## WIMA MP 3R-Y2

#### Metallized Paper (MP) RFI-Capacitors Class Y2 with Internal Series Connection PCM 15 mm to 27.5 mm

#### **Special Features**

- Particularly high reliability against active and passive flammability
- Twice the safety by internal series connection
- High degree of interference suppression due to good attenuation and low ESR
- For temperatures up to +110° C
  According to RoHS 2011/65/EC

#### **Typical Applications**

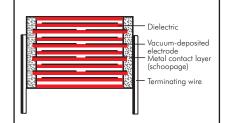
#### Class Y2 RFI applications to meet EMC regulations

- Capacitors connected to the mains between phase or neutral and earthed casing
- By-passing of the basic or supplementary insulation, pulse peak voltage < 5 kV</p>

#### Construction

#### **Dielectric:**

Paper, epoxy resin impregnated Capacitor electrodes: Vacuum-deposited Internal construction:



#### **Encapsulation:**

Self-extinguishing epoxy resin, UL 94 V-0. metal foil

**Terminations:** 

Tinned wire. **Marking:** Marking: Black on Silver.

#### **Electrical Data**

#### Capacitance range:

1000 pF to 0.1 µF [E12-values on request] Rated voltage:

300 VAC

**Continuous DC voltage**<sup>\*</sup> (general guide): ≤ 1250 V

Capacitance tolerances: ±20%

**Operating temperature range:**  $-40^{\circ}$  C to  $+110^{\circ}$  C

**Climatic test category:** 40/110/56/B according to IEC

Insulation resistance at +20° C:

≥ 12 x 10<sup>3</sup> MΩ Measuring voltage: 100 V/1 min.

#### Dissipation factors:

tan  $\delta \le 13 \times 10^{-3}$  at 1 kHz and +20° C Test specifications:

In accordance with IEC 60384-14

Approvals:

Country	Authority	Specification	Symbol	Approval-No.
Germany	VDE	IEC 60384-14/3	10	40032534
USA	UL	UL 1414 (250 VAC)	1	E 134915

#### **Mounting Recommendation**

To minimize or avoid shock and/or vibration stresses to terminating wires and solder connections we recommend to fix voluminous resin-potted MP capacitors as from e.g. PCM 22.5 mm in an appropriate way since for constructional reasons they do not sit tight on the board.

\* 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capacitors are operated with a DC voltage being above the specified AC voltage rating the given approvals are no longer valid (IEC 60384-14).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 ( $F_{max}$ .) will be subject to a reduction according to

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

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

#### Packing

Available taped and reeled up to and including PCM 22.5 mm.

Maximum pulse rise time:

with  $\sqrt{2} \times 300 \text{ VAC} = 425 \text{ V}$ 

according to IEC 60384-14

Test voltage: 3000 VDC, 2 sec.

Operational life > 300,000 hours

for pulses equal to a voltage amplitude

Failure rate < 1 fit (0.5 x U<sub>r</sub> and 40° C)

Capacitance

pF/µF

1000 ... 2200

3300 ... 0.015

0.022 ... 0.1

**Reliability:** 

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

For further details and graphs please refer to Technical Information.

Pulse rise time V/µsec

max. operation

2000

1500

500

# WIMA MP 3R-Y2

## Continuation

#### **General Data**

Canacitanaa	300 VAC*											
Capacitance	W	Н	L	PCM**	Part number							
1000 pF	5	13	19	15	MPRY2W1100FC00							
1500 "	5	13	19	15	MPRY2W1150FC00							
2200 "	5	13	19	15	MPRY2W1220FC00							
3300 "	5	13	19	15	MPRY2W1330FC00							
4700 "	6	14	19	15	MPRY2W1470FD00							
6800 "	7	15	19	15	MPRY2W1680FE00							
0.01 µF	8	17	19	15	MPRY2VV2100FF00							
0.015 "	10	18	19	15	MPRY2W2150FG00							
0.022 "	8	20	28	22.5	MPRY2W2220FH00							
0.033 "	8	20	28	22.5	MPRY2VV2330FH00							
0.047 "	10	22	28	22.5	MPRY2W2470FI00							
0.068 "	12	24	28	22.5	MPRY2W2680FJ00							
0.1 µF	13	25	33	27.5	MPRY2VV3100FK00							

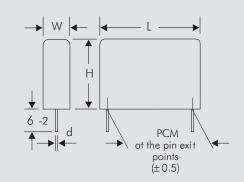
\* f = 50/60 Hz

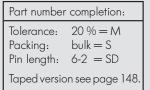
\*\* PCM = Printed circuit module = pin spacing

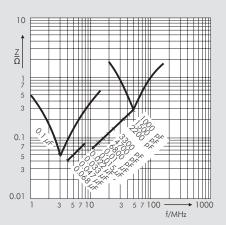
Upon request with long pins 35-2 mm max.

Dims. in mm.

d = 0.8 Ø







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

#### **Soldering Process**

A preheating of through-hole WIMA capacitors is allowed for temperatures T<sub>max</sub> < 100 ° C. In practice a preheating duration of t < 5 min. has been proven to be best.

