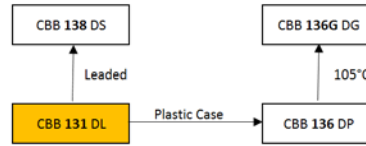


## Polypropylene Film Capacitors for DC-Link Applications

### Features

- Very low dissipation factor
- High ripple current capability
- Self-healing
- Long lifetime
- Aluminum case
- RoHS compliant (2011/65/EU)



### Applications

- High power frequency converters
- Motion control, welding equipment, elevators
- Electric and hybrid electric vehicles
- Photovoltaic and wind inverters

Item	Characteristics
<b>Climatic Category</b>	55/85/56 (IEC 61071)
<b>Operating Temperature</b>	-55 ~ +85 °C ( $\theta_{\text{hotspot}} \leq 85$ °C)
<b>Storage Temperature</b>	-55 ~ +85 °C
<b>Rated Voltage <math>U_{RDC}</math></b>	600 ~ 2000V <sub>DC</sub>
<b>Capacitance Range</b>	100 ~ 3100 $\mu$ F
<b>Capacitance Tolerance</b>	$\pm 10$ % (K), $\pm 5$ % (J)
<b>Voltage between Terminals <math>U_{TT}</math></b>	$1,5 * U_{RDC}$ (20 °C, 10 s)
<b>Voltage between Terminals and Case <math>U_{TC}</math></b>	$2 * U_{RDC} / \sqrt{2} + 1000$ V or $3000 V_{AC}$ (20 °C, 50 Hz, 10 s)
<b>Max. Overvoltage</b>	$1,1 * U_{RDC}$ (30 % of time under load)
	$1,15 * U_{RDC}$ (30 min. per day)
	$1,2 * U_{RDC}$ (5 min. per day)
	$1,3 * U_{RDC}$ (1 min. per day)
	$1,5 * U_{RDC}$ (max. 30 ms, 100ms per day)
<b>Insulation Resistance <math>R_i * C</math></b>	$\geq 10.000$ M $\Omega$ $\mu$ F (20 °C, 100 V <sub>DC</sub> , 1 min)
<b>Capacitor Dissipation Factor <math>\tan \delta</math></b>	$\tan \delta \leq 15 * 10^{-4}$ (20 °C, 100 Hz)
<b>Dielectric Dissipation Factor <math>\tan \delta_o</math></b>	$\tan \delta_o \leq 2 * 10^{-4}$ (20 °C, 100 Hz)
<b>Life Time Expectancy</b>	$\geq 100.000$ h, failure rate $\leq 50$ FIT ( $\theta_{\text{hotspot}} \leq 70$ °C, $U_{RDC}$ )
<b>Reference Standard</b>	IEC 61071:2007, REACH, RoHS

### Ratings for CBB 131 DL Series

$U_{RDC}$ (VDC)	$C_R$ ( $\mu$ F)	$I_{\text{max}}^{(1)}$ (A)			$R_{th}^{(2)}$ (K/W)	$\hat{I}^{(3)}$ (A)	$R_s^{(4)}$ (m $\Omega$ )	$L_s^{(5)}$ (nH)	D (mm)	H (mm)	P/N
		40°C	50°C	60°C							
600 2S	480	67	58	47	5,6	4800	1,6	$\leq 60$	76	95	FCC2SDL487*H095*3**1E3
	650	84	73	60	5,1	5200	1,1	$\leq 60$	85/86	95	FCC2SDL657**095*3**1E3
		67	58	47	4,7	5200	1,9	$\leq 60$	76	120	FCC2SDL657*H120*3**1E3
	770	88	76	62	4,3	6160	1,2	$\leq 60$	76	136	FCC2SDL777*H136*3**1E3
	880	81	70	57	4,7	6248	1,3	$\leq 60$	85/86	120	FCC2SDL887**120*3**1E3
	950	82	71	58	4,2	6650	1,4	$\leq 60$	76	175	FCC2SDL957*H175*3**2E3
	1000	79	68	56	4,6	6700	1,4	$\leq 60$	85/86	136	FCC2SDL108**136*3**1E3
	1200	96	83	68	5,4	7200	0,8	$\leq 60$	116	95	FCC2SDL128*P095*5**1E3
	1300	96	83	68	4,3	7800	1,0	$\leq 80$	85/86	175	FCC2SDL138**175*3**2E3
	1600	94	82	67	5,0	9600	0,9	$\leq 60$	116	120	FCC2SDL168*P120*5**1E3
	1800	95	83	67	4,0	10800	1,1	$\leq 80$	85/86	225	FCC2SDL188**225*3**2E3
	1900	86	75	61	4,9	11400	1,1	$\leq 60$	116	136	FCC2SDL198*P136*5**1E3
	2100	100	100	96	3,6	11550	0,6	$\leq 80$	116	155	FCC2SDL218*P155*5**2E3
	2400	100	100	96	3,4	12000	0,6	$\leq 80$	116	175	FCC2SDL248*P175*5**2E3
3000	100	100	96	2,7	15000	0,8	$\leq 80$	116	230	FCC2SDL308*P230*5**2E3	

(1) Maximum permissible r.m.s. ripple current (1 kHz) at given ambient temperature

(2) Thermal resistance from hotspot to ambient (free convection)

(3) Maximum permissible peak current

(4) Series resistance at 20°C ambient temperature, 1kHz

(5) Self-inductance at 20°C ambient temperature

\*\*\* to be defined, see ordering code table

Customized products are available on request.

