

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

Special Features

- Very high volume/capacitance ratio
- Self-healing, internal safety disconnecter
- Versatile and safe contact configurations by screwable plates
- Dry construction without electrolyte or oil
- Very low dissipation factor
- Negative capacitance change versus temperature
- Very low dielectric absorption
- According to RoHS 2002/95/EC

Typical Applications

As intermediate circuit capacitor e.g. in high power converter technology

Construction

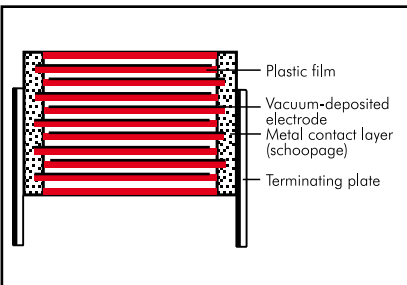
Dielectric:

Polypropylene (PP) film

Capacitor electrodes:

Vacuum-deposited

Internal construction:



Encapsulation:

Solvent resistant, flame-retardant plastic case with resin seal (optional screw fixing) or moulded version (without screw fixing), UL 94 V-0.

Terminations:

Tinned plates, customized plate configurations are possible.

Marking:

Colour: Black. Marking: Black on silver label.

Electrical Data

Capacitance range:

85 μ F to 4500 μ F

Rated voltages:

400 VDC, 800 VDC, 1600 VDC

Capacitance tolerances:

$\pm 20\%$, $\pm 10\%$, ($\pm 5\%$ available subject to special enquiry)

Operating temperature:

-55°C to $+85^\circ\text{C}$ ($+100^\circ\text{C}$ available subject to special enquiry)

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

$\geq 30\,000$ sec ($\text{M}\Omega \times \mu\text{F}$)
(mean value: 100 000 sec)

Measuring voltage: 100 V/1 min.

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

See General Data.

Test voltage: 1.1 U_r , 2 sec

Dielectric absorption:

0.05 %

Voltage derating:

A voltage derating factor of 1.35 % per K must be applied from $+85^\circ\text{C}$ for DC voltages and from $+75^\circ\text{C}$ for AC voltages.

Reliability:

Operational life > 100 000 hours at 40°C
Failure rate < 36 fit ($0.5 \times U_r$ and 40°C)

Specific dissipation:

See General Data.

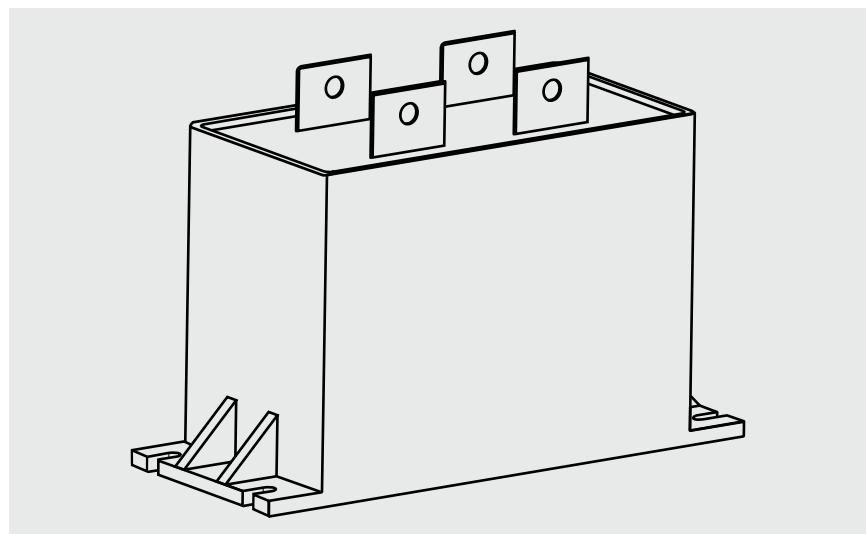
Mounting Recommendation

Excessive mechanical strain, e.g. pressure or shock onto the capacitor body, is to be avoided during mounting and usage of the capacitors. When fixing the capacitor the screw torque is to be limited to max. 5 Nm.

Packing

Transportation-safe packing in cardboard boxes.

For further details and graphs please refer to Technical Information.



Continuation

General Data

V1	400 VDC/180 VAC*			Electrical parameters						
	Capacitance	W	Size H	L	Part number	I_{max} A	I_{rms} (1 kHz)** A	ESR (1 kHz)** mΩ	k_T W/K	tan δ** [x 10 ⁻⁴] 100 Hz 1 kHz
500 μF	94	49	182	DCH1G06500__00	5000	65.4	1.43	0.613	8	45
1000 "	94	77	182	DCH1G07100__00	10000	103.5	0.72	0.767	8	45
1500 "	94	105	182	DCH1G07150__00	15000	139.0	0.48	0.922	8	45
2000 "	94	133	182	DCH1G07200__00	20000	173.3	0.36	1.076	8	45
2500 "	94	161	182	DCH1G07250__00	25000	196.7	0.32	1.231	11	50
3000 "	94	189	182	DCH1G07300__00	30000	228.5	0.27	1.385	11	50
3500 "	94	217	182	DCH1G07350__00	35000	248.1	0.25	1.540	11	55
4000 "	94	245	182	DCH1G07400__00	40000	278.3	0.22	1.695	14	55
4500 "	94	285	182	DCH1G07450__00	45000	298.7	0.21	1.893	14	60

