WIMA DC-LINK MKP 4

Metallized Polypropylene (PP) - Capacitors for DC-Link Applications

Special Features

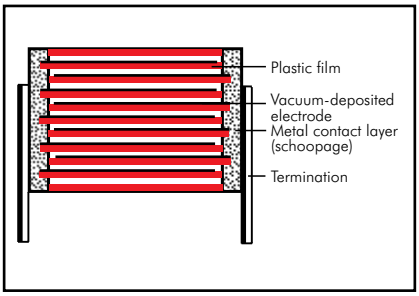
- **Capacitances up to 150 µF**
- **High volume/capacitance ratio**
- **Excellent self-healing properties**
- **Very low dissipation factor**
- **High reliability**
- **2-pin and 4-pin contact configuration (plate versions on request)**
- **AEC-Q200 qualified** AEC-Q200
- **According to RoHS 2011/65/EU**

Typical Applications

As intermediate circuit capacitor e.g. in high power converter technology, power supplies, solar inverters etc.

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 (plate versions on request).
Marking:
Colour: Red. Marking: Black.
Epoxy resin seal: Red

Electrical Data

Capacitance range: 2 µF to 150 µF (intermediate values on request)
Rated voltages: 600 VDC, 800 VDC, 900 VDC, 1100 VDC, 1300 VDC
Capacitance tolerances: ±20%, ±10%, ±5%
Operating temperature range: –55° C to +105° C (hot spot including self-heating)
Climatic test category: 55/085/56 in accordance with IEC
Insulation resistance at +20° C:
⩾ 30 000 sec (MΩ x µF)
(mean value: 100 000 sec)
Measuring voltage: 100 V/1 min.
Dissipation factors at +20° C:
tan δ ⩽ 10 x 10^{-4} at 1 kHz (C ⩽ 50 µF)
tan δ ⩽ 15 x 10^{-4} at 1 kHz (C > 50 µF)
Voltage and current derating:
A derating factor of 1.35% per K must be applied from +85° C for DC voltages and from +70° C for AC currents (I_{rms}). Additionally a derating factor of 4.5% per K must be applied from +85° C for AC currents (I_{rms})
Reliability: Operational life > 100 000 hours (U_r and 70° C)
Failure rate λ_0 (0.5 x U_r and 40° C)

Π = |C_N [µF] x U_r [V]|	λ_0
Π ⩽ 10 000	< 2 fit
10 000 < Π ⩽ 25 000	< 5 fit
25 000 < Π ⩽ 50 000	< 10 fit
50 000 < Π ⩽ 100 000	< 20 fit
Π > 100 000	< 30 fit

Test voltage: 1.2 U_r, 2sec
Dielectric absorption: 0.05 %
Specific dissipation:

Box size W x H x L in mm	Specific dissipation in Watts per K above the ambient temperature
9 x 19 x 31.5	0.021
11 x 21 x 31.5	0.025
13 x 24 x 31.5	0.030
15 x 26 x 31.5	0.034
17 x 29 x 31.5	0.039
27 x 15 x 41.5	0.043
17 x 34.5 x 31.5	0.044
20 x 39.5 x 31.5	0.053
19 x 32 x 41.5	0.054
20 x 39.5 x 41.5	0.065
24 x 45.5 x 41.5	0.080
31 x 46 x 41.5	0.092
35 x 50 x 41.5	0.106
40 x 55 x 41.5	0.123
35 x 50 x 57	0.132
45 x 55 x 57	0.164
45 x 65 x 57	0.184

Packing

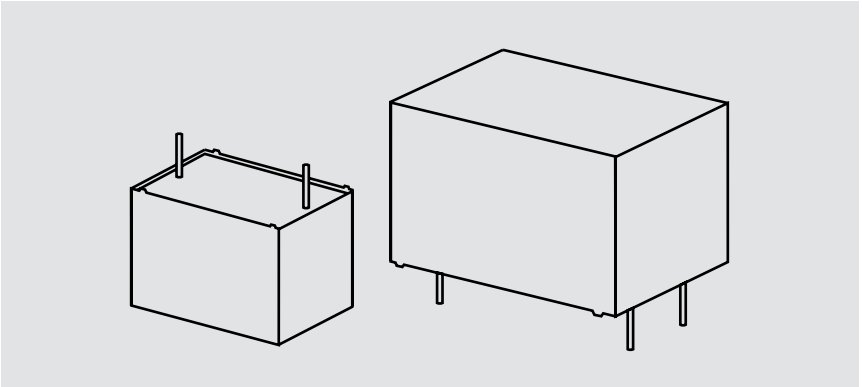
Packing units at the end of the catalogue

For further details and graphs please refer to Technical Information.

