

Metallized Polyester (PET) Capacitors in PCM 2.5 mm. Capacitances from 3300 pF to 1.0 µF. Rated Voltages from 63 VDC to 400 VDC.

Special Features

- High volume/capacitance ratio and reduced base
- PCM 2.5 mm
- Self-healing
- According to RoHS 2011/65/EU

Typical Applications

For general DC-applications e.g.

- By-pass
- Blocking
- Coupling and decoupling
- Timing

Construction

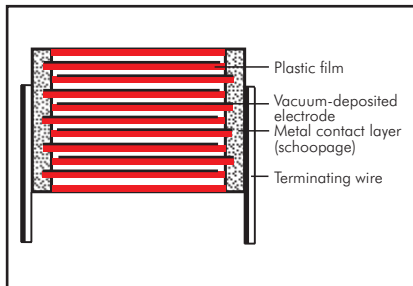
Dielectric:

Polyethylene-terephthalate (PET) 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: Silver.

Electrical Data

Capacitance range:

3300 pF to 1.0 µF (E12-values on request)

Rated voltages:

63 VDC, 100 VDC, 250 VDC, 400 VDC

Capacitance tolerances:

±20%, ±10% (±5% available subject to special enquiry)

Operating temperature range:

-55° C to +100° C

Test specifications:

In accordance with IEC 60384-2

Climatic test category:

55/100/21 in accordance with IEC

Insulation resistance at +20° C:

U_r	U_{test}	$C \leq 0.33 \mu F$	$0.33 \mu F < C \leq 1.0 \mu F$
63 VDC	50 V	$\geq 3.75 \times 10^3 M\Omega$	$\geq 1250 \text{ sec } (M\Omega \times \mu F)$
$\geq 100 \text{ VDC}$	100 V	$\geq 1 \times 10^4 M\Omega$	-

Measuring time: 1 min.

Test voltage: $1.6 U_r$, 2 sec.

Maximum pulse rise time:

Capacitance pF/µF	Pulse rise time V/µsec max. operation/test
3300 ... 6800	100 / 1000
0.01 ... 0.022	50 / 500
0.033 ... 0.068	30 / 300
0.1 ... 0.33	20 / 200
0.47 ... 1.0	15 / 150

for pulses equal to the rated voltage

Dissipation factors at +20° C: $\tan \delta$

at f	$C \leq 0.1 \mu F$	$0.1 \mu F < C \leq 1.0 \mu F$
1 kHz	$\leq 8 \times 10^{-3}$	$\leq 8 \times 10^{-3}$
10 kHz	$\leq 15 \times 10^{-3}$	$\leq 15 \times 10^{-3}$
100 kHz	$\leq 30 \times 10^{-3}$	-

Voltage derating:

A voltage derating factor of 1.25 % per K must be applied from +85° C for DC voltages and from +75° C for AC voltages.

Reliability:

Operational life > 300 000 hours

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

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/sec² in accordance with IEC 60068-2-29

Packing

Available taped and reeled.

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	63 VDC/40 VAC*					100 VDC/63 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
0.01 μF	2.5	7	4.6	2.5	MKSOC021000B00_	2.5	7	4.6	2.5	MKSOD021000B00_
0.015 "	2.5	7	4.6	2.5	MKSOC021500B00_	2.5	7	4.6	2.5	MKSOD021500B00_
0.022 "	2.5	7	4.6	2.5	MKSOC022200B00_	2.5	7	4.6	2.5	MKSOD022200B00_
0.033 "	2.5	7	4.6	2.5	MKSOC023300B00_	2.5	7	4.6	2.5	MKSOD023300B00_
0.047 "	2.5	7	4.6	2.5	MKSOC024700B00_	2.5	7	4.6	2.5	MKSOD024700B00_
0.068 "	2.5	7	4.6	2.5	MKSOC026800B00_	2.5	7	4.6	2.5	MKSOD026800B00_
0.1 μF	3	7.5	4.6	2.5	MKSOC031000C00_	3	7.5	4.6	2.5	MKSOD031000C00_
0.15 "	3	7.5	4.6	2.5	MKSOC031500C00_	3.8	8.5	4.6	2.5	MKSOD031500D00_
0.22 "	3	7.5	4.6	2.5	MKSOC032200C00_	4.6	9	4.6	2.5	MKSOD032200E00_
0.33 "	3.8	8.5	4.6	2.5	MKSOC033300D00_	5.5	10	4.6	2.5	MKSOD033300F00_
0.47 "	4.6	9	4.6	2.5	MKSOC034700E00_					
0.68 "	5.5	10	4.6	2.5	MKSOC036800F00_					
1.0 μF	5.5	10	4.6	2.5	MKSOC041000F00_					