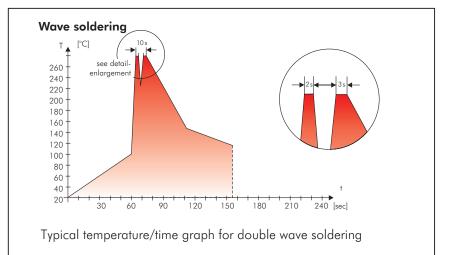
#### Single wave soldering

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

#### Double wave soldering

Soldering bath temperature:  $T < 260 \,^{\circ}\,C$ Immersion time:  $2 \times t < 3 \sec$ 

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



## WIMA Quality and Environmental Philosophy

#### ISO 9001:2008 Certification

ISO 9001:2008 is an international basic standard of quality assurance systems for all branches of industry. The approval according to ISO 9001:2008 of our factories by the VDE inspectorate 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 of WPCS during production process:

- incoming material inspection
- metallization
- film inspection
- schoopage
- pre-healing pin attachment
- cast resin preparation/ encapsulation
- 100% final inspection
- AQL check

#### **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.

- PBB/PBDE

- Arsenic

- Mercurv

- etc.

– Lead

- PCB
- CFC
- Hydrocarbon chloride
- Chromium 6+

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:

- foamed polystyrene (Styropor®)
- adhesive tapes made of plastic
- metal clips

#### **RoHS** Compliance

According to the RoHS Directive 2011/65/EC 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 refraind from using such substances since years already.



Tape for lead-free WIMA capacitors

#### **DIN EN ISO 14001:2004**

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



## Typical Dimensions for Taping Configuration

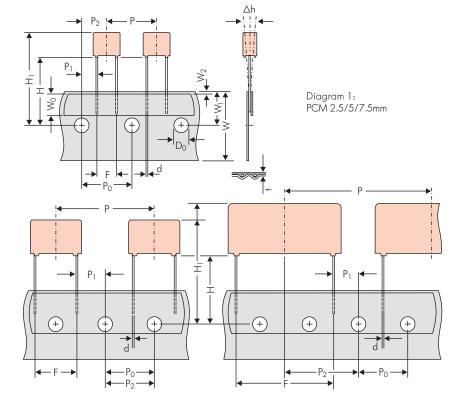


Diagram 2: PCM 10/15 mm

Diagram 3: PCM 22.5 and 27.5\*mm \*PCM 27.5 taping possible with two feed holes between components

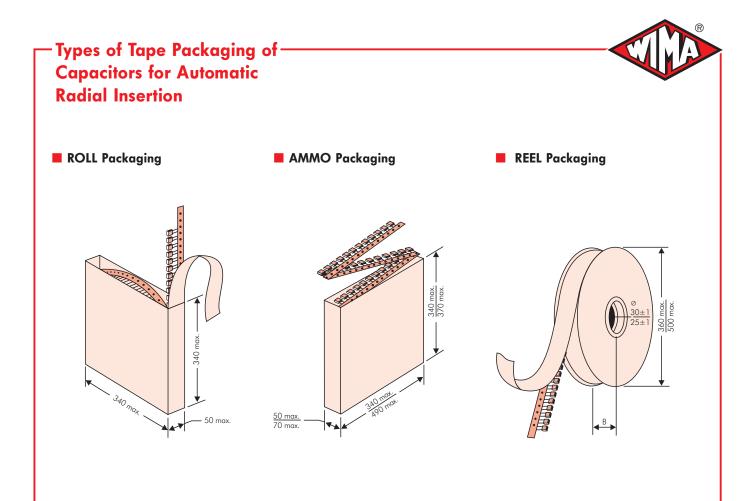
		Dimensions for Radial Taping												
Designation	Symbol	PCM 2.5 taping	PCM 5 taping	PCM 7.5 taping	PCM 10 taping*	PCM 15 taping*	PCM 22.5 taping	PCM 27.5 taping						
Carrier tape width	W	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5	18.0 ±0.5						
Hold-down tape width	W <sub>0</sub>	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	Р	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	Po	cumulative pitch 12.7 ±0.3 error max. 1.0 mm/20 pitch	cumulative pitch error max. 1.0 mm/20 pitch	cumulative pitch 12.7 ±0.3 error max. 1.0 mm/20 pitch	cumulative pitch 12.7 ±0.3 error max. 1.0 mm/20 pitch	cumulative pitch 12.7 ±0.3 error max. 1.0 mm/20 pitch	cumulative pitch 12.7 ±0.3 error max. 1.0 mm/20 pitch	cumulative pitch 12.7 ±0.3 error max. 1.0 mm/20 pitch						
Feed hole centre to pin	P1	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	н	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						
edge of the component	11	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	H1	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	$^{\circ}0.5 \pm 0.05 \text{ or } 0.6 + 0.06 \\ -0.05$	$^{\circ}0.5 \pm 0.05 \text{ or } 0.6 + 0.06 - 0.05$	0.8 +0,08	0.8 +0,08	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						
		ROLL//	AMMO	AMMO										
Package (see also page 149)		REEL Ø 360 max. Ø 30 ±1	$\left. B \begin{array}{c} 52 \pm 2 \\ 58 \pm 2 \end{array} \right\} \begin{array}{c} \text{depending on} \\ \text{comp. dimensions} \end{array}$	REEL Ø 360 max.      52 ±2 \$8 9 ±2 or      Ø 500 max.      54 ±2 Ø 25 ±1      depending        Ø 30 ±1      6 ±2      Ø 25 ±1      6 0 ±2 (6 ±2)      component dimensions										
Unit					see details page 150.									

Dims in mm.

٠ 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 1).  $P_0 = 12.7$  or 15.0 is possible

Please clarify customer-specific deviations with the manufacturer.