Maximum pulse rise time:

PCM	max. pulse rise time V/µsec at T_A < 40° C				
	600 VDC	800 VDC	900 VDC	1100 VDC	1300 VDC
27.5	27	29	35	43	50
37.5	19	21	22	29	35
52.5	13	15	18	21	25

for pulses equal to the rated voltage



Continuation

General Data

Capacitance	600 VDC (70° C) / 450 VDC (85° C) W	H	L	PCM**	Pin	I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
2 µF	9	19	31.5	27.5	2	38	2	56	DCP4I042006A_____
5 „	13	24	31.5	27.5	2/4	95	3.5	22	DCP4I045006D_____
7 „	15	26	31.5	27.5	2/4	133	4.5	16	DCP4I047006F_____
10 µF	17	29	31.5	27.5	2/4	190	6	11	DCP4I051006G_____
	27	15	41.5	37.5	2/4	140	6.5	10	DCP4I051007M_____
15 „	17	34.5	31.5	27.5	2/4	285	7.5	7.4	DCP4I051506I_____
20 „	20	39.5	31.5	27.5	2/4	380	9	6.2	DCP4I052006J_____
	20	39.5	41.5	37.5	2/4	280	10	6.2	DCP4I052007G_____
25 „	20	39.5	41.5	37.5	2/4	350	11.5	5	DCP4I052507G_____
30 „	24	45.5	41.5	37.5	2/4	420	14	4.1	DCP4I053007H_____
35 „	24	45.5	41.5	37.5	2/4	490	14.5	3.8	DCP4I053507H_____
40 „	31	46	41.5	37.5	2/4	560	16.5	3.3	DCP4I054007I_____
45 „	31	46	41.5	37.5	2/4	630	17	3.2	DCP4I054507I_____
50 „	35	50	41.5	37.5	2/4	700	19	2.9	DCP4I055007J_____
55 „	35	50	41.5	37.5	2/4	770	17	3.8	DCP4I055507J_____
60 „	35	50	41.5	37.5	2/4	840	17.5	3.4	DCP4I056007J_____
65 „	40	55	41.5	37.5	2/4	910	19.5	3.3	DCP4I056507K_____
	35	50	57	52.5	4	650	20	3.3	DCP4I056509F_____
70 „	40	55	41.5	37.5	2/4	980	20	3.1	DCP4I057007K_____
	35	50	57	52.5	4	700	20.5	3.1	DCP4I057009F_____
75 „	40	55	41.5	37.5	2/4	1050	20.5	3	DCP4I057507K_____
	35	50	57	52.5	4	750	21	3	DCP4I057509F_____
80 „	40	55	41.5	37.5	2/4	1120	22	2.6	DCP4I058007K_____
	35	50	57	52.5	4	800	22	2.6	DCP4I058009F_____
85 „	35	50	57	52.5	4	850	22.5	2.1	DCP4I058509F_____
90 „	35	50	57	52.5	4	900	23.5	1.9	DCP4I059009F_____
95 „	45	55	57	52.5	4	950	24	2.8	DCP4I059509H_____
100 µF	45	55	57	52.5	4	1000	25	2.6	DCP4I061009H_____
110 „	45	55	57	52.5	4	1100	26.5	2.3	DCP4I061109H_____
115 „	45	65	57	52.5	4	1150	27.5	2.5	DCP4I061159J_____
120 „	45	65	57	52.5	4	1200	28	2.3	DCP4I061209J_____
130 „	45	65	57	52.5	4	1300	29.5	2.1	DCP4I061309J_____
140 „	45	65	57	52.5	4	1400	31	1.9	DCP4I061409J_____
150 „	45	65	57	52.5	4	1500	33	1.7	DCP4I061509J_____

New box size

* General guide

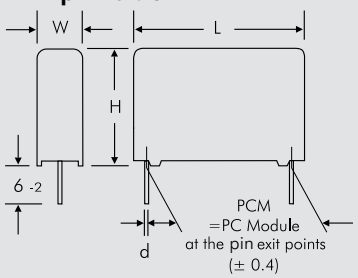
** PCM = Printed circuit module = pin spacing

Dims. in mm.

