

ALP/T20 SERIES

Board Mounting or Solder Tag Terminations

This range of Long Life grade capacitors, complements the larger ALS20/21 screw terminal range. It features low e.s.r., high ripple current ratings and outstandingly good high frequency impedance.

Capacitance range 22 μ F to 68,000 μ F

Capacitance tolerance -10% +30%, $\pm$ 20% (200V only)

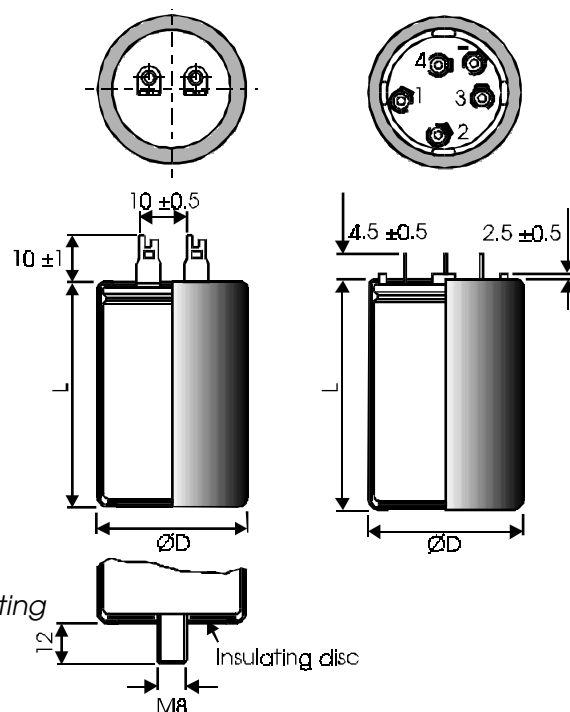
Voltage range 10V to 450V d.c.

Temperature range -40°C to +85°C

Case sizes 25 x 35mm to 40 x 105mm

ALT Tag style

ALP Pin style

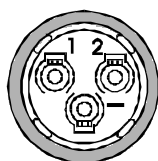


ALT21

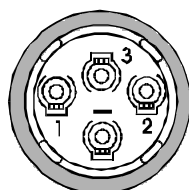
Stud Mounting

ALP Pin configurations

25mm dia can

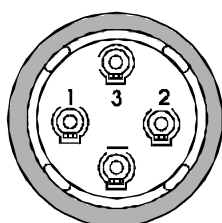


30mm dia can

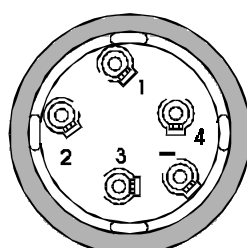


Hole 1 represents +ve

35mm dia can



40mm dia can



DIMENSIONS (sleeved) mm

CASE CODE	D $\pm$ 1	L $\pm$ 2	MOUNTING CLIP FOR ALT STYLE
AA	25	35	V2/H1
AB	25	45	V2/H1
BB	30	45	-
CB	35	45	V3/H2
CD	35	55	V3/H2
DB	40	45	V9
DD	40	55	V9
DE	40	75	V9
DF	40	105	V9

Max torque: stud M8:4NM

Terminations and Mounting

ALT styles are designed for flying lead connection.

ALP styles are designed for printed circuit board mounting to DIN 41238. For details see page 47.

For details of mounting clips and stud mounting kits see page 68/69.

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TECHNICAL DATA

Related documents

BS CECC 30301-033
DIN 41240 & 41238 & 41496-7
IEC 384-4

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

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 multipliers should be applied to the 100Hz ripple current.