## -BAR CODE (Labelling)

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

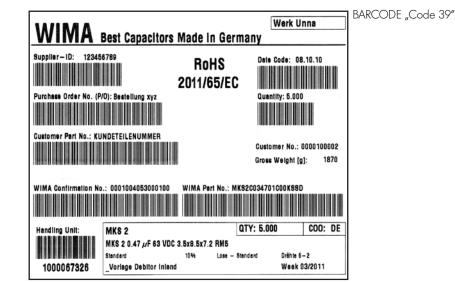
Scanner decoding of

- 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.



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

PCM      Final balk      PC - P      PC -							pcs. per packing unit											
H.M.      Interpretation      Book      Product			Si	ze			ROLL											
Image      Image <t< th=""><th>PCM</th><th></th><th>0.</th><th>20</th><th></th><th>bulk</th><th></th><th></th><th>Ø 500</th><th>340 × 340</th><th></th></t<>	PCM		0.	20		bulk			Ø 500	340 × 340								
2.5 mm      3.      7.      4.6      08      5000      2000      2300       2800         2.5 mm      3.8      8.5      4.6      00      5000      1500      1800       1800         5.5      10      4.6      0F      5000      2000      2000      2000       1800         3.5      7.5      7.7      18      5000      2000      2000       2000         3.5      7.5      7.7      18      5000      2000      1000      1000       2000         4.5      6.5      7.2      18      4000      1300      1500       100         5.5      10      7.2      17      4.8      4000      1300      1500       100         5.5      10      7.2      14      2000      1000      1200       100       100         5.6      10.2		W	н		Codes	S				· · · · · · · · · · · · · · · · · · ·								
2.5 mm      3      75      46      0C      5000      1000      1200      -      1800      -        45      9      46      9      5000      1200      1500      -      1500      -        5      75      72      18      5000      2200      2500      -      2800      -        3.5      8.5      7.2      18      5000      2200      2500      -      2800      -        3.5      8.5      7.2      16      5000      1000      1200      -      1000      -        4.5      9.5      7.2      16      4000      1000      1200      -      1000      -        5.5      7      7.2      16      4000      1000      1200      -      1000      -      1000      -      1000      -      1000      -      1000      -      1000      -      1000      -      1000      -      1000      -      1000      -      1000      200      -      1000 </th <th></th> <th></th> <th></th> <th>4.6</th> <th></th> <th></th> <th><u> </u></th> <th></th> <th>· · · · · · · · · · · · · · · · · · ·</th> <th></th> <th></th>				4.6			<u> </u>		· · · · · · · · · · · · · · · · · · ·									
2.5 mm      3.8      4.6      9.0      5.000      15.00      1800       1800         5.5      10      4.6      0F      5000      700      1200      1      1200         5.5      10      4.6      0F      5000      2000      2300       2300         7.5      10      4.6      0F      5000      2000      2300       2300         7.5      10      7.2      18      5000      1600      1300      1500       1300         5.5      10      7.2      1F      4000      1300      1500       1400         5.5      10      7.2      1F      2500      1000      1200       1200       1200       1200       1200       1200       1200       1200       1200       1200       1200       1200									_		-							
55      10      46      0F      5000      9200      2200       1200         35      75      72      18      5000      2200      2200       2200         35      8.5      72      10      6000      1600      1000      100       2000         35      8.5      72      16      6000      1600      1000      100       1000         55      15      72      16      3000      1100      1400       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000       1000      200      100       1000      100      100      100      100      100      100      -	2.5 mm	3.8		4.6	0D	5000			-		-							
5 mm      25 3 3 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			9						-		-							
5 mm      3      5      5      72      16      5000      1600      2000      -      2000      -        5 mm      35      85      72      10      6000      1300      1500       1500         5 mm      72      16      6000      1300      1500       1400         5 mo      72      16      6000      1300      1500       1400         5 mo      72      17      60      1000      1000       1200									-		-							
5 mm      35      8.5      7.2      1C      5000      1600      2000       2000         5 mm      45.6      6.7.2      1E      4000      1300      1500       1500         5 5      17      7.2      1E      4000      1300      1300      1200       1500         5 5      15      7.2      1E      4000      1000      1200       1200         7.2      8.5      7.2      1H      2500      700      1000       1000         7.2      13      7.2      1H      2500      700      1000       1000         8.5      10      7.2      1M      2000      600      800       800         10      16      7.2      1M      2000       1000      2000      400      2000         11      16      7.2      10.3      20      3000      -									-		-							
5 mm      45      65      72      1D      6000      1300      1500       1500         5 mm      55      7.2      1F      3500      1100      1400       1500         5.5      7.7      7.2      1G      4300      1000      1200       1200         7.2      8.5      7.2      1H      2500      700      1000       1000         7.2      8.5      7.2      1H      2500      700      1000       1000         8.5      14      7.2      1M      2000      600      800       800         8.5      10      2A      5000       2500      4400      2500         3      8.5      10      2A      5000       1300      200         4      9      10      2C      4000       1300      200         5      <									-		-							
5 mm      45      9.5      7.2      1F      4000      1300      1500       1500         5 5      17      7.2      1G      4000      1000      1200       1200         65      15      7.2      1H      2500      1000      1200       1200         7.2      8.5      7.2      1H      2500      700      1000       1000         7.2      18.5      7.2      1H      2500      700      990       1000         8.5      14      7.2      1M      2000      600      800       800         11      16      7.2      1M      1000      500      600      400      200         12      10.3      20      3500       1700      3200      1400      200         7.2      10.3      20      2500       1000      200      100 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th>-</th>									-		-							