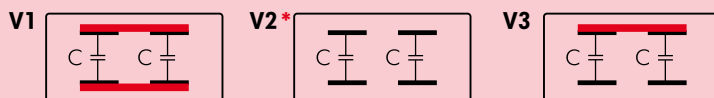
V2	400 VDC/180 VAC*			Electrical parameters						
	Capacitance	W	Size H	L	Part number	I_{max} A	I_{rms} (1 kHz)** A	ESR (1 kHz)** mΩ	k_T W/K	tan δ** [x 10 ⁻⁴] 100 Hz 1 kHz
2x 250 μF	94	49	182	DCH2G06500__00	2500	46.3	2.87	0.613	8	45
2x 500 "	94	77	182	DCH2G07100__00	5000	73.2	1.43	0.767	8	45
2x 750 "	94	105	182	DCH2G07150__00	7500	98.3	0.95	0.922	8	45
2x 1000 "	94	133	182	DCH2G07200__00	10000	122.6	0.72	1.076	8	45
2x 1250 "	94	161	182	DCH2G07250__00	12500	139.1	0.64	1.231	11	50
2x 1500 "	94	189	182	DCH2G07300__00	15000	161.6	0.53	1.385	11	50
2x 1750 "	94	217	182	DCH2G07350__00	17500	175.5	0.50	1.540	11	55
2x 2000 "	94	245	182	DCH2G07400__00	20000	196.8	0.44	1.695	14	55
2x 2250 "	94	285	182	DCH2G07450__00	22500	211.2	0.42	1.893	14	60

V3	800 VDC/360 VAC*			Electrical parameters						
	Capacitance	W	Size H	L	Part number	I_{max} A	I_{rms} (1 kHz)** A	ESR (1 kHz)** mΩ	k_T W/K	tan δ** [x 10 ⁻⁴] 100 Hz 1 kHz
125 μF	94	49	182	DCH3L06125__00	1250	32.7	5.73	0.613	8	45
250 "	94	77	182	DCH3L06250__00	2500	51.7	2.87	0.767	8	45
375 "	94	105	182	DCH3L06375__00	3750	69.5	1.91	0.922	8	45
500 "	94	133	182	DCH3L06500__00	5000	86.7	1.43	1.076	8	45
625 "	94	161	182	DCH3L06625__00	6250	98.3	1.27	1.231	11	50
750 "	94	189	182	DCH3L06750__00	7500	114.3	1.06	1.385	11	50
875 "	94	217	182	DCH3L06875__00	8750	124.1	1.00	1.540	11	55
1000 "	94	245	182	DCH3L07100__00	10000	139.2	0.88	1.695	14	55
1125 "	94	285	182	DCH3L07112__00	11250	157.4	0.76	1.893	14	60

* AC voltage: f = 100 Hz

** General guide

External wiring versions:



* Insulated in the sense of a breakdown voltage of 2 x U_r between the individual capacitors.

Part number completion:

W	Size		Part number code for digit 11-12		
	H	L	moulded	boxed	box with screw fixing
94	49	182	H0	I0	J0
94	77	182	H1	I1	J1
94	105	182	H2	I2	J2
94	133	182	H3	I3	J3
94	161	182	H4	I4	J4
94	189	182	H5	I5	J5
94	217	182	H6	I6	J6
94	245	182	H7	I7	J7
94	285	182	H8	I8	J8

Tolerance: 20 % = M
10 % = K
5 % = J
Packing: bulk = S
Lead length: none = 00

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Continuation

General Data

V1	800 VDC/240 VAC*			Electrical parameters						
	Capacitance	Size		Part number	I_{max}	I_{rms} (1 kHz)**	ESR (1 kHz)**	k_T	$\tan \delta^{**}$ [$\times 10^{-4}$]	
	W	H	L		A	A	m Ω	W/K	100 Hz	1 kHz
340 μ F	94	49	182	DCH1L06340_00	3740	61.2	1.64	0.613	7	35
680 "	94	77	182	DCH1L06680_00	7480	96.8	0.82	0.767	7	35
1020 "	94	105	182	DCH1L07102_00	11 220	129.9	0.55	0.922	7	35
1360 "	94	133	182	DCH1L07136_00	14 960	162.1	0.41	1.076	7	35
1700 "	94	161	182	DCH1L07170_00	18 700	181.3	0.37	1.231	10	40
2040 "	94	189	182	DCH1L07204_00	22 440	210.7	0.31	1.385	10	40
2380 "	94	217	182	DCH1L07238_00	26 180	226.2	0.30	1.540	10	45
2720 "	94	245	182	DCH1L07272_00	29 920	253.7	0.26	1.695	12	45
3060 "	94	285	182	DCH1L07306_00	33 660	269.8	0.26	1.893	12	50