RATED VOLTAGE d.c.	FREQUENCY (Hz)				
	50	100	500	1k	$\geq 10k$
0 - 25	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)
25	12000
30	15000
35	18000
40	26000

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 $m\Omega$ at 20°C 100Hz	Impedance $m\Omega$ at 20 °C, 10 KHz	Ripple current A at 85°C 100 Hz	Type number (Excluding style ref)
10V d.c. (11.5V surge)	4700	25x35	74	50	2.6	AL-20A472AA010
	6800	25x45	51	37	3.4	AL-20A682AB010
	10000	30x45	39	29	4.3	AL-20A103BB010
	15000	35x45	35	26	5.0	AL-20A153CB010
	22000	35x55	27	21	6.2	AL-20A223CD010
	22000	40x45	36	27	5.4	AL-20A223DB010
	33000	40x55	29	22	6.5	AL-20A333DD010
	47000	40x75	20	17	8.8	AL-20A473DE010
	68000	40x105	15	14	11.6	AL-20A683DF010
16V d.c. (18.5V surge)	3300	25x35	75	50	2.5	AL-20A332AA016
	4700	25x45	52	37	3.4	AL-20A472AB016
	6800	30x45	40	30	4.3	AL-20A682BB016
	10000	35x45	36	27	4.9	AL-20A103CB016
	15000	35x55	28	21	6.0	AL-20A153CD016
	15000	40x45	36	27	5.4	AL-20A153DB016
	22000	40x55	29	22	6.5	AL-20A223DD016
	33000	40x75	20	17	8.8	AL-20A333DE016
	47000	40x105	15	14	11.6	AL-20A473DF016
25V d.c. (28.5V surge)	2200	25x35	78	52	2.5	AL-20A222AA025
	3300	25x45	53	38	3.3	AL-20A332AB025
	4700	30x45	42	31	4.2	AL-20A472BB025
	6800	35x45	37	28	4.9	AL-20A682CB025
	10000	35x55	28	21	6.0	AL-20A103CD025
	10000	40x45	36	27	5.4	AL-20A103DB025
	15000	40x55	29	22	6.5	AL-20A153DD025
	22000	40x75	20	17	8.8	AL-20A223DE025
	33000	40x105	15	14	11.6	AL-20A333DF025
40V d.c. (46V surge)	1500	25x35	112	68	2.0	AL-20A152AA040
	2200	25x45	76	51	2.8	AL-20A222AB040
	3300	30x45	57	41	3.6	AL-20A332BB040
	4700	35x45	48	35	4.3	AL-20A472CB040
	6800	35x55	36	27	5.4	AL-20A682CD040
	6800	40x45	45	33	4.8	AL-20A682DB040
	10000	40x55	35	27	5.9	AL-20A103DD040
	15000	40x75	25	20	7.8	AL-20A153DE040
	22000	40x105	18	16	10.6	AL-20A223DF040
63V d.c. (72.5V surge)	1000	25x35	122	74	2.0	AL-20A102AA063
	1500	25x45	83	54	2.7	AL-20A152AB063
	2200	30x45	57	41	3.5	AL-20A222BB063
	3300	35x45	48	35	4.3	AL-20A332CB063
	4700	35x55	36	27	5.4	AL-20A472CD063
	4700	40x45	45	33	4.8	AL-20A472DB063
	6800	40x55	35	27	5.9	AL-20A682DD063
	10000	40x75	25	20	7.8	AL-20A103DE063
	15000	40x105	19	16	10.3	AL-20A153DF063
100V d.c. (115V surge)	470	25x35	342	300	1.2	AL-20A471AA100
	680	25x45	229	210	1.7	AL-20A681AB100
	1000	30x45	160	150	2.2	AL-20A102BB100
	1500	35x45	117	120	2.8	AL-20A152CB100
	2200	35x55	84	90	3.5	AL-20A222CD100
	2200	40x45	96	110	3.3	AL-20A222DB100
	3300	40x55	70	75	4.1	AL-20A332DD100
	4700	40x75	49	55	5.6	AL-20A472DE100
	6800	40x105	34	40	7.7	AL-20A682DF100

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

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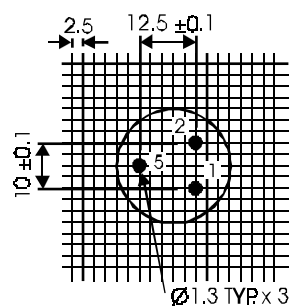
Board Mounting or Solder Tag Terminations