5 mm      5   00      7 20      1 F      3500      1100      1400      -      1400      -        5 5      1.5      7.2      1 H      2500      1000      1200      -      1200      -        6 5      8      7.2      1 H      2500      700      1000      -      1000      -        7.2      8.5      7.2      1 H      2500      700      1000      -      1000      -        7.5      8.5      1.0      7.2      1 K      2000      600      800      -      800      -        8.5      1.0      7.2      1 M      1000      600      800      -      400      -        1.1      1.6      7.2      1 M      1000      200      4400      200      -      400      -      -      400      -      -      400      200      1100      2200      1100      2200      1100      200      1100      200      1100      200      1100      200      1100      12									_		_							
5 mm      5.5      7      7.2      1G      4000      1000      1200       1000         7.5      8.5      7.2      11      2500      800      1000       1000         7.2      8.5      7.2      11      2500      700      1000       1000         7.2      8.5      10      7.2      11      2500      600      800       800         8.5      10      7.2      11      2000      600      800       800         8.5      10      7.2      10      7.2      11.4      2000      600      800       800         7.5      10.5      10.3      2E      3000       1500      2000      1700      3100         7.5      10.5      10.3      2E      3000       1000      2000      1100       1800         7.5      10.5									_		_							
J. IIIII      55      II.5      7.2      IH      2500      1000      1200       1000         6.5      8.5      7.2      IJ      2500      700      1000       1000         7.2      8.5      7.2      IJ      2500      700      900       1000         8.5      10      7.2      IK      2000      600      800       800         8.5      10      7.2      IM      1000      600      800       400         10      16      7.2      IM      1000       2500      4400      2500       400         3      9      10      28      5000       1000      2500      1000      2500      1000       1000      2500      1000       1000      2500       1000      2500      1000       1000       1000      100	5								-		-							
1      2      1      2      1      2      2      1      2      1      1      1000       1000       1000         8.5      10      7.2      1      1      2000      600      800       800         8.5      10      7.2      1      1      1000      600      800       800         11      14      7.2      1      1000      500       2500      4400      2500         3      4      9      10      2C      4000       1700      3000      1700      3000         5      10.5      10.3      2C      2000       1000      2200      1000      2200      1000      1200      100      1200      100      100      1200      100      1200      100      100      1100      1000      1000      1000      1000      1000      1000      1000      1000      1000 <t< th=""><th>5 mm</th><th></th><th>11.5</th><th></th><th>1H</th><th></th><th></th><th>1200</th><th>-</th><th></th><th>-</th></t<>	5 mm		11.5		1H			1200	-		-							
13      7.2      1X      7.2      1X      2000      700      950       1000         8.5      14      7.2      1N      1000      500      600      800       800         8.5      14      7.2      1N      1000      500      600      800       400         7.5      m      10      2A      5000       2200      4400      2200      4150        3      8.5      10      2B      5000       2200      4300      2300      4150        4.5      9.5      10.3      2D      3500       1000      2200      1000      2800        5.7      10.3      2F      2000       1000      2200      1100      2200      120      1300       1400      40      9.5      1450      40      9.5      13      3D      3000       900      1600       1450      40      1400									-		-							
8.5      10      7.2      11      2000      600      800       800         11      16      7.2      1N      1000      500      600       400         3      8.5      7      10      2A      5000       2500      4400      2200      4150        3      45      9.5      10.3      2D      280      5000       1700      3200      1700      3100      200      3100         4      9.5      10.3      2D      200       1700      3200      1700      3200       1700      1800      1700      3200       1800									-		-							
8.5      14      7.2      1M      1500      600      800       800         7.5      3      8.5      10      2A      5000      -      2200      4400      2500         4      9      10      2C      4000      -      2200      4300      2300      4150        4.5      9.5      10.3      2D      3500      -      1500      2200      1400      2800        5.7      12.5      10.3      2F      2000      -      1000      2200      1100      -        7.2      12.5      10.3      2F      2000      -      900      1800      1000      -        7.4      12.5      13.3      2C      13000      -      900      1600      -      1450        4      9      13      3C      3000      -      900      1600      -      1450        4      9      13      3D      3000      -      900      1600      -											-							
11      16      7.2      1N      1000      500      600       400         3      45      7      10      28      5000       2500      4400      2500      4150        4      9      10      22      4000       1700      3200      1700      3100        5      10.5      10.3      22      3000       1500      2900      1300         7.2      12.5      10.3      22      3000       1000      2200      1100         7.2      12.5      10.3      26      1500       900      1600       1900        4      9      13      30      3000       900      1600       1400        5      10      13.5      FB      3000       900      1600       1400        6      12.5      13      30      3000       900      1600									_		_							
2.5      7      10      2A      5000      -      2500      4400      2500      -        7.5 mm      3      8.5      10      2B      5000      -      2200      4300      2300      4150        4.5      9.5      10.3      2D      3500      -      1500      2900      1400      2800        5.7      12.5      10.3      2E      3000      -      1300      2500      1300      -        7.2      12.5      10.3      2G      1500      -      900      1800      1000      -        4      8.5      13.5      FA      3000      -      100      2200      -      1900        4      9.5      13      3D      3000      -      900      1600      -      1450        4      9.5      13      3D      3000      -      700      1300      -      1200        6      12      13      3D      2400      -      550      1100      - <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>_</th><th></th><th>_</th></td<>									_		_							