## Ratings for CBB 131 DL Series

U <sub>RDC</sub> (VDC)	C <sub>R</sub> (μF)	I <sub>max</sub> <sup>(1)</sup> (A)			R <sub>th</sub> <sup>(2)</sup> (K/W)	İ <sup>(3)</sup> (A)	R <sub>s</sub> <sup>(4)</sup> (mΩ)	L <sub>s</sub> <sup>(5)</sup> (nH)	D (mm)	H (mm)	P/N
		40°C	50°C	60°C							
800 2K	280	57	49	40	5,6	2800	2,2	≤60	76	95	FCC2KDL287*H095*3**1E3
	350	60	50	40	4,7	3500	2,4	≤60	76	120	FCC2KDL357*H120*3**1E3
	370	72	63	51	5,1	3700	1,5	≤60	85/86	95	FCC2KDL377**095*3**1E3
	380	58	51	41	4,7	3800	2,5	≤60	76	120	FCC2KDL387*H120*3**1E3
	400	57	49	40	4,6	3800	2,7	≤60	76	136	FCC2KDL407*H136*3**1E3
	430	57	49	40	4,6	4300	2,7	≤60	76	136	FCC2KDL437*H136*3**1E3
	470	76	66	54	4,3	4700	1,6	≤60	76	155	FCC2KDL477*H155*3**2E3
	480	61	54	43	4,7	3840	2,3	≤60	85/86	120	FCC2KDL487**120*3**1E3
	510	71	61	50	4,7	5100	1,7	≤60	85/86	120	FCC2KDL517**120*3**1E3
	550	58	50	40	4,6	3850	2,6	≤60	85/86	136	FCC2KDL557**136*3**1E3
	560	73	63	51	4,2	5600	1,8	≤60	76	175	FCC2KDL567*H175*3**2E3
	580	68	59	48	4,6	5800	1,9	≤60	85/86	136	FCC2KDL587**136*3**1E3
	640	91	79	64	4,4	6400	1,1	≤60	85/86	155	FCC2KDL647**155*3**2E3
	710	82	71	58	5,4	7100	1,1	≤60	116	95	FCC2KDL717*P095*5**1E3
	750	85	73	60	4,3	7500	1,3	≤80	85/86	175	FCC2KDL757**175*3**2E3
	970	82	71	58	5,0	7760	1,2	≤60	116	120	FCC2KDL977*P120*5**1E3
	1000	85	73	60	4,0	8000	1,4	≤80	85/86	225	FCC2KDL108**225*5**2E3
		76	66	54	4,9	8000	1,4	≤60	116	136	FCC2KDL108*P136*5**1E3
	1100	76	66	54	4,9	8800	1,4	≤60	116	136	FCC2KDL118*P136*5**1E3
	1200	100	100	83	3,6	9600	0,8	≤80	116	155	FCC2KDL128*P155*5**2E3
1400	100	100	86	3,4	11200	0,8	≤80	116	175	FCC2KDL148*P175*5**2E3	
1800	100	100	86	2,7	11700	1,0	≤80	116	230	FCC2KDL188*P230*5**2E3	
1900	100	100	86	2,7	11750	1,0	≤80	116	230	FCC2KDL198*P230*5**2E3	
2000	100	100	98	3,0	12000	0,7	≤100	136	175	FCC2KDL208*T175*5**2E3	
2700	100	100	93	2,9	16200	0,8	≤100	136	230	FCC2KDL278*T230*5**2E3	
3100	100	100	100	2,0	18600	1,0	≤100	136	252	FCC2KDL318*T252*5**2E3	
900 R2	280	55	47	39	5,6	2800	2,4	≤60	76	95	FCCR2DL287*H095*3**1E3
	350	54	46	38	4,7	3500	2,9	≤60	76	120	FCCR2DL357*H120*3**1E3
	370	70	61	50	5,1	3700	1,6	≤60	85/86	95	FCCR2DL377**095*3**1E3
	380	56	49	40	4,7	3800	2,7	≤60	76	120	FCCR2DL387*H120*3**1E3
	430	55	47	39	4,6	4300	2,9	≤60	76	136	FCCR2DL437*H136*3**1E3
	470	74	64	52	4,3	4700	1,7	≤60	76	155	FCCR2DL477*H155*3**2E3
	510	69	60	49	4,7	5100	1,8	≤60	85/86	120	FCCR2DL517**120*3**1E3
	560	69	60	49	4,2	5600	2,0	≤60	76	175	FCCR2DL567*H175*3**2E3
	580	64	56	46	4,6	5800	2,1	≤60	85/86	136	FCCR2DL587**136*3**1E3
	640	87	75	62	4,4	6400	1,2	≤60	85/86	155	FCCR2DL647**155*3**2E3
	710	79	68	56	5,4	7100	1,2	≤60	116	95	FCCR2DL717*P095*5**1E3
	750	82	71	58	4,3	7500	1,4	≤80	85/86	175	FCCR2DL757**175*3**2E3
	970	79	68	55	5,0	7600	1,3	≤60	116	120	FCCR2DL977*P120*5**1E3
	1000	82	71	58	4,0	8000	1,5	≤80	85/86	225	FCCR2DL108**225*5**2E3
		74	64	52	4,9	8000	1,5	≤60	116	136	FCCR2DL108*P136*5**1E3
	1100	60	52	42	4,9	6600	2,3	≤60	116	136	FCCR2DL118*P136*5**1E3
	1200	100	92	75	3,6	9600	1,0	≤80	116	155	FCCR2DL128*P155*5**2E3
	1400	100	99	81	3,4	11200	0,9	≤80	116	175	FCCR2DL148*P175*5**2E3
	1800	100	100	82	2,7	11700	1,1	≤80	116	230	FCCR2DL188*P230*5**2E3
	1900	88	76	63	2,7	11400	1,9	≤80	116	230	FCCR2DL198*P230*5**2E3
2000	100	100	91	3,0	12000	0,8	≤100	136	175	FCCR2DL208*T175*5**2E3	
2700	100	100	88	2,9	16200	0,9	≤100	136	230	FCCR2DL278*T230*5**2E3	
3100	100	100	95	2,0	18600	1,1	≤100	136	252	FCCR2DL318*T252*5**2E3	
1000 3A	220	55	47	39	5,6	2420	2,4	≤60	76	95	FCC3ADL227*H095*3**1E3
	290	68	59	48	5,1	3190	1,7	≤60	85/86	95	FCC3ADL297**095*3**1E3
	300	55	48	39	4,7	3300	2,8	≤60	76	120	FCC3ADL307*H120*3**1E3
	330	54	47	38	4,6	3630	3,0	≤60	76	136	FCC3ADL337*H136*3**1E3
	360	72	62	51	4,3	3960	1,8	≤60	76	155	FCC3ADL367*H155*3**2E3
	400	67	58	47	4,7	4400	1,9	≤60	85/86	120	FCC3ADL407**120*3**1E3
	420	69	60	49	4,2	4620	2,0	≤60	76	175	FCC3ADL447*H175*3**2E3
	450	64	56	46	4,6	4950	2,1	≤60	85/86	136	FCC3ADL457**136*3**1E3
	500	87	75	62	4,4	5000	1,2	≤60	85/86	155	FCC3ADL507**155*3**2E3
	540	79	68	56	5,4	5400	1,2	≤60	116	95	FCC3ADL547*P095*5**1E3
560	82	71	58	4,3	5600	1,4	≤80	85/86	175	FCC3ADL567**175*3**2E3	

