

# ALC10 SERIES

## Board Mounting - Snap-in Terminations

This range of small size capacitors features very high CV per unit volume with low e.s.r. & impedance values and high ripple currents. They are ideally suited for use in industrial and commercial applications such as switch mode power supplies and energy storage circuits.

**Capacitance range** ..... 56 $\mu$ F to 47,000 $\mu$ F

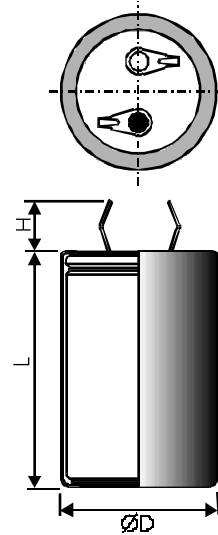
**Capacitance tolerance** .....  $\pm 20\%$

**Voltage range** ..... 10V to 450V d.c.

**Temperature range** ..... -40°C to +85°C

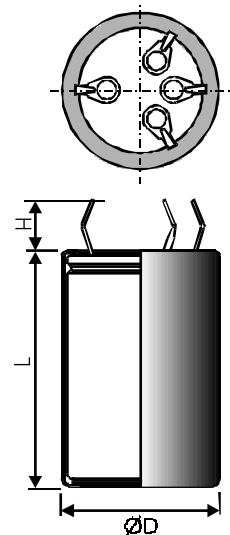
**Case sizes** ..... 22 x 30mm to 35 x 80mm

ALC10 STYLE A



ALC10 STYLE C

35mm Ø only



Negative denoted by line on sleeve

### DIMENSIONS (sleeved) mm

CASE CODE	D	L	H
AB	22	30	6.3
BB	25	30	6.3
AD	22	40	6.3
BC	25	35	6.3
CB	30	30	6.3
BD	25	40	6.3
CC	30	35	6.3
CD	30	40	6.3
DC	35	35	6.3
CF	30	50	6.3
DD	35	40	6.3
DF	35	50	6.3
DH	35	60	6.3
DL	35	80	6.3

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## TECHNICAL DATA

### Related documents

DIN 41240

### Temperature range

Storage -55°C to +85°C

Operating -40°C to +85°C

Environmental classification 40/085/56

### Surge voltage

1000 surges (30 seconds) at 85°C with surge voltage applied. See electrical characteristics.

### Charge/discharge

$10^6$  cycles at 25°C and rated voltage. One cycle per second with a time constant of 0.1.

### D.C. leakage current

After application of rated d.c. voltage for 5 minutes at 20°C, the d.c. leakage current shall not exceed  $(0.006 C_R U_R + 4) \mu\text{A}$ . Where  $C_R$  is the rated capacitance in  $\mu\text{F}$  and  $U_R$  is the rated d.c. voltage.

### Vibration

10Hz to 500Hz at 0.75mm or 10g for 3x2hrs duration.

### Insulation resistance

$\geq 100\text{M}\Omega$  at 100V d.c., across insulating sleeve.

### Voltage proof

$\geq 2500\text{V}$  d.c., across insulating sleeve.

### Ripple current

The following values are approximate only, to give an indication of the effects of frequency and temperature on ripple current. More accurate data can be obtained by referring to the Application Notes available from BHC Aerovox.

#### FREQUENCY CORRECTION

Capacitors shall withstand the rated r.m.s. ripple current as given in the tables at upper category temperature in circulating air. For frequencies other than those shown the following multipliers should be applied to the 100Hz ripple current.

RATED VOLTAGE d.c.	FREQUENCY (Hz)				
	50	100	500	1k	$\geq 10\text{k}$
0 - 35	0.89	1.0	1.05	1.06	1.07
40 - 160	0.81	1.0	1.28	1.33	1.39
200 - 450	0.75	1.0	1.54	1.70	1.89

#### TEMPERATURE CORRECTION

For ambient temperatures other than 85°C the following correction factors should be employed.

AMBIENT TEMPERATURE	FACTOR
30°C	2.5
50°C	2.1
70°C	1.6
85°C	1.0

N.B. The sum of the d.c. and a.c. voltage components should not exceed the d.c. voltage rating.