Part number completion:		
Version code:	2-pin	= D2
	4-pin	= D4
Tolerance:	20 %	= M
	10 %	= K
	5 %	= J
Packing:	bulk	= S
Pin length:	6-2	= SD

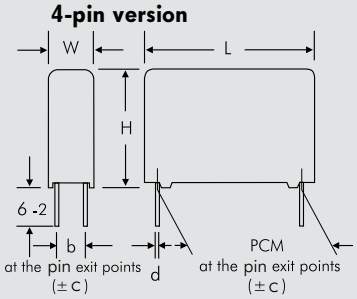
Taped version see page 140.

2-pin version



PCM	d
27.5	0.8
37.5	1

4-pin version



W	PCM	b	d	c
11	27.5	5	0.8	0.4
13	27.5	7.5	0.8	0.4
15	27.5	7.5	0.8	0.4
17	27.5	10	0.8	0.4
20	27.5	12.5	0.8	0.4
19	37.5	10	1	0.4
20	37.5	12.5	1	0.4
24	37.5	12.5	1	0.4
27	37.5	20	1	0.4
31	37.5	20	1	0.4
35	37.5	20	1	0.4
40	37.5	20	1	0.4
35	52.5	20	1.2	0.8
45	52.5	20	1.2	0.8

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Continuation

General Data

Capacitance	W	H	L	PCM**	Pin	I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
	800 VDC (70° C) / 700 VDC (85° C)								
2 µF	9	19	31.5	27.5	2	42	2	52	DCP4L042006A_____
5 „	13	24	31.5	27.5	2/4	105	4	21	DCP4L045006D_____
7 „	17	29	31.5	27.5	2/4	147	5	15	DCP4L047006G_____
10 µF	17	34.5	31.5	27.5	2/4	210	6.5	10	DCP4L051006I_____
15 „	20	39.5	31.5	27.5	2/4	315	9	6.9	DCP4L051506J_____
	20	39.5	41.5	37.5	2/4	225	9.5	6.9	DCP4L051507G_____
20 „	20	39.5	41.5	37.5	2/4	300	10	6.2	DCP4L052007G_____
25 „	24	45.5	41.5	37.5	2/4	375	12.5	5	DCP4L052507H_____
30 „	24	45.5	41.5	37.5	2/4	450	14	4.1	DCP4L053007H_____
35 „	31	46	41.5	37.5	2/4	525	15.5	3.8	DCP4L053507I_____
40 „	31	46	41.5	37.5	2/4	600	16.5	3.3	DCP4L054007I_____
45 „	35	50	41.5	37.5	2/4	675	17.5	3.4	DCP4L054507J_____
50 „	35	50	41.5	37.5	2/4	750	19	3	DCP4L055007J_____
55 „	40	55	41.5	37.5	2/4	825	19.5	3.2	DCP4L055507K_____
	35	50	57	52.5	4	660	20.4	3.2	DCP4L055509F_____
60 „	40	55	41.5	37.5	2/4	900	20.5	2.9	DCP4L056007K_____
	35	50	57	52.5	4	720	21.5	2.9	DCP4L056009F_____
65 „	35	50	57	52.5	4	780	22.5	2.2	DCP4L056509F_____
70 „	45	55	57	52.5	4	840	23.5	3	DCP4L057009H_____
75 „	45	55	57	52.5	4	900	24	2.9	DCP4L057509H_____
80 „	45	55	57	52.5	4	960	24.5	3	DCP4L058009H_____
85 „	45	65	57	52.5	4	1020	25	2.6	DCP4L058509J_____
90 „	45	65	57	52.5	4	1080	25.5	2.5	DCP4L059009J_____
95 „	45	65	57	52.5	4	1140	26	2.4	DCP4L059509J_____
100 µF	45	65	57	52.5	4	1200	26.5	2.3	DCP4L061009J_____
110 „	45	65	57	52.5	4	1320	27.5	2.2	DCP4L061109J_____
115 „	45	65	57	52.5	4	1380	28	2.1	DCP4L061159J_____

