

## 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 2002/95/EC

### Typical Applications

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

### Construction

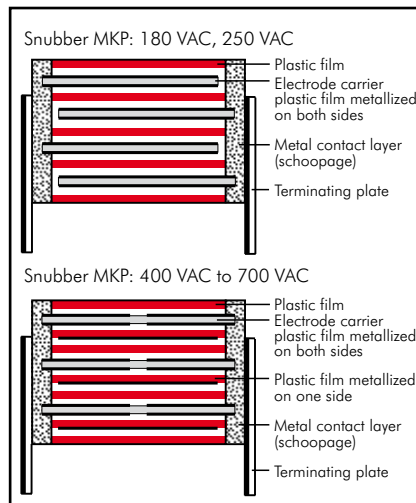
#### Dielectric:

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  $\mu$ F to 25  $\mu$ 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:

$-55^\circ\text{C}$  to  $+100^\circ\text{C}$

#### Climatic test category:

55/100/56 in accordance with IEC

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

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

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

$C > 0.33 \mu\text{F}$ :  $\geq 30\,000 \text{ sec (M}\Omega \times \mu\text{F)}$

(mean value: 100 000 sec)

Measuring voltage: 100 V/1 min.

#### Test voltage:

$L < 41.5$ :  $1.6 U_r$ , 2 sec

$L = 41.5$ :  $1.4 U_r$ , 2 sec

$L = 56$ :  $1.2 U_r$ , 2 sec

#### 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 $\mu\text{F}$ | max. pulse rise time V/ $\mu\text{sec}$ 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 ... 6.0               | 80  | 100     | 150     | 300      | 400      | -        | -        |
| 7.0 ... 10                | 50  | 70      | 75      | -        | -        | -        | -        |
| 15 ... 25                 | 10  | 20      | -       | -        | -        | -        | -        |

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.

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

#### Specific dissipation:

| Box size*<br>WxHxL in mm | Specific dissipation in Watts per K<br>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

Transportation-safe packing in cardboard boxes.

#### Packing units:

| L    | pcs. per packing unit |
|------|-----------------------|
| 18   | 100                   |
| 26.5 | 100                   |
| 31.5 | 100                   |
| 41.5 | 100                   |
| 56   | 50                    |

## 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 $\mu\text{F}$  |                  |      |      |              | 7                | 14   | 18   | SNMPG03100S2 | 7                | 16.5 | 26.5 | SNMPJ03100S4 |
| 0.15 "             |                  |      |      |              | 8                | 15   | 18   | SNMPG03150S3 | 8.5              | 18.5 | 26.5 | SNMPJ03150S5 |
| 0.22 "             | 7                | 14   | 18   | SNMPF03220S2 | 7                | 16.5 | 26.5 | SNMPG03220S4 | 10.5             | 19   | 26.5 | SNMPJ03220S6 |
| 0.33 "             | 8                | 15   | 18   | SNMPF03330S3 | 8.5              | 18.5 | 26.5 | SNMPG03330S5 | 11               | 21   | 26.5 | SNMPJ03330S8 |
| 0.47 "             | 7                | 16.5 | 26.5 | SNMPF03470S4 | 10.5             | 19   | 26.5 | SNMPG03470S6 | 11               | 21   | 31.5 | SNMPJ03470S9 |
| 0.68 "             | 8.5              | 18.5 | 26.5 | SNMPF03680S5 | 11               | 21   | 31.5 | SNMPG03680S9 | 15               | 26   | 31.5 | SNMPJ03680SB |
|                    |                  |      |      |              |                  |      |      |              | 13               | 24   | 41.5 | SNMPJ03680SH |
| 1.0 $\mu\text{F}$  | 11               | 21   | 26.5 | SNMPF04100S8 | 13               | 24   | 31.5 | SNMPG04100SA | 17               | 29   | 31.5 | SNMPJ04100SC |
|                    |                  |      |      |              | 13               | 24   | 41.5 | SNMPG04100SH | 15               | 26   | 41.5 | SNMPJ04100SI |
| 1.5 "              | 13               | 24   | 31.5 | SNMPF04150SA | 17               | 29   | 31.5 | SNMPG04150SC | 19               | 32   | 41.5 | SNMPJ04150SK |
|                    | 11               | 22   | 41.5 | SNMPF04150SF | 15               | 26   | 41.5 | SNMPG04150SI |                  |      |      |              |
| 2.0 "              | 15               | 26   | 31.5 | SNMPF04200SB | 17               | 29   | 41.5 | SNMPG04200SJ | 20               | 39.5 | 41.5 | SNMPJ04200SL |
|                    | 13               | 24   | 41.5 | SNMPF04200SH |                  |      |      |              |                  |      |      |              |
| 2.2 "              | 15               | 26   | 31.5 | SNMPF04220SB | 17               | 29   | 41.5 | SNMPG04220SJ | 20               | 39.5 | 41.5 | SNMPJ04220SL |
|                    | 13               | 24   | 41.5 | SNMPF04220SH |                  |      |      |              |                  |      |      |              |
| 2.5 "              | 17               | 29   | 31.5 | SNMPF04250SC | 19               | 32   | 41.5 | SNMPG04250SK | 24               | 45.5 | 41.5 | SNMPJ04250SM |
|                    | 15               | 26   | 41.5 | SNMPF04250SI |                  |      |      |              |                  |      |      |              |
| 3.0 "              | 17               | 34.5 | 31.5 | SNMPF04300SD | 20               | 39.5 | 41.5 | SNMPG04300SL | 24               | 45.5 | 41.5 | SNMPJ04300SM |
|                    | 15               | 26   | 41.5 | SNMPF04300SI |                  |      |      |              |                  |      |      |              |
| 3.3 "              | 17               | 34.5 | 31.5 | SNMPF04330SD | 20               | 39.5 | 41.5 | SNMPG04330SL | 24               | 45.5 | 41.5 | SNMPJ04330SM |
|                    | 15               | 26   | 41.5 | SNMPF04330SI |                  |      |      |              |                  |      |      |              |
| 4.0 "              | 19               | 32   | 41.5 | SNMPF04400SK | 24               | 45.5 | 41.5 | SNMPG04400SM | 31               | 46   | 41.5 | SNMPJ04400SN |
| 4.7 "              | 19               | 32   | 41.5 | SNMPF04470SK | 24               | 45.5 | 41.5 | SNMPG04470SM | 31               | 46   | 41.5 | SNMPJ04470SN |
| 5.0 "              | 20               | 39.5 | 41.5 | SNMPF04500SL | 24               | 45.5 | 41.5 | SNMPG04500SM | 31               | 46   | 41.5 | SNMPJ04500SN |
| 6.0 "              | 20               | 39.5 | 41.5 | SNMPF04600SL | 31               | 46   | 41.5 | SNMPG04600SN | 33               | 48   | 56   | SNMPJ04600SR |
| 7.0 "              | 24               | 45.5 | 41.5 | SNMPF04700SM | 31               | 46   | 41.5 | SNMPG04700SN | 33               | 48   | 56   | SNMPJ04700SR |
| 8.0 "              | 24               | 45.5 | 41.5 | SNMPF04800SM | 33               | 48   | 56   | SNMPG04800SR | 37               | 54   | 56   | SNMPJ04800SS |
| 10.0 $\mu\text{F}$ | 31               | 46   | 41.5 | SNMPF05100SN | 33               | 48   | 56   | SNMPG05100SR |                  |      |      |              |
| 15.0 "             | 33               | 48   | 56   | SNMPF05150SR | 37               | 54   | 56   | SNMPG05150SS |                  |      |      |              |
| 20.0 "             | 37               | 54   | 56   | SNMPF05200SS |                  |      |      |              |                  |      |      |              |
| 25.0 "             | 37               | 54   | 56   | SNMPF05250SS |                  |      |      |              |                  |      |      |              |

