

## Metallized Polypropylene (PP) RFI-Capacitors Class X2 in PCM 7.5 mm to 37.5 mm. Capacitances from 1000 pF to 10 µF. Rated Voltage 305 VAC.

### Special Features

- Reliable self-healing
- High degree of interference suppression due to good attenuation and low ESR
- AEC-Q200 qualified for PCM ≥ 15 mm
- According to RoHS 2011/65/EU

### Typical Applications

Class X2 RFI applications to meet EMC regulations

- Capacitors connected to the mains between phase and neutral or phase conductors
- General requirements, pulse peak voltage ≤ 2.5 kV

### Construction

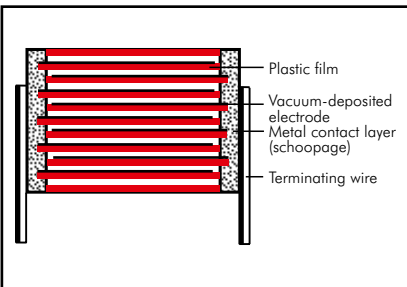
#### Dielectric:

Polypropylene (PP) film

#### Capacitor electrodes:

Vacuum-deposited

#### Internal construction:



#### Encapsulation:

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

#### Terminations:

Tinned wire.

#### Marking:

Colour: Red. Marking: Black.

### Electrical Data

**Capacitance range:** 1000 pF to 10 µF

**Rated voltage:** 305 VAC

**Continuous DC voltage\*** (general guide): ≤ 560 V

**Capacitance tolerances:**

±20%, ±10%, ±5%

**Operating temperature range:**

-55° C to +105° C

**Climatic test category:**

55/105/56 in accordance with IEC

Passive flammability class:

B for capacitors with  $V > 1750 \text{ mm}^3$

C for capacitors with  $V \leq 1750 \text{ mm}^3$

**Test specifications:**

In accordance with IEC 60384-14

**Dissipation factors** at + 20° 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	$\leq 18 \times 10^{-4}$	$\leq 20 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
10 kHz	$\leq 20 \times 10^{-4}$	$\leq 60 \times 10^{-4}$	-
100 kHz	$\leq 50 \times 10^{-4}$	-	-

**Insulation resistance** at +20° C:

$C \leq 0.33 \mu\text{F}$ :  $\geq 1.5 \times 10^4 \text{ M}\Omega$

$C > 0.33 \mu\text{F}$ :  $\geq 5000 \text{ sec (M}\Omega \times \mu\text{F)}$

Measuring voltage: 100 V/1 min.

**Maximum pulse rise time:**

100 V/µsec for pulses equal to a voltage

amplitude with  $\sqrt{2} \times 305 \text{ VAC} = 432 \text{ V}$

according to IEC 60384-14

**Test voltage:**

$C \leq 1.0 \mu\text{F}$ : 2260 VDC, 2 sec.

$C > 1.0 \mu\text{F}$ : 1800 VDC, 2 sec.

**Reliability:**

Operational life > 300 000 hours

Failure rate < 2 fit ( $0.5 \times U_r$  and 40° C)

### Approvals:

Country	Authority	Specification	Symbol	Approval-No.
Germany	VDE	IEC 60384-14/4		40003472
USA/Canada	UL	UL 60384-14 CAN/CSA-E60384-14		E 134915
China	CQC	CQC11-471115-2016		CQC20001271097

### Mechanical Tests

**Pull test on pins:** 10 N in direction of pins according to IEC 60068-2-21

**Vibration:** 6 hours at 10...2000 Hz and 0.75 mm displacement amplitude or 10 g in accordance with IEC 60068-2-6

**Low air density:** 1kPa = 10 mbar in accordance with IEC 60068-2-13

**Bump test:** 4000 bumps at 390 m/sec<sup>2</sup> in accordance with IEC 60068-2-29

\* If safety-approved EMI suppression capacitors are operated with a DC voltage being above the specified AC voltage rating the given approvals are no longer valid (IEC 60384-14).

Furthermore the permissible pulse rise time  $du/dt (F_{\text{max}})$  will be subject to a reduction according to

$$F_{\text{max}} = F_r \times \sqrt{2} \times \text{UAC} / \text{UDC}$$

if the DC operating voltage UDC is higher than  $\sqrt{2} \times \text{UAC}$

### Packing

Available taped and reeled up to and including case size 15 x 26 x 31.5 / PCM 27.5 mm.

Detailed taping information and graphs at the end of the catalogue.

For further details and graphs please refer to Technical Information.

## Continuation

### General Data

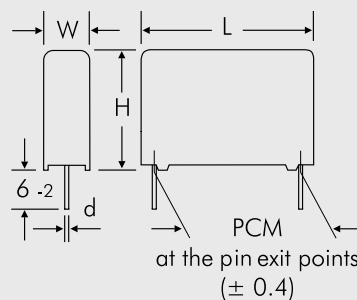
Capacitance	305 VAC*					Part number
	W	H	L	PCM**		
1000 pF	4	9	10	7.5	MKX2AW11002C00_____	
1200 "	4	9	10	7.5	MKX2AW11202C00_____	
1500 "	4	9	10	7.5	MKX2AW11502C00_____	
1800 "	4	9	10	7.5	MKX2AW11802C00_____	
2200 "	4	9	10	7.5	MKX2AW12202C00_____	
2700 "	4	9	10	7.5	MKX2AW12702C00_____	
3300 "	4	9	10	7.5	MKX2AW13302C00_____	
3900 "	4	9	10	7.5	MKX2AW13902C00_____	
4700 "	4	9	10	7.5	MKX2AW14702C00_____	
5600 "	4	9	10	7.5	MKX2AW15602C00_____	
6800 "	4	9	10	7.5	MKX2AW16802C00_____	
8200 "	4	9	10	7.5	MKX2AW18202C00_____	
0.01 µF	4	9	10	7.5	MKX2AW21002C00_____	
	5	11	13	10	MKX2AW21003F00_____	
0.012 "	4	9	10	7.5	MKX2AW21202C00_____	
	5	11	13	10	MKX2AW21203F00_____	
0.015 "	4	9	10	7.5	MKX2AW21502C00_____	
	5	11	13	10	MKX2AW21503F00_____	
0.018 "	4	9	10	7.5	MKX2AW21802C00_____	
	5	11	13	10	MKX2AW21803F00_____	
0.022 "	4	9	10	7.5	MKX2AW22202C00_____	
	5	11	13	10	MKX2AW22203F00_____	
0.027 "	5	10.5	10.3	7.5	MKX2AW22702E00_____	
	5	11	13	10	MKX2AW22703F00_____	
0.033 "	5	10.5	10.3	7.5	MKX2AW23302E00_____	
	5	11	13	10	MKX2AW23303F00_____	
0.039 "	5.7	12.5	10.3	7.5	MKX2AW23902F00_____	
	5	11	13	10	MKX2AW23903F00_____	
0.047 "	5.7	12.5	10.3	7.5	MKX2AW24702F00_____	
	6	12.5	13	10	MKX2AW24703H00_____	
	5	11	18	15	MKX2AW24704B00_____	
0.056 "	6	12.5	13	10	MKX2AW25603H00_____	
	5	11	18	15	MKX2AW25604B00_____	
0.068 "	6	12.5	13	10	MKX2AW26803H00_____	
	5	11	18	15	MKX2AW26804B00_____	
0.082 "	6	12.5	13	10	MKX2AW28203H00_____	
	5	11	18	15	MKX2AW28204B00_____	

