

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

Special Features

- Capacitances up to 150 μ F
- 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)
- According to RoHS 2002/95/EC

Typical Applications

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

Construction

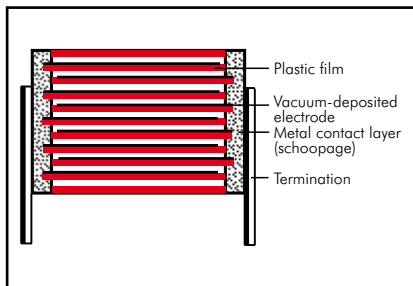
Dielectric:

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 μ F to 150 μ F

Rated voltages: 600 VDC, 800 VDC, 900 VDC, 1100 VDC, 1300 VDC

Capacitance tolerances: $\pm 20\%$, $\pm 10\%$, $\pm 5\%$

Operating temperature range:

-55°C to $+105^\circ\text{C}$ (hot spot including self-heating)

Climatic test category: 55/085/56

in accordance with IEC

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

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

(mean value: 100 000 sec)

Measuring voltage: 100 V/1 min.

Dissipation factors at $+20^\circ\text{C}$:

$\tan \delta \leq 10 \times 10^{-4}$ at 1 kHz ($C \leq 50 \mu\text{F}$)

$\tan \delta \leq 15 \times 10^{-4}$ at 1 kHz ($C > 50 \mu\text{F}$)

Test voltage: $1.2 U_r$, 2sec

Dielectric absorption: 0.05 %

Voltage and current derating:

A derating factor of 1.35% per K must be applied from $+85^\circ\text{C}$ for DC voltages and from $+70^\circ\text{C}$ for AC currents (I_{rms}). Additionally a derating factor of 4.5% per K must be applied from $+85^\circ\text{C}$ for AC currents (I_{rms})

Maximum pulse rise time:

PCM	max. pulse rise time V/ μ sec at $T_A < 40^\circ\text{C}$				
	600 VDC	800 VDC	900 VDC	1100 VDC	1300 VDC
27.5	19	21	25	31	36
37.5	14	15	16	21	25
52.5	10	12	13	15	18

for pulses equal to the rated voltage

Packing

Transportation-safe packing in cardboard boxes.

Packing units:

L	pcs. per packing unit
31.5	100
41.5	100
57	50

Reliability: Operational life $> 100\,000$ hours (U_r and 70°C)

Failure rate λ_0 ($0.5 \times U_r$ and 40°C)

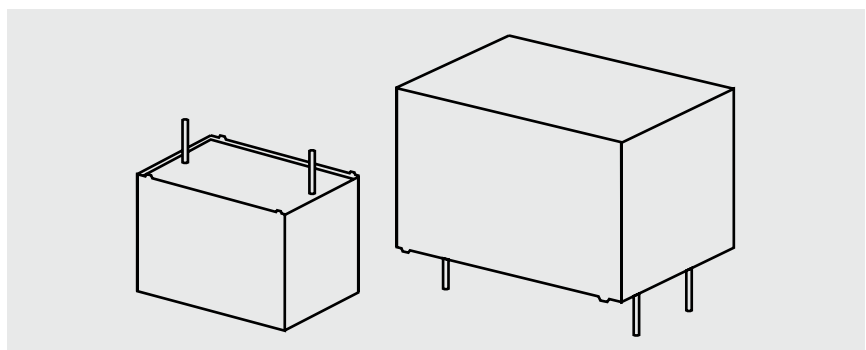
$\Pi = C_N [\mu\text{F}] \times U_r [\text{V}] $	λ_0
$\Pi \leq 10\,000$	< 2 fit
$10\,000 < \Pi \leq 25\,000$	< 5 fit
$25\,000 < \Pi \leq 50\,000$	< 10 fit
$50\,000 < \Pi \leq 100\,000$	< 20 fit
$\Pi > 100\,000$	< 30 fit

Specific dissipation:

Box size WxHxL in mm	Specific dissipation in Watts per K above the ambient temperature
19x32x41.5	0.054
20x39.5x41.5	0.065
24x45.5x41.5	0.080
31x46x41.5	0.092
35x50x41.5	0.106
40x55x41.5	0.123
35x50x57	0.132
45x55x57	0.164
45x65x57	0.184

* other box sizes see main catalogue.

For further details and graphs please refer to Technical Information.