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

Dims. in mm.

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

Versions and dimensional drawings see page 91.

|                            |
|----------------------------|
| Part number completion:    |
| Version codes see page 94. |
| Tolerance: 20 % = M        |
| 10 % = K                   |
| 5 % = J                    |
| Packing: bulk = S          |
| Pin length: none = 00      |

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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 | SNMPO12680S4_____ | 10.5              | 19   | 26.5 | SNMPT02680S6_____ |
| 0.1 µF      | 8.5               | 18.5 | 26.5 | SNMPO13100S5_____ | 11                | 21   | 26.5 | SNMPT03100S8_____ |
| 0.15 "      | 11                | 21   | 26.5 | SNMPO13150S8_____ | 13                | 24   | 31.5 | SNMPT03150SA_____ |
|             |                   |      |      |                   | 11                | 22   | 41.5 | SNMPT03150SG_____ |
| 0.22 "      | 11                | 21   | 31.5 | SNMPO13220S9_____ | 15                | 26   | 31.5 | SNMPT03220SB_____ |
|             |                   |      |      |                   | 13                | 24   | 41.5 | SNMPT03220SH_____ |
| 0.33 "      | 15                | 26   | 31.5 | SNMPO13330SB_____ | 17                | 34.5 | 31.5 | SNMPT03330SD_____ |
|             | 13                | 24   | 41.5 | SNMPO13330SH_____ | 15                | 26   | 41.5 | SNMPT03330SI_____ |
| 0.47 "      | 17                | 29   | 31.5 | SNMPO13470SC_____ | 19                | 32   | 41.5 | SNMPT03470SK_____ |
|             | 15                | 26   | 41.5 | SNMPO13470SI_____ |                   |      |      |                   |
| 0.68 "      | 17                | 29   | 41.5 | SNMPO13680SJ_____ | 20                | 39.5 | 41.5 | SNMPT03680SL_____ |
| 1.0 µF      | 20                | 39.5 | 41.5 | SNMPO14100SL_____ | 24                | 45.5 | 41.5 | SNMPT04100SM_____ |
|             | 23                | 34   | 56   | SNMPO14100SP_____ |                   |      |      |                   |
| 1.5 "       | 24                | 45.5 | 41.5 | SNMPO14150SM_____ | 31                | 46   | 41.5 | SNMPT04150SN_____ |
|             | 23                | 34   | 56   | SNMPO14150SP_____ |                   |      |      |                   |
| 2.0 "       | 31                | 46   | 41.5 | SNMPO14200SN_____ | 33                | 48   | 56   | SNMPT04200SR_____ |
|             | 27                | 37.5 | 56   | SNMPO14200SQ_____ |                   |      |      |                   |
| 2.2 "       | 31                | 46   | 41.5 | SNMPO14220SN_____ | 33                | 48   | 56   | SNMPT04220SR_____ |
|             | 27                | 37.5 | 56   | SNMPO14220SQ_____ |                   |      |      |                   |
| 2.5 "       | 33                | 48   | 56   | SNMPO14250SR_____ | 37                | 54   | 56   | SNMPT04250SS_____ |
| 3.0 "       | 33                | 48   | 56   | SNMPO14300SR_____ | 37                | 54   | 56   | SNMPT04300SS_____ |
| 3.3 "       | 33                | 48   | 56   | SNMPO14330SR_____ |                   |      |      |                   |
| 4.0 "       | 37                | 54   | 56   | SNMPO14400SS_____ |                   |      |      |                   |
| 4.7 "       | 37                | 54   | 56   | SNMPO14470SS_____ |                   |      |      |                   |
| 5.0 "       | 37                | 54   | 56   | SNMPO14500SS_____ |                   |      |      |                   |

