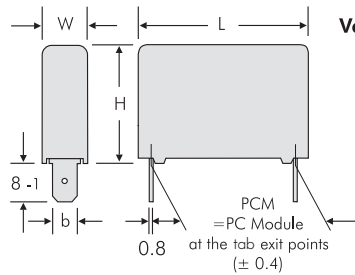


Version	L	a ±0.5	b ±0.5	c ±0.5
A5	41.5	17.5	27.5	7.5
A5	56	20	30	10



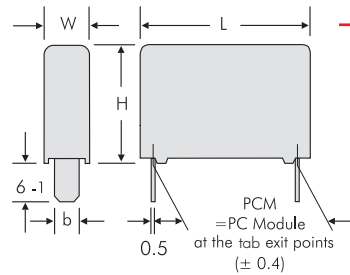
Version	L	a ±0.5	b ±0.5	c ±0.5
A6	56 W ≥ 23	41.5	45.5	15.5

Version FS 6.3
with slip-on
terminals
according to
DIN 46244



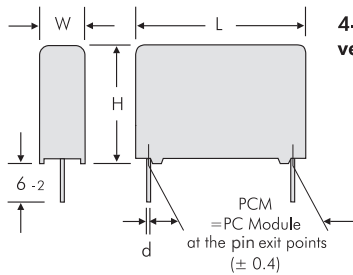
L	W	PCM	b ±0.15
26.5	≥ 11	23.5	6.3
31.5	≥ 11	28.5	6.3
41.5	≥ 11	38.5	6.3
56	≥ 11	49.5	6.3

Version B



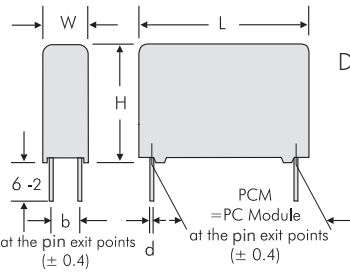
L	PCM	b ±0.15
18	16	5
26.5	23.5	5
31.5	28.5	8
41.5	38.5	8
56	49.5	8

**2-pin
version**



PCM	d
15	0.8
22.5	0.8
27.5	0.8
38.5	1.2
49.5	1.2

**4-pin
version**



W	H	L	PCM	b	d
10.5	19	26.5	22.5	5	0.8
10.5	20.5	26.5	22.5	5	0.8
11	21	26.5	22.5	5	0.8
11	21	31.5	27.5	5	0.8
13	24	31.5	27.5	7.5	0.8
15	26	31.5	27.5	7.5	0.8
17	29	31.5	27.5	10	0.8
19	30	31.5	27.5	10	0.8
17	34.5	31.5	27.5	10	0.8
20	39.5	31.5	27.5	12.5	0.8
22	43.5	31.5	27.5	12.5	0.8
11	22	41.5	37.5	5	1
13	24	41.5	37.5	7.5	1
15	26	41.5	37.5	7.5	1
17	29	41.5	37.5	10	1
19	32	41.5	37.5	10	1
20	39.5	41.5	37.5	12.5	1
24	45.5	41.5	37.5	12.5	1
31	46	41.5	37.5	20	1
19	31	56	48.5	12.5	1
23	34	56	48.5	15	1
27	37.5	56	48.5	15	1
33	48	56	48.5	20	1
37	54	56	48.5	20	1

Dims. in mm.

Additional special versions can be realized. Please contact us with your specific needs.