(1) Maximum permissible r.m.s. ripple current (1 kHz) at given ambient temperature  
(2) Thermal resistance from hotspot to ambient (free convection)  
(3) Maximum permissible peak current  
(4) Series resistance at 20°C ambient temperature, 1kHz  
(5) Self-inductance at 20°C ambient temperature

\*\*\*\* to be defined, see ordering code table

Customized products are available on request.

## Ratings for CBB 131 DL Series

U <sub>RDC</sub> (VDC)	C <sub>R</sub> (μF)	I <sub>max</sub> <sup>(1)</sup> (A)			R <sub>th</sub> <sup>(2)</sup> (K/W)	İ <sup>(3)</sup> (A)	R <sub>s</sub> <sup>(4)</sup> (mΩ)	L <sub>s</sub> <sup>(5)</sup> (nH)	D (mm)	H (mm)	P/N
		40°C	50°C	60°C							
1000 3A	740	79	68	55	5.0	7600	1,3	≤60	116	120	FCC3ADL747*P120*5**1E3
	810	81	79	65	3.0	8100	1,6	≤80	85/86	225	FCC3ADL817**225*3**2E3
	860	71	62	51	4.9	8600	1,6	≤60	116	136	FCC3ADL867*P136*5**1E3
	900	100	96	79	3.6	8760	0,9	≤80	116	155	FCC3ADL907*P155*5**2E3
	1100	100	99	81	3,4	8800	0,9	≤80	116	175	FCC3ADL118*P175*5**2E3
	1400	100	100	82	2,7	11200	1,1	≤80	116	230	FCC3ADL148*P230*5**2E3
	1500	100	100	91	3,0	12000	0,8	≤100	136	175	FCC3ADL158*T175*5**2E3
	2100	100	100	88	2,9	12600	0,8	≤100	136	230	FCC3ADL218*T230*5**2E3
2400	100	100	95	2,0	14400	1,1	≤100	136	252	FCC3ADL248*T252*5**2E3	
1100 A3	170	55	45	36	5,6	2040	2,7	≤60	76	95	FCCA3DL177*H095*3**1E3
	240	64	56	45	4,7	2880	1,9	≤60	76	120	FCCA3DL247*H120*3**1E3
	270	52	45	37	5,1	2880	3,1	≤60	85/86	95	FCCA3DL247**095*3**1E3
	300	51	44	36	4,6	3240	3,4	≤60	76	136	FCCA3DL277*H136*3**1E3
	320	68	59	48	4,3	3600	2,0	≤60	76	155	FCCA3DL307*H155*3**2E3
	350	62	54	44	4,7	3840	2,2	≤60	85/86	120	FCCA3DL327**120*3**1E3
	420	64	56	46	4,2	4200	2,3	≤60	76	175	FCCA3DL357*H175*3**2E3
	450	60	52	43	4,6	5040	2,4	≤60	85/86	136	FCCA3DL427**136*3**1E3
	480	81	70	57	4,4	5040	1,4	≤60	85/86	155	FCCA3DL427**155*3**2E3
	600	75	65	53	5,4	5400	1,3	≤60	116	95	FCCA3DL457*P095*5**1E3
	610	76	66	54	4,3	5760	1,6	≤80	85/86	175	FCCA3DL487**175*3**2E3
	620	71	61	50	4,0	6000	2,0	≤80	85/86	225	FCCA3DL607**225*3**2E3
	650	73	63	52	5,0	6100	1,5	≤60	116	120	FCCA3DL617*P120*5**1E3
	680	73	63	52	5,0	6200	1,5	≤60	116	120	FCCA3DL627*P120*5**1E3
	690	75	65	53	4,00	6500	1,8	≤80	85/86	225	FCCA3DL657**225*3**2E3
	770	69	60	49	4,9	6800	1,7	≤60	116	136	FCCA3DL687*P136*5**1E3
	910	69	60	49	4,9	6900	1,7	≤60	116	136	FCCA3DL697*P136*5**1E3
	910	100	91	75	3,6	7700	1,0	≤80	116	155	FCCA3DL777*P155*5**2E3
	1200	100	94	77	3,4	9100	1,0	≤80	116	175	FCCA3DL917*P175*5**2E3
	1700	100	96	79	2,7	9600	1,2	≤80	116	230	FCCA3DL128*P230*5**2E3
1900	100	100	86	3,0	9600	0,9	≤100	136	175	FCCA3DL128*T175*5**2E3	
1900	100	100	83	2,9	13600	1,0	≤100	136	230	FCCA3DL178*T230*5**2E3	
1900	100	100	95	2,0	15200	1,1	≤100	136	252	FCCA3DL198*T252*5**2E3	
1200 3B	140	49	42	35	5,6	1680	3,0	≤60	76	95	FCC3BDL147*H095*3**1E3
	190	61	53	43	5,1	2280	2,1	≤60	85/86	95	FCC3BDL197**095*3**1E3
	200	50	43	35	4,7	2400	3,4	≤60	76	120	FCC3BDL207*H120*3**1E3
	220	48	42	34	4,6	2640	3,7	≤60	76	136	FCC3BDL227*H136*3**1E3
	240	65	56	46	4,3	2880	2,2	≤60	76	155	FCC3BDL247*H155*3**2E3
	260	60	52	42	4,7	3120	2,4	≤60	85/86	120	FCC3BDL267**120*3**1E3
	280	62	53	44	4,2	3360	2,5	≤60	76	175	FCC3BDL287*H175*3**2E3
	300	58	50	41	4,6	3600	2,6	≤60	85/86	136	FCC3BDL307**136*3**1E3
	330	78	67	55	4,4	3960	1,5	≤60	85/86	155	FCC3BDL337**155*3**2E3
	360	73	63	51	5,4	4320	1,4	≤60	116	95	FCC3BDL367*P095*5**1E3
	380	72	62	51	4,3	4560	1,8	≤80	85/86	175	FCC3BDL387**175*3**2E3
	450	62	54	44	4,9	4650	2,1	≤60	116	136	FCC3BDL457*P136*5**1E3
	470	67	58	48	4,0	4700	2,2	≤80	86	225	FCC3BDL477*L225*3**2E3
	500	69	59	49	5,0	5500	1,7	≤60	116	120	FCC3BDL507*P120*5**1E3
	540	71	61	50	4,0	5940	2,0	≤80	85/86	225	FCC3BDL547**225*3**2E3
	570	66	57	46	4,9	6270	1,9	≤60	116	136	FCC3BDL577*P136*5**1E3
	620	100	87	71	3,6	6820	1,1	≤80	116	155	FCC3BDL627*P155*5**2E3
	720	100	90	73	3,4	7920	1,1	≤80	116	175	FCC3BDL727*P175*5**2E3
	950	100	92	75	2,7	9500	1,3	≤80	116	230	FCC3BDL957*P230*5**2E3
	1000	100	100	82	3,0	10000	1,0	≤100	136	175	FCC3BDL108*T175*5**2E3
1400	100	97	79	2,9	14000	1,1	≤100	136	230	FCC3BDL148*T230*5**2E3	
1600	100	100	91	2,0	16000	1,2	≤100	136	252	FCC3BDL168*T252*5**2E3	
1300 O3	100	45	39	32	5,6	1400	3,4	≤60	76	95	FCCO3DL107*H095*3**1E3
	120	47	40	33	5,6	1440	3,3	≤60	76	95	FCCO3DL127*H095*3**1E3
	160	57	51	41	4,7	1920	2,3	≤60	76	120	FCCO3DL167*H120*3**1E3
	180	48	42	34	5,1	1920	3,7	≤60	85/86	95	FCCO3DL167**095*3**1E3
	210	46	40	33	4,6	2160	4,1	≤60	76	136	FCCO3DL187*H136*3**1E3
	220	62	54	44	4,3	2520	2,4	≤60	76	155	FCCO3DL217*H155*3**2E3
	220	57	50	40	4,7	2640	2,6	≤60	85/86	120	FCCO3DL227**120*3**1E3