3      85      10      28      5000       2200      4300      2300      1450        7.5 mm      4.5      9.5      10.3      2D      4000       1700      3200      1700      3100        5.7      10.5      10.3      2D      3300       1300      2500      1300         7.2      12.5      10.3      2E      3000       1300      2500      1300         7.2      12.5      10.3      2C      1300       100      1200       1900        4      4.55      13.5      FA      3000       1900      1600       1450        4      9.5      13      3D      3000       900      1600       1450        5      10      13.5      FB      2000       700      1300       1200        6      12      13      3F      2400       500      1100							<del> </del>		4400		_							
7.5 mm      4      9      10      2C      4000      -      1700      3200      1700      3100        5      10.5      10.3      2D      3500      -      1300      2200      1100      2800        7.7      12.5      10.3      2F      2000      -      1000      2200      1100      -        7.2      12.5      10.3      2F      2000      -      100      2200      100      -        4      8.5      13.5      FA      3000      -      900      1800      -      1450        4      9      13      3C      3000      -      900      1600      -      1450        4      9.5      13      3D      3000      -      700      1300      -      1200        5      10      13.5      FB      2000      -      700      1300      -      1200        6      12.5      18      4C      2000      -      550      1100      -      120																		
10      5      10.5      10.3      2E      3000       1300      2500      1300         72      12.5      10.3      2F      2000       1000      2200      1100         72      12.5      10.3      2F      2000       900      1800      100         4      8.5      13.5      FA      3000       900      1600       1450        4      9      13      3D      3000       900      1600       1450        4      95      13      3D      3000       900      1600       1400        5      10      13.5      FB      2000       700      1300       1200        6      12.5      13      3H      2000       550      1100       1000        6      12.5      18      4C      2000       600      1200							-											
57      12.5      10.3      2F      2000       1000      2200      1100         3      9      13      3A      3000       1000      1800      1000         4      8.5      13.5      FA      3000       900      1600       1450        4      9      13      3C      3000       900      1600       1450        5      10      13.5      FB      2000       900      1600       1200        5      11      13      3F      2000       700      1300       1200        6      12.5      13      3H      2400       550      1100       1000        8      12      13      3H      2400       600      1200      -      1000        6      12.5      18      4C      2000       550      1100       1200 <t< th=""><th>7.5 mm</th><th>4.5</th><th></th><th>10.3</th><th>2D</th><th></th><th>-</th><th>1500</th><th>2900</th><th></th><th></th></t<>	7.5 mm	4.5		10.3	2D		-	1500	2900									
12.510.32G15009001800100039133A33009001600190049133C300090016001450495133C30009001600145051013.5FB200070013001200511133F300070013001200612133G240055011001200612133G240055011001200612133G2000400800740612.5184C20006001200150612.5184C20006001200100061419FC100060012001000714184B120045090085071519FE1000450900850714184F120045090085071519FE1000-45090085071519FE5							-				-							
3      9      13      3A      3000       1100      2200       1900        4      8.5      13.5      FA      3000       900      1600       1450        4      9.5      13      3D      3000       900      1600       1450        5      10      13.5      FB      2000       700      1300       1200        6      12.5      13      3G      2400       550      1100       1000        6      12.5      13      3H      2400       400      800       1000        6      12.5      13      3H      2400       600      1200       1000        7      14      18      4B      2400       600      1200       1100        7      13      19      FC      1000       500      1000       1000 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th>1000</th> <th></th> <th></th> <th>-</th>							-	1000			-							
4      8.5      13.5      FA      3000       900      1600       1450        4      9      13      3C      3000       900      1600       1450        5      10      13.5      FB      2000       900      1600       1400        5      10      13.5      FB      2000       900      1600       1400        6      12      13      3F      3000       900      1300       1200        6      12.5      13      3H      2400       550      1100       1000        8      12      13      3H      2400       600      1200       1000        6      11.8      4B      2400       600      1200       1200        6      12.5      18      4C      2000       500      1000       500      1000 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th></th> <th></th>							-											
10 mm      4      9      13      3C      3000       900      1600       1450        10 mm      13.5      FB      2000       900      1600       1200        5      10      13.5      FB      2000       700      1300       1200        6      12      13      3G      2400       700      1300       1000        6      12.5      13      3G      2400       550      1100       1000        6      12.5      13      3H      2000       400      800       700        6      12.5      18      4B      2400       400      800       1000        6      12.5      18      4B      2400       400      1200       1000        6      12.5      18      4C      2000       450      1200       450      9					-													
10 mm      4      9.5      13      3D      3000       900      1600       1400        5      10      13.5      FB      2000       700      1300       1200        5      11      13      3G      2400       550      1100       1000        6      12.5      13      3H      2400       550      1100       1000        6      12.5      13      3H      2400       550      1100       1000        8      12      13      3H      2400       600      1200       1000        6      12.5      18      4C      2000       500      1000       1000       1000       1000       1000       1000       1000       450      900       850        7      14      18      4D      1600																		
10 mm      5      10      13.5      FB      2000       700      1300       1200        5      11      13      3F      3000       700      1300       1200        6      12.5      13      3G      2400       550      1100       1000        8      12      13      3H      2400       400      800       740        8      12      13      3H      2400       600      1200       1100        5      13      19      FC      1000       600      1200       1200        6      12.5      18      4C      2000       500      1000       1000       1000       1000       1000       1000       450      900       850        7      14      18      4D      1600       450      900										_								