Versions of WIMA Snubber Capacitors

Version code		D2	D4	B5	B8	1A	1B	1F	1G	1H	1I	1J	1K	1L	2A	2B	2C	2D	2E	2F	2H	2I	2J	2K	2L	2M	3A	3C	3D	3E	3G	3I	3J	3K	3L	3N	3O	3P	
W x H x L	Size Code	2-pin	4-pin	B5	B8	A1	A1.1	A1.4	A1.4.1	A1.5	A1.6	A1.6.1	A1.7	A1.7.1	A2	A2.1	A2.2	A2.3	A2.4	A2.4.1	A2.5	A2.6	A2.6.1	A2.6.2	A2.7	A2.8	A3	A3.1	A3.2	A3.3	A3.5	A3.6	A3.7	A3.8	A3.8.1	A3.9	A3.10	A3.11	
7 x 14 x 18	4D																																						
8 x 15 x 18	4F																																						
7 x 16.5 x 26.5	5D																																						
8.5 x 18.5 x 26.5	5F																																						
10.5 x 19 x 26.5	5G																																						
10.5 x 20.5 x 26.5	5H																																						
11 x 21 x 26.5	5I																																						
11 x 21 x 31.5	6B																																						
13 x 24 x 31.5	6D																																						
15 x 26 x 31.5	6F																																						
17 x 29 x 31.5	6G																																						
17 x 34.5 x 31.5	6I																																						
19 x 30 x 31.5	6L																																						
11 x 22 x 41.5	7B																																						
13 x 24 x 41.5	7C																																						
15 x 26 x 41.5	7D																																						
17 x 29 x 41.5	7E																																						
19 x 32 x 41.5	7F																																						
20 x 39.5 x 41.5	7G																																						
24 x 45.5 x 41.5	7H																																						
31 x 46 x 41.5	7I																																						
35 x 50 x 41.5	7J																																						
40 x 55 x 41.5	7K																																						
19 x 31 x 56	8D																																						
23 x 34 x 56	8E																																						
27 x 37.5 x 56	8H																																						
33 x 48 x 56	8J																																						
37 x 54 x 56	8L																																						

Version code		4A	4C	4J	4L	4M	5A	6A	FS
W x H x L	Size code	A4	A4.2	A4.7	A4.9	A4.10	A5	A6	FS 6.3
11 x 21 x 26.5	5I								
11 x 21 x 31.5	6B								
13 x 24 x 31.5	6D								
15 x 26 x 31.5	6F								
17 x 29 x 31.5	6G								
17 x 34.5 x 31.5	6I								
19 x 30 x 31.5	6L								
11 x 22 x 41.5	7B								
13 x 24 x 41.5	7C								
15 x 26 x 41.5	7D								
17 x 29 x 41.5	7E								
19 x 32 x 41.5	7F								
20 x 39.5 x 41.5	7G								
24 x 45.5 x 41.5	7H								
31 x 46 x 41.5	7I								
19 x 31 x 56	8D								
23 x 34 x 56	8E								
27 x 37.5 x 56	8H								
33 x 48 x 56	8J								
37 x 54 x 56	8L								

Possible connecting respective plate versions - depending on box size.

