ALC42 Series 105°C

RoHS Compliant

- Compact Size
- 2000 hours at 105 °C (Ur, Ir applied)
- Excellent surge voltage capability
- Optimized designs available on request

APPLICATION

Designed for applications where high reliability and compact sizes are important such as switch mode power supplies and frequency converters.

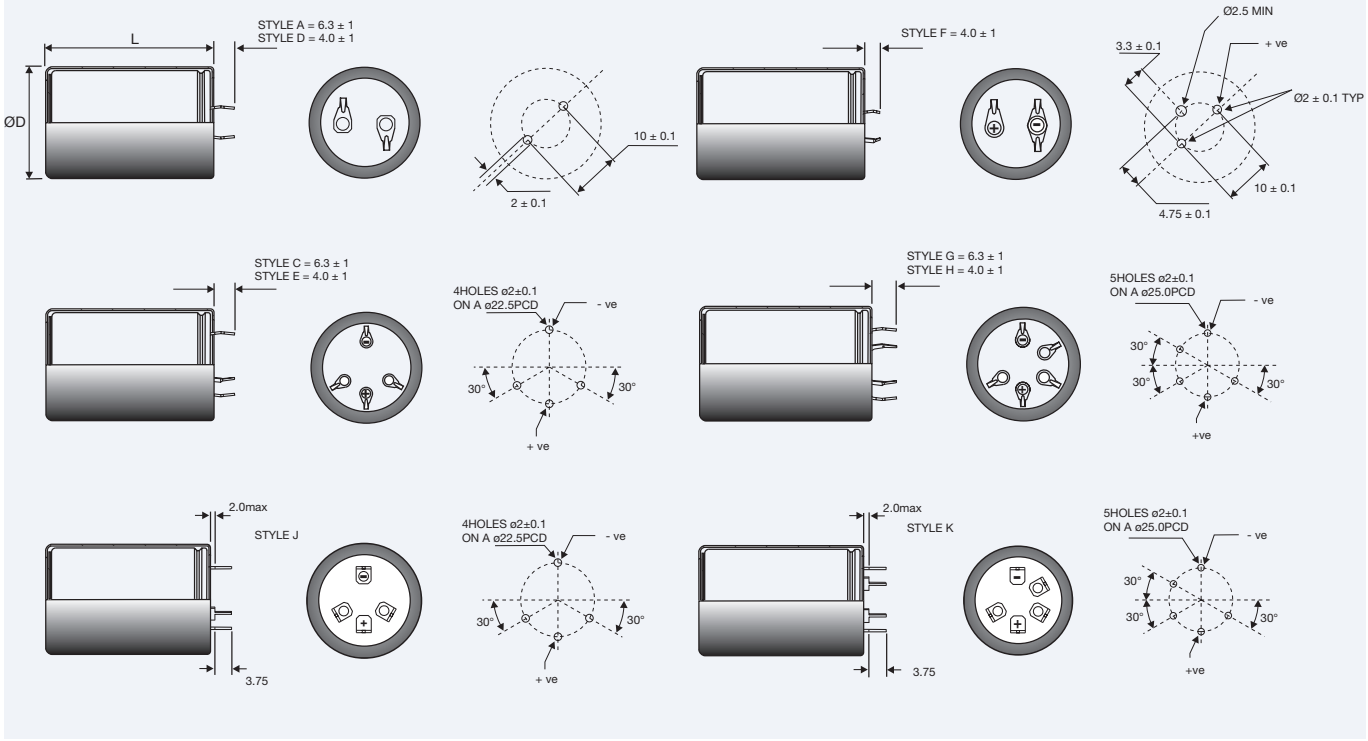
BASIC DESIGN

The ALC42 (105°C) is a high CV snap-in version of the ALC40 range.