\* f = 50/60 Hz

\*\* PCM = Printed circuit module = pin spacing

Dims. in mm.

d = 0.6  $\phi$  if PCM < 15  
d = 0.8  $\phi$  if PCM  $\geq$  15



Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 161.	

Rights reserved to amend design data without prior notification.

## Continuation

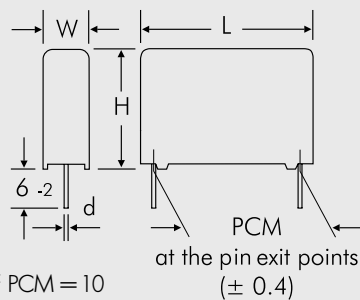
### General Data

Capacitance	305 VAC*				
	W	H	L	PCM**	Part number
0.1 $\mu$ F	8	12	13	10	MKX2AW31003I00_____
	5	11	18	15	MKX2AW31004B00_____
	6	12.5	18	15	MKX2AW31004C00_____
0.12 "	6	12.5	18	15	MKX2AW31204C00_____
	6	12.5	18	15	MKX2AW31504C00_____
0.15 "	8	15	18	15	MKX2AW31504F00_____
	6	15	26.5	22.5	MKX2AW31505B00_____
	8	15	18	15	MKX2AW31804F00_____
0.18 "	6	15	26.5	22.5	MKX2AW31805B00_____
	9	14	18	15	MKX2AW32204H00_____
0.22 "	8	15	18	15	MKX2AW32204F00_____
	6	15	26.5	22.5	MKX2AW32205B00_____
	8	15	18	15	MKX2AW32704F00_____
0.27 "	7	16.5	26.5	22.5	MKX2AW32705D00_____
	11	14	18	15	MKX2AW33304M00_____
0.33 "	9	16	18	15	MKX2AW33304J00_____
	7	16.5	26.5	22.5	MKX2AW33305D00_____
	8.5	18.5	26.5	22.5	MKX2AW33905F00_____
0.39 "	8.5	18.5	26.5	22.5	MKX2AW34705F00_____
	10.5	19	26.5	22.5	MKX2AW34705G00_____
0.47 "	9	19	31.5	27.5	MKX2AW34706A00_____
	10.5	19	26.5	22.5	MKX2AW35605G00_____
	9	19	31.5	27.5	MKX2AW35606A00_____
0.56 "	10.5	19	26.5	22.5	MKX2AW36805G00_____
	11	21	26.5	22.5	MKX2AW36805I00_____
	9	19	31.5	27.5	MKX2AW36806A00_____
0.68 "	11	21	26.5	22.5	MKX2AW38205I00_____
	9	19	31.5	27.5	MKX2AW38206A00_____
	11	21	26.5	22.5	MKX2AW38205I00_____
0.82 "	9	19	31.5	27.5	MKX2AW38206A00_____

\* f = 50/60 Hz

\*\* PCM = Printed circuit module = pin spacing

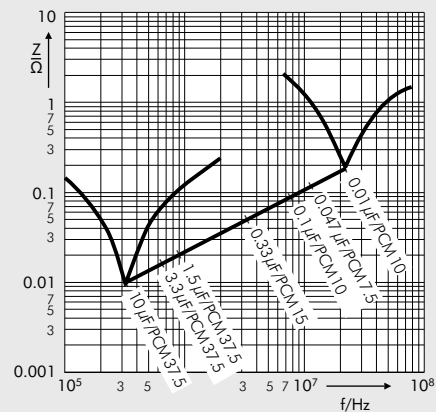
Dims. in mm.



Part number completion:  
 Tolerance: 20 % = M  
 10 % = K  
 5 % = J  
 Packing: bulk = S  
 Pin length: 6-2 = SD  
 Taped version see page 161.

d = 0.6  $\phi$  if PCM = 10  
 d = 0.8  $\phi$  if PCM  $\geq$  15

Rights reserved to amend design data without prior notification.



Impedance change with frequency (general guide).