Capacitance	W	H	L	PCM**	Pin	I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
	900 VDC (70° C) / 760 VDC (85° C)								
2 µF	11	21	31.5	27.5	2/4	50	2.5	44	DCP4N042006B_____
5 „	17	29	31.5	27.5	2/4	125	4.5	18	DCP4N045006G_____
7 „	17	34.5	31.5	27.5	2/4	175	6	13	DCP4N047006I_____
10 µF	20	39.5	31.5	27.5	2/4	250	8	8.8	DCP4N051006J_____
	20	39.5	41.5	37.5	2/4	160	8.5	8.8	DCP4N051007G_____
15 „	20	39.5	41.5	37.5	2/4	240	10.5	5.8	DCP4N051507G_____
20 „	24	45.5	41.5	37.5	2/4	320	13	4.8	DCP4N052007H_____
25 „	31	46	41.5	37.5	2/4	400	15.5	3.8	DCP4N052507I_____
30 „	31	46	41.5	37.5	2/4	480	15.5	3.7	DCP4N053007I_____
35 „	35	50	41.5	37.5	2/4	560	18	3.2	DCP4N053507J_____
40 „	40	55	41.5	37.5	2/4	640	19.5	3.2	DCP4N054007K_____
	35	50	57	52.5	4	520	20.5	3.2	DCP4N054009F_____
45 „	35	50	57	52.5	4	585	21	2.8	DCP4N054509F_____
50 „	35	50	57	52.5	4	650	22	3.3	DCP4N055009F_____
55 „	35	50	57	52.5	4	715	22.5	3.2	DCP4N055509F_____
	45	55	57	52.5	4	715	22.5	3.2	DCP4N055509H_____
60 „	45	55	57	52.5	4	780	23	3	DCP4N056009H_____
65 „	45	55	57	52.5	4	845	24	2.9	DCP4N056509H_____
70 „	45	65	57	52.5	4	910	24.5	3.3	DCP4N057009J_____
75 „	45	65	57	52.5	4	975	25	2.9	DCP4N057509J_____
80 „	45	65	57	52.5	4	1040	25.5	2.8	DCP4N058009J_____

New box size

* General guide

** PCM = Printed circuit module = pin spacing

Dims. in mm.

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Continuation

General Data

Capacitance	W	H	L	PCM**	Pin	I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
	1100 VDC (70° C) / 920 VDC (85° C)								
2 µF	13	24	31.5	27.5	2/4	62	3	36	DCP4P042006D_____
3 „	15	26	31.5	27.5	2/4	129	4	23	DCP4P043006F_____
5 „	17	34.5	31.5	27.5	2/4	155	5.5	14	DCP4P045006I_____
7 „	20	39.5	31.5	27.5	2/4	217	7.5	10	DCP4P047006J_____
	19	32	41.5	37.5	2/4	147	7.5	10	DCP4P047007F_____
10 µF	20	39.5	41.5	37.5	2/4	210	9.5	7.2	DCP4P051007G_____
15 „	31	46	41.5	37.5	2/4	315	13	5.4	DCP4P051507I_____
20 „	31	46	41.5	37.5	2/4	420	14	5.2	DCP4P052007I_____
	35	50	41.5	37.5	2/4	420	15	4.7	DCP4P052007J_____
25 „	40	55	41.5	37.5	2/4	525	16.5	4.6	DCP4P052507K_____
30 „	35	50	57	52.5	4	450	17.5	4.4	DCP4P053009F_____
35 „	35	50	57	52.5	4	525	18	4	DCP4P053509F_____
40 „	45	55	57	52.5	4	600	19	4.5	DCP4P054009H_____
45 „	45	55	57	52.5	4	675	20	4.1	DCP4P054509H_____
50 „	45	65	57	52.5	4	750	21	4.1	DCP4P055009J_____
55 „	45	65	57	52.5	4	825	22	3.8	DCP4P055509J_____
60 „	45	65	57	52.5	4	900	23	3.5	DCP4P056009J_____

Capacitance	W	H	L	PCM**	Pin	I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	Part number
	1300 VDC (70° C) / 1100 VDC (85° C)								
2 µF	15	26	31.5	27.5	2/4	72	3	36	DCP4R242006F_____
5 „	20	39.5	31.5	27.5	2/4	180	6	14	DCP4R245006J_____
	20	39.5	41.5	37.5	2/4	125	7	14	DCP4R245007G_____
7 „	20	39.5	41.5	37.5	2/4	175	8	10	DCP4R247007G_____
10 µF	24	45.5	41.5	37.5	2/4	250	10.5	7,2	DCP4R251007H_____
15 „	31	46	41.5	37.5	2/4	375	14	4.8	DCP4R251507I_____
20 „	40	55	41.5	37.5	2/4	500	17.5	4	DCP4R252007K_____
	35	50	57	52.5	4	360	18	4	DCP4R252009F_____
25 „	35	50	57	52.5	4	450	19	3.6	DCP4R252509F_____
30 „	45	55	57	52.5	4	540	20	4	DCP4R253009H_____
35 „	45	65	57	52.5	4	630	21	4.1	DCP4R253509J_____
40 „	45	65	57	52.5	4	720	22	3.7	DCP4R254009J_____

* General guide

New value

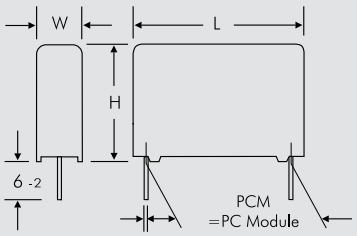
** PCM = Printed circuit module = pin spacing

Dims. in mm.

