

ALC40 SERIES

Board Mounting - Snap-in Terminations

This range of small size Long Life capacitors has snap-in terminals for PCB mounting. It offers high CV per unit volume coupled with high ripple currents and long life performance. The extended temperature range allows increased ripple currents when operated at lower temperatures.

Capacitance range 33 μ F to 82,000 μ F

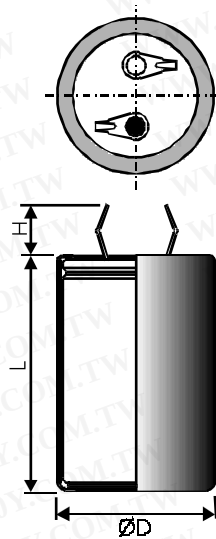
Capacitance tolerance $\pm 20\%$

Voltage range 10V to 450V d.c.

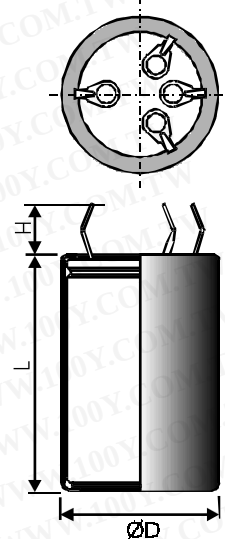
Temperature range -40°C to $+105^{\circ}\text{C}$

Case sizes 22 x 30mm to 35 x 80mm

ALC40 STYLE A



ALC40 STYLE C
35mm Ø only



Negative denoted by line on sleeve

DIMENSIONS (sleeved) mm

CASE CODE	D -0 +1	L ± 2	H ± 1
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

IEC 384-4

Temperature range

Storage -55°C to +105°C

Operating -40°C to +105°C

Environmental classification 40/105/56

Surge voltage

1000 surges (30 seconds) at 105°C with surge voltage applied. See electrical characteristics.

Charge/discharge

10⁶ 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 $(0.006 C_R U_R + 4) \mu A$. Where C_R is the rated capacitance in μF and U_R is the rated d.c. voltage.

Vibration

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

Insulation resistance

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

Voltage proof

$\geq 2500V$ 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 formula should be used:

$$\text{Ripple current} = \frac{F \times A^2 \times B^2}{100 \times (B^2 - A^2) + (F \times A^2)}$$

A = 100Hz ripple current

B = 10kHz ripple current

F = Required frequency (Hz)

TEMPERATURE CORRECTION

For ambient temperatures other than 105°C the following correction factors should be employed.

AMBIENT TEMPERATURE	FACTOR
50°C	2.5
60°C	2.4
70°C	2.2
85°C	1.8
105°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

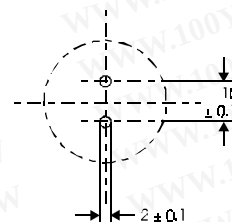
At rated temperature with rated voltage and ripple current applied.