Continuation

General Data

Capacitance	W	H	L	PCM**	Pin	600 VDC (70° C) / 450 VDC (85° C)			Part number
						I_s A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	
2 μF	9	19	31.5	27.5	2	38	2	56	DCP41042006A
5 "	13	24	31.5	27.5	2/4	95	3.5	22	DCP41045006D
7 "	15	26	31.5	27.5	2/4	133	4.5	16	DCP41047006F
10 μF	17	29	31.5	27.5	2/4	190	6	11	DCP41051006G
15 "	17	34,5	31.5	27.5	2/4	285	7.5	7.4	DCP41051506I
20 "	20	39,5	31.5	27.5	2/4	380	9	6.2	DCP41052006J
	20	39,5	41.5	37.5	2/4	280	10	6.2	DCP41052007G
25 "	20	39,5	41.5	37.5	2/4	350	11.5	5	DCP41052507G
30 "	24	45,5	41.5	37.5	2/4	420	14	4.1	DCP41053007H
35 "	24	45,5	41.5	37.5	2/4	490	14.5	3.8	DCP41053507H
40 "	31	46	41.5	37.5	2/4	560	16.5	3.3	DCP41054007I
45 "	31	46	41.5	37.5	2/4	630	17	3.2	DCP41054507I
50 "	35	50	41.5	37.5	2/4	700	19	2.9	DCP41055007J
55 "	35	50	41.5	37.5	2/4	770	17	3.8	DCP41055507J
60 "	35	50	41.5	37.5	2/4	840	17.5	3.4	DCP41056007J
65 "	40	55	41.5	37.5	2/4	910	19.5	3.3	DCP41056507K
	35	50	57	52.5	4	650	20	3.3	DCP41056509F
70 "	40	55	41.5	37.5	2/4	980	20	3.1	DCP41057007K
	35	50	57	52.5	4	700	20.5	3.1	DCP41057009F
75 "	40	55	41.5	37.5	2/4	1050	20.5	3	DCP41057507K
	35	50	57	52.5	4	750	21	3	DCP41057509F
80 "	40	55	41.5	37.5	2/4	1120	22	2.6	DCP41058007K
	35	50	57	52.5	4	800	22	2.6	DCP41058009F
85 "	35	50	57	52.5	4	850	22.5	2.1	DCP41058509F
90 "	35	50	57	52.5	4	900	23.5	1.9	DCP41059009F
95 "	45	55	57	52.5	4	950	24	2.8	DCP41059509H
100 μF	45	55	57	52.5	4	1000	25	2.6	DCP41061009H
110 "	45	55	57	52.5	4	1100	26.5	2.3	DCP41061109H
115 "	45	65	57	52.5	4	1150	27.5	2.5	DCP41061159J
120 "	45	65	57	52.5	4	1200	28	2.3	DCP41061209J
130 "	45	65	57	52.5	4	1300	29.5	2.1	DCP41061309J
140 "	45	65	57	52.5	4	1400	31	1.9	DCP41061409J
150 "	45	65	57	52.5	4	1500	33	1.7	DCP41061509J

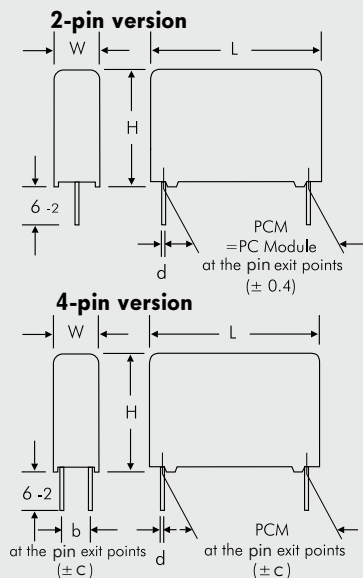
New box sizes, values and ranges.

* 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



PCM	d
27.5	0.8
37.5	1

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

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Continuation next page

Continuation

General Data

Capacitance						800 VDC (70° C) / 700 VDC (85° C)			Part number
	W	H	L	PCM**	Pin	I_s A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	
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
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						900 VDC (70° C) / 760 VDC (85° C)			Part number
	W	H	L	PCM**	Pin	I_s A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	
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 "	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 sizes, values and ranges.

* General guide

** PCM = Printed circuit module = pin spacing

Dims. in mm.

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Continuation

General Data

Capacitance	W	H	L	PCM**	Pin	1100 VDC (70° C) / 920 VDC (85° C)			Part number
						I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	
2 μF	13	24	31.5	27.5	2/4	62	3	36	DCP4P042006D
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 "	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	1300 VDC (70° C) / 1100 VDC (85° C)			Part number
						I_S A	I_{rms} (10 kHz)* A	ESR (10 kHz)* mΩ	
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