SPECIFICATION

Standards	IEC 60384-4 Long Life Grade 40/105/56,	
Capacitance range	120 – 6800 µF	
Capacitance tolerance	–20 to +20%	
Rated voltage U_R	200 - 450 VDC	
Surge voltage U_S	1.15 x U_R (for $U_R \leq$ 250 VDC) 1.10 x U_R (for $U_R \geq$ 350 VDC)	Test Condition: ≤ 30s surge, 1000 cycles @ 105°C
Surge voltage U_{SS} (Short duration)	U_R / U_{SS} 200 / 350 250 / 400 350 / 500 400 / 520 415 / 530 450 / 550 500 / 600	Test Condition: ≤ 500ms surge, 100 cycles @ 20°C
Leakage current I_L	= 0.003 x C_R x U_R (µA) or 6mA whichever is the smaller. Note, C_R is in µF.	Test Condition: U_R, 5mins., 20°C
Operational life time +105°C, U_R , I_R	Can Diameter 30, 35, 40, 45, 50 2000 hrs	End of Life requirement: ΔC/C ≤ ±10% ESR ≤ 2 x initial ESR value I_L ≤ initial specified limit
+105°C, U_R	Can Diameter 30, 35, 40, 45, 50 11000 hrs	
Shelf Life	2000 hrs at 0V +85°C, or 30000 hrs at 0V +40°C	
Temperature range	–40 to +105°C (Operating) -55°C to +105°C (Storage)	

SPECIFICATION



Mounting

These capacitors are designed to be mounted by their terminations alone, and may be used in any position.
Dummy pins must be isolated on 4 and 5 pin styles.

Terminal Style

Description Pin length Code DIA. mm -0+1	2 pin 6.3±1 A	2 pin 4.0±1 D	3 pin 4.0±1 F	4 pin 6.3±1 C	4 pin 4.0±1 E	5 pin 6.3±1 G	5 pin 4.0±1 H	4 pin 5.75 J	5 pin 5.75 K
30	•	•	•						
35	•	•	•	•	•			•	
40	•	•	•	•	•	•	•		•
45				•	•	•	•		
50				•	•	•	•		•

CASE CODE (COMPONENT WEIGHT grams - nominal)

Length mm ±2 Dia. mm -0+1	30	35	40	45	50	55	60	80	105
30	CB (35)	CC (40)	CD (45)	CE (50)	CF (55)				
35	DB (42)	DC (50)	DD (55)	DE (65)	DF (70)	DG (75)	DH (80)	DL (105)	
40	EB (49)	EC (57)	ED (65)	EE (80)	EF (82)	EG (95)	EH (98)	EL (131)	EP (170)
45	FB (62)	FC (72)	FD (82)	FE (92)	FF (103)	FG (113)	FH (123)	FL (164)	FP (215)
50	KB (75)	KC (88)	KD (100)	KE (113)	KF (126)	KG (138)	KH (151)	KL (201)	KP (264)

Other sizes available upon request

Not for new design. Use PEH532, PEH534 or ELG Series.

ARTICLE TABLE ALC42 (105°C)