CAN DIAMETER (mm)	LIFE EXPECTANCY (hours)
22	4000
25	6000
30	7000
35	8000

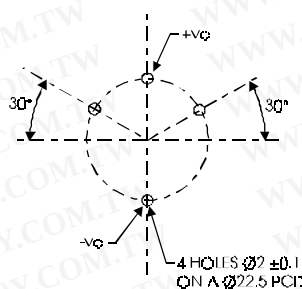
Mounting

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 μF
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 μ F	Case Size	ESR m Ω at 20°C 100Hz	Impedance m Ω at 20 °C, 10 KHz	Ripple current A at 105°C 100 Hz	10 KHz	Type number
10V d.c. (11.5V surge)	12000	22x30	233	201	1.95	2.05	ALC40A123AB010
	15000	22x40	181	155	2.60	2.74	ALC40A153AD010
	18000	22x40	154	133	2.70	2.84	ALC40A183AD010
	18000	25x30	172	150	2.19	2.29	ALC40A183BB010
	22000	25x35	139	121	2.59	2.71	ALC40A223BC010
	27000	25x40	114	99	3.04	3.18	ALC40A273BD010
	27000	30x30	138	123	2.45	2.55	ALC40A273CB010
	33000	30x35	111	98	2.97	3.09	ALC40A333CC010
	39000	30x40	92	82	3.40	3.54	ALC40A393CD010
	47000	35x35	98	89	3.26	3.39	ALC40A473DC010
	56000	30x50	66	58	4.41	4.59	ALC40A563CF010
	56000	35x40	81	74	3.74	3.90	ALC40A563DD010
	68000	35x50	61	55	4.85	5.03	ALC40A683DF010
	82000	35x50	58	53	4.85	5.05	ALC40A823DF010
16V d.c. (18.5V surge)	8200	22x30	228	195	1.83	1.94	ALC40A822AB016
	10000	22x40	177	151	2.47	2.63	ALC40A103AD016
	12000	22x40	154	131	2.53	2.69	ALC40A123AD016
	12000	25x30	179	156	2.01	2.12	ALC40A123BB016
	15000	25x35	142	124	2.39	2.51	ALC40A153BC016
	18000	25x40	118	103	2.80	2.95	ALC40A183BD016
	18000	30x30	153	136	2.23	2.34	ALC40A183CB016
	22000	30x35	122	108	2.70	2.84	ALC40A223CC016
	27000	30x40	100	89	3.10	3.26	ALC40A273CD016
	33000	30x50	75	67	4.02	4.22	ALC40A333CF016
	33000	35x35	113	102	2.97	3.12	ALC40A333DC016
	39000	35x40	94	85	3.41	3.58	ALC40A393DD016
25V d.c. (28.5V surge)	5600	22x30	233	196	1.80	1.94	ALC40A562AB025
	6800	22x40	182	151	2.42	2.63	ALC40A682AD025
	8200	22x40	157	132	2.48	2.68	ALC40A822AD025
	8200	25x30	183	157	1.97	2.11	ALC40A822BB025
	10000	25x35	148	126	2.33	2.50	ALC40A103BC025
	12000	25x40	123	105	2.74	2.93	ALC40A123BD025
	12000	30x30	157	138	2.18	2.33	ALC40A123CB025
	15000	30x35	125	109	2.65	2.83	ALC40A153CC025
	18000	30x40	103	91	3.04	3.24	ALC40A183CD025
	22000	35x35	116	104	2.91	3.10	ALC40A223DC025
	27000	30x50	73	64	3.94	4.21	ALC40A273CF025
	27000	35x40	96	86	3.34	3.56	ALC40A273DD025
35V d.c. (40V surge)	33000	35x50	70	63	4.32	4.61	ALC40A333DF025
	39000	35x50	69	62	4.32	4.61	ALC40A393DF025
	3900	22x30	239	196	1.75	1.93	ALC40A392AB035
	4700	22x40	187	152	2.35	2.63	ALC40A472AD035
	5600	22x40	163	133	2.41	2.67	ALC40A562AD035
	5600	25x30	190	159	1.93	2.10	ALC40A562BB035
	6800	25x35	153	128	2.27	2.49	ALC40A682BC035
	8200	25x40	127	106	2.67	2.92	ALC40A822BD035
	8200	30x30	162	140	2.13	2.32	ALC40A822CB035
	10000	30x35	130	112	2.59	2.82	ALC40A103CC035
	12000	30x40	107	92	2.96	3.23	ALC40A123CD035
	15000	35x35	120	105	2.84	3.09	ALC40A153DC035
	18000	30x50	76	66	3.85	4.19	ALC40A183CF035
	18000	35x40	99	87	3.25	3.55	ALC40A183DD035
	22000	35x50	73	64	4.22	4.59	ALC40A223DF035
	27000	35x50	71	63	4.22	4.59	ALC40A273DF035

