

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)
- 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

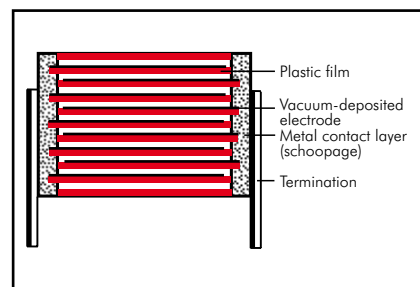
Dielectric:

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 μF to 150 μF

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 $+20^\circ\text{C}$:

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

(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/ μsec 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)

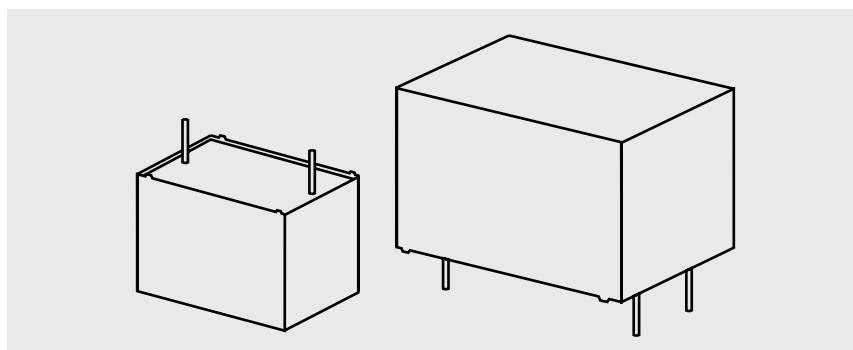
$\Pi = C_N [\mu\text{F}] \times U_r [\text{V}] $	λ_0
$\Pi \leq 10\,000$	$< 2 \text{ fit}$
$10\,000 < \Pi \leq 25\,000$	$< 5 \text{ fit}$
$25\,000 < \Pi \leq 50\,000$	$< 10 \text{ fit}$
$50\,000 < \Pi \leq 100\,000$	$< 20 \text{ fit}$
$\Pi > 100\,000$	$< 30 \text{ fit}$

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						600 VDC (70° C) / 450 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	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_____
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_____

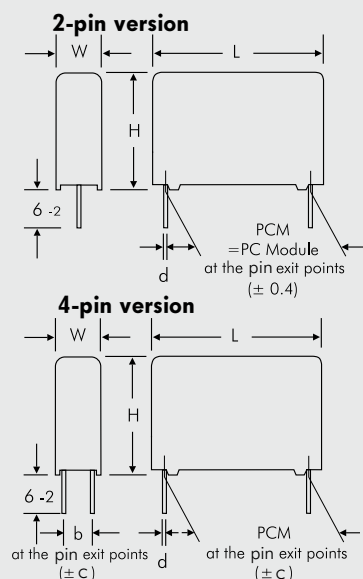
New box sizes, values and ranges.

* 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

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						1100 VDC (70° C) / 920 VDC (85° C)			Part number
	W	H	L	PCM**	Pin	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						1300 VDC (70° C) / 1100 VDC (85° C)			Part number
	W	H	L	PCM**	Pin	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_____

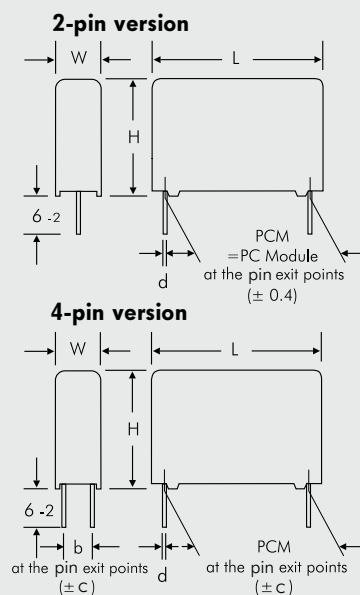
New box sizes, values and ranges.