(1) Maximum permissible r.m.s. ripple current (1 kHz) at given ambient temperature

(2) Thermal resistance from hotspot to ambient (free convection)

(3) Maximum permissible peak current

(4) Series resistance at 20°C ambient temperature, 1kHz

(5) Self-inductance at 20°C ambient temperature

\*\*\* to be defined, see ordering code table

Customized products are available on request.

## Ratings for CBB 131 DL Series

U <sub>RDC</sub> (VDC)	C <sub>R</sub> (μF)	I <sub>max</sub> <sup>(1)</sup> (A)			R <sub>th</sub> <sup>(2)</sup> (K/W)	Ī <sup>(3)</sup> (A)	R <sub>s</sub> <sup>(4)</sup> (mΩ)	L <sub>s</sub> <sup>(5)</sup> (nH)	D (mm)	H (mm)	P/N
		40°C	50°C	60°C							
1300 O3	240	58	51	41	4,2	2880	2,8	≤60	76	175	FCCO3DL247*H175*3**2E3
	250	55	47	39	4,6	3000	2,9	≤60	85/86	136	FCCO3DL257**136*3**1E3
	280	73	63	52	4,4	3360	1,7	≤60	85/86	155	FCCO3DL287**155*3**2E3
	310	68	59	48	5,4	3720	1,5	≤60	116	95	FCCO3DL317*P095*5**1E3
	320	70	61	49	4,3	3840	1,9	≤80	85/86	175	FCCO3DL327**175*3**2E3
	420	67	58	47	5,0	5040	1,8	≤60	116	120	FCCO3DL427*P120*5**1E3
	450	67	58	48	4,0	5400	2,2	≤80	85/86	225	FCCO3DL457**225*3**2E3
	470	67	58	48	4,0	5640	2,2	≤80	85/86	225	FCCO3DL477**225*3**2E3
	480	62	54	44	4,9	5760	2,1	≤60	116	136	FCCO3DL487*P136*5**1E3
	530	100	87	71	3,6	6360	1,1	≤80	116	155	FCCO3DL537*P155*5**2E3
	630	100	90	73	3,4	7560	1,1	≤80	116	175	FCCO3DL637*P175*5**2E3
	820	99	86	70	2,7	9840	1,5	≤80	116	230	FCCO3DL827*P230*5**2E3
	880	100	95	78	3,0	10560	1,1	≤100	136	175	FCCO3DL887*P175*5**2E3
1200	100	93	76	2,9	13200	1,2	≤100	136	230	FCCO3DL128*P230*5**2E3	
1300	100	100	88	2,0	14300	1,3	≤100	136	252	FCCO3DL138*P252*5**2E3	
1500 C3	170	52	45	37	4,7	2040	3,1	≤60	85/86	120	FCCC3DL177**120*3**1E3
	210	67	58	48	4,4	2520	2,0	≤60	85/86	155	FCCC3DL217**155*3**2E3
	310	62	53	44	5,0	3720	2,1	≤60	116	120	FCCC3DL317*P120*5**1E3
	330	63	55	45	4,0	3960	2,5	≤80	85/86	225	FCCC3DL337**225*3**2E3
	400	89	77	63	3,6	4800	1,1	≤80	116	155	FCCC3DL407*P155*5**2E3
	600	93	81	66	2,7	7200	1,7	≤80	116	230	FCCC3DL607*P230*5**2E3
1700 F3	130	49	43	35	4,7	1560	3,5	≤60	85/86	120	FCCF3DL137**120*3**1E3
	160	63	54	44	4,4	1920	2,3	≤60	85/86	155	FCCF3DL167**155*3**2E3
	240	58	50	41	5,0	2880	2,4	≤60	116	120	FCCF3DL247*P120*3**1E3
	250	59	51	42	4,0	3000	2,9	≤80	85/86	225	FCCF3DL257**225*3**2E3
	300	83	72	59	3,6	3600	1,6	≤80	116	155	FCCF3DL307*P155*3**2E3
460	88	76	62	2,7	5520	1,9	≤80	116	230	FCCF3DL467*P230*3**2E3	
2000 3D	100	46	40	33	4,7	1200	4,0	≤60	85/86	120	FCC3DDL107**120*3**1E3
	120	60	52	43	4,4	1440	2,5	≤60	85/86	155	FCC3DDL127**155*3**2E3
	190	54	47	38	5,0	2280	2,7	≤60	116	120	FCC3DDL197*P120*3**1E3
		55	48	39	4,0	2280	3,3	≤80	85/86	225	FCC3DDL197**225*3**2E3
	240	79	68	56	3,6	2880	1,8	≤80	116	155	FCC3DDL247*P155*3**2E3
	370	82	71	58	2,7	4440	2,2	≤80	116	230	FCC3DDL377*P230*3**1E3