| 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 | SNMPO02470S6_____ | 11                | 21   | 31.5 | SNMPW02470S9_____ |
| 0.068 "     | 11                | 21   | 26.5 | SNMPO02680S8_____ | 13                | 24   | 31.5 | SNMPW02680SA_____ |
|             |                   |      |      |                   | 11                | 22   | 41.5 | SNMPW02680SG_____ |
| 0.1 µF      | 13                | 24   | 31.5 | SNMPO03100SA_____ | 15                | 26   | 31.5 | SNMPW03100SB_____ |
|             | 11                | 22   | 41.5 | SNMPO03100SG_____ | 13                | 24   | 41.5 | SNMPW03100SH_____ |
| 0.15 "      | 15                | 26   | 31.5 | SNMPO03150SB_____ | 15                | 26   | 41.5 | SNMPW03150SI_____ |
|             | 13                | 24   | 41.5 | SNMPO03150SH_____ |                   |      |      |                   |
| 0.22 "      | 17                | 34.5 | 31.5 | SNMPO03220SD_____ | 19                | 32   | 41.5 | SNMPW03220SK_____ |
|             | 15                | 26   | 41.5 | SNMPO03220SI_____ |                   |      |      |                   |
| 0.33 "      | 19                | 32   | 41.5 | SNMPO03330SK_____ | 19                | 31   | 56   | SNMPW03330SO_____ |
| 0.47 "      | 20                | 39.5 | 41.5 | SNMPO03470SL_____ | 27                | 37.5 | 56   | SNMPW03470SQ_____ |
| 0.68 "      | 24                | 45.5 | 41.5 | SNMPO03680SM_____ | 33                | 48   | 56   | SNMPW03680SR_____ |
| 1.0 µF      | 33                | 48   | 56   | SNMPO04100SR_____ | 33                | 48   | 56   | SNMPW04100SR_____ |
| 1.5 "       | 33                | 48   | 56   | SNMPO04150SR_____ | 37                | 54   | 56   | SNMPW04150SS_____ |
| 2.0 "       | 37                | 54   | 56   | SNMPO04200SS_____ |                   |      |      |                   |

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

Dims. in mm.

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

Versions and dimensional drawings see page 91.

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Part number completion:

Version codes see page 94.