* 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



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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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	
Type description:				Rated voltage:		Capacitance:				Size:				Tolerance:			
SMD-PET = SMDT				2.5 VDC = A1		22 pF = 0022				4.8x3.3x3 Size 1812 = X1				20% = M			
SMD-PPS = SMDI				4 VDC = A2		47 pF = 0047				4.8x3.3x4 Size 1812 = X2				10% = K			
FKP 02 = FKP0				14 VDC = A3		100 pF = 0100				5.7x5.1x3.5 Size 2220 = Y1				5% = J			
MKS 02 = MKS0				28 VDC = A4		150 pF = 0150				5.7x5.1x4.5 Size 2220 = Y2				2.5% = H			
FKS 2 = FKS2				40 VDC = A5		220 pF = 0220				7.2x6.1x3 Size 2824 = T1				1% = E			
FKP 2 = FKP2				5 VDC = A6		330 pF = 0330				7.2x6.1x5 Size 2824 = T2				...			
MKS 2 = MKS2				50 VDC = B0		470 pF = 0470				10.2x7.6x5 Size 4030 = K1				Packing: 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 ...			
MKP 2 = MKP2				63 VDC = C0		680 pF = 0680				12.7x10.2x6 Size 5040 = V1							
FKS 3 = FKS3				100 VDC = D0		1000 pF = 1100				15.3x13.7x7 Size 6054 = Q1							
FKP 3 = FKP3				160 VDC = E0		1500 pF = 1150				2.5x7x4.6 PCM 2.5 = 0B							
MKS 4 = MKS4				250 VDC = F0		2200 pF = 1220				3x7.5x4.6 PCM 2.5 = 0C							
MKP 4 = MKP4				400 VDC = G0		3300 pF = 1330				2.5x6.5x7.2 PCM 5 = 1A							
MKP 10 = MKP1				450 VDC = H0		4700 pF = 1470				3x7.5x7.2 PCM 5 = 1B							
FKP 4 = FKP4				600 VDC = I0		6800 pF = 1680				2.5x7x10 PCM 7.5 = 2A							
FKP 1 = FKP1				630 VDC = J0		0.01 µF = 2100				3x8.5x10 PCM 7.5 = 2B							
MKP-X2 = MKX2				700 VDC = K0		0.022 µF = 2220				3x9x13 PCM 10 = 3A							
MKP-X2 R = MKXR				800 VDC = L0		0.047 µF = 2470				4x9x13 PCM 10 = 3C							
MKP-Y2 = MKY2				850 VDC = M0		0.1 µF = 3100				5x11x18 PCM 15 = 4B							
MP 3-X2 = MPX2				900 VDC = N0		0.22 µF = 3220				6x12.5x18 PCM 15 = 4C							
MP 3-X1 = MPX1				1000 VDC = O1		0.47 µF = 3470				5x14x26.5 PCM 22.5 = 5A							
MP 3-Y2 = MPY2				1100 VDC = P0		1 µF = 4100				6x15x26.5 PCM 22.5 = 5B							
MP 3R-Y2 = MPRY				1200 VDC = Q0		2.2 µF = 4220				9x19x31.5 PCM 27.5 = 6A							
Snubber MKP = SNMP				1250 VDC = R0		4.7 µF = 4470				11x21x31.5 PCM 27.5 = 6B							
Snubber FKP = SNFP				1500 VDC = S0		10 µF = 5100				9x19x41.5 PCM 37.5 = 7A							
GTO MKP = GTOM				1600 VDC = T0		22 µF = 5220				11x22x41.5 PCM 37.5 = 7B							
DC-LINK MKP 4 = DCP4				2000 VDC = U0		47 µF = 5470				94x49x182 DCH_ = H0							
DC-LINK MKP 5 = DCP5				2500 VDC = V0		100 µF = 6100				94x77x182 DCH_ = H1							
DC-LINK MKP 6 = DCP6				3000 VDC = W0		220 µF = 6220				...							
DC-LINK HC = DCH_				4000 VDC = X0		1 F = A010											
SuperCap C = SCSC				6000 VDC = Y0		2.5 F = A025											
SuperCap MC = SCMC				250 VAC = 0W		50 F = A500				Special features:							
SuperCap R = SCSR				275 VAC = 1W		100 F = B100				Standard = 00							
SuperCap MR = SCMR				300 VAC = 2W		110 F = B110				Version A1 = 1A							
				400 VAC = 3W		600 F = B600				Version A1.1.1 = 1B							
				440 VAC = 4W		1200 F = C120				Version A1.2 = 1C							
				500 VAC = 5W		...				...							