Cap (µF)	Case Size (mm)	ESR (mΩ) at 20°C 100Hz (max)	Impedance (mΩ) at 20°C 10 KHz (max)	Ripple current(A) at 105°C		Type number
				100 Hz	10 KHz	
200 VDC (U_R)						
560	30x30	328	213	1.78	2.88	ALC42A561CB200
680	30x35	266	171	2.09	3.46	ALC42A681CC200
820	30x40	220	142	2.44	4.04	ALC42A821CD200
1000	35x35	213	148	2.58	3.61	ALC42A102DC200
1000	40x30	252	186	2.26	2.87	ALC42A102EB200
1200	30x50	156	102	3.14	4.98	ALC42A122CF200
1200	35x40	176	122	2.97	4.17	ALC42A122DD200
1200	40x35	199	145	2.73	3.55	ALC42A122EC200
1500	35x50	137	93	3.64	5.24	ALC42A152DF200
1500	40x40	163	119	3.15	4.07	ALC42A152ED200
1800	40x45	138	101	3.54	4.53	ALC42A182EE200
2200	35x60	105	75	4.21	5.60	ALC42A222DH200
2200	40x50	119	89	3.92	4.91	ALC42A222EF200
2200	40x55	109	79	4.24	5.52	ALC42A222EG200
2700	35x80	89	65	5.06	7.01	ALC42A272DL200
2700	40x60	99	74	4.49	5.57	ALC42A272EH200
3300	40x80	81	61	5.52	7.16	ALC42A332EL200
4700	40x105	46	32	8.22	12.69	ALC42A472EP200
5600	45x105	41	29	8.68	12.61	ALC42G562FP200
6800	50x105	36	26	9.09	12.39	ALC42G682KP200
250 VDC (U_R)						
390	30x30	442	285	1.59	2.81	ALC42A391CB250
470	30x35	362	232	1.86	3.36	ALC42A471CC250
560	30x40	303	194	2.16	3.92	ALC42A561CD250
680	35x35	278	187	2.36	3.64	ALC42A681DC250
680	40x30	313	221	2.12	2.95	ALC42A681EB250
820	30x50	212	137	2.80	4.87	ALC42A821CF250
820	35x40	230	155	2.72	4.19	ALC42A821DD250
820	40x35	251	175	2.55	3.62	ALC42A821EC250
1000	40x40	206	144	2.95	4.18	ALC42A102ED250
1200	35x50	160	110	3.40	5.04	ALC42A122DF250
1200	40x45	174	122	3.31	4.65	ALC42A122EE250
1500	35x60	134	92	3.90	5.66	ALC42A152DH250
1500	40x50	146	104	3.70	5.02	ALC42A152EF250
1800	35x80	105	70	4.64	7.19	ALC42A182DL250
1800	40x55	127	92	4.01	5.31	ALC42A182EG250
2700	40x80	84	60	5.28	7.02	ALC42A272EL250
3300	40x105	53	34	7.47	12.71	ALC42A332EP250
4700	45x105	41	28	8.32	12.45	ALC42G472FP250
5600	50x105	37	26	8.70	12.21	ALC42G562KP250
350 VDC (U_R)						
220	30x30	704	461	1.34	2.74	ALC42A221CB350
270	30x35	571	373	1.57	3.26	ALC42A271CC350
330	30x40	468	306	1.84	3.80	ALC42A331CD350
390	35x35	420	282	2.06	3.65	ALC42A391DC350
390	40x30	451	311	1.91	3.01	ALC42A391EB350
470	30x50	332	218	2.37	4.75	ALC42A471CF350
470	35x40	349	234	2.37	4.20	ALC42A471DD350
560	40x35	328	230	2.34	3.51	ALC42A561EC350
680	35x50	246	166	2.98	5.09	ALC42A681DF350
680	40x40	270	189	2.71	4.06	ALC42A681ED350
820	35x60	204	140	3.40	5.75	ALC42A821DH350
820	40x50	216	149	3.31	5.19	ALC42A821EF350
1000	40x55	182	127	3.63	5.48	ALC42A102EG350
1200	35x80	140	96	4.21	7.01	ALC42A122DL350
1200	40x60	160	114	3.83	5.62	ALC42A122EH350
1500	40x80	120	84	4.76	7.20	ALC42A152EL350
2200	40x105	72	48	6.71	12.34	ALC42A222EP350

Termination Style A,C,D,E,F,G,H,J or K *

ARTICLE TABLE ALC42 (105°C)