Typical Dimensions for Taping Configuration

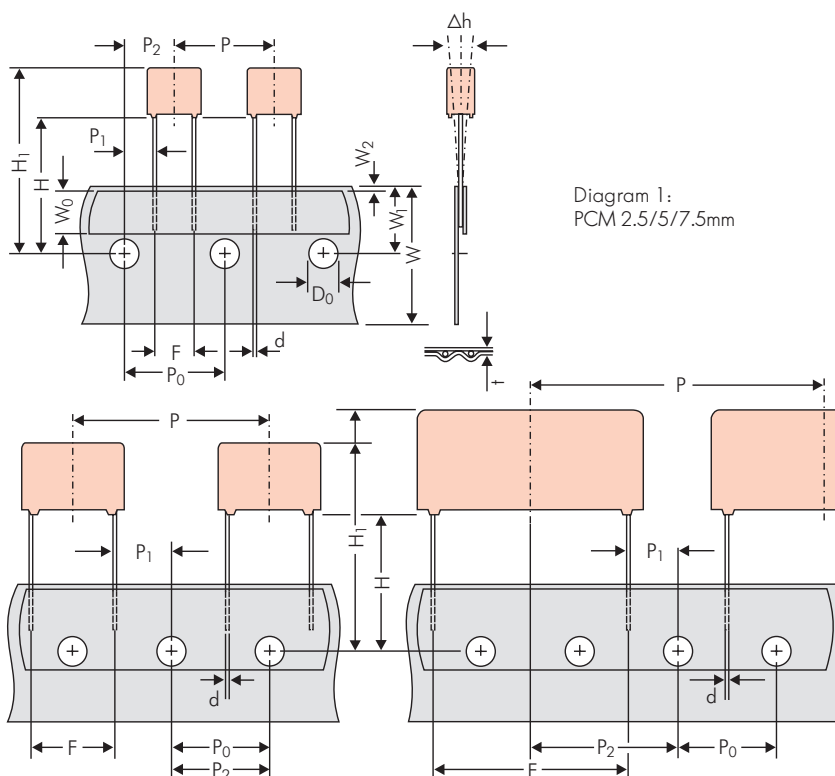


Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5*mm

*PCM 27.5 tapping possible with two feed holes between components

Designation	Symbol	Dimensions for Radial Taping						
		PCM 2.5 taping	PCM 5 taping	PCM 7.5 taping	PCM 10 taping*	PCM 15 taping*	PCM 22.5 taping	PCM 27.5 taping
Carrier tape width	W	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5
Hold-down tape width	W ₀	6.0 for hot-sealing adhesive tape	6.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape
Hole position	W ₁	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5
Hold-down tape position	W ₂	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.
Feed hole diameter	D ₀	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2
Pitch of component	P	12.7 ±1.0	12.7 ±1.0	12.7 ±1.0	25.4 ±1.0	25.4 ±1.0	38.1 ±1.5	*38.1 ±1.5 or 50.8 ±1.5
Feed hole pitch	P ₀	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch
Feed hole centre to pin	P ₁	5.1 ±0.5	3.85 ±0.7	2.6 ±0.7	7.7 ±0.7	5.2 ±0.7	7.8 ±0.7	5.3 ±0.7
Hole centre to component centre	P ₂	6.35 ±1.3	6.35 ±1.3	6.35 ±1.3	12.7 ±1.3	12.7 ±1.3	19.05 ±1.3	19.05 ±1.3
Feed hole centre to bottom edge of the component	H	16.5 ±0.3	16.5 ±0.3	16.5 ±0.5	16.5 ±0.5	16.5 ±0.5	16.5 ±0.5	16.5 ±0.5
		18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±0.5	18.5 ±0.5
Feed hole centre to top edge of the component	H ₁	H+H _{component} < H ₁ 32.25 max.	H+H _{component} < H ₁ 32.25 max.	H+H _{component} < H ₁ 24.5 to 31.5	H+H _{component} < H ₁ 25.0 to 31.5	H+H _{component} < H ₁ 26.0 to 37.0	H+H _{component} < H ₁ 30.0 to 43.0	H+H _{component} < H ₁ 35.0 to 45.0
Pin spacing at upper edge of carrier tape	F	2.5 ±0.5	5.0 ^{+0.8} _{-0.2}	7.5 ±0.8	10.0 ±0.8	15 ±0.8	22.5 ±0.8	27.5 ±0.8
Pin diameter	d	0.4 ±0.05	0.5 ±0.05	*0.5 ±0.05 or 0.6 ^{+0.06} _{-0.05}	*0.5 ±0.05 or 0.6 ^{+0.06} _{-0.05}	0.8 ^{+0.08} _{-0.05}	0.8 ^{+0.08} _{-0.05}	0.8 ^{+0.08} _{-0.05}
Component alignment	Δh	± 2.0 max.	± 2.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.
Total tape thickness	t	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2
Package (see also page 149)		ROLL/AMMO			AMMO			
		REEL ϕ 360 max. ϕ 30 ±1	B 52 ±2 58 ±2	} depending on comp. dimensions	REEL ϕ 360 max. ϕ 30 ±1	52 ±2 B 58 ±2 or 66 ±2	REEL ϕ 500 max. ϕ 25 ±1	54 ±2 B 60 ±2 68 ±2
see details page 150.								