- (1) Maximum permissible r.m.s. ripple current (1 kHz) at given ambient temperature
- (2) Thermal resistance from hotspot to ambient (free convection)
- (3) Maximum permissible peak current
- (4) Series resistance at 20°C ambient temperature, 1kHz
- (5) Self-inductance at 20°C ambient temperature

\*\*\* to be defined, see ordering code table

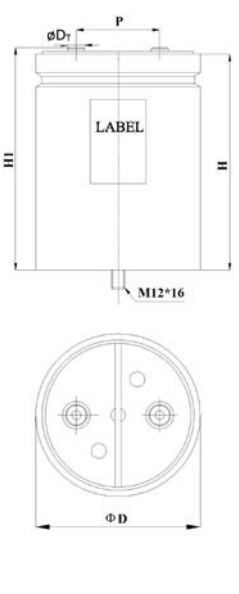
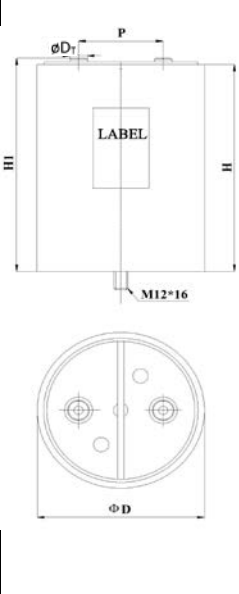
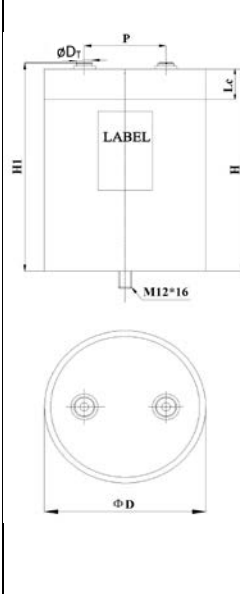
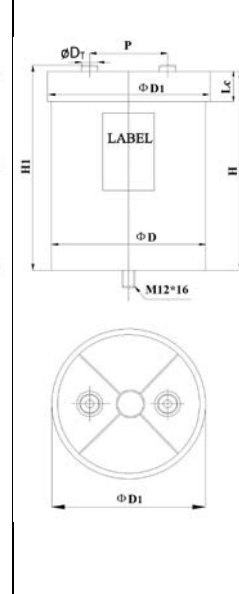
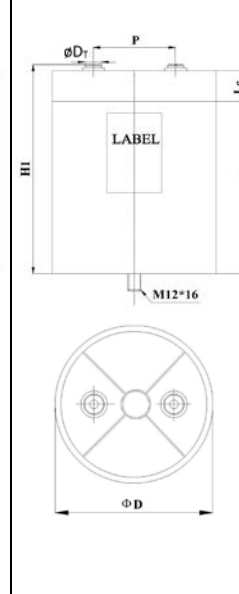
Customized products are available on request.

## Marking

	— 1
CBB131	— 2
650uF ±10%	— 3
U <sub>R</sub> = 600VDC	— 4
U <sub>TC</sub> = 3000V 50/60Hz	— 5
-55~+85 °C IEC61071	— 6
Discharge before handling	— 7
E37F26104	— 8

No.	Item
1	Brand
2	Series Designation
3	Capacitance and Tolerance
4	U <sub>R</sub> Rated Voltage
5	U <sub>TC</sub> Voltage between Terminals and Case, Frequency
6	Temperature Range, Reference Standard
7	Safety Warning
8	Date Code

**Dimensions and Can Styles**

				
<b>Can Style "A"</b>	<b>Can Style "B"</b>	<b>Can Style "C"</b>	<b>Can Style "D"</b>	<b>Can Style "E/F/G"</b>
Aluminum Case with Flanging	Aluminum Case without Flanging	Aluminum/Plastic Case	Aluminum/Plastic Case Anti-Creep Insulation Enlarged Casing	Aluminum/Plastic Case Anti-Creep Insulation
$D_T = 12\text{mm}$	$D_T = 12\text{mm}$	$D_T = 16\text{mm}$	$D_T = 12\text{mm}$	Can Style "E": $D_T = 12\text{mm}$ Can Style "F": $D_T = 14\text{mm}$ Can Style "G": $D_T = 16\text{mm}$
M6 * 10 screw female	M6 * 10 screw female	M6 * 10 screw female M8 * 10 screw female	M6 * 10 screw female	Can Style "E": M6 * 10 screw female Can Style "F": M6 * 10 screw female M8 * 10 screw female Can Style "G": M8 * 10 screw female M10 * 10 screw female
$H1 = H + 5\text{mm}$ $H, H1 \pm 1\text{mm}$	$H1 = H + 5\text{mm}$ $H, H1 \pm 1\text{mm}$	$H1 = H + 5\text{mm}$ $H, H1 \pm 1\text{mm}$	$H1 = H + 5\text{mm}$ $H, H1 \pm 1\text{mm}$	$H1 = H + 5\text{mm}$ $H, H1 \pm 1\text{mm}$

Terminals with male screws on request.