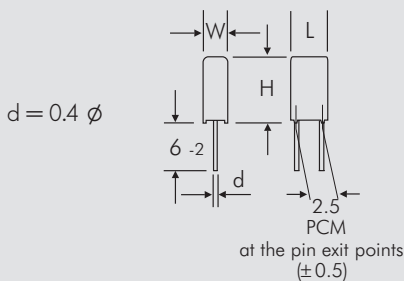
Capacitance	250 VDC/160 VAC*					400 VDC/200 VAC*				
	W	H	L	PCM**	Part number	W	H	L	PCM**	Part number
3300 pF	2.5	7	4.6	2.5	MKSOF013300B00_	2.5	7	4.6	2.5	MKSOG013300B00_
4700 "	2.5	7	4.6	2.5	MKSOF014700B00_	2.5	7	4.6	2.5	MKSOG014700B00_
6800 "	2.5	7	4.6	2.5	MKSOF016800B00_	2.5	7	4.6	2.5	MKSOG016800B00_
0.01 μF	2.5	7	4.6	2.5	MKSOF021000B00_	3	7.5	4.6	2.5	MKSOG021000C00_
0.015 "	2.5	7	4.6	2.5	MKSOF021500B00_	3.8	8.5	4.6	2.5	MKSOG021500D00_
0.022 "	2.5	7	4.6	2.5	MKSOF022200B00_	4.6	9	4.6	2.5	MKSOG022200E00_
0.033 "	3	7.5	4.6	2.5	MKSOF023300C00_	5.5	10	4.6	2.5	MKSOG023300F00_
0.047 "	3.8	8.5	4.6	2.5	MKSOF024700D00_	5.5	10	4.6	2.5	MKSOG024700F00_
0.068 "	4.6	9	4.6	2.5	MKSOF026800E00_					
0.1 μF	5.5	10	4.6	2.5	MKSOF031000F00_					

* AC voltage: $f = 50 \text{ Hz}$; $1.4 \times U_{\text{rms}} + \text{UDC} \leq U_r$

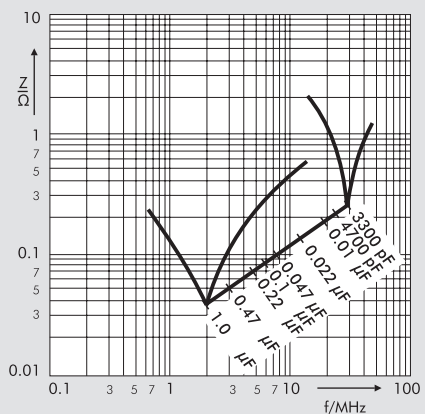
New range and value

** 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 149.	



Impedance change with frequency (general guide).

Rights reserved to amend design data without prior notification.

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: $T_{max.} \leq 110^{\circ}C$

