

Metallized Film Capacitor

Power Electronic Capacitors

Series/Type: MKP DC-Link(Cylinder)

Ordering code: C30*

Date: September 2024

Version: 01

EMF 2004. Reproduction, publication and dissemination of this publication, enclosures hereto and the information contained therein without EMF' prior express consent is prohibited.

■ Features

- Used in DC-link circuits,can replace electrolytic capacitors
- Low ESR,high ripple current handling capabilities
- Low ESL
- Self-healing property
- Long life time
- Aluminum case,filled with resin

■ Applications

- Used in inverters of wind power and solar power
- Transportation: EV or HEV
- Welders, Elevators, Motor driver systems

■ Reference Standards

- IEC61071
- IEC60068
- RoHS
- UL 810

■ Specifications

- Capacitance range 25μF~5000μF
- Capacitance tolerance ±5%(J), ±10%(K)
- Voltage range 500V.dc...4000V.dc
- Dielectric dissipation factor($\tan \delta_0$) 2×10^{-4}
- Loss factor($\tan \delta$)at 100Hz
 $\leq 1.2 \times 10^{-3}$ ($C_N \leq 450\mu F$)
 $\leq 1.5 \times 10^{-3}$ ($450\mu F < C_N \leq 800\mu F$)
 $\leq 2.0 \times 10^{-3}$ ($C_N > 800\mu F$)
- Operating temperature range
 -55°C...70°C for diameter 86mm
 -55°C...85°C for diameter 116mm
- Storage temperature Range -55°C...85°C
- Maximum altitude ≤2000m
- Frequency range 100Hz~ 10×10^3 Hz
(High Frequency design available upon request)

■ Test data

- Capacitance measurement $C_N \pm 5\%$ (J); $C_N \pm 10\%$ (K);
- Test voltage between terminals 1.5U_{NDC} @10S
- Test voltage between terminals to case (2•U_{NDC}+1000)V.ac, but no less 3000 V.ac @10S
- Loss factor($\tan \delta$)at 100Hz 2.0×10^{-3}

■ Installation

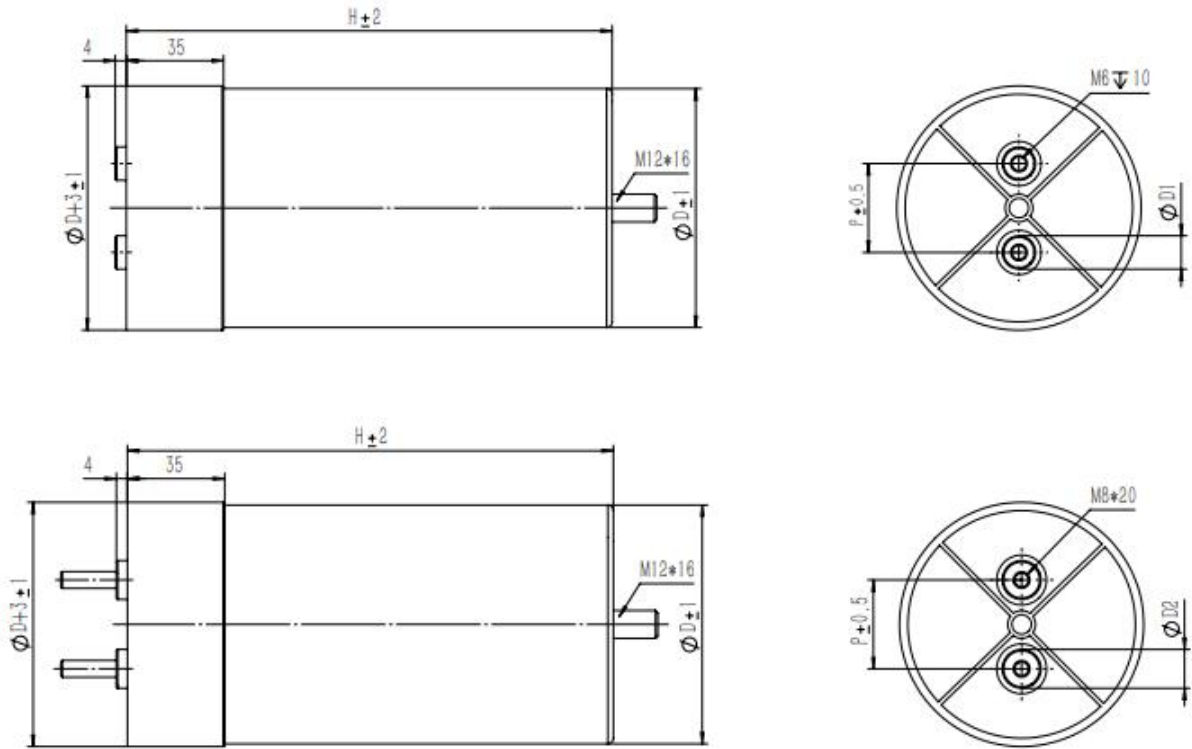
- | | |
|--|---|
| <ul style="list-style-type: none"> ● Mounting and grounding ● Terminal form ● Max. torque(case)M12 stud
 ● Max. torque terminal | <p>M12 threaded bolt on bottom of the aluminum case</p> <p>Male terminals or Thread hole type
10N.m</p> <p>Female M6: 5 N.m
Female M8: 6 N.m; Male M8 : 8 N.m</p> |
|--|---|