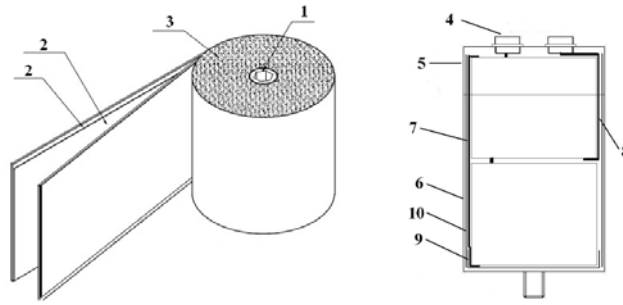
Diameter D $\pm 1,0\text{ mm}$	Diameter Cab D1 $\pm 1,0\text{ mm}$	Can Style	Pitch P $\pm 0,5\text{mm}$	Length Cab L <sub>c</sub> $\pm 1,0\text{ mm}$	Diameter Terminal D <sub>T</sub> $\pm 0,5\text{mm}$	UL 94 V-0 Cab	UL 810 Construction
76	-	C	32	20	16	✓	-
85	-	A,B	32	-	12	✓	✓
86	-	C	32	20	16	✓	-
86	89	D	32	35	12	✓	✓
86	-	E	32	25	12	✓	✓
86	-	F	32	25	14	✓	-
89	92	D	45	35	12	✓	✓
116	-	A,B	50	-	12	✓	✓
116	-	C	50	40	16	✓	✓
136	-	G	50	35	16	✓	✓

Max. Torque for terminals: 5 Nm (M6), 6 Nm (M8), 8 Nm (M10)

Max. Torque for stud mounting screws: 12 Nm (M12), 15Nm (M16)

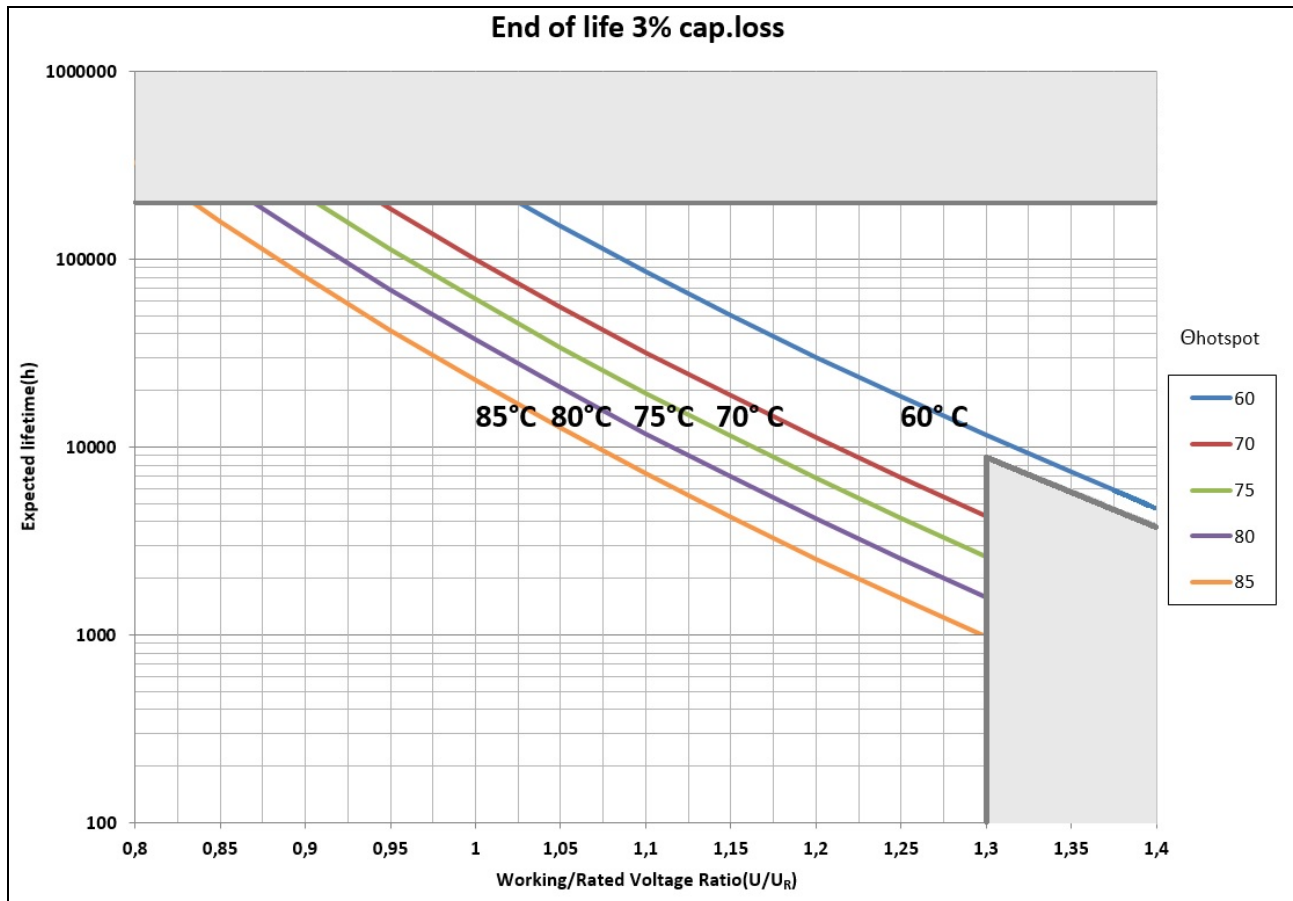


**Internal Construction** (Example: Can Style “C”, double inner construction)



No.	Item	Material	No.	Item	Material
1	Winding Core	PC	6	Aluminum Case	Al
2	Metallized Film	PP + Al, Zn	7	Potting Compound	PU resin
3	Metal Sprayed Electrode	Zn + Sn/Zn	8	Connection Electrode	Cu
4	Terminals	Cu, Sn-plated	9	Insulation Cover	PP
5	Deck	PC	10	Winding Insulation	Paper + PP