Rated voltage	Cap μF	Case Size	ESR $\text{m}\Omega$ at 20°C 100Hz	Impedance $\text{m}\Omega$ at 20 °C, 10 KHz	Ripple current A at 85°C 100 Hz	Type number (Excluding style ref)
200V d.c. (230V surge)	150	25x35	1000	770	0.75	AL-20A151AA200
	220	25x45	680	525	1.00	AL-20A221AB200
	330	30x45	460	360	1.29	AL-20A331BB200
	470	35x45	320	250	1.67	AL-20A471CB200
	680	35x55	220	170	2.22	AL-20A681CD200
	680	40x45	220	170	2.25	AL-20A681DB200
	1000	40x55	130	115	3.00	AL-20A102DD200
	1500	40x75	90	85	4.15	AL-20A152DE200
	2200	40x105	60	60	5.88	AL-20A222DF200
250V d.c. (287V surge)	100	25x35	1800	1300	0.60	AL-20A101AA250
	150	25x45	1100	850	0.80	AL-20A151AB250
	220	30x45	750	550	1.00	AL-20A221BB250
	330	35x45	500	400	1.40	AL-20A331CB250
	470	35x55	360	290	1.80	AL-20A471CD250
	470	40x45	420	350	1.80	AL-20A471DB250
	680	40x55	250	190	2.30	AL-20A681DD250
	1000	40x75	170	140	3.00	AL-20A102DE250
	1500	40x105	130	120	3.90	AL-20A152DF250
400V d.c. (440V surge)	47	25x35	2800	2200	0.40	AL-20A470AA400
	68	25x45	1700	1350	0.60	AL-20A680AB400
	100	30x45	1100	850	0.80	AL-20A101BB400
	150	35x45	725	525	1.10	AL-20A151CB400
	220	35x55	500	350	1.40	AL-20A221CD400
	220	40x45	600	420	1.30	AL-20A221DB400
	330	40x55	340	230	1.90	AL-20A331DD400
	470	40x75	240	160	2.80	AL-20A471DE400
	680	40x105	230	160	3.00	AL-20A681DF400
450V d.c. (495V surge)	22	25x35	7000	5000	0.26	AL-20A220AA450
	33	25x35	5000	3600	0.31	AL-20A330AA450
	47	25x35	3500	2800	0.37	AL-20A470AA450
	68	25x45	3000	2000	0.50	AL-20A680AB450
	100	30x45	2000	1500	0.65	AL-20A101BB450
	150	35x55	1500	950	0.83	AL-20A151CD450
	220	40x55	900	650	1.16	AL-20A221DD450
	330	40x75	550	420	1.67	AL-20A331DE450
	470	40x105	500	300	2.10	AL-20A471DF450

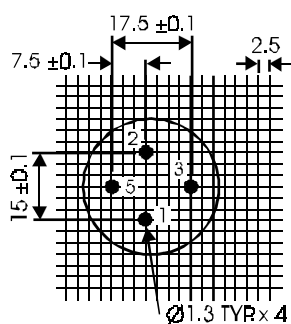
Note: Values of E.S.R. and Impedance quoted above are maximum

ALP Mounting (DIN 41238)

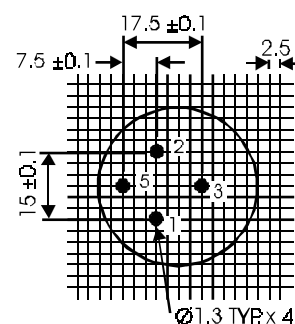
25mm dia can



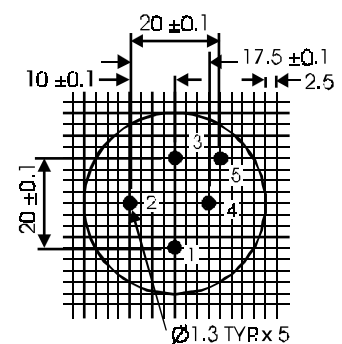
30mm dia can



35mm dia can



40mm dia can



Additional dummy pins are provided for stability. Note that the case and dummy pins may be at negative terminal potential.

(Printed circuit board hole positions). Viewed from component side.

Connections Hole 1 represents +ve
Hole 5 represents -ve

Terminals 2,3 and 4 may be at negative terminal potential due to the presence of electrolyte. They are intended for mechanical connections only. It is recommended that they are soldered to the printed circuit board.