■ Structure of ordering code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
C	3	0	1	2	2	4	7	7	K	3	2	M	A	0	N	0	1
A			B			C			D	E		F	G	H	I	J	K

- A: Capacitor series
C30
- B: Rated voltage
如: 122=12*10²=1200V
- C: Rated capacitance
如: 477=47*10⁷=470000000pF=470μF
- D: Capacitance tolerance
J=±5%, K=±10%
- E: Terminal center hole distance
32=32mm 50=50mm
- F: Terminal shape
F=Screw hole M=Screw
- G: Case material
A=Aluminum case P=Plastic case
- H: Product features
0=Ordinary 1=Double 85
- I: Metalized film
S=Safe film N=Non-safe film
- J: Inner use
- H: Serial number

Outline Drawing(Specific according to customer requirements)



Mounting hole distance and outer diameter of screw

D=76,86mm	D=96mm	D=116mm	D=136mm
D1=12,14mm	D1=12,14mm	D1=14,16mm	D1=14,16mm
P=32mm	P=45mm	P=50mm	P=50mm

Metallized Film Capacitor	C30*
Power Electronic Capacitors	MKP DC-Link(Cylinder)

Technical data

C _N (μ F)	D (mm)	H (mm)	İ (A)	I _{MAX@45°C} @10KHz(A)	ESR(mΩ) @10KHz	ESL (nH)	R _{th} (K/W)	W _N (J)	W (kg)	Part number
U _{NDC} 900V.dc, U _s 1350V.dc, U _r 200V										
280	76	95	1172	41	1.9	50	4.6	113	0.59	
380	86	95	1591	47	1.8	50	3.9	154	0.73	
390	76	120	1203	41	2.1	60	4.1	158	0.71	
450	76	145	2397	58	1.2	45	3.7	182	0.89	
520	86	120	1604	47	1.9	60	3.5	211	0.89	
570	76	175	2386	60	1.3	50	3.3	231	1.04	
600	86	145	3197	64	1.1	45	3.2	243	1.12	
630	96	125	1943	53	1.8	60	3.0	255	1.16	
700	116	100	2930	60	1.6	50	2.6	284	1.40	
750	86	175	3140	66	1.2	50	2.9	304	1.31	
780	76	225	2406	62	1.4	60	2.9	316	1.30	
850	96	150	4529	71	1.1	45	2.9	344	1.41	
1000	116	125	3084	60	1.6	60	2.3	405	1.67	
1050	86	225	3239	69	1.3	60	2.5	425	1.62	
1200	96	230	3701	75	1.2	60	2.2	486	2.11	
1300	136	125	4010	60	1.6	60	1.9	527	2.33	
1450	116	180	6070	84	1.1	50	2.0	587	2.43	
1500	136	150	7992	91	1.0	45	1.7	608	2.93	
1900	136	180	7954	94	1.0	50	1.6	770	3.41	
2000	116	230	6169	88	1.1	60	1.7	810	2.98	
2700	136	230	8328	99	1.1	60	1.4	1094	4.17	
U _{NDC} 1100V.dc, U _s 1650V.dc, U _r 250V										
180	76	95	952	40	2.1	50	4.6	109	0.58	
230	86	95	1216	45	1.9	50	3.9	139	0.74	
250	76	120	974	40	2.3	60	4.1	151	0.71	
280	76	145	1884	56	1.3	45	3.7	169	0.89	
300	96	100	1586	51	1.8	50	3.3	182	0.96	
330	86	120	1286	45	2.1	60	3.5	200	0.89	
350	76	175	1851	58	1.4	50	3.3	212	1.05	
400	86	145	2692	63	1.2	45	3.2	242	1.12	
420	86	136	1413	46	2.1	60	3.3	254	0.98	
450	116	100	2379	60	1.6	50	2.6	272	1.39	
460	96	150	3096	69	1.1	45	2.7	278	1.45	