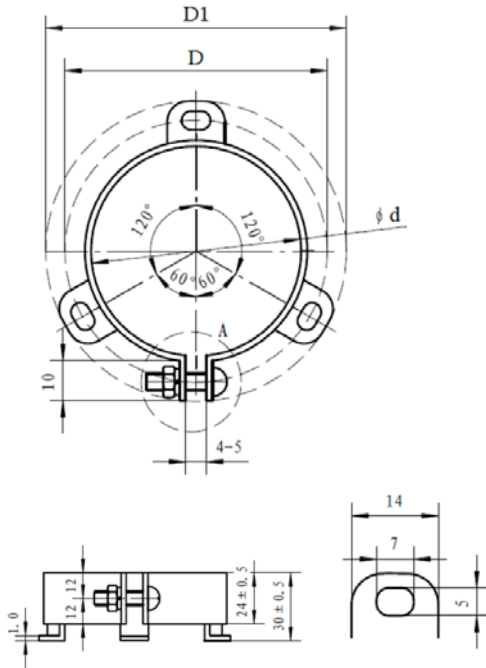
**Life Time Expectancy**



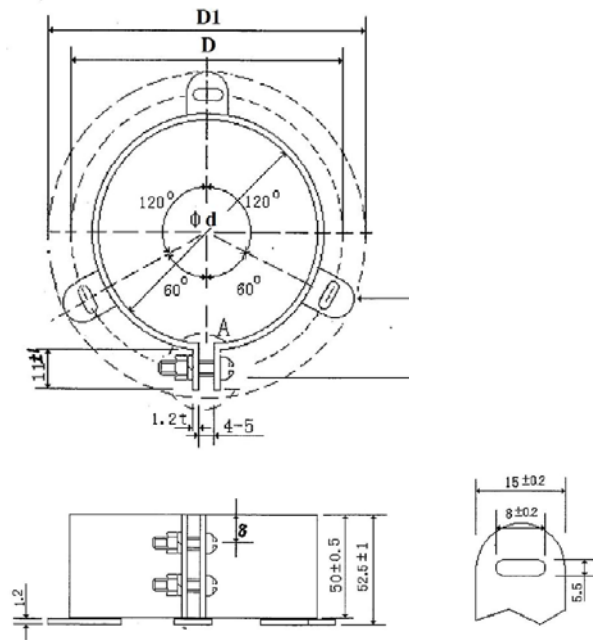


## Accessories for bracket mounting (order code "2")

For Diameter 76-86mm



For Diameter 116mm



## Ordering Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
FC	C	A3	DL		427	K	K	136							0	3	1	A	1	E	3
Capacitor type	Product shape	DC rated voltage code (V)	Series code	Capacitance code examples (µF)	Capacitance tolerance	Diameter (mm)	Height (mm)	Terminal style	Terminal pitch (mm)	Stud bolt mounting	Can style	Inner Construction	For internal use								
Film cap. = FC	cylindrical = C	600 = 2S 700 = 2Q 800 = 2K 900 = R2 1000 = 3A 1100 = A3 1200 = 3B 1300 = O3 1400 = B3 1500 = C3 1700 = F3 1800 = G3 2000 = 3D	CBB131 = DL	100 = 107 220 = 227 420 = 427 500 = 507 1000 = 108 1100 = 118	+5% = J ±10% = K ±20% = M	76 = H 85 = K 86 = L 89 = M 96 = W 116 = P 136 = T	95 = 095 120 = 120 136 = 136 155 = 155 175 = 175 225 = 225 230 = 230	Female M6*10 = 0 Female M8*10 = 2 Female M10*10 = 4 Male M6*20 = 1 Male M8*20 = 3 Male M10*20 = 5	32 = 3 45 = 4 50 = 5	bolt = 1 flat, without bracket = 0 flat, with bracket = 2	Style A = A Style B = B Style C = C Style D = D Style E = E Style F = F Style G = G	1 2 3									

## Jianghai Film Capacitors

**Warranty:** The information contained in this datasheet does neither form part of any quotation nor of a contract, it is believed to be accurate, reliable and up to date. Quality data are based on the statistical evaluations of a large quantity of parts and do not constitute a guarantee in a legal sense. However, agreement on these specifications does mean that the customer may claim for replacement of individual defective capacitors within the terms of delivery. We cannot assume any liability beyond the replacement of defective components. This applies in particular to any further consequences of component failure. Furthermore it must be taken into consideration that the figures stated for lifetime, failure rates and outlier percentages refer to the average production status and are therefore to be understood as mean values (statistical expectations) for a large number of delivery lots of identical capacitors. These figures are based on application experience and data obtained from preceding tests under normal conditions, or – for purpose of accelerated aging – more severe conditions. JIANGHAI reserves the right to change these specifications without prior notice. Any application information given is advisory and does not form part of any specification. The products are not primarily designed for use in life supporting applications, devices or systems where malfunction of these products can reasonably be expected to result in personal injury. JIANGHAI customers using or selling these products for use in such applications without prior written consent of JIANGHAI do so at their own risk and agree fully to indemnify JIANGHAI for any damage resulting from such improper use or sale. This version of the datasheet supersedes all previous versions.