Continuation page 91

## Continuation

### General Data

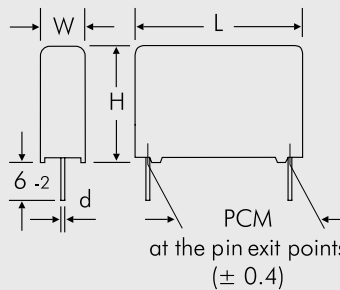
Capacitance	305 VAC*					Part number
	W	H	L	PCM**		
1.0 $\mu$ F	11	21	26.5	22.5	MKX2AW41005I00_____	
	11	21	31.5	27.5	MKX2AW41006B00_____	
	13	24	31.5	27.5	MKX2AW41006D00_____	
1.2 "	11	21	31.5	27.5	MKX2AW41206B00_____	
	13	24	31.5	27.5	MKX2AW41506D00_____	
1.5 "	15	26	31.5	27.5	MKX2AW41506F00_____	
	13	24	41.5	37.5	MKX2AW41507C00_____	
	13	24	31.5	27.5	MKX2AW41806D00_____	
1.8 "	13	24	41.5	37.5	MKX2AW41807C00_____	
	15	26	31.5	27.5	MKX2AW42206F00_____	
2.2 "	17	29	31.5	27.5	MKX2AW42206G00_____	
	13	24	41.5	37.5	MKX2AW42207C00_____	
	15	26	41.5	37.5	MKX2AW42207D00_____	
2.7 "	17	29	31.5	27.5	MKX2AW42706G00_____	
	15	26	41.5	37.5	MKX2AW42707D00_____	
	17	29	41.5	37.5	MKX2AW42707E00_____	
3.3 "	17	34.5	31.5	27.5	MKX2AW43306I00_____	
	20	39.5	31.5	27.5	MKX2AW43306J00_____	
	15	26	41.5	37.5	MKX2AW43307D00_____	
3.9 "	17	29	41.5	37.5	MKX2AW43307E00_____	
	17	34.5	31.5	27.5	MKX2AW43906I00_____	
	17	29	41.5	37.5	MKX2AW43907E00_____	
4.7 "	19	32	41.5	37.5	MKX2AW43907F00_____	
	20	39.5	31.5	27.5	MKX2AW44706J00_____	
	19	32	41.5	37.5	MKX2AW44707F00_____	
5.6 "	20	39.5	41.5	37.5	MKX2AW44707G00_____	
	19	32	41.5	37.5	MKX2AW45607F00_____	
	20	39.5	41.5	37.5	MKX2AW45607G00_____	
6.8 "	20	39.5	41.5	37.5	MKX2AW46807G00_____	
	24	45.5	41.5	37.5	MKX2AW46807H00_____	
	24	45.5	41.5	37.5	MKX2AW48207H00_____	
8.2 "	31	46	41.5	37.5	MKX2AW48207I00_____	
	24	45.5	41.5	37.5	MKX2AW51007H00_____	
10 $\mu$ F	31	46	41.5	37.5	MKX2AW51007I00_____	

\* f = 50/60 Hz

\*\* PCM = Printed circuit module = pin spacing

Dims. in mm.

d = 0.8  $\phi$  if PCM  $\leq$  27.5  
d = 1.0  $\phi$  if PCM = 37.5



Part number completion:	
Tolerance:	20 % = M
	10 % = K
	5 % = J
Packing:	bulk = S
Pin length:	6-2 = SD
Taped version see page 161.	

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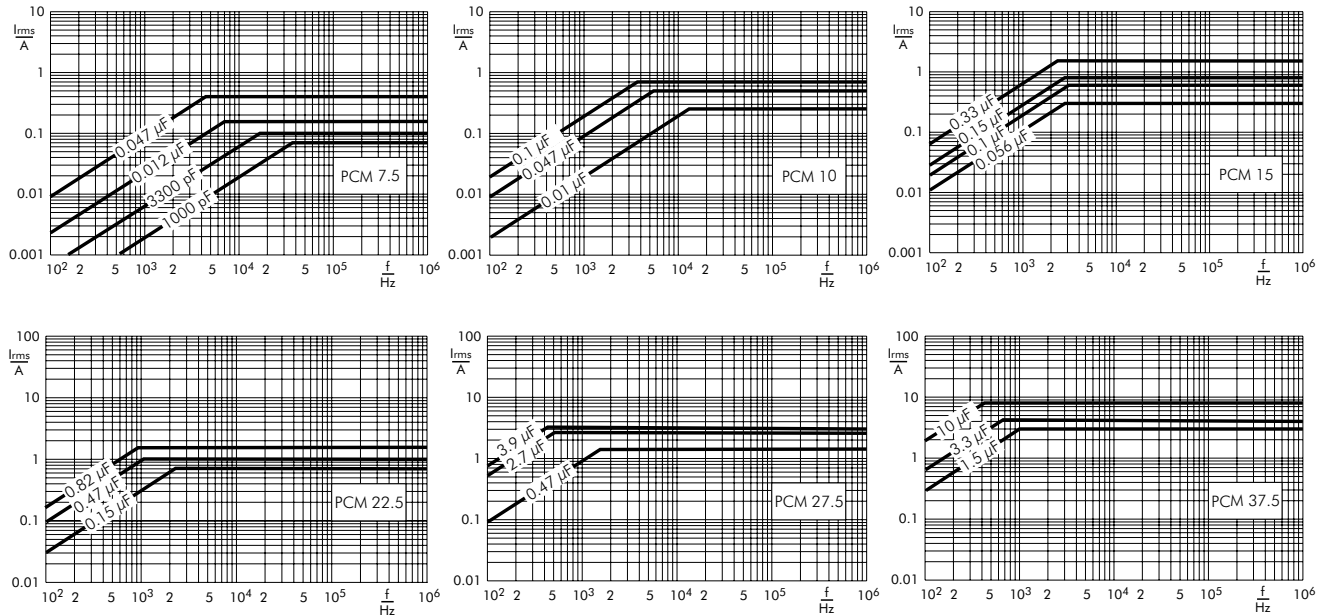
Continuation page 92