Part number completion:		
Version code:	2-pin	= D2
	4-pin	= D4
Tolerance:	20 %	= M
	10 %	= K
	5 %	= J
Packing:	bulk	= S
Pin length:	6-2	= SD

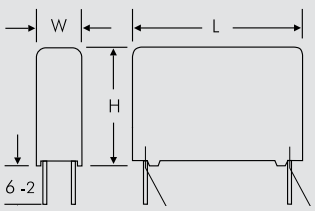
Taped version see page 140.

2-pin version



PCM	d
27.5	0.8
37.5	1

4-pin version



W	PCM	b	d	c
11	27.5	5	0.8	0.4
13	27.5	7.5	0.8	0.4
15	27.5	7.5	0.8	0.4
17	27.5	10	0.8	0.4
20	27.5	12.5	0.8	0.4
19	37.5	10	1	0.4
20	37.5	12.5	1	0.4
24	37.5	12.5	1	0.4
31	37.5	20	1	0.4
35	37.5	20	1	0.4
40	37.5	20	1	0.4
35	52.5	20	1.2	0.8
45	52.5	20	1.2	0.8

Recommendation for Processing and Application of Through-Hole Capacitors

Soldering Process

Internal temperature of the capacitor must be kept as follows:

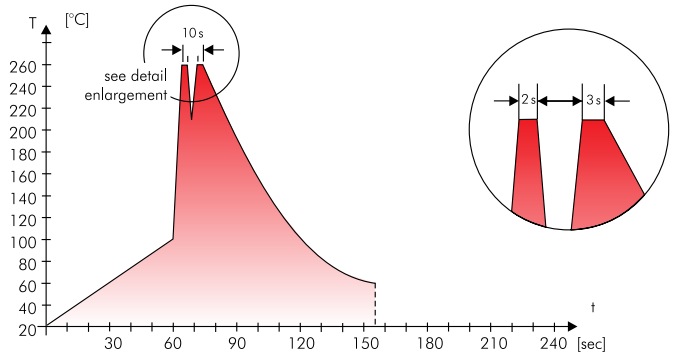
Polyester:	preheating:	$T_{max.} \leqslant 125°$ C
	soldering:	$T_{max.} \leqslant 135°$ C
Polypropylene:	preheating:	$T_{max.} \leqslant 100°$ C
	soldering:	$T_{max.} \leqslant 110°$ C

Single wave soldering
Soldering bath temperature: T < 260° C
Dwell time: t < 5 sec

Double wave soldering
Soldering bath temperature: T < 260° C
Dwell time: Σt < 5 sec

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

Wave soldering



Typical temperature/time graph for double wave soldering

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**
- **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:

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

RoHS Compliance

According to the RoHS Directive 2011/65/EU 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 guidelines of DIN EN ISO 14001:2004 to optimize the production processes with regard to energy and resources.