Dims in mm.

* Diameter of pins see General Data.

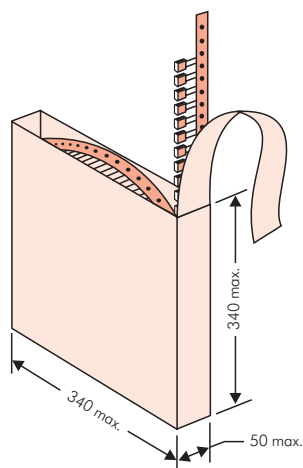
* PCM 10 and PCM 15 can be crimped to PCM 7.5.

Position of components according to PCM 7.5 (sketch 11). P₀ = 12.7 or 15.0 is possible

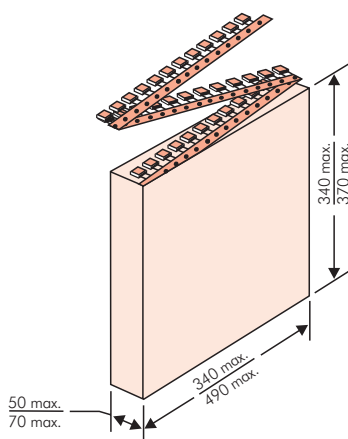
Please clarify customer-specific deviations with the manufacturer.

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

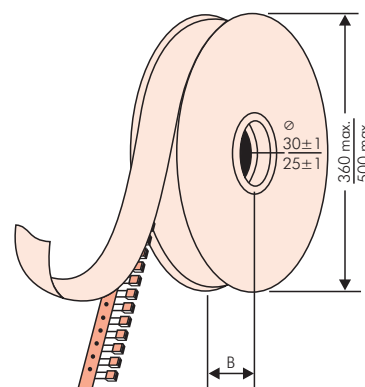
■ ROLL Packaging



■ AMMO Packaging



■ REEL Packaging



BAR CODE (Labelling)

Labelling of package units in plain text and with alphanumerical Bar Code

Scanner decoding of

- WIMA supplier number
- Customer's P/O number
- Customer's part number
- WIMA confirmation number
- WIMA part number
- Lot number
- Date code
- Quantity

In addition part description of

- article
- capacitance value
- rated voltage
- dimensions
- capacitance tolerance
- packing

as well as gross weight and customer's name are indicated in plain text.

WIMA Best Capacitors Made in Germany		Werk Unna	
Supplier-ID: 123456789	RoHS 2011/65/EC	Date Code: 08.10.10	
Purchase Order No. (P/O): Bestellung xyz		Quantity: 5.000	
Customer Part No.: KUNDETEILENUMMER		Customer No.: 0000100002	
WIMA Confirmation No.: 0001004063000100		Gross Weight [g]: 1870	
WIMA Part No.: MKS2C034701C00K89D			
Handling Unit:	MKS 2	QTY: 5.000	COO: DE
1000067326	MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RMS		
	Standard 10% Loss - Standard Drähte 6-2		
	Vorlage Debitur Inland	Week 03/2011	