# WIMA MKP-X2



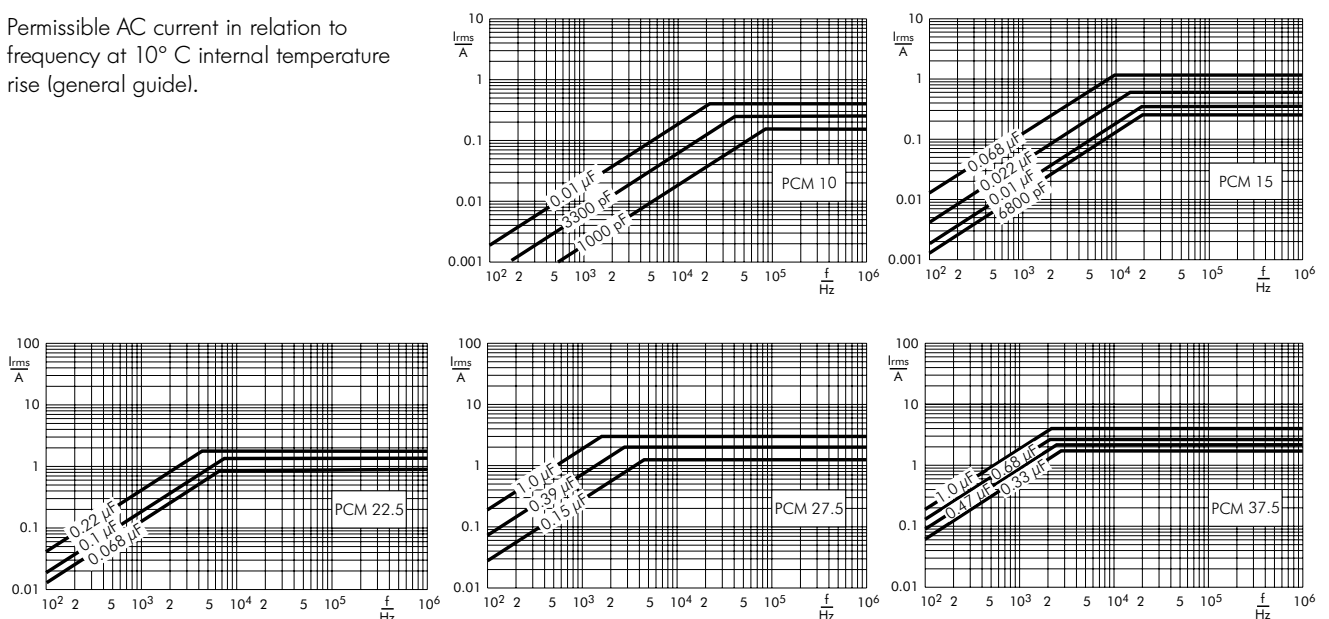
## Continuation

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



# WIMA MKP-Y2

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



Technical information and general data see page 93

## Recommendation for Processing and Application of Through-Hole Capacitors

### Soldering Process

Internal temperature of the capacitor must be kept as follows:

Polyester: preheating:  $T_{max.} \leq 125^{\circ}C$   
 soldering:  $T_{max.} \leq 135^{\circ}C$

Polypropylene: preheating:  $T_{max.} \leq 100^{\circ}C$   
 soldering:  $T_{max.} \leq 110^{\circ}C$

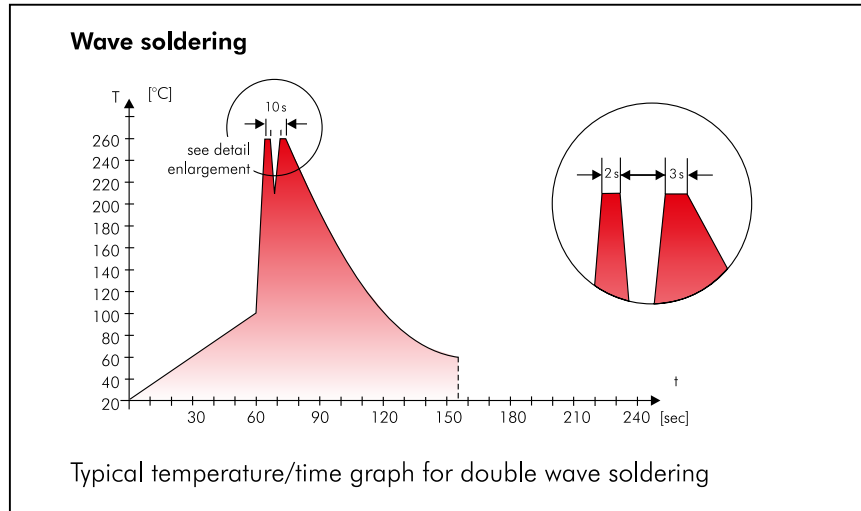
### Single wave soldering

Soldering bath temperature:  $T < 260^{\circ}C$   
 Dwell time:  $t < 5 \text{ sec}$

### Double wave soldering

Soldering bath temperature:  $T < 260^{\circ}C$   
 Dwell time:  $\Sigma t < 5 \text{ sec}$

Due to different soldering processes and heat requirements the graphs are to be regarded as a recommendation only.



## WIMA Quality and Environmental Philosophy

### ISO 9001:2015 Certification

ISO 9001:2015 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2015 of our factories by the infaz (Institut für Auditierung und Zertifizierung) certifies that organisation, equipment and monitoring of quality assurance in our factories correspond to internationally recognized standards.

### WIMA WPCS

The WIMA Process Control System (WPCS) is a quality surveillance and optimization system developed by WIMA. WPCS is a major part of the quality-oriented WIMA production. Points of application during production process:

- incoming material inspection
- metallization
- film inspection
- schoopage
- pre-healing
- pin attachment
- cast resin preparation/encapsulation
- 100% final inspection
- Testing as per customer requirements

### WIMA Environmental Policy

All WIMA capacitors, irrespective of whether through-hole devices or SMD, are made of environmentally friendly materials. Neither during manufacture nor in the product itself any toxic substances are used, e.g.

- Lead
- PCB
- CFC
- Hydrocarbon chloride
- Chromium 6+
- PBB/PBDE
- Arsenic
- Cadmium
- Mercury
- etc.

We merely use pure, recyclable materials for packing our components, such as:

- carton
- cardboard
- adhesive tape made of paper
- polystyrene

We almost completely refrain from using packing materials such as:

- adhesive tapes made of plastic
- metal clips

### RoHS Compliance

According to the RoHS Directive 2011/65/EU as amended from time to time certain hazardous substances like e.g. lead, cadmium, mercury must not be used any longer in electronic equipment as of July 1st, 2006. For the sake of the environment WIMA has refrained from using such substances since years already.