### Life expectancy

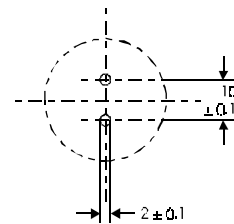
At rated temperature with rated voltage and ripple current applied.

CAN DIAMETER (mm)	LIFE EXPECTANCY (hours)
22	8000
25	10000
30	13000
35	15000

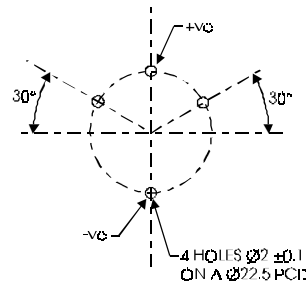
### Mounting

These capacitors are designed to be mounted by their terminations alone, and may be used in any position.

2 PIN



4 PIN (35MM Ø ONLY)



### Capacitor marking

The capacitors are marked with items 1 to 6 from the following list as a minimum, and as much of the remaining information as is practical.

1. Rated capacitance in  $\mu\text{F}$
2. Rated voltage d.c.
3. Polarity of terminations
4. Tolerance on rated capacitance
5. Date code/Batch code
6. BHC part number
7. Environmental classification

### Ordering information

For details of ordering see page 70.

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Rated voltage	Cap $\mu$ F	Case Size	ESR $m\Omega$ at 20°C 100Hz	Impedance $m\Omega$ at 20 °C, 10 KHz	Ripple current A at 85°C 100 Hz	Type number
10V d.c. (11.5V surge)	8,200	22x30	151	136	1.95	ALC10A822AB010
	12,000	25x30	119	107	2.39	ALC10A123BB010
	12,000	22x40	103	93	2.63	ALC10A123AD010
	15,000	25x35	94	85	2.84	ALC10A153BC010
	18,000	30x30	102	92	2.91	ALC10A183CB010
	18,000	25x40	80	72	3.23	ALC10A183BD010
	22,000	30x35	80	72	3.46	ALC10A223CC010
	27,000	30x40	69	62	3.91	ALC10A273CD010
	33,000	35x35	74	67	3.98	ALC10A333DC010
	39,000	30x50	52	47	4.89	ALC10A393CF010
	39,000	35x40	64	58	4.48	ALC10A393DD010
47,000	35x50	49	44	5.55	ALC10A473DF010	
16V d.c. (18.5V surge)	6,800	22x30	139	122	2.03	ALC10A682AB016
	8,200	25x30	128	113	2.30	ALC10A822BB016
	10,000	22x40	94	83	2.76	ALC10A103AD016
	10,000	25x35	101	89	2.74	ALC10A103BC016
	12,000	30x30	115	101	2.74	ALC10A123CB016
	12,000	25x40	87	77	3.10	ALC10A123BD016
	18,000	30x35	87	77	3.32	ALC10A183CC016
	22,000	30x40	75	66	3.75	ALC10A223CD016
	22,000	35x35	86	76	3.69	ALC10A223DC016
	27,000	30x50	59	52	4.59	ALC10A273CF016
	27,000	35x40	74	65	4.17	ALC10A273DD016
39,000	35x50	55	48	5.23	ALC10A393DF016	
25V d.c. (28.5V surge)	4700	22x30	139	118	2.03	ALC10A472AB025
	5600	25x30	129	110	2.29	ALC10A562BB025
	6800	22x40	95	81	2.74	ALC10A682AD025
	8200	25x35	95	81	2.82	ALC10A822BC025
	10000	30x30	113	96	2.76	ALC10A103CB025
	10000	25x40	81	69	3.21	ALC10A103BD025
	12000	30x35	88	75	3.30	ALC10A123CC025
	15000	30x40	75	64	3.75	ALC10A153CD025
	18000	35x35	85	72	3.71	ALC10A183DC025
	18000	30x50	59	50	4.59	ALC10A183CF025
	22000	35x40	74	63	4.17	ALC10A223DD025
27000	35x50	55	47	5.23	ALC10A273DF025	
35V d.c. (40V surge)	3300	22x30	145	120	2.00	ALC10A332AB035
	4700	25x30	127	107	2.31	ALC10A472BB035
	5600	22x40	98	82	2.70	ALC10A562AD035
	6800	25x35	97	81	2.80	ALC10A682BC035
	8200	30x30	114	95	2.75	ALC10A822CB035
	8200	25x40	83	70	3.17	ALC10A822BD035
	10000	30x35	89	75	3.28	ALC10A103CC035
	12000	30x40	76	64	3.73	ALC10A123CD035
	15000	35x35	86	72	3.70	ALC10A153DC035
	15000	30x50	59	49	4.59	ALC10A153CF035
	18000	35x40	75	63	4.16	ALC10A183DD035
22000	35x50	55	46	5.23	ALC10A223DF035	