Tolerance: 20 % = M

10 % = K

5 % = J

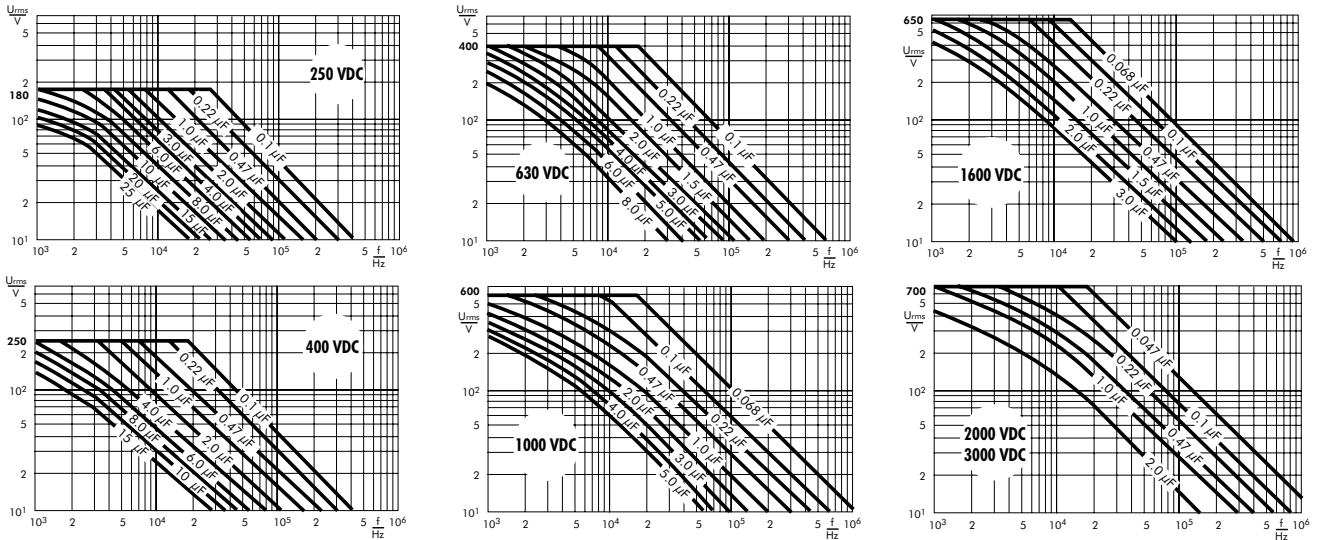
Packing: bulk = S

Pin length: none = 00

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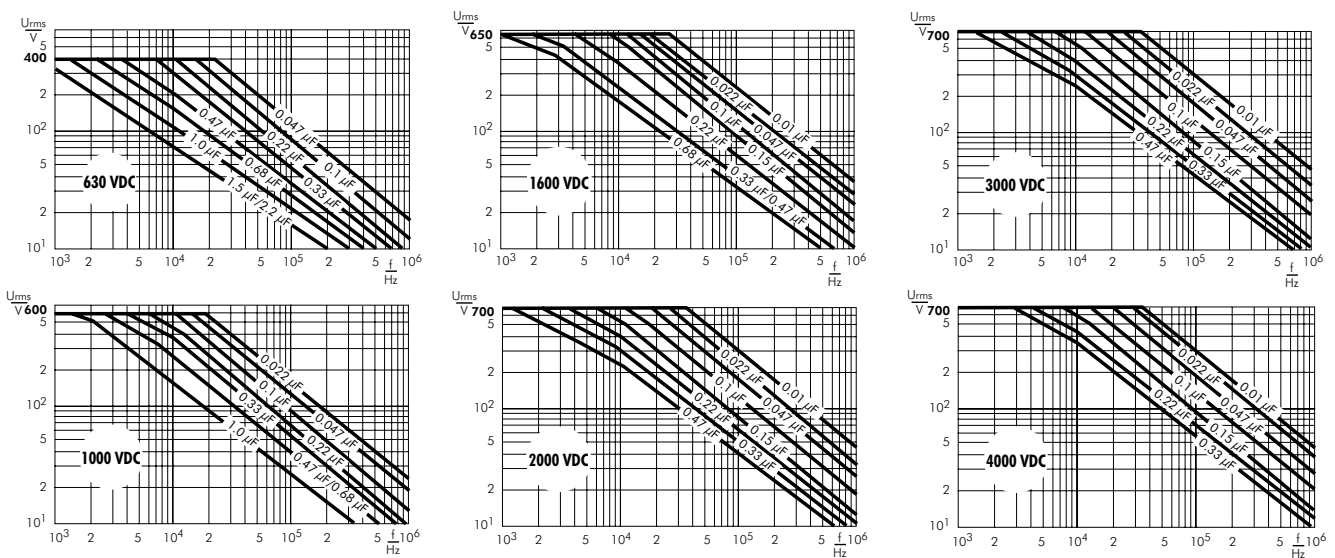
## Continuation

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



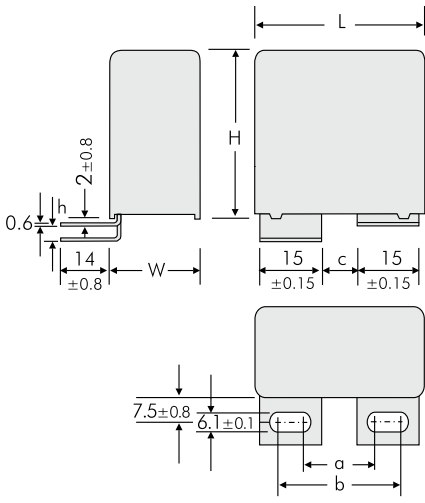
# WIMA Snubber FKP

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

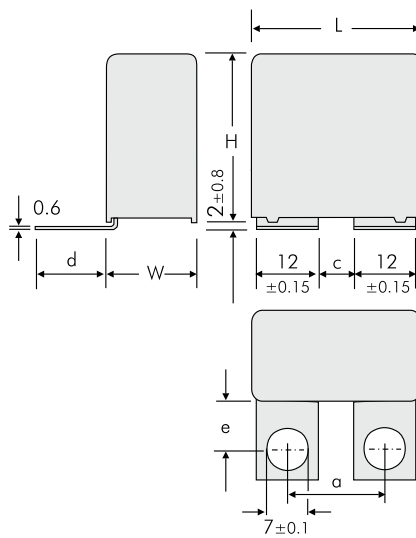


Technical information and general data see page 89.

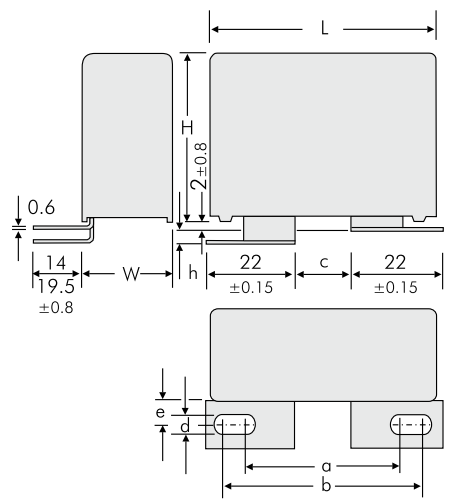
# Versions of WIMA Snubber-Capacitors



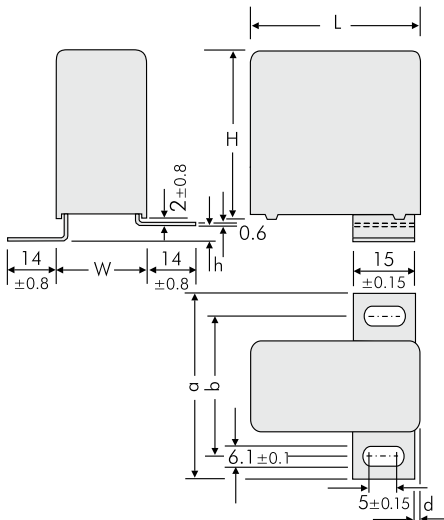
| Version       | L    | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 | h<br>±0.8 |
|---------------|------|-----------|-----------|-----------|-----------|
| <b>A1</b>     | 41.5 | 17.5      | 27.5      | 7.5       | 0         |
| <b>A1.5</b>   | 41.5 | 17.5      | 27.5      | 7.5       | 3.5       |
| <b>A1</b>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



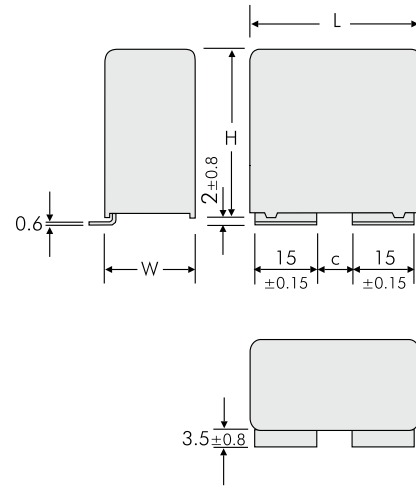
| Version       | L    | a<br>±0.5 | c<br>±0.5 | d<br>±0.8 | e<br>±0.8 |
|---------------|------|-----------|-----------|-----------|-----------|
| <b>A1.6</b>   | 41.5 | 18        | 6         | 21.5      | 16        |
| <b>A1.6.1</b> | 41.5 | 22        | 10        | 18.5      | 13        |
| <b>A1.6</b>   | 56   | 29        | 17        | 21.5      | 16        |