WIMA Kondensatoren sind bleifrei konform RoHS 2011/65/EU

WIMA capacitors are lead free in accordance with RoHS 2011/65/EU

Tape for lead-free WIMA capacitors

### DIN EN ISO 14001:2004

WIMA's environmental management has been established in accordance with the guidelines of DIN EN ISO 14001:2004 to optimize the production processes with regard to energy and resources.

# Typical Dimensions for Taping Configuration

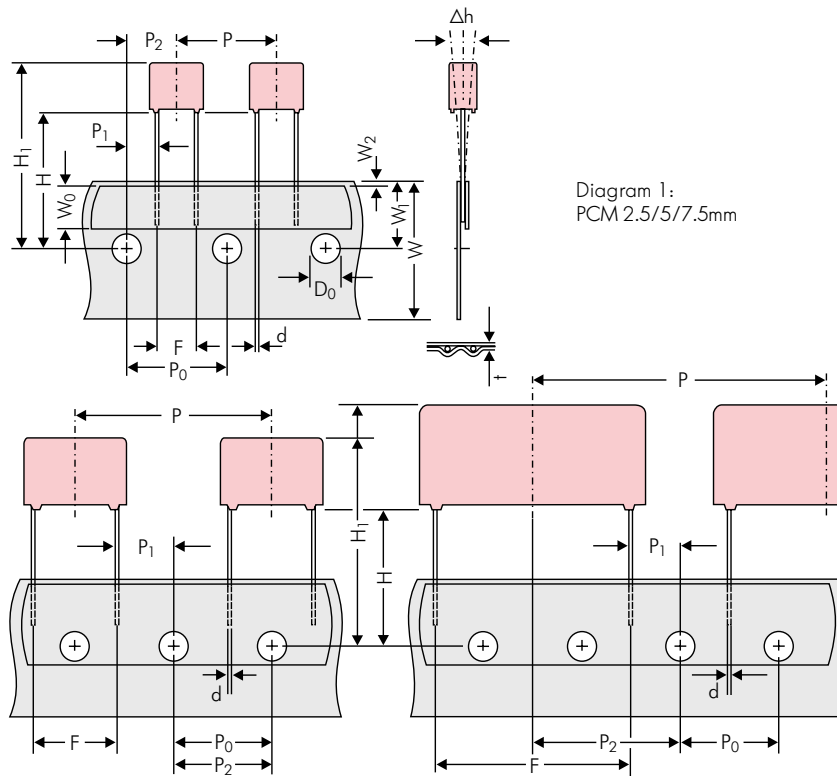


Diagram 1:  
PCM 2.5/5/7.5mm

Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5\*mm

\*PCM 27.5 taping 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 <sub>0</sub>	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 <sub>1</sub>	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 <sub>2</sub>	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 <sub>0</sub>	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 <sub>0</sub>	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 <sub>1</sub>	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 <sub>2</sub>	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 18.5 ±0.5	16.5 ±0.3 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5	16.5 ±0.5 18.5 ±0.5
Feed hole centre to top edge of the component	H <sub>1</sub>	H+H <sub>component</sub> < H <sub>1</sub> 32.25 max.	H+H <sub>component</sub> < H <sub>1</sub> 32.25 max.	H+H <sub>component</sub> < H <sub>1</sub> 24.5 to 31.5	H+H <sub>component</sub> < H <sub>1</sub> 25.0 to 31.5	H+H <sub>component</sub> < H <sub>1</sub> 26.0 to 37.0	H+H <sub>component</sub> < H <sub>1</sub> 30.0 to 43.0	H+H <sub>component</sub> < H <sub>1</sub> 35.0 to 45.0
Pin spacing at upper edge of carrier tape	F	2.5 ±0.5	5.0 <sup>+0.8</sup> <sub>-0.2</sub>	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 <sup>+0.06</sup> <sub>-0.05</sub>	0.5 ±0.05 or 0.6 <sup>+0.06</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>	0.8 <sup>+0.08</sup> <sub>-0.05</sub>
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	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2	0.6 ±0.2
Package (see also page 162)	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 58 ±2 or 66 ±2	REEL	φ 500 max. φ 25 ±1
Unit	see details page 163.							

Dims in mm.

\* Diameter of pins see General Data.

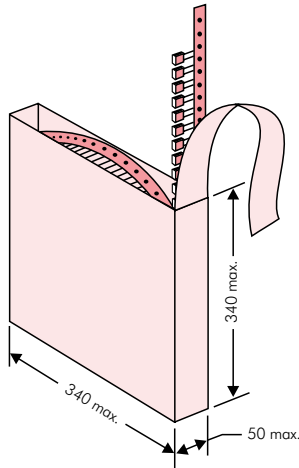
\* PCM 10 and PCM 15 can be crimped to PCM 7.5.

Position of components according to PCM 7.5 (sketch 11). P<sub>0</sub> = 12.7 or 15.0 is possible

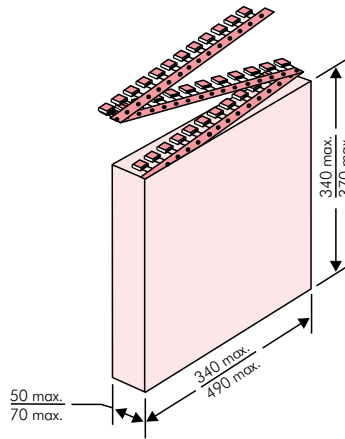
Please clarify customer-specific deviations with the manufacturer.

## Types of Tape Packaging of Capacitors for Automatic Radial Insertion

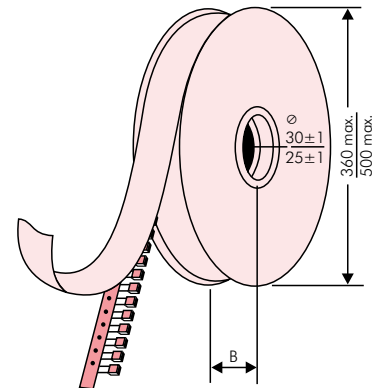
### ■ ROLL Packaging



### ■ AMMO Packaging



### ■ REEL Packaging



## BAR CODE (Labelling)

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

- WIMA supplier number
- Date code
- Customer's P/O number
- P/O line
- Customer's part number
- WIMA part number
- Quantity
- WIMA confirmation number
- Country of origin
- Customer name
- Handling unit number
- Week of delivery.