5      11      13      3F      3000      -      700      1300      -      1200        6      12      13      3G      2400      -      550      1100      -      1000        6      12.5      13      3H      2400      -      550      1100      -      1000        6      12.5      13      3H      2400      -      400      800      -      1000        5      13      19      FC      1000      -      600      1200      -      1200        6      12.5      18      4C      2000      -      500      1000      -      1000        7      14      18      4D      1600      -      450      900      -      850        7      15      19      FE      1000      -      450      900      -      850        8      17      19      FE      1000      -      350      700      -      450        9 <t< th=""><th>10 mm</th><th></th><th></th><th></th><th></th><th></th><th>-</th><th></th><th></th><th>-</th><th></th></t<>	10 mm						-			-								
6      12.5      13      3H      2400      -      550      1100      -      740        8      12      13      3I      2000      -      400      800      -      740        5      11      18      4B      2400      -      600      1200      -      1150        5      13      19      FC      1000      -      600      1200      -      1000        6      14      19      FD      1000      -      500      1000      -      1000        6      14      19      FD      1000      -      450      900      -      850        7      15      18      4D      1600      -      450      900      -      850        7      15      18      4D      1600      -      450      900      -      850        7      15      18      4D      1200      -      450      90      -      850        9      14							-			-								
812133120004008007405111848240066001200115051319FC100060012001200612.5184C200050010001000714184D160050010001000714184D160045090085071519FE1000450900850715184F120040080074081719FE500400800740914184H1200350700650914184H1200350700650914184H1200350700650101819FG5003507006501114184M100030065054022.5555550760700640102026.5555004804808.518.526.555 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th>-</th> <th></th>							-			-								
15      11      18      4B      2400      -      600      1200      -      1150        5      13      19      FC      1000      -      600      1200      -      1200        6      12.5      18      4C      2000      -      500      1000      -      1000        6      14      19      FD      1000      -      500      1000      -      1000        7      14      18      4D      1600      -      450      900      -      850        7      15      19      FE      1000      -      450      900      -      850        8      15      18      4F      1200      -      400      800      -      740        9      14      18      4H      1200      -      350      700      -      650        10      18      19      FG      500      -      300      600      -      540        11      14<							-			-								
5      13      19      FC      1000       600      1200       1200        6      12.5      18      4C      2000       500      1000       1000        6      14      19      FD      1000       500      1000       1000        7      14      18      4D      1600       450      900       850        7      15      19      FE      1000       450      900       850        7      15      19      FE      1000       400      800       740        8      17      19      FF      500       400      800       740        9      14      18      4H      1200       350      700       650        10      18      19      FG      500       300      660       540        7																		
6      12.5      18      4C      2000       500      1000       1000        6      14      19      FD      1000       500      1000       1000        7      14      18      4D      1600       450      900       850        7      15      19      FE      1000       450      900       850        7      15      19      FE      1000       450      900       850        8      17      19      FE      1000       400      800       740        8      17      19      FF      500       400      800       740        9      14      18      4H      1200       350      700       650        10      18      19      FG      500       300      600       500        11																		
15 mm      6      14      19      FD      1000       500      1000       1000        7      14      18      4D      1600       450      900       850        7      15      19      FE      1000       450      900       850        8      15      18      4F      1200       400      800       740        8      17      19      FF      500       400      800       740        9      14      18      4H      1200       300      700       740        9      14      18      4H      1200       300      650       740        9      14      18      4J      900       350      700       650        10      18      19      FG      500       300      600       500																		
15      14      18      4D      1600       450      900       850        15      15      19      FE      1000       450      900       850        8      15      18      4F      1200       400      800       740        8      17      19      FF      500       400      800       740        9      14      18      4H      1200       350      700       650        9      14      18      4H      1200       350      700       650        10      18      19      FG      500       300      660       590        11      14      18      4M      1000       -      800       540        7      16.5      26.5      5B      1000       -      -      400      -      550										-								
15      15      19      FE      1000       450      900       850        8      15      18      4F      1200       400      800       740        8      17      19      FF      500       400      800       740        9      14      18      4H      1200       350      700       650        9      16      18      4J      900       350      700       650        10      18      19      FG      500       300      650       590        11      14      18      4M      1000       300      600       540        11      14      18      4M      1000       300      600      -      540        11      14      26.5      5B      1000       -      800      -      550        8      <							-			-								
8      17      19      FF      500       400      800       740        9      14      18      4H      1200       350      700       650        9      16      18      4J      900       350      700       650        10      18      19      FG      500       300      650       590        11      14      18      4M      1000       300      600       540        11      14      26.5      5A      1200       -      800       540        6      15      26.5      5B      1000       -      800       540        74      16.5      26.5      5B      1000       -      700      -      640        7      16.5      26.5      5D      760      -      -      400      -      450        8	3.6	7	15	19	FE		-			-								