Note: Values of E.S.R. and Impedance quoted above are maximum

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Rated voltage	Cap $\mu$ F	Case Size	ESR m $\Omega$ at 20°C 100Hz	Impedance m $\Omega$ at 20 °C, 10 KHz	Ripple current A at 85°C 100 Hz	Type number
40V d.c. (46V surge)	2700	22x30	148	121	1.97	ALC10A272AB040
	3900	25x30	125	103	2.33	ALC10A392BB040
	3900	22x40	101	83	2.66	ALC10A392AD040
	4700	25x35	99	81	2.77	ALC10A472BC040
	5600	30x30	115	94	2.74	ALC10A562CB040
	5600	25x40	85	70	3.14	ALC10A562BD040
	6800	30x35	90	74	3.26	ALC10A682CC040
	8200	30x40	77	63	3.70	ALC10A822CD040
	10000	35x35	86	71	3.69	ALC10A103DC040
	12000	30x50	59	48	4.59	ALC10A123CF040
	12000	35x40	75	62	4.14	ALC10A123DD040
	18000	35x50	55	45	5.23	ALC10A183DF040
50V d.c. (57V surge)	1800	22x30	175	140	1.85	ALC10A182AB050
	2700	25x30	137	110	2.23	ALC10A272BB050
	2700	22x40	125	100	2.43	ALC10A272AD050
	3300	25x35	114	91	2.60	ALC10A332BC050
	3900	30x30	113	91	2.75	ALC10A392CB050
	3900	25x40	99	80	2.94	ALC10A392BD050
	5600	30x35	91	73	3.25	ALC10A562CC050
	6800	30x40	80	65	3.63	ALC10A682CD050
	8200	35x35	81	65	3.82	ALC10A822DC050
	8200	30x50	68	54	4.33	ALC10A822CF050
	10000	35x40	73	59	4.23	ALC10A103DD050
	12000	35x50	60	48	5.05	ALC10A123DF050
63V d.c. (72.5V surge)	1500	22x30	199	157	1.70	ALC10A152AB063
	2200	25x30	149	118	2.13	ALC10A222BB063
	2200	22x40	149	118	2.19	ALC10A222AD063
	2700	25x35	128	101	2.43	ALC10A272BC063
	3300	30x30	112	88	2.77	ALC10A332CB063
	3300	25x40	112	88	2.73	ALC10A332BD063
	4700	30x35	91	72	3.24	ALC10A472CC063
	5600	30x40	83	66	3.56	ALC10A562CD063
	6800	35x35	75	59	3.95	ALC10A682DC063
	6800	30x50	75	59	4.07	ALC10A682CF063
	8200	35x40	69	55	4.31	ALC10A822DD063
	10000	35x50	64	51	4.85	ALC10A103DF063
100V d.c. (115V surge)	680	22x30	355	266	1.27	ALC10A681AB100
	1000	25x30	243	182	1.67	ALC10A102BB100
	1200	22x40	203	152	1.88	ALC10A122AD100
	1200	25x35	203	152	1.93	ALC10A122BC100
	1500	30x40	163	122	2.30	ALC10A152CB100
	1500	25x40	163	122	2.27	ALC10A152BD100
	1800	30x35	137	103	2.64	ALC10A182CC100
	2200	30x40	113	85	3.05	ALC10A222CD100
	2700	35x35	92	69	3.57	ALC10A272DC100
	3300	30x50	76	57	4.05	ALC10A332CF100
	3300	35x40	76	57	4.11	ALC10A332DD100
	4700	35x50	55	41	5.23	ALC10A472DF100