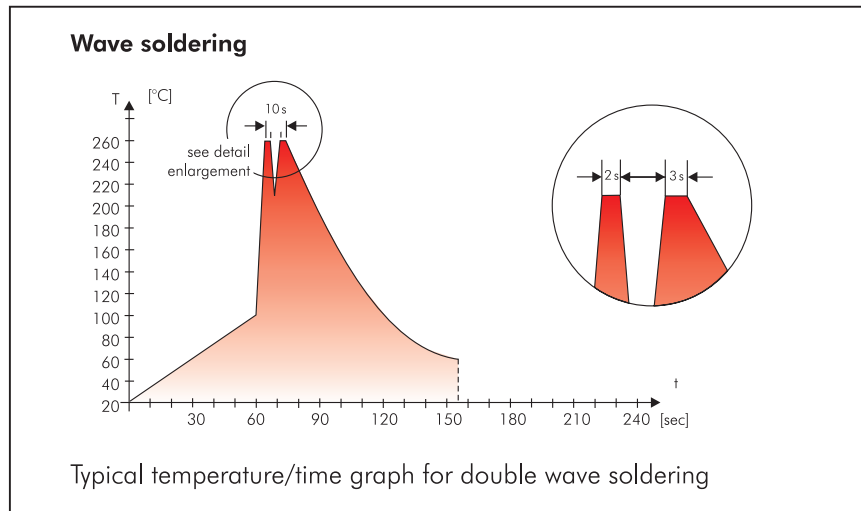
Single wave soldering

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

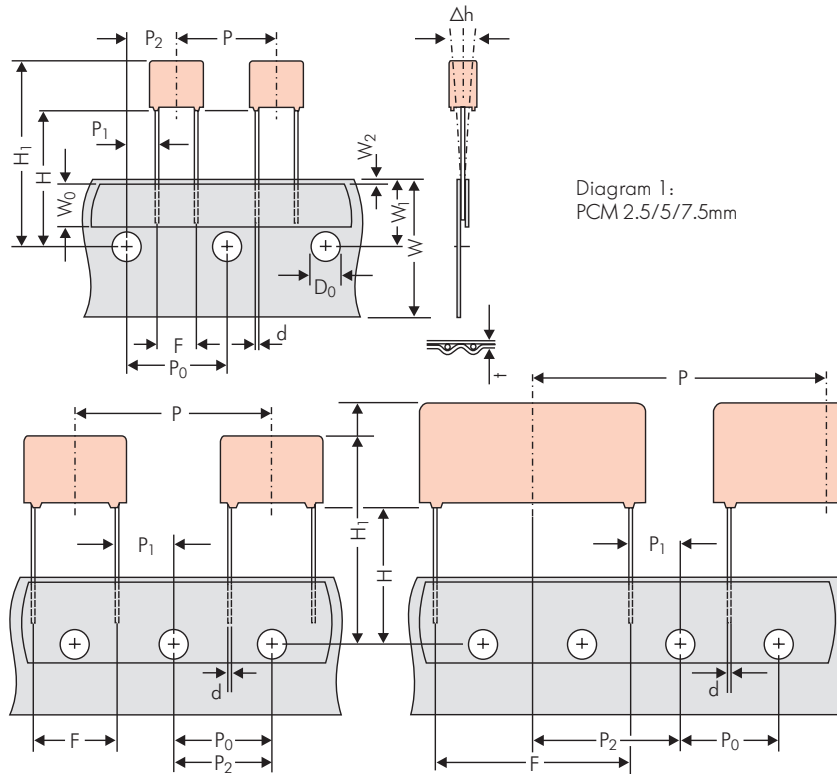


Diagram 1:
PCM 2.5/5/7.5mm

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 ₀	6.0 for hot-sealing adhesive tape	6.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape	12.0 for hot-sealing adhesive tape
Hole position	W ₁	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5	9.0 ±0.5
Hold-down tape position	W ₂	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.	0.5 to 3.0 max.
Feed hole diameter	D ₀	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2	4.0 ±0.2
Pitch of component	P	12.7 ±1.0	12.7 ±1.0	12.7 ±1.0	25.4 ±1.0	25.4 ±1.0	38.1 ±1.5	38.1 ±1.5 or 50.8 ±1.5
Feed hole pitch	P ₀	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch	12.7 ±0.3 cumulative pitch error max. 1.0 mm/20 pitch
Feed hole centre to pin	P ₁	5.1 ±0.5	3.85 ±0.7	2.6 ±0.7	7.7 ±0.7	5.2 ±0.7	7.8 ±0.7	5.3 ±0.7
Hole centre to component centre	P ₂	6.35 ±1.3	6.35 ±1.3	6.35 ±1.3	12.7 ±1.3	12.7 ±1.3	19.05 ±1.3	19.05 ±1.3
Feed hole centre to bottom edge of the component	H	16.5 ±0.3 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 ₁	H+H _{component} < H ₁ 32.25 max.	H+H _{component} < H ₁ 32.25 max.	H+H _{component} < H ₁ 24.5 to 31.5	H+H _{component} < H ₁ 25.0 to 31.5	H+H _{component} < H ₁ 26.0 to 37.0	H+H _{component} < H ₁ 30.0 to 43.0	H+H _{component} < H ₁ 35.0 to 45.0
Pin spacing at upper edge of carrier tape	F	2.5 ±0.5	5.0 ^{+0.8} _{-0.2}	7.5 ±0.8	10.0 ±0.8	15 ±0.8	22.5 ±0.8	27.5 ±0.8
Pin diameter	d	0.4 ±0.05	0.5 ±0.05	0.5 ±0.05 or 0.6 ^{+0.06} _{-0.05}	0.5 ±0.05 or 0.6 ^{+0.06} _{-0.05}	0.8 ^{+0.08} _{-0.05}	0.8 ^{+0.08} _{-0.05}	0.8 ^{+0.08} _{-0.05}
Component alignment	Δh	± 2.0 max.	± 2.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.	± 3.0 max.
Total tape thickness	t	0.6 ±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 150)	ROLL/AMMO			AMMO				
	REEL	ϕ 360 max. ϕ 30 ±1	B 52 ±2 B 58 ±2 } depending on comp. dimensions	REEL ϕ 360 max. ϕ 30 ±1	B 52 ±2 B 58 ±2 or B 66 ±2	REEL ϕ 500 max. ϕ 25 ±1	B 54 ±2 B 60 ±2 B 68 ±2 } depending on PCM and component dimensions	
Unit	see details page 151.							