9      14      18      4H      1200       350      700       650        9      16      18      4J      900       350      700       650        10      18      19      FG      500       300      650       590        11      14      18      4M      1000      -      300      600      -      540        11      14      18      4M      1000      -      300      600      -      540        6      15      26.5      5B      1000      -      -      800      -      770        6      15      26.5      5B      1000      -      -      -      600      -      550        7      16.5      26.5      5D      760      -      -      400      -      480        7      16.5      26.5      5F      500      -      -      480      -      450        10 <th>15 mm</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th>-</th> <th></th>	15 mm						-			-								
9      16      18      4J      900       350      700       650        10      18      19      FG      500       300      650       590        11      14      18      4M      1000       300      600       540        5      14      26.5      5A      1200       -      800       540        6      15      26.5      5B      1000       -      700       640        7      16.5      26.5      5D      760       -      600       550        8      20      28      FH      500       -      480      -      480        10      2.2      28      FF      500      -      -      480      -      450        10.5      18.5      26.5      5F      500      -      -      4200      -      360        10.5      <							-			-								
10      18      19      FG      500       300      650       590        11      14      18      4M      1000      -      300      600      -      540        5      14      26.5      5A      1200      -      -      800      -      770        6      15      26.5      5B      1000      -      -      700      -      640        7      16.5      26.5      5D      760      -      -      600      -      550        8      20      28      FH      500      -      -      480      -      480        8.5      18.5      26.5      5F      500      -      -      480      -      450        10      22      28      FI      540*      -      -      420      -      380        10.5      19      26.5      5G      680*      -      -      -      400      -      360        10.5							-			-								
11      14      18      4M      1000       300      600       540        5      14      26.5      5A      1200       -      800       770        6      15      26.5      5B      1000       -      700      -      640        7      16.5      26.5      5D      760      -      -      600      -      550        8      20      28      FH      500      -      -      480      -      480        8.5      18.5      26.5      5F      500      -      -      480      -      450        10      22      28      FI      540*      -      -      420      -      380        10.5      19      26.5      5G      680*      -      -      -      400      -      360        10.5      20.5      5H      680*      -      -      380      -      350										_								
5      14      26.5      5A      1200      -      -      800      -      770        6      15      26.5      5B      1000      -      -      700      -      640        7      16.5      26.5      5D      760      -      -      600      -      550        8      20      28      FH      500      -      -      480      -      480        8.5      18.5      26.5      5F      500      -      -      480      -      450        10      22      28      FI      540*      -      -      420      -      380        10.5      19      26.5      5G      680*      -      -      400      -      360        10.5      20.5      26.5      5H      680*      -      -      400      -      360        11      21      26.5      5I      680*      -      -      380      -      350										-								
6      15      26.5      5B      1000      -      -      700      -      640        7      16.5      26.5      5D      760      -      -      600      -      550        8      20      28      FH      500      -      -      500      -      480        8.5      18.5      26.5      5F      500      -      -      480      -      450        10      22      28      FI      540*      -      -      420      -      380        10.5      19      26.5      5G      680*      -      -      400      -      360        10.5      20.5      26.5      5H      680*      -      -      400      -      360        11      21      26.5      5I      680*      -      -      380      -      350				-					·	_								
7      16.5      26.5      5D      760      -      -      600      -      550        8      20      28      FH      500      -      -      500      -      480        8.5      18.5      26.5      5F      500      -      -      480      -      450        10      22      28      FI      540*      -      -      400      -      380        10.5      19      26.5      5G      680*      -      -      400      -      360        10.5      20.5      26.5      5H      680*      -      -      400      -      360        11      21      26.5      5I      680*      -      -      380      -      350										-								
8.5      18.5      26.5      5F      500      -      -      480      -      450        10      22      28      FI      540*      -      -      420      -      380        10.5      19      26.5      5G      680*      -      -      400      -      360        10.5      20.5      26.5      5H      680*      -      -      400      -      360        11      21      26.5      5I      680*      -      -      380      -      350						760	-	-	600	-								
10      22      28      FI      540*      -      -      420      -      380        10.5      19      26.5      5G      680*      -      -      400      -      360        10.5      20.5      26.5      5H      680*      -      -      400      -      360        11      21      26.5      5I      680*      -      -      380      -      350							-	-		-								
10  22  26  FI  340  -  -  420  -  380    10.5  19  26.5 <b>5G</b> 680*  -  -  400  -  360    10.5  20.5  26.5 <b>5H</b> 680*  -  -  400  -  360    11  21  26.5 <b>5I</b> 680*  -  -  380  -  350	22.5 mm						-	-		-								
10.5  20.5  26.5  5H  680*  -  -  400  -  360    11  21  26.5  5I  680*  -  -  380  -  350							-	-		-								
11 21 26.5 <b>51</b> 680* – – 380 – 350							_	_		_								
							_	_		_								
12 24 20 <b>FJ</b> 430 - 300 - 310		12	24	28	FJ	450*	-	-	350	-	310							