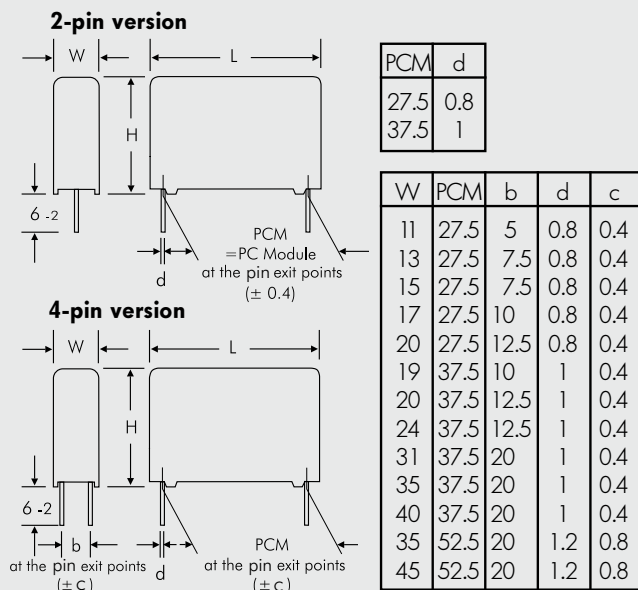
New box sizes, values and ranges.

* 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



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

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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			2.5x6.5x7.2		-		20%	bulk	6 -2		

<p>Type description:</p> <p>SMD-PET = SMDT 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-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 4 = DCP4 DC-LINK MKP 5 = DCP5 DC-LINK MKP 6 = DCP6 DC-LINK HC = DCH_ SuperCap C = SCSC SuperCap MC = SCMC SuperCap R = SCSR SuperCap MR = SCMR</p>	<p>Rated voltage:</p> <p>2.5 VDC = A1 4 VDC = A2 14 VDC = A3 28 VDC = A4 40 VDC = A5 5 VDC = A6 50 VDC = B0 63 VDC = C0 100 VDC = D0 160 VDC = E0 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 400 VAC = 3W 440 VAC = 4W 500 VAC = 5W</p>	<p>Capacitance:</p> <p>22 pF = 0022 47 pF = 0047 100 pF = 0100 150 pF = 0150 220 pF = 0220 330 pF = 0330 470 pF = 0470 680 pF = 0680 1000 pF = 1100 1500 pF = 1150 2200 pF = 1220 3300 pF = 1330 4700 pF = 1470 6800 pF = 1680 0.01 µF = 2100 0.022 µF = 2220 0.047 µF = 2470 0.1 µF = 3100 0.22 µF = 3220 0.47 µF = 3470 1 µF = 4100 2.2 µF = 4220 4.7 µF = 4470 10 µF = 5100 22 µF = 5220 47 µF = 5470 100 µF = 6100 220 µF = 6220 1 F = A010 2.5 F = A025 50 F = A500 100 F = B100 110 F = B110 600 F = B600 1200 F = C120 ...</p>	<p>Size:</p> <p>4.8x3.3x3 Size 1812 = X1 4.8x3.3x4 Size 1812 = X2 5.7x5.1x3.5 Size 2220 = Y1 5.7x5.1x4.5 Size 2220 = Y2 7.2x6.1x3 Size 2824 = T1 7.2x6.1x5 Size 2824 = T2 10.2x7.6x5 Size 4030 = K1 12.7x10.2x6 Size 5040 = V1 15.3x13.7x7 Size 6054 = Q1 2.5x7x4.6 PCM 2.5 = 0B 3x7.5x4.6 PCM 2.5 = 0C 2.5x6.5x7.2 PCM 5 = 1A 3x7.5x7.2 PCM 5 = 1B 2.5x7x10 PCM 7.5 = 2A 3x8.5x10 PCM 7.5 = 2B 3x9x13 PCM 10 = 3A 4x9x13 PCM 10 = 3C 5x11x18 PCM 15 = 4B 6x12.5x18 PCM 15 = 4C 5x14x26.5 PCM 22.5 = 5A 6x15x26.5 PCM 22.5 = 5B 9x19x31.5 PCM 27.5 = 6A 11x21x31.5 PCM 27.5 = 6B 9x19x41.5 PCM 37.5 = 7A 11x22x41.5 PCM 37.5 = 7B 94x49x182 DCH_ = H0 94x77x182 DCH_ = H1 ...</p> <p>Special features:</p> <p>Standard = 00 Version A1 = 1A Version A1.1.1 = 1B Version A1.2 = 1C ...</p>	<p>Tolerance:</p> <p>20% = M 10% = K 5% = J 2.5% = H 1% = E ...</p> <p>Packing:</p> <p>AMMO H16.5 340x340 = A AMMO H16.5 490x370 = B AMMO H18.5 340x340 = C AMMO H18.5 490x370 = D REEL H16.5 360 = F REEL H16.5 500 = H REEL H18.5 360 = I REEL H18.5 500 = J ROLL H16.5 = N ROLL H18.5 = O BLISTER W12 180 = P BLISTER W12 330 = Q BLISTER W16 330 = R BLISTER W24 330 = T Bulk Mini = M Bulk Standard = S Bulk Maxi = G TPS Mini = X TPS Standard = Y ...</p> <p>Lead length (untaped)</p> <p>3.5 ±0.5 = C9 6 -2 = SD 16 ±1 = P1 ...</p>
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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.