**Rated Voltage  $U_R$ :** Rated Voltage is the maximum operating peak voltage of either polarity but of a non-reversing type waveform, for which the capacitor has been designed, for continuous operation. The Rated Voltage is marked on the capacitor and defined in the datasheets as  $U_R$ .

**Operating voltage:** The plastic film capacitor varies in the maximum applicable voltage depending on the applied voltage waveform, current waveform, frequency, ambient temperature (capacitor surface temperature), capacitance value, etc. Be sure to use capacitors within the specified values by checking the voltage waveform, current waveform, and frequency applied to them (In the application of high frequency, the permissible voltage varies with the type of the capacitor. Refer to the specification for details.)

**Non-recurrent surge voltage  $U_s$ :** Peak voltage induced by a switching or any other disturbance of the system which is allowed for a limited number of times and for durations shorter than the basic period.

- Maximum duration: 50 ms / pulse
- Maximum number of occurrences: 1000 (during load)

**Maximum rate of voltage rise  $dV/dt$ :** Maximum permissible repetitive rate of voltage rise of the operational voltage.

**Charging and discharging:** Because the charging and discharging current of capacitor is obtained by the product of voltage rise rate ( $dV/dt$ ) and capacitance, low voltage charging and discharging may also cause deterioration of capacitor such as shorting and open due to sudden charging and discharging current. When charging and discharging, pass through a resistance of  $20\Omega/V$  to  $1000\Omega/V$  or more to limit the current.

When connecting multiple film capacitors in parallel in withstand voltage test or life test, connect a resistance of  $20\Omega/V$  to  $1000\Omega/V$  or more in series to each capacitor (For detail see the specification). In addition, capacitors must be discharged via a resistor before handling. Because the capacitors do not have any discharge resistors built-in, there is a risk of residual voltages and electric energy contents that maybe dangerous.

**Operating Current:** The pulse (or AC) current flowing through the capacitor is expressed as:  $I = C \times dV/dt$ . Due to the fact that the dissipation factor of the capacitor is greater than zero, heat will be generated in any application where alternating currents or pulses occur. The resulting internal temperature rise may cause a severe deterioration of the capacitor's withstanding voltage, or may lead to a breakdown (even smoke or fire may result). Therefore, the safe use of capacitor must be within the rated voltage (or category voltage) and the permissible current ranges. The rated current must be considered by dividing into pulse current (peak current) and continuous current (rms current) depending on the break down mode, and when using, should make sure the both currents are within the permissible range.

**Temperature range:** Use film capacitors only within the specified operating temperature range.

**Expected lifetime:** The expected lifetime of the capacitor depends on the applied voltage and the hot spot temperature during operation. For capacitors applied in different situations, the obtainable average service lives are different. The capacitors used in DC-Link circuits will have an expected lifetime of approximately 100000 hours at rated voltage and  $70^\circ\text{C}$  hot spot temperature.

**Insulation voltage  $U_i$ :** rms value of AC voltage designed for the insulation between terminals of the capacitor to case or earth. The insulation voltage is equal to the rated voltage of the capacitor, divided by  $\sqrt{2}$ , unless otherwise specified.

**Voltage between terminals  $U_{TT}$ :** Voltage between terminals (at  $20^\circ\text{C}$ , 10s):  $1.5 \times U_{RDC}$

**Voltage between terminals and case  $U_{TC}$ :** Voltage between terminals and case (at  $20^\circ\text{C}$ , 10s):  $2 \times U_i + 1000$  or  $3000 (V_{AC})$ , whichever value is larger.

**Buzzing noise:** Any buzzing noise produced by a capacitor is caused by the vibration of the film due to the Coulomb force that is generated between the electrodes with opposite poles. If the wave-form with a high distortion rate or frequency is applied across the capacitor, the buzzing noise will become louder. But the buzzing noise is of no harm to the capacitor.

**Surface over temperature  $\Delta \theta$  case:** When current continuously flow through the capacitor, the temperature inside the capacitor will rise induced by dissipated heat. If the temperature exceeds the maximum allowed hot-spot temperature, it might cause a short circuit or fire. The limits described in the catalogue must not be exceeded and it's necessary to check the temperature on the capacitor's surface in operation.

**Flame retardation:** Although flame retarding PU resin or plastic case material is used in the coating or encapsulation of plastic film capacitors, continuous exposure to high temperature ambient or fire will break the coating layer or plastic case of the capacitor, and may lead to melting and ignition of the capacitor element.

**Humid ambient:** If used for a long time in a humid ambient, the capacitor might absorb humidity and oxidize the electrodes causing damage to the capacitor. In case of AC application, high humidity would increase the corona effect. This phenomenon causes a drop in capacitance and an increase of capacitor losses.

### Storage conditions:

- 1) Capacitors must not be stored in corrosive atmospheres, particularly not when chlorides, sulfides, acids, lye, salts, organic solvents or similar substances are present.
- 2) It must not be stored in high temperature and/or high humidity environments. The following storage conditions must be kept (applicable only for storage in the original package):
  - Temperature:  $\leq 35^\circ\text{C}$
  - Humidity:  $\leq 80\% \text{ RH}$ , no dew allowed on the capacitor.
  - Storage time:  $\leq 24$  months (from the date marked on the capacitor's body or on the label sticking to the package)

**Mounting:** Other devices, which are mounted near the capacitor, should not touch the capacitor. Additional heat coming from other components near the capacitor may reduce the lifetime of the capacitor. Do never attempt to bend or twist the capacitor after mounting and avoid any mechanical stress on the terminals. Never exceed the max. permissible torques when tightening the terminal screws or the mounting bolt's cap nuts.

**Caution during use of Capacitors:** Do not touch the terminals of capacitors. Keep the capacitor free from conductive solution, such as acids, alkali and so on. Ensure that the operating environment of the equipment into which the capacitor has been built is within the specified conditions mentioned in the catalogue or specification sheets.

**Definition of electrical parameters:** Separate documents as application notes, equivalent circuit diagrams and so on are available on request.

**Packaging:** Please refer to the data book for details. Further information is available on request.