Dims in mm.

* Diameter of pins see General Data.

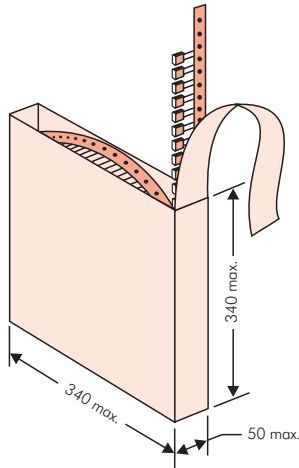
* PCM 10 and PCM 15 can be crimped to PCM 7.5.

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

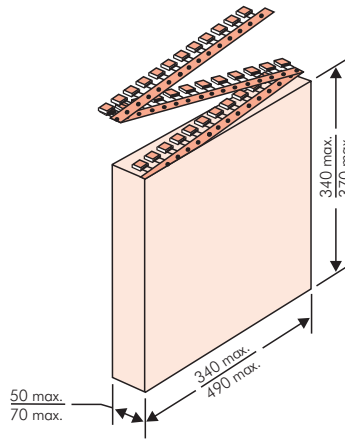
Please clarify customer-specific deviations with the manufacturer.

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

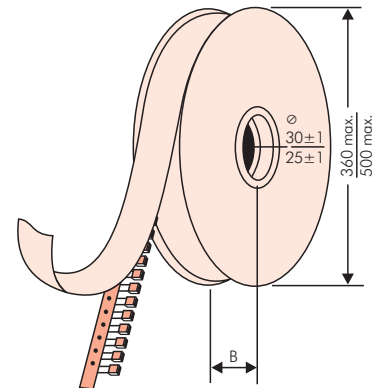
■ ROLL Packaging



■ AMMO Packaging



■ REEL Packaging



BAR CODE (Labelling)

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

Scanner decoding of

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

In addition part description of

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

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

WIMA Best Capacitors Made In Germany		Werk Unna
Supplier-ID: 123456789	RoHS 2011/65/EU	Date Code: 08.10.10
Purchase Order No. (P/O): Bestellung xyz		Quantity: 5.000
Customer Part No.: KUNDETEILENUMMER		Customer No.: 0000100002
		Gross Weight [g]: 1870
WIMA Confirmation No.: 0001004053000100	WIMA Part No.: MKS2C034701C00K8SD	
Handling Unit: MKS 2	QTY: 5.000	COO: DE
	MKS 2 0.47 µF 63 VDC 3.5x8.5x7.2 RM5	
1000067326	Standard 10% Loss - Standard Dichte 6-2	Week 03/2011
	Vorlage Debitor Inland	