Note: Values of E.S.R. and Impedance quoted above are maximum

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Rated voltage	Cap $\mu$ F	Case Size	ESR $m\Omega$ at 20°C 100Hz	Impedance $m\Omega$ at 20 °C, 10 KHz	Ripple current A at 85°C 100 Hz	Type number
200V d.c. (230V surge)	220	22x30	727	509	0.89	ALC10A221AB200
	330	25x30	486	340	1.18	ALC10A331BB200
	330	22x40	486	340	1.21	ALC10A331AD200
	390	25x35	412	288	1.36	ALC10A391BC200
	470	30x30	343	240	1.58	ALC10A471CB200
	470	25x40	343	240	1.56	ALC10A471BD200
	560	30x35	288	202	1.82	ALC10A561CC200
	680	30x40	238	167	2.10	ALC10A681CD200
	820	35x35	198	139	2.43	ALC10A821DC200
	1000	30x50	163	114	2.76	ALC10A102CF200
	1000	35x40	163	114	2.81	ALC10A102DD200
1500	35x50	110	77	3.70	ALC10A152DF200	
250V d.c. (287V surge)	180	22x30	888	577	0.80	ALC10A181AB250
	220	25x30	727	473	0.97	ALC10A221BB250
	270	22x40	593	385	1.10	ALC10A271AD250
	270	25x35	593	385	1.13	ALC10A271BC250
	330	30x30	486	316	1.33	ALC10A331CB250
	330	25x40	486	316	1.31	ALC10A331BD250
	470	30x35	343	223	1.67	ALC10A471CC250
	560	30x40	288	187	1.91	ALC10A561CD250
	680	35x35	238	155	2.22	ALC10A681DC250
	680	30x50	238	155	2.29	ALC10A681CF250
	820	35x40	198	129	2.55	ALC10A821DD250
	1000	35x50	163	106	3.04	ALC10A102DF250
	1000	35x50	163	106	4.11	ALC10C102DF250
1200	35x60	140	100	5.07	ALC10C122DH250	
1800	35x80	100	82	6.42	ALC10C182DL250	
400V d.c. (440V surge)	68	22x30	2345	1524	0.50	ALC10A680AB400
	100	25x30	1596	1037	0.65	ALC10A101BB400
	100	22x40	1596	1037	0.67	ALC10A101AD400
	120	25x35	1330	864	0.75	ALC10A121BC400
	150	30x30	1065	692	0.90	ALC10A151CB400
	150	25x40	1065	692	0.89	ALC10A151BD400
	180	30x35	888	577	1.04	ALC10A181CC400
	220	30x40	727	473	1.20	ALC10A221CD400
	270	35x35	593	385	1.41	ALC10A271DC400
	330	30x50	486	316	1.60	ALC10A331CF400
	330	35x40	486	316	1.63	ALC10A331DD400
	470	35x50	343	223	2.10	ALC10A471DF400
	470	35x50	343	223	3.36	ALC10C471DF400
	560	35x60	264	184	4.05	ALC10C561DH400
820	35x80	181	127	5.18	ALC10C821DL400	
450V d.c. (495V surge)	56	22x30	4267	2774	0.37	ALC10A560AB450
	68	25x30	3515	2285	0.44	ALC10A680BB450
	82	22x40	2915	1895	0.50	ALC10A820AD450
	100	25x35	2391	1554	0.56	ALC10A101BC450
	120	30x30	1993	1295	0.66	ALC10A121CB450
	120	25x40	1993	1295	0.65	ALC10A121BD450
	150	30x35	1596	1037	0.77	ALC10A151CC450
	180	30x40	1330	864	0.89	ALC10A181CD450
	220	35x35	1089	708	1.04	ALC10A221DC450
	220	30x50	1089	708	1.07	ALC10A221CF450
	270	35x40	888	577	1.20	ALC10A271DD450
	330	35x50	727	473	1.44	ALC10A331DF450
	330	35x50	400	258	2.99	ALC10C331DF450
	470	35x60	290	190	3.73	ALC10C471DH450
	680	35x80	200	131	4.75	ALC10C681DL450

Note: Values of E.S.R. and Impedance quoted above are maximum