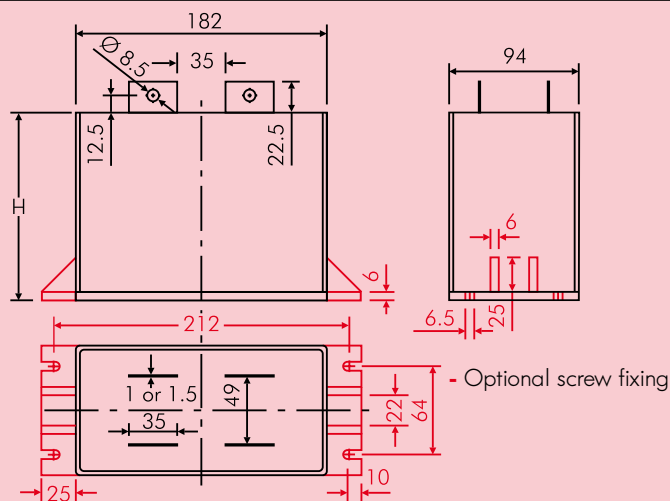
V2	800 VDC/240 VAC*			Electrical parameters						
	Capacitance	Size		Part number	I_{max}	I_{rms} (1 kHz)**	ESR (1 kHz)**	k_T	$\tan \delta^{**}$ [$\times 10^{-4}$]	
	W	H	L		A	A	m Ω	W/K	100 Hz	1 kHz
2x 170 μ F	94	49	182	DCH2L06340_00	1870	43.3	3.27	0.613	7	35
2x 340 "	94	77	182	DCH2L06680_00	3740	68.4	1.64	0.767	7	35
2x 510 "	94	105	182	DCH2L07102_00	5610	91.9	1.09	0.922	7	35
2x 680 "	94	133	182	DCH2L07136_00	7480	114.9	0.82	1.076	7	35
2x 850 "	94	161	182	DCH2L07170_00	9350	128.2	0.75	1.231	10	40
2x 1020 "	94	189	182	DCH2L07204_00	11 220	149.0	0.62	1.385	10	40
2x 1190 "	94	217	182	DCH2L07238_00	13 090	160.0	0.60	1.540	10	45
2x 1360 "	94	245	182	DCH2L07272_00	14 960	179.4	0.53	1.695	12	45
2x 1530 "	94	285	182	DCH2L07306_00	16 830	190.8	0.52	1.893	12	50

V3	1600 VDC/480 VAC*			Electrical parameters						
	Capacitance	Size		Part number	I_{max}	I_{rms} (1 kHz)**	ESR (1 kHz)**	k_T	$\tan \delta^{**}$ [$\times 10^{-4}$]	
	W	H	L		A	A	m Ω	W/K	100 Hz	1 kHz
85 μ F	94	49	182	DCH3T05850_00	935	30.6	6.55	0.613	7	35
170 "	94	77	182	DCH3T06170_00	1870	48.4	3.28	0.767	7	35
255 "	94	105	182	DCH3T06255_00	2805	65.0	2.18	0.922	7	35
340 "	94	133	182	DCH3T06340_00	3740	81.0	1.64	1.076	7	35
425 "	94	161	182	DCH3T06425_00	4675	90.7	1.50	1.231	10	40
510 "	94	189	182	DCH3T06510_00	5610	105.3	1.25	1.385	10	40
595 "	94	217	182	DCH3T06595_00	6545	113.1	1.20	1.540	10	45
680 "	94	245	182	DCH3T06680_00	7480	126.9	1.05	1.695	12	45
765 "	94	285	182	DCH3T06765_00	8415	134.9	1.04	1.893	12	50

* AC voltage: $f = 100$ Hz

** General guide

Part number completion see page 123.



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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: 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-PEN = SMDN SMD-PPS = SMDI FKP 02 = FKPO MKS 02 = MKSO FKS 2 = FKS2 FKM 2 = FKM2 FKP 2 = FKP2 MKS 2 = MKS2 MKP 2 = MKP2 MKI 2 = MKI2 FKS 3 = FKS3 FKM 3 = FKM3 FKP 3 = FKP3 MKS 4 = MKS4 MKM 4 = MKM4 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 C = DCPC DC-LINK HC = DCH_ SuperCap C = SCSC SuperCap MC = SCMC SuperCap R = SCSR SuperCap MR = SCMR</p>	<p>Rated voltage:</p> <p>16 VDC = A0 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>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>Special features:</p> <p>Standard = 00 Version A1 = 1A Version A1.1.1 = 1B Version A1.2 = 1C ...</p> <p>Lead length (untaped)</p> <p>3.5 ±0.5 = C9 6-2 = SD 16-1 = P4 ...</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.