BARCODE „Code 39“

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



PCM	Size				bulk	pcs. per packing unit									
						ROLL		REEL				AMMO			
	W	H	L	Codes		S	H16.5	H18.5	ø 360	ø 500	340 x 340	490 x 370			
					N	O	F	I	H	J	A	C	B	D	
2.5 mm	2.5	7	4.6	0B	5000		2200		2500				2800		
	3	7.5	4.6	0C	5000		2000		2300				2300		
	3.8	8.5	4.6	0D	5000		1500		1800				1800		
	4.6	9	4.6	0E	5000		1200		1500				1500		
	5.5	10	4.6	0F	5000		900		1200				1200		
5 mm	2.5	6.5	7.2	1A	5000		2200		2500				2800		
	3	7.5	7.2	1B	5000		2000		2300				2300		
	3.5	8.5	7.2	1C	5000		1600		2000				2000		
	4.5	6	7.2	1D	6000		1300		1500				1500		
	4.5	9.5	7.2	1E	4000		1300		1500				1500		
	5	10	7.2	1F	3500		1100		1400				1400		
	5.5	7	7.2	1G	4000		1000		1200				1200		
	5.5	11.5	7.2	1H	2500		1000		1200				1200		
	6.5	8	7.2	1I	2500		800		1000				1000		
	7.2	8.5	7.2	1J	2500		700		1000				1000		
	7.2	13	7.2	1K	2000		700		950				1000		
8.5	10	7.2	1L	2000		600		800				800			
8.5	14	7.2	1M	1500		600		800				800			
11	16	7.2	1N	1000		500		600				640			
7.5 mm	2.5	7	10	2A	5000				2500		4400		2500		
	3	8.5	10	2B	5000				2200		4300		2300		4150
	4	9	10	2C	4000				1700		3200		1700		3100
	4.5	9.5	10.3	2D	3500				1500		2900		1400		2700
	5	10.5	10.3	2E	3000				1300		2500		1300		
	5.7	12.5	10.3	2F	2000				1000		2200		1100		
	7.2	12.5	10.3	2G	1500				900		1800		1000		
10 mm	3	9	13	3A	3000				1100		2200				1900
	4	8.5	13.5	FA	3000				900		1600				1450
	4	9	13	3C	3000				900		1600				1450
	4	9.5	13	3D	3000				900		1600				1400
	5	10	13.5	FB	2000				700		1300				1200
	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
8	12	13	3I	2000				400		800				740	
15 mm	5	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
	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	
22.5 mm	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						500				480
	8.5	18.5	26.5	5F	500						480				450
	10	22	28	FI	570*						420				380
	10.5	19	26.5	5G	594*						400				360
	10.5	20.5	26.5	5H	594*						400				360
	11	21	26.5	5I	561*						380				350
	12	24	28	FJ	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		
27.5 mm	9	19	31.5	6A	567*	-	-	-	-	460/340*	-	-	420				
	11	21	31.5	6B	459*	-	-	-	-	380/280*	-	-	350				
	13	24	31.5	6D	378*	-	-	-	-	300	-	-	290				
	13	25	33	FK	405*	-	-	-	-	-	-	-	-				
	15	26	31.5	6F	324*	-	-	-	-	270	-	-	250				
	15	26	33	FL	324*	-	-	-	-	-	-	-	-				
	17	29	31.5	6G	198*	-	-	-	-	-	-	-	-				
	17	34.5	31.5	6I	198*	-	-	-	-	-	-	-	-				
	20	32	33	FM	162*	-	-	-	-	-	-	-	-				
	20	39.5	31.5	6J	162*	-	-	-	-	-	-	-	-				
37.5 mm	9	19	41.5	7A	441*	-	-	-	-	-	-	-	-				
	11	22	41.5	7B	357*	-	-	-	-	-	-	-	-				
	13	24	41.5	7C	294*	-	-	-	-	-	-	-	-				
	15	26	41.5	7D	252*	-	-	-	-	-	-	-	-				
	17	29	41.5	7E	154*	-	-	-	-	-	-	-	-				
	19	32	41.5	7F	140*	-	-	-	-	-	-	-	-				
	20	39.5	41.5	7G	126*	-	-	-	-	-	-	-	-				
	24	45.5	41.5	7H	112*	-	-	-	-	-	-	-	-				
	31	46	41.5	7I	84*	-	-	-	-	-	-	-	-				
	35	50	41.5	7J	35*	-	-	-	-	-	-	-	-				
	40	55	41.5	7K	28*	-	-	-	-	-	-	-	-				
48.5 mm	19	31	56	8D	120*	-	-	-	-	-	-	-	-				
	23	34	56	8E	80*	-	-	-	-	-	-	-	-				
	27	37.5	56	8H	84*	-	-	-	-	-	-	-	-				
	33	48	56	8J	25*	-	-	-	-	-	-	-	-				
	37	54	56	8L	25*	-	-	-	-	-	-	-	-				
52.5 mm	25	45	57	9D	70*	-	-	-	-	-	-	-	-				
	30	45	57	9E	60*	-	-	-	-	-	-	-	-				
	35	50	57	9F	25*	-	-	-	-	-	-	-	-				
	45	55	57	9H	20*	-	-	-	-	-	-	-	-				
	45	65	57	9J	20*	-	-	-	-	-	-	-	-				

* for 2-inch transport pitches.

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

■ Moulded versions.

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Updated data on www.wima.com



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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