Typical Dimensions for Taping Configuration

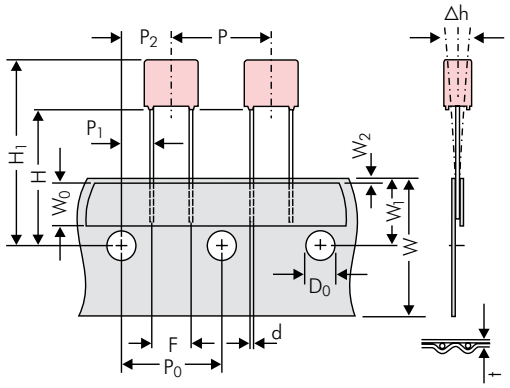


Diagram 1:
PCM 2.5/5/7.5mm

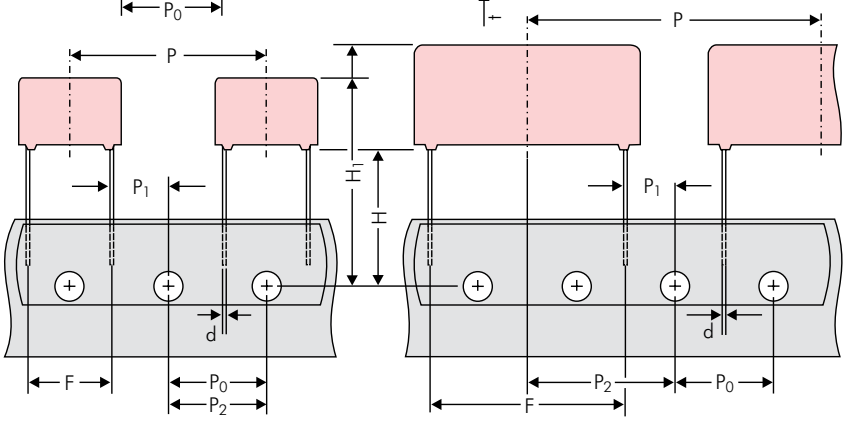


Diagram 2: PCM 10/15 mm

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	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2	0.7 ±0.2
Package (see also page 141)		ROLL/AMMO		AMMO				
		REEL ø 360 max. ø 30 ±1 B 52 ±2 / 58 ±2 } depending on comp. dimensions		REEL ø 360 max. ø 30 ±1 B 52 ±2 / 58 ±2 / 66 ±2 or REEL ø 500 max. ø 25 ±1 B 54 ±2 / 60 ±2 / 68 ±2 } depending on PCM and component dimensions				
Unit		see details page 142.						

Dims in mm.

• Diameter of pins see General Data.

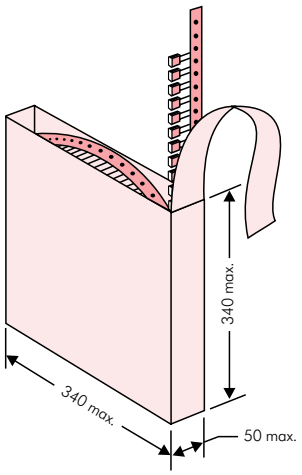
Please clarify customer-specific deviations with the manufacturer.

* 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

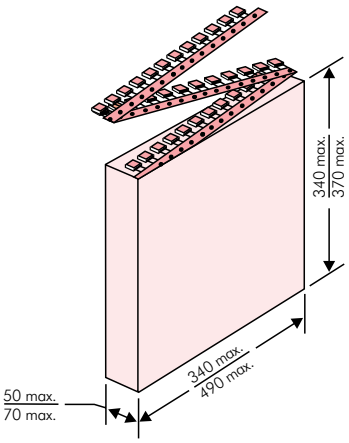
11.14

Types of Tape Packaging of Capacitors for Automatic Radial Insertion

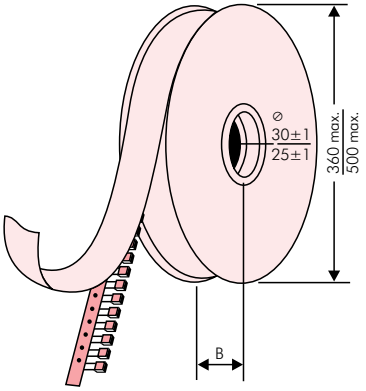
ROLL Packaging



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.

BARCODE „Code 39"

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

PCM	Size				pcs. per packing unit											
					bulk	ROLL		REEL				AMMO				
								ø 360		ø 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	H	L	Codes	S	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		–		400		–		
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		2800		
	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**	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		
	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.