BARCODE „Code 39“

Packing Quantities for Capacitors with Radial Pins in PCM 2.5 mm to 22.5 mm

PCM	Size				bulk	pcs. per packing unit									
						ROLL		REEL		AMMO					
	W	H	L	Codes		S	H16.5	H18.5	ø 360	ø 500	340 × 340	490 × 370			
						N	O	F	I	H	J	A	C	B	D
2.5 mm	2.5	7	4.6	0B	5000										
	3	7.5	4.6	0C	5000										
	3.8	8.5	4.6	0D	5000										
	4.6	9	4.6	0E	5000										
	5.5	10	4.6	0F	5000										
5 mm	2.5	6.5	7.2	1A	5000										
	3	7.5	7.2	1B	5000										
	3.5	8.5	7.2	1C	5000										
	4.5	6	7.2	1D	6000										
	4.5	9.5	7.2	1E	4000										
	5	10	7.2	1F	3500										
	5.5	7	7.2	1G	4000										
	5.5	11.5	7.2	1H	2500										
	6.5	8	7.2	1I	2500										
	7.2	8.5	7.2	1J	2500										
	7.2	13	7.2	1K	2000										
	8.5	10	7.2	1L	2000										
	8.5	14	7.2	1M	1500										
11	16	7.2	1N	1000											
7.5 mm	2.5	7	10	2A	5000										
	3	8.5	10	2B	5000										
	4	9	10	2C	4000										
	4.5	9.5	10.3	2D	3500										
	5	10.5	10.3	2E	3000										
	5.7	12.5	10.3	2F	2000										
	7.2	12.5	10.3	2G	1500										
10 mm	3	9	13	3A	3000										
	4	8.5	13.5	FA	3000										
	4	9	13	3C	3000										
	4	9.5	13	3D	3000										
	5	10	13.5	FB	2000										
	5	11	13	3F	3000										
	6	12	13	3G	2400										
	6	12.5	13	3H	2400										
8	12	13	3I	2000											
15 mm	5	11	18	4B	2400										
	5	13	19	FC	1000										
	6	12.5	18	4C	2000										
	6	14	19	FD	1000										
	7	14	18	4D	1600										
	7	15	19	FE	1000										
	8	15	18	4F	1200										
	8	17	19	FF	500										
	9	14	18	4H	1200										
	9	16	18	4J	900										
	10	18	19	FG	500										
11	14	18	4M	1000											
22.5 mm	5	14	26.5	5A	1200										
	6	15	26.5	5B	1000										
	7	16.5	26.5	5D	760										
	8	20	28	FH	500										
	8.5	18.5	26.5	5F	500										
	10	22	28	FI	540*										
	10.5	19	26.5	5G	680*										
	10.5	20.5	26.5	5H	680*										
	11	21	26.5	5I	680*										
	12	24	28	FJ	450*										

* TPS (Tray-Packing-System). Plate versions may have different packing units.
Samples and pre-production needs on request.

■ Moulded versions.

Rights reserved to amend design data without prior notification.