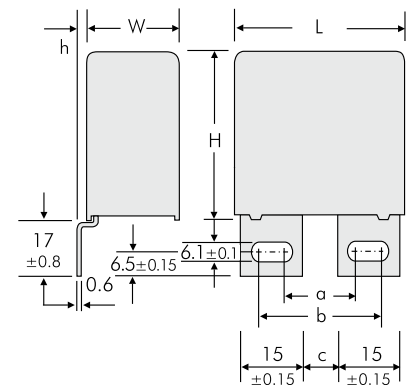
| Version       | L    | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 | d<br>±0.1 | e<br>±0.8 | h<br>±0.8 |
|---------------|------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>A2</b>     | 41.5 | 40.5      | 46.5      | 14.5      | 8.4       | 7.5       | 0         |
| <b>A2.2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



| Version       | L    | d<br>±1.0 | h<br>±0.8 | a<br>±0.8 | b<br>±0.8 | W  |
|---------------|------|-----------|-----------|-----------|-----------|----|
| <b>A1.3.1</b> | 31.5 | 2         | 0         | 47        | 34        | 19 |
| <b>A1.3.2</b> | 31.5 | 2         | 3.5       | 47        | 34        | 19 |
| <b>A1.8</b>   | 41.5 | 2         | 0         | 47        | 34        | 19 |

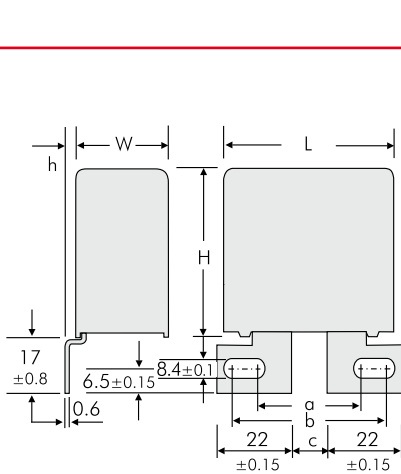


| Version       | L    | c<br>±0.5 |
|---------------|------|-----------|
| <b>A1.7</b>   | 41.5 | 7.5       |
| <b>A1.7</b>   | 56   | 10        |
| <b>A1.7.1</b> | 56   | 18        |

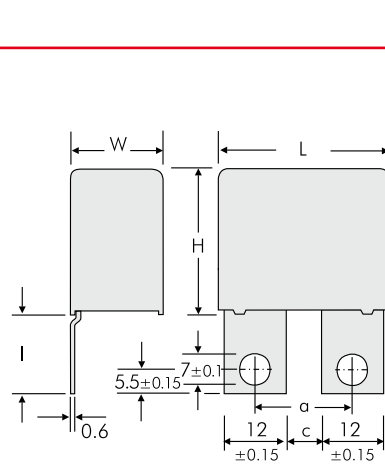


| Version      | L    | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 | h<br>±0.8 |
|--------------|------|-----------|-----------|-----------|-----------|
| <b>A3</b>    | 41.5 | 17.5      | 27.5      | 7.5       | 0         |
| <b>A3.5</b>  | 41.5 | 17.5      | 27.5      | 7.5       | 3         |
| <b>A3</b> 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

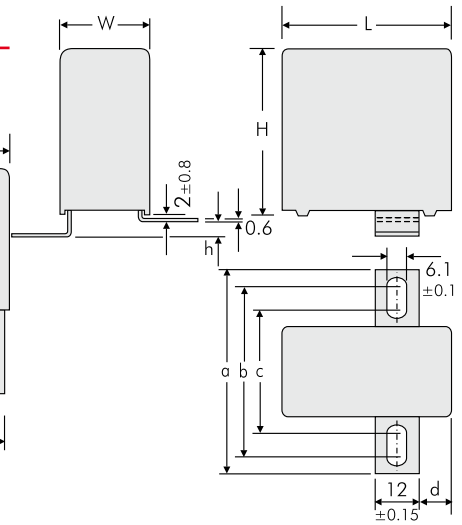
# Versions of WIMA Snubber-Capacitors



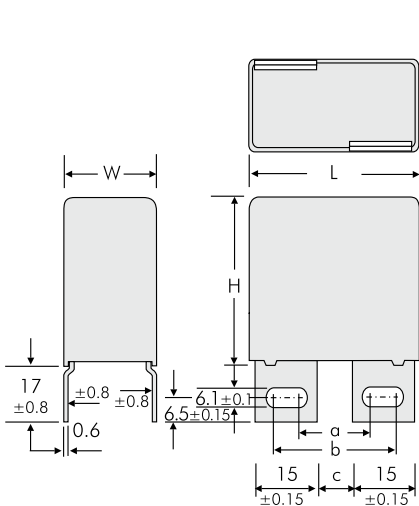
| Version      | L    | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 | h<br>±0.8 |
|--------------|------|-----------|-----------|-----------|-----------|
| <b>A3.9</b>  | 41.5 | 40.5      | 46.5      | 14.5      | 0         |
| <b>A3.11</b> | 41.5 | 40.5      | 46.5      | 14.5      | 3         |
| <b>A3.2</b>  | 56   | 40.5      | 46.5      | 14.5      | 0         |
| <b>A3.3</b>  | 56   | 40.5      | 46.5      | 14.5      | 3         |