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

sions. 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

								pcs	. per p	acking u	init				
		Siz	70			RC	OLL		RE	EL			AM	MO	
PCM		JI.	Ze		bulk			øЗ	60	ø5	500	340 >	× 340	490 >	× 370
						H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5	H16.5	H18.5
	W	Н	L	Codes	S	N	0	F	T	н	J	Α	С	В	D
	9	19	31.5	6A	640*	_	-	_		460/	340*	_	_	4	20
	11	21	31.5	6B	544*	-	-	-		380/	280*	-	-	3	50
	13	24	31.5	6D	448*	-	-	-		3	00	-	-	2	90
	13	25	33	FK	336*	-	-	-		-	-	-	-		
07.5	15	26	31.5	6F	384*	-	-	-		2	70	-	-	2	250
27.5 mm	15	26	33	FL	288*	-	-	-		-	-	-	-	MO 490 × 370 H16.5 H18 B D 420 350 290 - 250 - - - - - - - - - - - - -	-
	17	29	31.5	6G	176*	-	-	-		-	-	-	-		-
	17	34.5	31.5	61	176*	-	-	-		-	-	-	-		-
	19 20	30 32	31.5 33	6L FM	50* 216*	-	-	-		-	-	-	-	-	-
	20	39.5	31.5	6J	144*	-		_		-	-	-	_		_
	9	19	41.5	7A	480*		_	_		_	_	_	_	-	
	11	22	41.5	7B	408*	-	-	-		_		-		-	
	13	24	41.5	7C	252*	-	-	-		-	-	-	-		-
	15	26	41.5	7D	144*	-	-	-		-	-	-	-	-	-
37.5 mm	17	29	41.5	7E	132*	-	-	-		-	-	-	-	-	-
37.5 mm	19 20	32 39.5	41.5 41.5	7F 7G	108* 108*	-	-	-		-	-	-	-	-	-
	20 24	39.5 45.5	41.5	7G 7H	84*	-	-	-		-	-	-	-	-	-
	31	45.5	41.5	71	72 <b>*</b>						_	_	_		
	35	50	41.5	7J	35*		_	_		_	_		_		
	40	55	41.5	7K	28*	-	-	-		-	-	-	-	-	-
	19	31	56	8D	50*	-	-	-		-	-	-	-	-	-
40 5	23	34	56	8E	72*	-	-	-			-	-	-	-	-
48.5 mm	27	37.5	56	8H	60*	-	-	-		-	-	-	-	-	-
	33 37	48 54	56 56	8J 8L	48* 25*	-	-	-		-	-	-	-	-	_
	35	50	57	9F	25*		_			_	_		_		_
52.5 mm	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



- 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				
м	к	S	2	с	0	2	1	0	0	1	Α	0	0	м	S	S	D				
	MK	S 2		63 \	/DC		0.0	)] µF		2.5×6	.5x7.2			20% bulk 6-2							
SMD-F SMD-F FKP 02 MKS 0 FKS 2 FKP 2 MKP 2 FKS 3 FKP 3 MKP 4 FKP 3 MKP 4 FKP 1 MKP-X MKP-Y MP 3-) MP	PS 22 22 22 22 22 22 22 22 22 22 22 22 22	= SK = = KK	ADI APO KS0 KS2 P2 KS2 KS2 KS2 KS2 KS2 KS2 KS2 KS2 KS2 KS	Rated v 2.5 VDC 4 VDC 14 VDC 28 VDC 5 VDC 5 VDC 50 VDC 63 VDC 100 VDC 160 VDC 400 VDC 400 VDC 400 VDC 400 VDC 600 VDC 600 VDC 600 VDC 600 VDC 800 VDC 800 VDC 800 VDC 1000 VE 1100 VD 1200 VE 1500 VE 1500 VE 1500 VE 3000 VE 4000 VE 6000 VE	$\begin{array}{c} = A \\ = B \\ = C \\ = D \\ = C \\ = D \\ = C \\$	1      22      47        22      47      3        33      10      4      15        55      22      6      33        50      47      00      68        00      10      10      10        00      15      22      00      33        00      47      68      0      0.0      0        00      0.0      0.0      0.0      0.0      0      0.1      1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0      0.1      0.0	<sup>2</sup> pF 30 pF 30 pF 30 pF 30 pF 30 pF 30 pF 30 pF 300	ance:      = 0022      = 0100      = 0150      = 0220      = 0330      = 0470      = 0150      = 1150      = 1220      = 1330      = 1470      = 1680      = 2100      = 2470      = 3120      = 3470      = 4470      = 5120      = 5470      = 6100      = 6220      = A010	4.8x 5.7x 5.7x 7.2x 7.2x 10.2 12.7; 15.3; 2.5x 3x7. 2.5x 3x7. 2.5x 3x8. 3x9 4x9 5x11 6x12 5x14 6x13 9x19 11x2 9x19 11x2	3.3 x 3 S 3.3 x 4 S 5.1 x 3.5 5.1 x 4.5 6.1 x 3 S 6.1 x 3 S 6.1 x 5 S 6.1 x 5 S 6.1 x 5 S 6.1 x 5 S 7.4.6 F 5 x 4.6 F 6.5 x 7.2 F 7 x 10 PG x 13 PG x 14 PG x 14 PG x 14 PG x 15 PG x	CM7.5 CM7.5 W 10 W 10 CM 15 PCM 15 PCM 22 PCM 27 PCM 27 PCM 27 PCM 37 PCM 37 DCH_	2 = K G = G G G G = G G G G = G G G G G G		Toleran 20% 10% 5% 2.5% 1%  Packing AMMO AMMO AMMO AMMO AMMO AMMO AMMO AMM	= M = K = J = H = E H16.5 3 H16.5 4 H18.5 3 H18.5 4 6.5 360 6.5 500 6.5 500 6.5 85 W12 18 W12 33 W12 33 W16 33 W12 33	90 x 37( 40 x 34( 90 x 37( 90 x 37( 30 30 30 30 30	B = B C = C				
DC-LIN DC-LIN Super( Super(	NK HC NK HY Cap C Cap MC Cap C60	= DC = DC = SC = M	CH_ CHY CSC C CSC	250 VAC 275 VAC 300 VAC 400 VAC 440 VAC 500 VAC		N      50        N      10        N      11        N      60        N      12	) F )0 F 0 F )0 F	= A500 = B100 = B110 = B600 = C120	Stan Versi Versi	ion cod dard on A1 on A1.1 on A2	= 00 = 1A			<b>Pin lenç</b> 3.5 ±0.5 6 -2 16 ±1 		aped)					

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.