Packing Quantities for Capacitors with Radial Pins in PCM 27.5 mm to 52.5 mm

PCM	Size				bulk	ROLL		pcs. per packing unit				AMMO			
								REEL							
	W	H	L	Codes		H16.5	H18.5	ø 360	ø 500	340 × 340	490 × 370	H16.5	H18.5	H16.5	H18.5
					S	N	O	F	I	H	J	A	C	B	D
27.5 mm	9	19	31.5	6A	640*	–	–	–	–	460/340*	–	–	–	420	–
	11	21	31.5	6B	544*	–	–	–	–	380/280*	–	–	–	350	–
	13	24	31.5	6D	448*	–	–	–	–	300	–	–	–	290	–
	13	25	33	FK	336*	–	–	–	–	–	–	–	–	–	–
	15	26	31.5	6F	384*	–	–	–	–	270	–	–	–	250	–
	15	26	33	FL	288*	–	–	–	–	–	–	–	–	–	–
	17	29	31.5	6G	176*	–	–	–	–	–	–	–	–	–	–
	17	34.5	31.5	6I	176*	–	–	–	–	–	–	–	–	–	–
	19	30	31.5	6L	50*	–	–	–	–	–	–	–	–	–	–
	20	32	33	FM	216*	–	–	–	–	–	–	–	–	–	–
	20	39.5	31.5	6J	144*	–	–	–	–	–	–	–	–	–	–
37.5 mm	9	19	41.5	7A	480*	–	–	–	–	–	–	–	–	–	–
	11	22	41.5	7B	408*	–	–	–	–	–	–	–	–	–	–
	13	24	41.5	7C	252*	–	–	–	–	–	–	–	–	–	–
	15	26	41.5	7D	144*	–	–	–	–	–	–	–	–	–	–
	17	29	41.5	7E	132*	–	–	–	–	–	–	–	–	–	–
	19	32	41.5	7F	108*	–	–	–	–	–	–	–	–	–	–
	20	39.5	41.5	7G	108*	–	–	–	–	–	–	–	–	–	–
	24	45.5	41.5	7H	84*	–	–	–	–	–	–	–	–	–	–
	31	46	41.5	7I	72*	–	–	–	–	–	–	–	–	–	–
	35	50	41.5	7J	35*	–	–	–	–	–	–	–	–	–	–
	40	55	41.5	7K	28*	–	–	–	–	–	–	–	–	–	–
48.5 mm	19	31	56	8D	50*	–	–	–	–	–	–	–	–	–	–
	23	34	56	8E	72*	–	–	–	–	–	–	–	–	–	–
	27	37.5	56	8H	60*	–	–	–	–	–	–	–	–	–	–
	33	48	56	8J	48*	–	–	–	–	–	–	–	–	–	–
	37	54	56	8L	25*	–	–	–	–	–	–	–	–	–	–
52.5 mm	35	50	57	9F	25*	–	–	–	–	–	–	–	–	–	–
	45	55	57	9H	20*	–	–	–	–	–	–	–	–	–	–
	45	65	57	9J	20*	–	–	–	–	–	–	–	–	–	–

* for 2-inch transport pitches.

* TPS (Tray-Packing-System). Plate versions may have different packing units.
Samples and pre-production needs on request.

■ Moulded versions.

Rights reserved to amend design data without prior notification.



WIMA Part Number System

A WIMA part number consists of 18 digits and is composed as follows:

Field 1 - 4: Type description
 Field 5 - 6: Rated voltage
 Field 7 - 10: Capacitance
 Field 11 - 12: Size and PCM
 Field 13 - 14: Version code (e.g. Snubber versions)
 Field 15: Capacitance tolerance
 Field 16: Packing
 Field 17 - 18: Pin length (untaped)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
M	K	S	2	C	0	2	1	0	0	1	A	0	0	M	S	S	D
MKS 2				63 VDC		0.01 μF				2.5x6.5x7.2		-		20%	bulk	6 -2	
Type description:				Rated voltage:		Capacitance:				Size:				Tolerance:			
SMD-PET = SMDT				2.5 VDC = A1		22 pF = 0022				4.8x3.3x3 Size 1812 = KA				20% = M			
SMD-PPS = SMDI				4 VDC = A2		47 pF = 0047				4.8x3.3x4 Size 1812 = KB				10% = K			
FKP 02 = FKP0				14 VDC = A3		100 pF = 0100				5.7x5.1x3.5 Size 2220 = QA				5% = J			
MKS 02 = MKS0				28 VDC = A4		150 pF = 0150				5.7x5.1x4.5 Size 2220 = QB				2.5% = H			
FKS 2 = FKS2				40 VDC = A5		220 pF = 0220				7.2x6.1x3 Size 2824 = TA				1% = E			
FKP 2 = FKP2				5 VDC = A6		330 pF = 0330				7.2x6.1x5 Size 2824 = TB				...			
MKS 2 = MKS2				50 VDC = B0		470 pF = 0470				10.2x7.6x5 Size 4030 = VA				Packing: AMMO H16.5 340x340 = A AMMO H16.5 490x370 = B AMMO H18.5 340x340 = C AMMO H18.5 490x370 = D REEL H16.5 360 = F REEL H16.5 500 = H REEL H18.5 360 = I REEL H18.5 500 = J ROLL H16.5 = N ROLL H18.5 = O BLISTER W12 180 = P BLISTER W12 330 = Q BLISTER W16 330 = R BLISTER W24 330 = T Bulk/TPS Standard = S ...			
MKP 2 = MKP2				63 VDC = C0		680 pF = 0680				12.7x10.2x6 Size 5040 = XA							
FKS 3 = FKS3				100 VDC = D0		1000 pF = 1100				15.3x13.7x7 Size 6054 = YA							
FKP 3 = FKP3				160 VDC = E0		1500 pF = 1150				2.5x7x4.6 PCM 2.5 = 0B							
MKS 4 = MKS4				250 VDC = F0		2200 pF = 1220				3x7.5x4.6 PCM 2.5 = 0C							
MKP 4 = MKP4				400 VDC = G0		3300 pF = 1330				2.5x6.5x7.2 PCM 5 = 1A							
MKP 10 = MKP1				450 VDC = H0		4700 pF = 1470				3x7.5x7.2 PCM 5 = 1B							
FKP 4 = FKP4				600 VDC = I0		6800 pF = 1680				2.5x7x10 PCM 7.5 = 2A							
FKP 1 = FKP1				630 VDC = J0		0.01 μF = 2100				3x8.5x10 PCM 7.5 = 2B							
MKP-X2 = MKX2				700 VDC = K0		0.022 μF = 2220				3x9x13 PCM 10 = 3A							
MKP-X2 R = MKXR				800 VDC = L0		0.047 μF = 2470				4x9x13 PCM 10 = 3C							
MKP-Y2 = MKY2				850 VDC = M0		0.1 μF = 3100				5x11x18 PCM 15 = 4B							
MP 3-X2 = MPX2				900 VDC = N0		0.22 μF = 3220				6x12.5x18 PCM 15 = 4C							
MP 3-X1 = MPX1				1000 VDC = O1		0.47 μF = 3470				5x14x26.5 PCM 22.5 = 5A							
MP 3-Y2 = MPY2				1100 VDC = P0		1 μF = 4100				6x15x26.5 PCM 22.5 = 5B							
MP 3R-Y2 = MPRY				1200 VDC = Q0		2.2 μF = 4220				9x19x31.5 PCM 27.5 = 6A							
Snubber MKP = SNMP				1250 VDC = R0		4.7 μF = 4470				11x21x31.5 PCM 27.5 = 6B							
Snubber FKP = SNFP				1500 VDC = S0		10 μF = 5100				9x19x41.5 PCM 37.5 = 7A							
GTO MKP = GTOM				1600 VDC = T0		22 μF = 5220				11x22x41.5 PCM 37.5 = 7B							
DC-LINK MKP 3 = DCP3				2000 VDC = U0		47 μF = 5470				94x49x182 DCH_ = H0							
DC-LINK MKP 4 = DCP4				2500 VDC = V0		100 μF = 6100				94x77x182 DCH_ = H1							
DC-LINK MKP 4S = DCPS				3000 VDC = W0		220 μF = 6220				...							
DC-LINK MKP 5 = DCP5				4000 VDC = X0		1 F = A010				Version code: Standard = 00 Version A1 = 1A Version A1.1.1 = 1B Version A2 = 2A ... Pin length (untaped) 3.5 ±0.5 = C9 6 -2 = SD 16 ±1 = P1 ...							
DC-LINK MKP 6 = DCP6				6000 VDC = Y0		2.5 F = A025											
DC-LINK HC = DCH_				250 VAC = 0W		50 F = A500											
DC-LINK HY = DCHY				275 VAC = 1W		100 F = B100											
SuperCap C = SCSC				300 VAC = 2W		110 F = B110											
SuperCap MC = MC_				400 VAC = 3W		600 F = B600											
SuperCap C60 = SCSC				440 VAC = 4W		1200 F = C120											
SuperCap R = SCSR				500 VAC = 5W		...											
SuperCap MR = MRPP				...		...											
...				...		...											