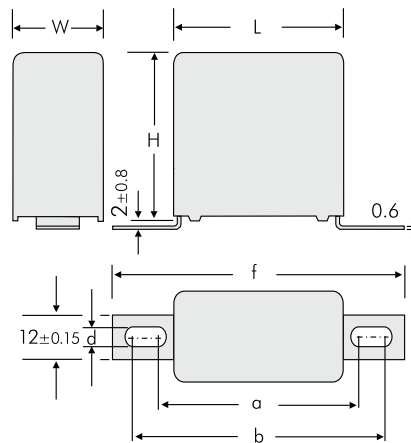
| Version       | L           | a<br>±0.5 | c<br>±0.5 | l<br>±0.8 |
|---------------|-------------|-----------|-----------|-----------|
| <b>A3.8</b>   | 41.5 W ≥ 17 | 18        | 6         | 23        |
| <b>A3.8.1</b> | 41.5 W ≥ 17 | 22        | 10        | 17.5      |



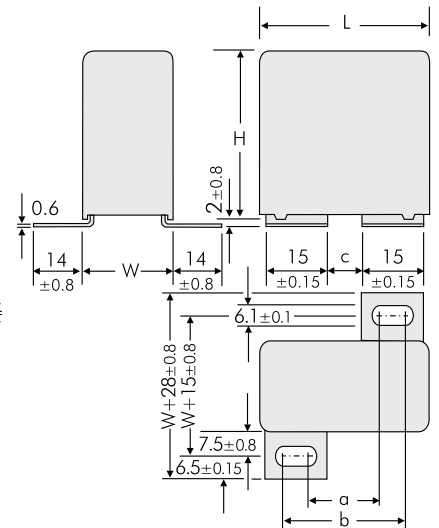
| Version     | L    | a<br>±0.8 | b<br>±0.8 | c<br>±0.8 | d<br>±1.0 | h<br>±0.8 | W  |
|-------------|------|-----------|-----------|-----------|-----------|-----------|----|
| <b>A4.3</b> | 31.5 | 57        | 47        | 31        | 1         | 3.5       | 19 |
| <b>A4.4</b> | 31.5 | 57        | 47        | 31        | 1         | 0         | 19 |
| <b>A4.6</b> | 31.5 | 44.6      | 34.6      | 31.6      | 1         | 3.5       | 19 |
| <b>A4.8</b> | 31.5 | 44.6      | 34.6      | 31.6      | 1         | 0         | 19 |
| <b>A4.1</b> | 41.5 | 57        | 47        | 31        | 6         | 3.5       | 19 |
| <b>A4.5</b> | 41.5 | 57        | 47        | 31        | 6         | 0         | 19 |



| Version     | L    | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 |
|-------------|------|-----------|-----------|-----------|
| <b>A3.6</b> | 41.5 | 17.5      | 27.5      | 7.5       |
| <b>A3.7</b> | 56   | 20        | 30        | 10        |

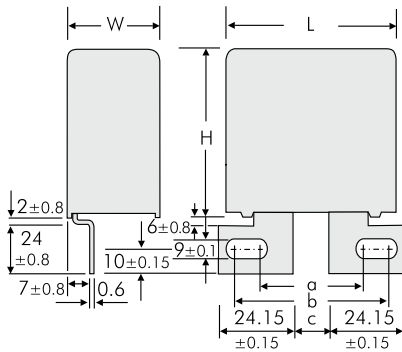


| Version      | L           | a<br>±0.8 | b<br>±0.8 | f<br>±0.8 | d<br>±0.1 |
|--------------|-------------|-----------|-----------|-----------|-----------|
| <b>A4.9</b>  | 31.5 W ≥ 15 | 44        | 47        | 57        | 4.5       |
| <b>A4.10</b> | 31.5 W ≥ 15 | 43        | 59        | 69      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

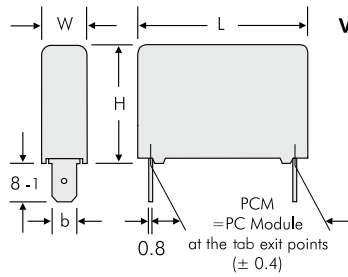


| Version   | L    | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 |
|-----------|------|-----------|-----------|-----------|
| <b>A5</b> | 41.5 | 17.5      | 27.5      | 7.5       |
| <b>A5</b> | 56   | 20        | 30        | 10        |

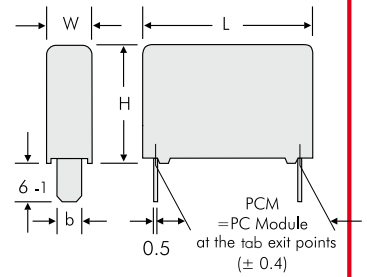
# Versions of WIMA Snubber-Capacitors



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



**Version B**

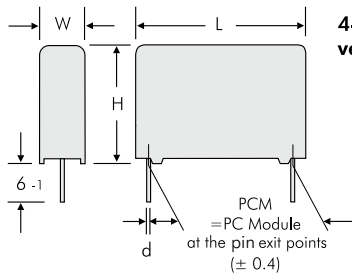


| Version   | L         | a<br>±0.5 | b<br>±0.5 | c<br>±0.5 |
|-----------|-----------|-----------|-----------|-----------|
| <b>A6</b> | 56 W ≥ 23 | 41.5      | 45.5      | 15.5      |

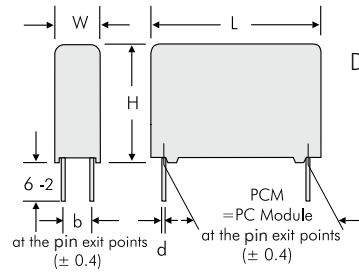
| L    | W    | PCM  | b<br>±0.15 |
|------|------|------|------------|
| 26.5 | ≥ 11 | 23.5 | 6.3        |
| 31.5 | ≥ 11 | 28.5 | 6.3        |
| 41.5 | ≥ 11 | 38.5 | 6.3        |
| 56   | ≥ 11 | 49.5 | 6.3        |

| L    | PCM  | b<br>±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**



**4-pin version**



Dims. in mm.