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

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Rated voltage	Cap μ F	Case Size	ESR $m\Omega$ at 20°C 100Hz	Impedance $m\Omega$ at 20 °C, 10 KHz	Ripple current A at 105°C 100 Hz	Ripple current A at 105°C 10 KHz	Type number
40V d.c. (46V surge)	2700	22x30	259	207	1.69	1.92	ALC40A272AB040
	3300	22x40	202	160	2.26	2.60	ALC40A332AD040
	3900	25x40	202	166	1.87	2.09	ALC40A392BB040
	4700	22x40	154	124	2.38	2.69	ALC40A472AD040
	5600	25x35	149	124	2.23	2.49	ALC40A562BC040
	5600	30x30	171	144	2.08	2.31	ALC40A562CB040
	6800	25x40	123	102	2.61	2.92	ALC40A682BD040
	8200	30x35	129	110	2.53	2.81	ALC40A822CC040
	10000	30x40	107	91	2.90	3.22	ALC40A103CD040
	12000	30x50	80	68	3.75	4.18	ALC40A123CF040
	12000	35x35	121	106	2.77	3.08	ALC40A123DC040
	15000	35x40	100	87	3.18	3.53	ALC40A153DD040
	18000	35x50	73	64	4.12	4.58	ALC40A183DF040
50V d.c. (57.5V surge)	1800	22x30	282	218	1.60	1.90	ALC40A182AB050
	2200	22x40	222	170	2.13	2.57	ALC40A222AD050
	2700	22x40	187	145	2.22	2.64	ALC40A272AD050
	2700	25x30	213	169	1.80	2.09	ALC40A272BB050
	3300	25x35	172	136	2.13	2.47	ALC40A332BC050
	3900	25x35	156	126	2.15	2.48	ALC40A392BC050
	3900	30x30	178	147	2.01	2.31	ALC40A392CB050
	4700	25x40	129	104	2.52	2.90	ALC40A472BD050
	5600	30x35	135	112	2.44	2.80	ALC40A562CC050
	6800	30x40	112	93	2.80	3.21	ALC40A682CD050
	8200	30x50	84	69	3.63	4.16	ALC40A822CF050
	8200	35x35	126	107	2.68	3.07	ALC40A822DC050
	10000	35x40	104	88	3.08	3.52	ALC40A103DD050
	12000	35x50	77	65	3.98	4.56	ALC40A123DF050
63V d.c. (72V surge)	1800	22x30	256	200	1.55	1.83	ALC40A182AB063
	2200	25x30	227	180	1.69	1.98	ALC40A222BB063
	2700	22x40	170	132	2.15	2.55	ALC40A272AD063
	3300	25x35	165	133	2.01	2.35	ALC40A332BC063
	3900	25x40	138	111	2.36	2.75	ALC40A392BD063
	3900	30x30	185	154	1.88	2.18	ALC40A392CB063
	4700	30x35	148	123	2.28	2.65	ALC40A472CC063
	5600	30x40	122	102	2.61	3.03	ALC40A562CD063
	6800	30x50	92	75	3.39	3.93	ALC40A682CF063
	6800	35x35	141	119	2.50	2.90	ALC40A682DC063
	8200	35x40	116	99	2.87	3.33	ALC40A822DD063
	10000	35x50	85	72	3.71	4.31	ALC40A103DF063
100V d.c. (115V surge)	560	22x30	383	276	1.22	1.67	ALC40A561AB100
	680	22x40	302	214	1.60	2.26	ALC40A681AD100
	820	22x40	259	186	1.68	2.31	ALC40A821AD100
	820	25x30	294	220	1.39	1.82	ALC40A821BB100
	1000	25x35	238	177	1.65	2.16	ALC40A102BC100
	1200	25x40	198	147	1.93	2.53	ALC40A122BD100
	1200	30x30	245	191	1.57	2.01	ALC40A122CB100
	1500	30x35	195	151	1.90	2.44	ALC40A152CC100
	1800	30x40	162	125	2.18	2.80	ALC40A182CD100
	2200	30x50	123	94	2.82	3.63	ALC40A222CF100
	2200	35x35	177	142	2.10	2.67	ALC40A222DC100
	2700	35x40	146	118	2.41	3.07	ALC40A272DD100
	3300	35x50	108	86	3.12	3.97	ALC40A332DF100