11.14

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			
								ø 360		ø 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	H	L	Codes	S	N	O	F	I	H	J	A	C	B	D
27.5 mm	9	19	31.5	**6A**	640*	–		–		460/340*		–		420	
	11	21	31.5	**6B**	544*	–		–		380/280*		–		350	
	13	24	31.5	**6D**	448*	–		–		300		–		290	
	13	25	33	**FK**	336*	–		–		–		–		–	
	15	26	31.5	**6F**	384*	–		–		270		–		250	
	15	26	33	**FL**	288*	–		–		–		–		–	
	17	29	31.5	**6G**	176*	–		–		–		–		–	
	17	34.5	31.5	**6I**	176*	–		–		–		–		–	
	20	32	33	**FM**	216*	–		–		–		–		–	
	20	39.5	31.5	**6J**	144*	–		–		–		–		–	
37.5 mm	9	19	41.5	**7A**	480*	–		–		–		–		–	
	11	22	41.5	**7B**	408*	–		–		–		–		–	
	13	24	41.5	**7C**	252*	–		–		–		–		–	
	15	26	41.5	**7D**	144*	–		–		–		–		–	
	17	29	41.5	**7E**	132*	–		–		–		–		–	
	19	32	41.5	**7F**	108*	–		–		–		–		–	
	20	39.5	41.5	**7G**	108*	–		–		–		–		–	
	24	45.5	41.5	**7H**	84*	–		–		–		–		–	
	27	15	41.5	**7M**	100*										
	31	46	41.5	**7I**	72*	–		–		–		–		–	
	35	50	41.5	**7J**	35*	–		–		–		–		–	
	40	55	41.5	**7K**	28*	–		–		–		–		–	
48.5 mm	19	31	56	**8D**	50*	–		–		–		–		–	
	23	34	56	**8E**	72*	–		–		–		–		–	
	27	37.5	56	**8H**	60*	–		–		–		–		–	
	33	48	56	**8J**	48*	–		–		–		–		–	
	37	54	56	**8L**	25*	–		–		–		–		–	
52.5 mm	35	50	57	**9F**	25*	–		–		–		–		–	
	45	55	57	**9H**	20*	–		–		–		–		–	
	45	65	57	**9J**	20*	–		–		–		–		–	

* for 2-inch transport pitches.

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

Moulded versions.

WIMA Part Number System

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

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
M	**K**	**S**	**2**	**C**	**0**	**2**	**1**	**0**	**0**	**1**	**A**	**0**	**0**	**M**	**S**	**S**	**D**
MKS 2				63 VDC		0.01 µF				2.5 x 6.5 x 7.2		-		20%	bulk	6 -2	

Type description:

SMD-PET	= SMDT
SMD-PEN	= SMDN
SMD-PPS	= SMDI
FKP 02	= FKP0
MKS 02	= MKS0
FKS 2	= FKS2
FKP 2	= FKP2
MKS 2	= MKS2
MKP 2	= MKP2
FKS 3	= FKS3
FKP 3	= FKP3
MKS 4	= MKS4
MKP 4	= MKP4
MKP 10	= MKP1
FKP 4	= FKP4
FKP 1	= FKP1
MKP-X2	= MKX2
MKP-X2 R	= MKXR
MKP-X1 R	= MKX1
MKP-Y2	= MKY2
MP 3-X2	= MPX2
MP 3-X1	= MPX1
MP 3-Y2	= MPY2
MP 3R-Y2	= MPRY
Snubber MKP	= SNMP
Snubber FKP	= SNFP
GTO MKP	= GTOM
DC-LINK MKP 3	= DCP3
DC-LINK MKP 4	= DCP4
DC-LINK MKP 4S	= DCPS
DC-LINK MKP 5	= DCP5
DC-LINK MKP 6	= DCP6
DC-LINK HC	= DCHC

Rated voltage:

50 VDC	= B0
63 VDC	= C0
100 VDC	= D0
250 VDC	= F0
400 VDC	= G0
450 VDC	= H0
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
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
400 VAC	= 3W
440 VAC	= 4W
500 VAC	= 5W
...	

Capacitance:

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
...	

Size:

4.8 x 3.3 x 3 Size 1812	= KA
4.8 x 3.3 x 4 Size 1812	= KB
5.7 x 5.1 x 3.5 Size 2220	= QA
5.7 x 5.1 x 4.5 Size 2220	= QB
7.2 x 6.1 x 3 Size 2824	= TA
7.2 x 6.1 x 5 Size 2824	= TB
10.2 x 7.6 x 5 Size 4030	= VA
12.7 x 10.2 x 6 Size 5040	= XA
15.3 x 13.7 x 7 Size 6054	= YA
2.5 x 7 x 4.6 PCM 2.5	= 0B
3 x 7.5 x 4.6 PCM 2.5	= 0C
2.5 x 6.5 x 7.2 PCM 5	= 1A
3 x 7.5 x 7.2 PCM 5	= 1B
2.5 x 7 x 10 PCM 7.5	= 2A
3 x 8.5 x 10 PCM 7.5	= 2B
3 x 9 x 13 PCM 10	= 3A
4 x 9 x 13 PCM 10	= 3C
5 x 11 x 18 PCM 15	= 4B
6 x 12.5 x 18 PCM 15	= 4C
5 x 14 x 26.5 PCM 22.5	= 5A
6 x 15 x 26.5 PCM 22.5	= 5B
9 x 19 x 31.5 PCM 27.5	= 6A
11 x 21 x 31.5 PCM 27.5	= 6B
9 x 19 x 41.5 PCM 37.5	= 7A
11 x 22 x 41.5 PCM 37.5	= 7B
19 x 31 x 56 PCM 48.5	= 8D
35 x 50 x 57 PCM 52.5	= 9F
...	