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

| 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   |

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



## Versions of WIMA Snubber and DC-LINK MKP 4 Capacitors

| Version code   |           | D2    | D4    | B5 | B8 | 1A | 1B   | 1D     | 1E     | 1F   | 1G     | 1H   | 1I   | 1J     | 1K   | 1L     | 1M    | 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 | A1.3.1 | A1.3.2 | A1.4 | A1.4.1 | A1.5 | A1.6 | A1.6.1 | A1.7 | A1.7.1 | A1.8* | 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 |  |  |  |  |  |  |  |
| 7x14x18        | S2        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 8x15x18        | S3        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 7x16.5x26.5    | S4        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 8.5x18.5x26.5  | S5        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 10.5x19x26.5   | S6        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 10.5x20.5x26.5 | S7        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 11x21x26.5     | S8        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 11x21x31.5     | S9        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 13x24x31.5     | SA        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 15x26x31.5     | SB        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 17x29x31.5     | SC        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 19x30x31.5     | ST        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 17x34.5x31.5   | SD        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 11x22x41.5     | SG        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 13x24x41.5     | SH        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 15x26x41.5     | SI        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 17x29x41.5     | SJ        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 19x32x41.5     | SK        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 20x39.5x41.5   | SL        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 24x45.5x41.5   | SM        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 31x46x41.5     | SN        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 19x31x56       | SO        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 23x34x56       | SP        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 27x37.5x56     | SQ        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 33x48x56       | SR        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |
| 37x54x56       | SS        |       |       |    |    |    |      |        |        |      |        |      |      |        |      |        |       |    |      |      |      |      |        |      |      |        |        |      |      |    |      |      |      |      |      |      |      |        |      |       |       |  |  |  |  |  |  |  |

| Version code |           | 4A | 4B    | 4C   | 4D    | 4E    | 4F    | 4I    | 4J   | 4K    | 4L   | 4M    | 5A | 6A | FS     |
|--------------|-----------|----|-------|------|-------|-------|-------|-------|------|-------|------|-------|----|----|--------|
| W x H x L    | Size code | A4 | A4.1* | A4.2 | A4.3* | A4.4* | A4.5* | A4.6* | A4.7 | A4.8* | A4.9 | A4.10 | A5 | A6 | FS 6.3 |
| 11x21x26.5   | S8        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 11x21x31.5   | S9        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 13x24x31.5   | SA        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 15x26x31.5   | SB        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 17x29x31.5   | SC        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 19x30x31.5   | ST        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 17x34.5x31.5 | SD        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 11x22x41.5   | SG        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 13x24x41.5   | SH        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 15x26x41.5   | SI        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 17x29x41.5   | SJ        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 19x32x41.5   | SK        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 20x39.5x41.5 | SL        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 24x45.5x41.5 | SM        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 31x46x41.5   | SN        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 19x31x56     | SO        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 23x34x56     | SP        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 27x37.5x56   | SQ        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 33x48x56     | SR        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |
| 37x54x56     | SS        |    |       |      |       |       |       |       |      |       |      |       |    |    |        |

Possible connecting respective plate versions - depending on box size.

\* on request



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: Special features (e.g. Snubber versions)
- Field 15: Capacitance tolerance
- Field 16: Packing
- Field 17 - 18: Lead length (untaped)

|          |          |          |          |          |          |          |          |          |             |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10          | 11       | 12       | 13       | 14       | 15       | 16       | 17       | 18       |
| <b>M</b> | <b>K</b> | <b>S</b> | <b>2</b> | <b>C</b> | <b>0</b> | <b>2</b> | <b>1</b> | <b>0</b> | <b>0</b>    | <b>1</b> | <b>A</b> | <b>0</b> | <b>0</b> | <b>M</b> | <b>S</b> | <b>S</b> | <b>D</b> |
| MKS 2    |          |          |          | 63 VDC   |          | 0.01 µF  |          |          | 2.5x6.5x7.2 |          |          | -        |          | 20%      | bulk     | 6-2      |          |