Mouser Electronics

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WIMA:

SNMPG032205DD2KY00	SNMPO142007I1JKS00	SNMPO144008LD4KSSD	SNMPJ041007D1AJS00
SNMPJ042207G1AJS00	SNMPO134707D1AJS00	SNMPO142207I1AJS00	SNMPT034707F1AJS00
SNMPT034707F2HKS00	SNMPT036807G2HKS00	SNMPT041007H1AJS00	SNMPT042208J1AJS00
SNMPU031007B1AJS00	SNMPU032206I4LKS00	SNMPU032207D1AJS00	SNMPU041008J1AJS00
SNMPO134707D1AKS00	SNMPO141508E1AKS00	SNMPJ041007DD2MSSD	SNMPJ045007I1JKS00
SNMPO142207I3GJS00	SNMPO141007G1AMS00	SNMPJ036807C1JKS00	SNMPO142207I3GKS00
SNMPJ03680SHD2MY00	SNMPJ041507F1JKS00	SNMPO14150SMD2KY00	SNMPO14220SN1AJY00
SNMPW041508LB8KS00	SNMPT042208JD4KSSD	SNMPJ04100SI1AMY00	SNMPT043008LD4KSSD
SNMPJ043307HD2MSSD	SNMPO14100SL1AMY00	SNMPO141508E1AMS00	SNMPO141007G1AKS00
SNMPO141507HD2KSSD	SCMKP2.2/1KV/10A3.5	SNMPJ041007D1AMS00	SNMPJ04100SID2MY00
SNMPU04200SSD4KY00	SNMPT043008L3OKS00	SNMPO134707D3AMS00	SNMPU024705GD2KSSD
SNMPT031005ID2KSSD	SNMPO132206BD2MSSD	SNMPJ04330SMD2MY00	SNMPT041007H3IMS00
SNMPU02470S6D2KY00	SNMPU031507C3AKS00	SNMPO136807E1KMS00	SNMPJ03100S4B5MY00
SNMPJ03680SH1JKY00	SNMPJ04150SK1JKY00	SNMPJ031005DB5MS00	SNMPO14220SN3GKY00
SNMPT03470SK1AJY00	SNMPJ05100SS3EMY00	SNMPT032206F4LJS00	SNMPJ044707I1AKS00
SNMPJ036807CD2MSSD	SNMPJ051008L3EMS00	SNMPU042008LD4KSSD	SNMPO141007GD2KSSD
SNMPT042208J1AMS00	SNMPT043008L1AMS00	SNMPT042008J3CKS00	SNMPO141007G4CKS00
SNMPG051508L4AKS00	SNMPU033307F2JKS00	SNMPT034707F2JKS00	SNMPO142207I1JKS00
SNMPT033307D1AKS00	SNMPO134707D3AKS00	SNMPT041007H1JKS00	SNMPO141007G1AJS00
SNMPO141007GB8KS00	SNMPJ043307H1AKS00	SNMPO136807ED4KSSD	SNMPU034707G3IKS00
SNMPO143008JD4KSSD	SNMPO134707D1IJS00	SNMPJ036807CD2KSSD	SNMPW034708H1IKS00
SNMPU031506FD2JSSD	SNMPO142208H1AKS00	SNMPJ043307H1AJS00	SNMPT036807GFSKS00
SNMPT034707F3AKS00	SNMPO141007G4AMS00	SNMPJ043307H1AMS00	SNMPU031506FD2MSSD
SNMPO142208HB8KS00	SNMPT041507I1AKS00	SNMPO131005FB5KS00	SNMPJ041007D1AKS00
SNMPU041508J3GJS00	SNMPJ041007D3AMS00	SNMPJ041007DD2JSSD	SNMPO134707D3GKS00