Version code:

Standard	= 00
Version A1	= 1A
Version A1.1.1	= 1B
Version A2	= 2A
...	

Tolerance:

±20%	= M
±10%	= K
±5%	= J
±2.5%	= H
±1%	= E
...	

Packing:

AMMO H16.5 340 x 340	= A
AMMO H16.5 490 x 370	= B
AMMO H18.5 340 x 340	= C
AMMO H18.5 490 x 370	= 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
...	

Pin length (untaped)

3.5 ±0.5	= C9
6 -2	= SD
16 ±1	= P1
...	

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.

11.14

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

WIMA:

DCP4L052007GD2KYSD DCP4L053507ID2KYSD DCP4L055007JD2KYSD DCP4N054007KD2KYSD DCP4R251007HD2KYSD DCP4I056509FD2KYSD DCP4I056509FD4KYSD DCP4I057009FD2KYSD DCP4I057009FD4KYSD DCP4I057509FD4KYSD DCP4I058009FD2KYSD DCP4I058009FD4KYSD DCP4I058509FD2KYSD DCP4I058509FD4KYSD DCP4I059009FD2KYSD DCP4I059509HD2KYSD DCP4I059509HD4KYSD DCP4I061009HD2KYSD DCP4I061109HD2KYSD DCP4I061109HD4KYSD DCP4I061209JD2KYSD DCP4I061309JD2KYSD DCP4I061309JD4KYSD DCP4I061409JD2KYSD DCP4I061409JD4KYSD DCP4I061509JD2KYSD DCP4L056009FD2KYSD DCP4L056009FD4KYSD DCP4L056509FD2KYSD DCP4L057009HD2KYSD DCP4L057009HD4KYSD DCP4L057509HD2KYSD DCP4L057509HD4KYSD DCP4L058009HD2KYSD DCP4L058509JD2KYSD DCP4L058509JD4KYSD DCP4L059009JD2KYSD DCP4L059009JD4KYSD DCP4L061009JD2KYSD DCP4L061109JD2KYSD DCP4L061109JD4KYSD DCP4L061159JD2KYSD DCP4L061159JD4KYSD DCP4N054009FD2KYSD DCP4N054009FD4KYSD DCP4N054509FD2KYSD DCP4N054509FD4KYSD DCP4N055009FD2KYSD DCP4N055009FD4KYSD DCP4N055509HD2KYSD DCP4N056009HD2KYSD DCP4N056009HD4KYSD DCP4N056509HD2KYSD DCP4N056509HD4KYSD DCP4N057009JD2KYSD DCP4N057509JD2KYSD DCP4N057509JD4KYSD DCP4N058009JD2KYSD DCP4N058009JD4KYSD DCP4P053009FD2KYSD DCP4P053509FD2KYSD DCP4P053509FD4KYSD DCP4P054009HD2KYSD DCP4P054009HD4KYSD DCP4P054509HD2KYSD DCP4P055009JD2KYSD DCP4P055009JD4KYSD DCP4P055509JD2KYSD DCP4P055509JD4KYSD DCP4P056009JD2KYSD DCP4P056009JD4KYSD DCP4R252009FD4KYSD DCP4R252509FD2KYSD DCP4R253009HD2KYSD DCP4R253009HD4KYSD DCP4R253509JD2KYSD DCP4R253509JD4KYSD DCP4R254009JD2KYSD DCP4R252009FD2KYSD DCP4I045006DD2KYSD DCP4I051506ID2KSSD DCP4I053007HD4KYSD DCP4I054507ID4KYSD DCP4I056007JD4KYSD DCP4I057507KD4KYSD DCP4I059008AD4KSSD DCP4I061208CD4KSSD DCP4I061508CD4KSSD DCP4L047006GD2KYSD DCP4L052007GD4KYSD DCP4L053507ID4KYSD DCP4L055007JD4KYSD DCP4L056508AD4KSSD DCP4L058008BD4KSSD DCP4L061008CD4KSSD DCP4N042006BD2KYSD DCP4N051006JD2KYSD DCP4N052507ID4KYSD DCP4N054007KD4KYSD DCP4N055508BD4KSSD