In addition part description of

- article
- capacitance value
- rated voltage
- dimensions
- technical note
- capacitance tolerance
- packing
- connecting information

<b>WIMA</b> Best Capacitors Made in Germany	
Werk Aurich	
Supplier - ID: LIEF.NR.	Date Code: 20210419
Purchase Order No. (P/O): Bestellung xyz	P/O line: 100
Customer Part No.: KUNDENTEILENUMMER	
WIMA Part No.: MKP1F041006B00KSSD	Quantity: 459
WIMA Confirmation No.: 0001105072000100	
Customer No.: 0000100002	RoHS 2011/65/EU
Gross Weight [g]: 4557	COO: DE
WIMA - MKP 10 WIMA Part No.: MKP1F041006B00KSSD	
MKP 10 1.0 µF 250 VDC 11x21x31.5 RM27.5	
Standard 10% Lose - Standard Drähte 6-2	
Vorlage Debitor Inland	
	0001105072000100
1002021443	QTY: 459 Week 19/2021

BARCODE PDF417  
BARCODE 2D Datamatrix



# 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 x 340	490 x 370		
					N	O	F	I	H	J	A	C	B	D
<b>2.5 mm</b>	2.5	7	4.6	<b>0B</b>	5000		2200	2500				2800		
	3	7.5	4.6	<b>0C</b>	5000		2000	2300				2300		
	3.8	8.5	4.6	<b>0D</b>	5000		1500	1800				1800		
	4.6	9	4.6	<b>0E</b>	5000		1200	1500				1500		
	5.5	10	4.6	<b>0F</b>	5000		900	1200				1200		
<b>5 mm</b>	2.5	6.5	7.2	<b>1A</b>	5000		2200	2500				2800		
	3	7.5	7.2	<b>1B</b>	5000		2000	2300				2300		
	3.5	8.5	7.2	<b>1C</b>	5000		1600	2000				2000		
	4.5	6	7.2	<b>1D</b>	6000		1300	1500				1500		
	4.5	9.5	7.2	<b>1E</b>	4000		1300	1500				1500		
	5	10	7.2	<b>1F</b>	3500		1100	1400				1400		
	5.5	7	7.2	<b>1G</b>	4000		1000	1200				1200		
	5.5	11.5	7.2	<b>1H</b>	2500		1000	1200				1200		
	6.5	8	7.2	<b>1I</b>	2500		800	1000				1000		
	7.2	8.5	7.2	<b>1J</b>	2500		700	1000				1000		
	7.2	13	7.2	<b>1K</b>	2000		700	950				1000		
	8.5	10	7.2	<b>1L</b>	2000		600	800				800		
8.5	14	7.2	<b>1M</b>	1500		600	800				800			
11	16	7.2	<b>1N</b>	1000		500	600				640			
<b>7.5 mm</b>	2.5	7	10	<b>2A</b>	5000			2500	4400			2500		
	3	8.5	10	<b>2B</b>	5000			2200	4300			2300	4150	
	4	9	10	<b>2C</b>	4000			1700	3200			1700	3000	
	4.5	9.5	10.3	<b>2D</b>	3500			1500	2900			1400	2700	
	5	10.5	10.3	<b>2E</b>	3000			1300	2500			1300		
	5.7	12.5	10.3	<b>2F</b>	2000			1000	2200			1100		
	7.2	12.5	10.3	<b>2G</b>	1500			900	1800			1000		
<b>10 mm</b>	3	9	13	<b>3A</b>	3000			1100	2200				1900	
	4	8.5	13.5	<b>FA</b>	3000			900	1600				1450	
	4	9	13	<b>3C</b>	3000			900	1600				1450	
	4	9.5	13	<b>3D</b>	3000			900	1600				1400	
	5	10	13.5	<b>FB</b>	2000			700	1300				1200	
	5	11	13	<b>3F</b>	3000			700	1300				1100	
	6	12	13	<b>3G</b>	2400			550	1100				1000	
	6	12.5	13	<b>3H</b>	2400			550	1100				1000	
8	12	13	<b>3I</b>	2000			400	800				740		
<b>15 mm</b>	5	11	18	<b>4B</b>	2400			600	1200				1150	
	5	13	19	<b>FC</b>	1000			600	1200				1200	
	6	12.5	18	<b>4C</b>	2000			500	1000				1000	
	6	14	19	<b>FD</b>	1000			500	1000				1000	
	7	14	18	<b>4D</b>	1600			450	900				850	
	7	15	19	<b>FE</b>	1000			450	900				850	
	8	15	18	<b>4F</b>	1200			400	800				740	
	8	17	19	<b>FF</b>	500			400	800				740	
	9	14	18	<b>4H</b>	1200			350	700				650	
	9	16	18	<b>4J</b>	900			350	700				650	
<b>22.5 mm</b>	5	14	26.5	<b>5A</b>	1200				800				770	
	6	15	26.5	<b>5B</b>	1000				700				640	
	7	16.5	26.5	<b>5D</b>	760				600				550	
	8	20	28	<b>FH</b>	500				500				480	
	8.5	18.5	26.5	<b>5F</b>	500				480				450	
	10	22	28	<b>FI</b>	570*				420				380	
	10.5	19	26.5	<b>5G</b>	594*				400				360	
	10.5	20.5	26.5	<b>5H</b>	594*				400				360	
11	21	26.5	<b>5I</b>	561*				380				350		
12	24	28	<b>FJ</b>	480*				350				310		