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

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Rated voltage	Cap μ F	Case Size	ESR m Ω at 20°C 100Hz	Impedance m Ω at 20 °C, 10 KHz	Ripple current A at 105°C 100 Hz	Ripple current A at 105°C 10 KHz	Type number
200V d.c. (230V surge)	220	22x30	644	442	0.88	1.41	ALC40A221AB200
	270	25x30	542	377	1.01	1.56	ALC40A271BB200
	330	22x40	428	294	1.21	1.95	ALC40A331AD200
	390	25x35	386	271	1.24	1.86	ALC40A391BC200
	470	25x40	320	224	1.45	2.19	ALC40A471BD200
	470	30x30	369	270	1.24	1.76	ALC40A471CB200
	560	30x35	301	219	1.50	2.13	ALC40A561CC200
	680	30x40	249	181	1.72	2.44	ALC40A681CD200
	820	30x50	196	140	2.18	3.16	ALC40A821CF200
	820	35x35	252	191	1.70	2.34	ALC40A821DC200
	1000	35x40	208	158	1.95	2.69	ALC40A102DD200
	1200	35x50	159	119	2.50	3.48	ALC40A122DF200
250V d.c. (287V surge)	150	22x30	823	552	0.76	1.32	ALC40A151AB250
	180	22x40	674	448	0.96	1.73	ALC40A181AD250
	220	22x40	559	374	1.04	1.82	ALC40A221AD250
	220	25x30	592	405	0.93	1.50	ALC40A221BB250
	270	25x35	480	327	1.10	1.77	ALC40A271BC250
	330	25x40	393	268	1.29	2.08	ALC40A331BD250
	330	30x30	441	312	1.13	1.69	ALC40A331CB250
	390	30x35	364	256	1.36	2.04	ALC40A391CC250
	470	30x40	302	212	1.56	2.34	ALC40A471CD250
	560	30x50	243	168	1.96	3.02	ALC40A561CF250
	560	35x35	297	217	1.57	2.25	ALC40A561DC250
	680	35x40	245	179	1.80	2.59	ALC40A681DD250
	820	35x50	190	137	2.29	3.34	ALC40A821DF250
	820	35x50	190	137	3.97	4.66	ALC40C821DF250
	1000	35x60	164	125	4.86	5.78	ALC40C102DH250
	1500	35x80	112	90	6.18	7.27	ALC40C152DL250
350V d.c. (385V surge)	82	22x30	1233	789	0.60	1.18	ALC40A820AB350
	100	22x40	1002	638	0.75	1.53	ALC40A101AD350
	120	22x40	841	537	0.81	1.62	ALC40A121AD350
	120	25x30	868	562	0.75	1.39	ALC40A121BB350
	150	25x35	694	449	0.89	1.64	ALC40A151BC350
	180	25x40	578	374	1.04	1.92	ALC40A181BD350
	180	30x30	618	410	0.95	1.60	ALC40A181CB350
	220	30x35	502	332	1.14	1.94	ALC40A221CC350
	270	30x40	410	272	1.31	2.22	ALC40A271CD350
	330	35x35	378	260	1.38	2.16	ALC40A331DC350
	390	30x50	287	191	1.73	2.89	ALC40A391CF350
	390	35x40	317	218	1.57	2.48	ALC40A391DD350
	470	35x50	251	170	1.98	3.19	ALC40A471DF350
	560	35x50	224	155	2.05	3.20	ALC40A561DF350
	470	35x50	251	170	3.38	4.72	ALC40C471DF350
	560	35x60	224	155	4.09	5.88	ALC40C561DH350
	820	35x80	150	102	5.22	7.47	ALC40C821DL350

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Rated voltage	Cap μ F	Case Size	ESR $m\Omega$ at 20°C 100Hz	Impedance $m\Omega$ at 20 °C, 10 KHz	Ripple current A at 105°C 100 Hz	Ripple current A at 105°C 10 KHz	Type number
400V d.c. (440V surge)	68	22x30	1717	1123	0.54	1.04	ALC40A680AB400
	82	22x40	1415	923	0.67	1.33	ALC40A820AD400
	100	22x40	1166	762	0.73	1.43	ALC40A101AD400
	100	25x30	1193	788	0.68	1.25	ALC40A101BB400
	120	25x35	991	653	0.79	1.46	ALC40A121BC400
	150	25x40	794	524	0.94	1.73	ALC40A151BD400
	150	30x30	835	562	0.87	1.47	ALC40A151CB400
	180	30x35	690	463	1.04	1.77	ALC40A181CC400
	220	30x40	565	379	1.19	2.03	ALC40A221CD400
	270	35x35	503	348	1.27	1.99	ALC40A271DC400
	330	30x50	383	258	1.59	2.66	ALC40A331CF400
	330	35x40	413	286	1.47	2.29	ALC40A331DD400
	390	35x50	335	229	1.83	2.94	ALC40A391DF400
	470	35x50	293	203	1.91	2.97	ALC40A471DF400
	390	35x50	335	229	3.09	4.66	ALC40C391DF400
	470	35x60	293	203	3.73	5.78	ALC40C471DH400
	680	35x80	200	131	4.75	7.36	ALC40C681DL400
450V d.c. (495V surge)	33	22x30	4211	2897	0.43	1.07	ALC40A330AB450
	47	22x40	2955	2032	0.54	1.37	ALC40A470AD450
	47	25x30	2977	2055	0.58	1.46	ALC40A470BB450
	56	25x35	2494	1720	0.55	1.26	ALC40A560BC450
	68	25x40	2055	1417	0.64	1.48	ALC40A680BD450
	68	30x30	2092	1453	0.75	1.74	ALC40A680CB450
	82	30x35	1730	1200	0.70	1.46	ALC40A820CC450
	100	30x40	1419	984	0.84	1.77	ALC40A101CD450
	120	35x35	1220	856	0.96	2.03	ALC40A121DC450
	150	30x50	951	661	1.20	2.60	ALC40A151CF450
	150	35x40	980	689	1.05	1.98	ALC40A151DD450
	180	35x50	804	562	1.21	2.27	ALC40A181DF450
	220	35x50	673	474	1.51	2.94	ALC40A221DF450
	220	35x50	550	278	2.28	4.71	ALC40C221DF450
	330	35x60	382	198	2.91	5.53	ALC40C331DH450
	470	35x80	268	138	3.70	7.08	ALC40C471DL450

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