|   |  |   |   |  |   |
|---|--|---|---|--|---|
| <p><b>Type description:</b></p> <p>SMD-PET = SMDT<br/> SMD-PPS = SMDI<br/> FKP 02 = FKP0<br/> MKS 02 = MKS0<br/> FKS 2 = FKS2<br/> FKP 2 = FKP2<br/> MKS 2 = MKS2<br/> MKS 2 = MKP2<br/> FKS 3 = FKS3<br/> FKP 3 = FKP3<br/> MKS 4 = MKS4<br/> MKP 4 = MKP4<br/> MKP 10 = MKP1<br/> FKP 4 = FKP4<br/> FKP 1 = FKP1<br/> MKP-X2 = MKX2<br/> MKP-X2 R = MKXR<br/> MKP-Y2 = MKY2<br/> MP 3-X2 = MPX2<br/> MP 3-X1 = MPX1<br/> MP 3-Y2 = MPY2<br/> MP 3R-Y2 = MPRY<br/> Snubber MKP = SNMP<br/> Snubber FKP = SNFP<br/> GTO MKP = GTOM<br/> DC-LINK MKP 4 = DCP4<br/> DC-LINK MKP 5 = DCP5<br/> DC-LINK MKP 6 = DCP6<br/> DC-LINK HC = DCH_<br/> SuperCap C = SCSC<br/> SuperCap MC = SCMC<br/> SuperCap R = SCSR<br/> SuperCap MR = SCMR</p> | <p><b>Rated voltage:</b></p> <p>2.5 VDC = A1<br/> 4 VDC = A2<br/> 14 VDC = A3<br/> 28 VDC = A4<br/> 40 VDC = A5<br/> 5 VDC = A6<br/> 50 VDC = B0<br/> 63 VDC = C0<br/> 100 VDC = D0<br/> 160 VDC = E0<br/> 250 VDC = F0<br/> 400 VDC = G0<br/> 450 VDC = H0<br/> 600 VDC = I0<br/> 630 VDC = J0<br/> 700 VDC = K0<br/> 800 VDC = L0<br/> 850 VDC = M0<br/> 900 VDC = N0<br/> 1000 VDC = O1<br/> 1100 VDC = P0<br/> 1200 VDC = Q0<br/> 1250 VDC = R0<br/> 1500 VDC = S0<br/> 1600 VDC = T0<br/> 2000 VDC = U0<br/> 2500 VDC = V0<br/> 3000 VDC = W0<br/> 4000 VDC = X0<br/> 6000 VDC = Y0<br/> 250 VAC = 0W<br/> 275 VAC = 1W<br/> 300 VAC = 2W<br/> 400 VAC = 3W<br/> 440 VAC = 4W<br/> 500 VAC = 5W</p> | <p><b>Capacitance:</b></p> <p>22 pF = 0022<br/> 47 pF = 0047<br/> 100 pF = 0100<br/> 150 pF = 0150<br/> 220 pF = 0220<br/> 330 pF = 0330<br/> 470 pF = 0470<br/> 680 pF = 0680<br/> 1000 pF = 1100<br/> 1500 pF = 1150<br/> 2200 pF = 1220<br/> 3300 pF = 1330<br/> 4700 pF = 1470<br/> 6800 pF = 1680<br/> 0.01 µF = 2100<br/> 0.022 µF = 2220<br/> 0.047 µF = 2470<br/> 0.1 µF = 3100<br/> 0.22 µF = 3220<br/> 0.47 µF = 3470<br/> 1 µF = 4100<br/> 2.2 µF = 4220<br/> 4.7 µF = 4470<br/> 10 µF = 5100<br/> 22 µF = 5220<br/> 47 µF = 5470<br/> 100 µF = 6100<br/> 220 µF = 6220<br/> 1 F = A010<br/> 2.5 F = A025<br/> 50 F = A500<br/> 100 F = B100<br/> 110 F = B110<br/> 600 F = B600<br/> 1200 F = C120<br/> ...</p> | <p><b>Size:</b></p> <p>4.8x3.3x3 Size 1812 = X1<br/> 4.8x3.3x4 Size 1812 = X2<br/> 5.7x5.1x3.5 Size 2220 = Y1<br/> 5.7x5.1x4.5 Size 2220 = Y2<br/> 7.2x6.1x3 Size 2824 = T1<br/> 7.2x6.1x5 Size 2824 = T2<br/> 10.2x7.6x5 Size 4030 = K1<br/> 12.7x10.2x6 Size 5040 = V1<br/> 15.3x13.7x7 Size 6054 = Q1<br/> 2.5x7x4.6 PCM 2.5 = 0B<br/> 3x7.5x4.6 PCM 2.5 = 0C<br/> 2.5x6.5x7.2 PCM 5 = 1A<br/> 3x7.5x7.2 PCM 5 = 1B<br/> 2.5x7x10 PCM 7.5 = 2A<br/> 3x8.5x10 PCM 7.5 = 2B<br/> 3x9x13 PCM 10 = 3A<br/> 4x9x13 PCM 10 = 3C<br/> 5x11x18 PCM 15 = 4B<br/> 6x12.5x18 PCM 15 = 4C<br/> 5x14x26.5 PCM 22.5 = 5A<br/> 6x15x26.5 PCM 22.5 = 5B<br/> 9x19x31.5 PCM 27.5 = 6A<br/> 11x21x31.5 PCM 27.5 = 6B<br/> 9x19x41.5 PCM 37.5 = 7A<br/> 11x22x41.5 PCM 37.5 = 7B<br/> 94x49x182 DCH_ = H0<br/> 94x77x182 DCH_ = H1<br/> ...</p> | <p><b>Tolerance:</b></p> <p>20% = M<br/> 10% = K<br/> 5% = J<br/> 2.5% = H<br/> 1% = E<br/> ...</p> <p><b>Packing:</b></p> <p>AMMO H16.5 340x340 = A<br/> AMMO H16.5 490x370 = B<br/> AMMO H18.5 340x340 = C<br/> AMMO H18.5 490x370 = D<br/> REEL H16.5 360 = F<br/> REEL H16.5 500 = H<br/> REEL H18.5 360 = I<br/> REEL H18.5 500 = J<br/> ROLL H16.5 = N<br/> ROLL H18.5 = O<br/> BLISTER W12 180 = P<br/> BLISTER W12 330 = Q<br/> BLISTER W16 330 = R<br/> BLISTER W24 330 = T<br/> Bulk Mini = M<br/> Bulk Standard = S<br/> Bulk Maxi = G<br/> TPS Mini = X<br/> TPS Standard = Y<br/> ...</p> |   |
| <p><b>Special features:</b></p> <p>Standard = 00<br/> Version A1 = 1A<br/> Version A1.1.1 = 1B<br/> Version A1.2 = 1C<br/> ...</p>  |  |   |   |  | <p><b>Lead length (untaped)</b></p> <p>3.5 ±0.5 = C9<br/> 6-2 = SD<br/> 16 ±1 = P1<br/> ...</p> |

The data on this page is not complete and serves only to explain the part number system. Part number information is listed on the pages of the respective WIMA range.