\* 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	pcs. per packing unit												
						ROLL		REEL				AMMO						
	W	H	L	Codes		S	N	O	ø 360		ø 500		340 x 340		490 x 370			
								H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	
								F	I	H	J	A	C	B	D			
<b>27.5 mm</b>	9	19	31.5	<b>6A</b>	567*	-	-	-	-	460/340*	-	-	-	-	-	-	-	
	11	21	31.5	<b>6B</b>	459*	-	-	-	-	380/280*	-	-	-	-	-	-	-	
	13	24	31.5	<b>6D</b>	378*	-	-	-	-	300	-	-	-	-	-	-	-	
	13	25	33	<b>FK</b>	405*	-	-	-	-	-	-	-	-	-	-	-	-	
	15	26	31.5	<b>6F</b>	324*	-	-	-	-	270	-	-	-	-	-	-	-	
	15	26	33	<b>FL</b>	324*	-	-	-	-	-	-	-	-	-	-	-	-	
	17	29	31.5	<b>6G</b>	198*	-	-	-	-	-	-	-	-	-	-	-	-	
	17	34.5	31.5	<b>6I</b>	198*	-	-	-	-	-	-	-	-	-	-	-	-	
	20	32	33	<b>FM</b>	162*	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	39.5	31.5	<b>6J</b>	162*	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>37.5 mm</b>	9	19	41.5	<b>7A</b>	441*	-	-	-	-	-	-	-	-	-	-	-	-	
	11	22	41.5	<b>7B</b>	357*	-	-	-	-	-	-	-	-	-	-	-	-	
	13	24	41.5	<b>7C</b>	294*	-	-	-	-	-	-	-	-	-	-	-	-	
	15	26	41.5	<b>7D</b>	252*	-	-	-	-	-	-	-	-	-	-	-	-	
	17	29	41.5	<b>7E</b>	154*	-	-	-	-	-	-	-	-	-	-	-	-	
	19	32	41.5	<b>7F</b>	140*	-	-	-	-	-	-	-	-	-	-	-	-	
	20	39.5	41.5	<b>7G</b>	126*	-	-	-	-	-	-	-	-	-	-	-	-	
	24	45.5	41.5	<b>7H</b>	112*	-	-	-	-	-	-	-	-	-	-	-	-	
	28	38	41.5	<b>7L</b>	84*	-	-	-	-	-	-	-	-	-	-	-	-	
	31	46	41.5	<b>7I</b>	84*	-	-	-	-	-	-	-	-	-	-	-	-	
	35	50	41.5	<b>7J</b>	35*	-	-	-	-	-	-	-	-	-	-	-	-	
	40	55	41.5	<b>7K</b>	28*	-	-	-	-	-	-	-	-	-	-	-	-	
<b>48.5 mm</b>	19	31	56	<b>8D</b>	120*	-	-	-	-	-	-	-	-	-	-	-		
	23	34	56	<b>8E</b>	80*	-	-	-	-	-	-	-	-	-	-	-		
	27	37.5	56	<b>8H</b>	84*	-	-	-	-	-	-	-	-	-	-	-		
	33	48	56	<b>8J</b>	25*	-	-	-	-	-	-	-	-	-	-	-		
	37	54	56	<b>8L</b>	25*	-	-	-	-	-	-	-	-	-	-	-		
<b>52.5 mm</b>	25	45	57	<b>9D</b>	70*	-	-	-	-	-	-	-	-	-	-	-		
	30	45	57	<b>9E</b>	60*	-	-	-	-	-	-	-	-	-	-	-		
	35	50	57	<b>9F</b>	25*	-	-	-	-	-	-	-	-	-	-	-		
	45	55	57	<b>9H</b>	20*	-	-	-	-	-	-	-	-	-	-	-		
	45	65	57	<b>9J</b>	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.

Updated data on [www.wima.com](http://www.wima.com)



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
<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              SMD-PEN = SMDN              SMD-PPS = SMDI              FKP 02 = FKPO              MKS 02 = MKS0              FKS 2 = FKS2              FKP 2 = FKP2              FKS 3 = FKS3              FKP 3 = FKP 3              MKS 2 = MKS2              MKP 2 = MKP2              MKS 4 = MKS4              MKP 4 = MKP4              MKP 10 = MKP1              FKP 4 = FKP4              FKP 1 = FKP1              MKP-X2 = MKX2              MKP-X1 R = MKX1              MKP-Y2 = MKY2              MP 3-X2 = MPX2              MP 3-X1 = MPX1              MP 3-Y2 = MPY2              MP 3R-Y2 = MPRY              MKP 4F = MKPF              Snubber MKP = SNMP              Snubber FKP = SNFP              GTO MKP = GTOM              DC-LINK MKP 4 = DCP4              DC-LINK MKP 6 = DCP6              DC-LINK HC = DCHC</p>	<p><b>Rated voltage:</b></p> <p>50 VDC = B0              63 VDC = C0              100 VDC = D0              250 VDC = F0              400 VDC = G0              450 VDC = H0              520 VDC = H2              600 VDC = I0              630 VDC = J0              700 VDC = K0              800 VDC = L0              850 VDC = M0              900 VDC = N0              1000 VDC = O1              1100 VDC = P0              1200 VDC = Q0              1250 VDC = R0              1500 VDC = S0              1600 VDC = T0              1700 VDC = TA              2000 VDC = U0              2500 VDC = V0              3000 VDC = W0              4000 VDC = X0              6000 VDC = Y0              250 VAC = 0W              275 VAC = 1W              300 VAC = 2W              305 VAC = AW              350 VAC = BW              440 VAC = 4W              500 VAC = 5W              ...</p>	<p><b>Capacitance:</b></p> <p>22 pF = 0022              47 pF = 0047              100 pF = 0100              150 pF = 0150              220 pF = 0220              330 pF = 0330              470 pF = 0470              680 pF = 0680              1000 pF = 1100              1500 pF = 1150              2200 pF = 1220              3300 pF = 1330              4700 pF = 1470              6800 pF = 1680              0.01 µF = 2100              0.022 µF = 2220              0.047 µF = 2470              0.1 µF = 3100              0.22 µF = 3220              0.47 µF = 3470              1 µF = 4100              2.2 µF = 4220              4.7 µF = 4470              10 µF = 5100              22 µF = 5220              47 µF = 5470              100 µF = 6100              220 µF = 6220              1000 µF = 7100              1500 µF = 7150              ...</p>	<p><b>Size:</b></p> <p>4.8x3.3x3 Size 1812 = KA              4.8x3.3x4 Size 1812 = KB              5.7x5.1x3.5 Size 2220 = QA              5.7x5.1x4.5 Size 2220 = QB              7.2x6.1x3 Size 2824 = TA              7.2x6.1x5 Size 2824 = TB              10.2x7.6x5 Size 4030 = VA              12.7x10.2x6 Size 5040 = XA              15.3x13.7x7 Size 6054 = YA              2.5x7x4.6 PCM 2.5 = 0B              3x7.5x4.6 PCM 2.5 = 0C              2.5x6.5x7.2 PCM 5 = 1A              3x7.5x7.2 PCM 5 = 1B              2.5x7x10 PCM 7.5 = 2A              3x8.5x10 PCM 7.5 = 2B              3x9x13 PCM 10 = 3A              4x9x13 PCM 10 = 3C              5x11x18 PCM 15 = 4B              6x12.5x18 PCM 15 = 4C              5x14x26.5 PCM 22.5 = 5A              6x15x26.5 PCM 22.5 = 5B              9x19x31.5 PCM 27.5 = 6A              11x21x31.5 PCM 27.5 = 6B              9x19x41.5 PCM 37.5 = 7A              11x22x41.5 PCM 37.5 = 7B              19x31x56 PCM 48.5 = 8D              25x45x57 PCM 52.5 = 9D              ...</p>	<p><b>Tolerance:</b></p> <p>±20% = M              ±10% = K              ±5% = J              ±2.5% = H              ±1% = E              ...</p> <p><b>Packing:</b></p> <p>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              ...</p>
			<p><b>Version code:</b></p> <p>Standard = 00              Version A1 = 1A              Version A1.1.1 = 1B              Version A2 = 2A              ...</p>	<p><b>Pin length (untaped)</b></p> <p>3.5 ±0.5 = C9              6 -2 = SD              16 ±1 = P1              ...</p> <p><b>Pin length (taped)</b></p> <p>none = 00</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.