Metallized Film Capacitor	C30*
Power Electronic Capacitors	MKP DC-Link(Cylinder)

Technical data

C _N (μ F)	D (mm)	H (mm)	İ (A)	I _{MAX@45°C} @10KHz(A)	ESR(mΩ) @10KHz	ESL (nH)	R _{th} (K/W)	W _N (J)	W (kg)	Part number
U _{NDC} 1100V.dc, U _S 1650V.dc, U _r 250V										
480	76	225	1870	59	1.5	60	2.9	290	1.30	
500	86	175	2644	65	1.2	50	2.9	303	1.29	
600	96	180	3173	71	1.2	50	2.5	363	1.69	
630	136	100	3331	60	1.5	50	2.1	381	1.91	
650	116	125	2533	60	1.7	60	2.3	393	1.65	
680	86	225	2649	67	1.3	60	2.5	411	1.61	
730	116	150	4913	81	1.1	45	2.1	442	2.07	
800	96	230	3117	74	1.3	60	2.2	484	2.08	
900	136	125	3507	60	1.6	60	1.9	545	2.28	
920	116	180	4865	83	1.1	50	2.0	557	2.42	
1000	136	150	6370	91	1.0	45	1.7	605	2.89	
1200	136	180	6345	93	1.1	50	1.6	726	3.41	
1250	116	230	4870	87	1.2	60	1.7	756	2.98	
1700	136	230	6624	98	1.1	60	1.4	1029	4.17	
U _{NDC} 1200V.dc, U _S 1800V.dc, U _r 275V										
150	76	95	876	39	2.1	50	4.6	108	0.58	
200	86	95	1168	45	1.9	50	3.9	144	0.73	
220	76	120	946	39	2.4	60	4.1	158	0.70	
240	76	145	1783	56	1.3	45	3.7	173	0.88	
250	86	125	2271	61	1.2	40	3.4	180	0.99	
270	86	120	1162	44	2.1	60	3.5	194	0.89	
300	76	175	1752	57	1.4	50	3.3	216	1.04	
310	86	145	2304	62	1.2	45	3.2	223	1.12	
380	116	100	2219	60	1.6	50	2.6	274	1.38	
400	76	225	1721	69	1.2	60	2.9	288	1.30	
420	86	175	2452	64	1.3	50	2.9	302	1.31	
470	86	225	2022	64	1.4	60	2.5	338	1.66	
530	136	100	3094	60	1.5	50	2.1	382	1.90	
550	116	150	4087	80	1.1	45	2.1	396	2.10	
560	86	225	2409	66	1.4	60	2.5	403	1.61	
680	116	180	3970	82	1.1	50	2.0	490	2.48	
730	136	125	3140	60	1.6	60	1.9	526	2.28	
850	136	150	6316	91	1.0	45	1.7	612	2.86	

Technical data

C _N (μ F)	D (mm)	H (mm)	İ (A)	I _{MAX@45°C} @10KHz(A)	ESR(mΩ) @10KHz	ESL (nH)	R _{th} (K/W)	W _N (J)	W (kg)	Part number
U _{NDC} 1200V.dc, U _S 1800V.dc, U _r 275V										
950	136	180	5547	93	1.1	50	1.6	684	3.44	
1000	116	230	4302	86	1.2	60	1.7	720	3.00	
1200	136	230	5162	96	1.1	60	1.4	864	4.24	
U _{NDC} 2000V.dc, U _S 3000V.dc, U _r 450V										
55	76	95	533	35	2.7	50	4.6	110	0.58	
75	76	120	536	34	3.2	60	4.1	150	0.70	
85	76	145	1049	51	1.5	45	3.7	170	0.89	
90	96	100	872	46	2.2	50	3.3	180	0.96	
100	86	120	714	40	2.7	60	3.5	200	0.88	
110	76	175	1066	52	1.7	50	3.3	220	1.04	
125	96	125	893	45	2.4	60	3.0	250	1.15	
140	116	100	1357	56	1.9	50	2.6	280	1.38	
150	86	175	1454	60	1.5	50	2.9	300	1.29	
190	116	125	1357	56	2.0	60	2.3	380	1.66	
200	86	225	1429	60	1.7	60	2.5	400	1.61	
220	116	150	2714	77	1.2	45	2.1	440	2.06	
250	96	230	1786	68	1.5	60	2.2	500	2.06	
275	136	125	1964	60	1.8	60	1.9	550	2.26	
280	116	180	2714	79	1.2	50	2.0	560	2.39	
310	136	150	3825	88	1.1	45	1.7	620	2.86	
380	116	230	2714	81	1.3	60	1.7	760	2.97	
400	136	180	3878	90	1.1	50	1.6	800	3.31	
540	136	230	3857	93	1.2	60	1.4	1080	4.09	
U _{NDC} 3000V.dc, U _S 4500V.dc, U _r 700V										
35	76	145	667	33	3.8	45	3.7	158	0.88	
39	76	175	584	31	4.6	50	3.3	176	1.05	
47	86	145	896	37	3.4	45	3.2	212	1.11	
60	76	225	662	32	5.0	60	2.9	270	1.29	
75	96	180	1124	42	3.4	50	2.5	338	1.65	
82	86	225	905	38	4.2	60	2.5	369	1.61	
92	116	150	1754	51	2.7	45	2.1	414	2.05	
100	116	180	1498	50	3.0	50	2.0	450	2.48	
120	116	180	1798	52	2.8	50	2.0	540	2.37	