Cap (µF)	Case Size (mm)	ESR (mΩ) at 20°C 100Hz (max)	Impedance (mΩ) at 20°C 10 KHz (max)	Ripple current(A) at 105°C		Type number
				100 Hz	10 KHz	
350 VDC (U_R)						
2700	45x105	62	41	7.26	12.35	ALC42G272FP350
3300	50x105	53	36	7.77	12.21	ALC42G332KP350
400 VDC (U_R)						
180	30x30	733	467	1.28	2.73	ALC42A181CB400
220	30x35	587	375	1.49	3.25	ALC42A221CC400
270	30x40	488	310	1.75	3.79	ALC42A271CD400
330	35x35	426	280	1.99	3.61	ALC42A331DC400
330	40x30	458	308	1.84	2.96	ALC42A331EB400
390	30x50	342	218	2.28	4.74	ALC42A391CF400
390	35x40	360	235	2.21	4.17	ALC42A391DD400
390	40x35	377	251	2.18	3.65	ALC42A391EC400
470	40x40	313	208	2.52	4.22	ALC42A471ED400
560	35x50	250	164	2.88	5.06	ALC42A561DF400
560	40x45	264	176	2.84	4.71	ALC42A561EE400
680	35x60	211	139	3.27	5.72	ALC42A681DH400
680	40x50	222	149	3.19	5.14	ALC42A681EF400
820	40x55	189	128	3.50	5.45	ALC42A821EG400
1000	35x80	145	96	4.06	6.96	ALC42A102DL400
1200	40x80	128	86	4.56	7.20	ALC42A122EL400
1800	40x105	76	49	6.41	12.32	ALC42A182EP400
2200	45x105	65	42	6.96	12.32	ALC42G222FP400
2700	50x105	55	37	7.48	12.17	ALC42G272KP400
450 VDC (U_R)						
120	30x30	918	580	1.13	2.69	ALC42A121CB450
180	30x35	622	396	1.40	3.20	ALC42A181CC450
220	30x40	510	324	1.69	3.73	ALC42A221CD450
220	35x35	525	335	1.80	3.66	ALC42A221DC450
270	30x50	412	262	2.06	4.67	ALC42A271CF450
270	35x40	428	275	2.08	4.19	ALC42A271DD450
270	40x30	476	320	1.78	2.90	ALC42A271EB450
330	40x35	385	257	2.13	3.54	ALC42A331EC450
390	40x40	323	215	2.44	4.12	ALC42A391ED450
470	35x50	260	171	2.78	4.94	ALC42A471DF450
470	40x45	270	180	2.70	4.59	ALC42A471EE450
560	40x50	230	154	3.02	5.03	ALC42A561EF450
680	35x80	187	125	3.69	6.88	ALC42A681DL450
680	40x60	191	128	3.55	5.73	ALC42A681EH450
820	40x80	161	109	4.20	7.21	ALC42A821EL450
1200	40x105	102	66	5.70	11.82	ALC42A122EP450
1500	45x105	84	55	6.29	12.03	ALC42G152FP450
1800	50x105	72	48	6.79	12.07	ALC42G182KP450

Termination Style A,C,D,E,F,G,H,J or K *

OPERATIONAL DATA

Operational Lifetime
Please see separate BHC application notes TD003 for calculating operational life expectancy under customer specific conditions.

RELIABILITY

The failure rate is derived from our periodic test results. The failure rate (λ_R) is therefore only given at test temperature for life tests. An estimation is also given at 40°C. The expected failure rate for this capacitor range is based on our periodic test results for capacitors with structural similarity. Failure rate is frequently quoted in FIT (Failures In Time) where 1 FIT = 1 x 10^{-9} failures per hour.

T_a	Failure rate per hour
85°C	230 FIT
40°C	11 FIT

Failure rate per hour for catastrophic plus parametric failures.

MECHANICAL DATA

Mounting position
The capacitor can be mounted upright or inclined to a horizontal position.

Vibration
10Hz to 500Hz at 0.75mm or 10g for 3x2hrs duration. 10Hz to 55Hz at 0.35mm or 5g for 3x0.5hrs duration (45/50mm diameter cans).

Insulating resistance
≥ 100 Mohms at 100V d.c., across insulating sleeve.

Voltage Proof
≥ 2500V d.c., across insulating sleeve.

Safety vent
A safety vent for over pressure is featured on either the base (opposing end to the terminals) or on the the side of the can. This is in the form of a grooved section on the surface of the can which is a weakened area and is designed to relieve build up of internal pressure due to over stress or catastrophic failure.

Statements of suitability for certain applications are based on our knowledge of typical operating conditions for such applications, but are not intended to constitute – and we specifically disclaim – any warranty concerning suitability for a specific customer application or use. This Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by us with reference to the use of our products is given gratis, and we assume no obligation or liability for the advice given or results obtained.