# Mouser Electronics

Authorized Distributor

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## WIMA:

[MKX21W31004B00KSSD](#) [MKX21W31504C00MSSD](#) [MKX21W42206G00KYSD](#) [MXK21W24703H00KSSD](#)  
[MKX21W23303F00MD00](#) [MKX21W21002C00MSSD](#) [MKX21W21003F00MD00](#) [MKX21W21003F00MSSD](#)  
[MKX21W31003I00MSSD](#) [MKX21W31004B00MSSD](#) [MKX21W22202C00MSSD](#) [MKX21W24702F00MSSD](#)  
[MKX21W22203F00MSSD](#) [MKX21W32204F00MSSD](#) [MKX21W22203F00MD00](#) [MKX21W22202C00MC00](#)  
[MKX21W33304J00MSSD](#) [MKPX2-.1/275/20P15](#) [MKP-X2-1/275/10P27](#) [MKX21W22203F00KD00](#) [MKPX2-  
.033/275/10A16](#) [MKX21W31004B00KSC9](#) [MKX21W42206G00MSSD](#) [MKPX2-.33/275/20P15](#) [MKPX2-.1/275/20P10](#)  
[MKX21W23303F00KD00](#) [MKX21W41005I00MYSD](#) [MKPX2-.01/275/20P10](#) [MKX21W41005I00KSSD](#) [MKPX2-  
.022/275/20P7A](#) [MKPX2.1/275/10P10A16](#) [MKPX2-.022/275/20P7](#) [MKX21W24703H00MB00](#)  
[MKX21W41006D00MSSD](#) [MKPX2-.22/275/20P15](#) [MKPX2-.01/275/20P7](#) [MKPX2-.1/275/20P15A](#)  
[MKX21W42206G00KSSD](#) [MKPX2.033/275/20P10A](#) [MKX21W41005I00KYSD](#) [MKPX2-1/275/20P22](#)  
[MKX21W32204F00KI00](#) [MKPX2-.047/275/20P7](#) [MKPX2-1/275/10P22](#) [MKPX2.022/275/10P10A](#)  
[MKX21W41005I00MSSD](#) [MKPX2.022/275/20P10A](#) [MKX21W31004C00MD00](#) [MKX21W26803H00KSC9](#)  
[MKX21W31003I00KB00](#) [MKX21W23302E00KA00](#) [MKPX2-2.2/275/20P27](#) [MKPX22.2/275/10P27](#) [MKPX2R-  
1/400/10P27](#) [MKPX2-.01/275/20P10A](#) [MKX21W41006D00KSSD](#) [MKPX2-.22/275/10P15T](#) [MKPX2-1/275/20P27](#)  
[MKPX2.033/275/10P10A](#) [MKX21W16802C00MSSD](#) [MKX21W26803H00KSSD](#) [MKX21W34705F00KSC9](#)  
[MKX21W24702F00KSC9](#) [MKX21W31004B00MSC9](#) [MKX2AW22203F00KD00](#) [MKX2AW22203F00MD00](#)  
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[MKX2AW24703H00MB00](#) [MKX2AW26803H00KSSD](#) [MKX2AW31003I00KB00](#) [MKX2AW31003I00MSSD](#)  
[MKX2AW31004B00KSSD](#) [MKX2AW31004B00MSSD](#) [MKX2AW31004C00MD00](#) [MKX2AW31504C00MSSD](#)  
[MKX2AW32204F00KI00](#) [MKX2AW32204F00MSSD](#) [MKX2AW33304J00MSSD](#) [MKX2AW41005I00KYSD](#)  
[MKX2AW41005I00MYSD](#) [MKX2AW41005I00MSSD](#) [MKX2AW21003F00MSSD](#) [MKX2AW42206G00KSSD](#)  
[MKX2AW21002C00MSSD](#) [MKX2AW41006D00MSSD](#) [MKX2AW23302E00KA00](#) [MKX2AW34705F00KSC9](#)  
[MKX2AW21003F00MD00](#) [MKX2AW32204H00KSSD](#) [MKX2AW16802C00MSSD](#) [MKX2AW31004B00KSC9](#)  
[MKX2AW24702F00KSC9](#) [MKX2AW22202C00MSSD](#) [MKX2AW42206G00MSSD](#) [MKX2AW41005I00KSSD](#)  
[MKX2AW22202C00MC00](#) [MKX2AW26803H00KSC9](#)