Technical data

C _N (μ F)	D (mm)	H (mm)	I [^] (A)	I _{MAX@45°C} @10KHz(A)	ESR(m Ω) @10KHz	ESL (nH)	R _{th} (K/W)	W _N (J)	W (kg)	Part number
U _{NDC} 3000V.dc, U _S 4500V.dc, U _r 700V										
130	136	150	2479	59	2.5	45	1.7	585	2.84	
150	116	230	1656	52	3.2	60	1.7	675	3.00	
160	136	180	2397	59	2.6	50	1.6	720	3.34	
U _{NDC} 3600V.dc, U _S 5400V.dc, U _r 800V										
22	76	145	543	31	4.2	45	3.7	143	0.87	
28	76	175	543	31	4.8	50	3.3	181	1.02	
36	96	150	888	40	3.4	45	2.7	233	1.43	
38	86	175	737	36	4.1	50	2.9	246	1.30	
46	96	180	892	40	3.7	50	2.5	298	1.66	
50	86	225	714	35	4.8	60	2.5	324	1.60	
55	116	150	1357	49	2.9	45	2.1	356	2.05	
62	96	230	886	40	4.3	60	2.2	402	2.08	
70	116	180	1357	49	3.1	50	2.0	454	2.39	
75	136	150	1851	57	2.7	45	1.7	486	2.87	
88	116	230	1257	49	3.6	60	1.7	570	3.01	
100	136	180	1939	58	2.8	50	1.6	648	3.29	
125	136	230	1786	58	3.1	60	1.4	810	4.16	
U _{NDC} 4000V.dc, U _S 6000V.dc, U _r 900V										
18	76	145	475	30	4.6	45	3.7	144	0.87	
23	86	145	607	34	4.0	45	3.2	184	1.10	
30	76	225	458	29	6.4	60	2.9	240	1.28	
38	96	180	787	39	3.9	50	2.5	304	1.64	
40	86	225	611	34	5.3	60	2.5	320	1.60	
45	116	150	1187	48	3.0	45	2.1	360	2.04	
50	96	230	763	39	4.6	60	2.2	400	2.05	
55	116	180	1140	48	3.3	50	2.0	440	2.40	
65	136	150	1714	56	2.7	45	1.7	520	2.81	
70	116	230	1069	47	3.9	60	1.7	560	3.02	
82	136	180	1699	57	2.9	50	1.6	656	3.28	
100	136	230	1527	56	3.3	60	1.4	800	4.16	

■ Term and characteristics

Term	Characteristics
C_N	Rated capacitance
U_N	Rated AC voltage
U_{NDC}	Rated DC voltage
U_r	Ripple voltage
U_s	Non- recurrent surge voltage
U_{T-T}	Test voltage between terminals
U_{T-C}	Test voltage between terminals to case
\hat{I}	Maximum peak current
I_{max}	Maximum current
\hat{I}_s	Maximum surge current
$\tan\delta_0$	Dielectric dissipation factor
$\tan\delta$	Loss factor
ESL	Self inductance
ESR	Equivalent series inductance of a capacitor
R_{ins}	Insulation resistance
f_r	Resonance frequency
W_R	Rated power
θ_{min}	Lowest operating temperature
θ_{max}	Maximum operating temperature
θ_{amb}	Cooling-air temperature
θ_{HS}	Hotspot temperature
θ_{ST}	Storage temperature
F_T	Derating factor
t_{LD}	Inverter and charge hybrid operating load duration
λ	Failure rate (FIT)