Type AXLH -40 ºC to +150 ºC

High Temperature Axial Leaded Aluminum Electrolytic Capacitors

High Performance Axial Leaded Aluminum Electrolyic Capacitors

Type AXLH capacitors are a new generation of high performance aluminum electrolytic capacitors rated up to 2000 hours at 150 ºC. They are designed for applications that place high demands on a capacitor. The capacitor's outstanding features include low ESR, low leakage current, a long shelf life and a high ripple current capability.

Highlights

- 150 °C Operating Temperature
- Up to 28 Amps RMS Continuous Ripple Current
- Capacitance Range: 470 µF to 4700 µF
- High Vibration Resistance
- Very Long Shelf Life
- Low Leakage Current

Specifications

Capacitance Range (100 Hz/+20 ºC)	470 to 4700 µF
Capacitance Tolerance (100 Hz/+20 ºC)	-10/+30%
Rated Voltage	25, 40, 63 Vdc
Operating Temperature	-40 ºC to +150 ºC
Leakage Current (at 20°C)	I = 0.003 CV +4.0 µA; after 5 minutes at rated voltage I = leakage current in µAmps C = rated capacitance in µF V = rated DC Working voltage in Volts
Ripple Current vs. Frequency Correction Factors	Frequency (Hz): 100 / 300 / 1000 / 5000 / 100 kHz Ripple Current Correction Factor: 0.35 / 0.57 / 0.8 / 1 / 1.04
Shelf Life	(+105 ºC/0 Vdc): 5000 hours (+40 ºC/0 Vdc): 10 years
Standard	IEC 60384-4 long life grade 40/125/56
RoHS Compliant	

Part Numbering System

AXLH	222	P	025	E	D
Type	**Capacitance**	**Capacitance Tolerance**	**Voltage Code**	**Case Dia.Code**	**Case Length Code**
	222 = 2200 µF	P = -10/+30%	025 = 25 Vdc 040 = 40 Vdc 063 = 63 Vdc	E = 20 mm	D = 27 mm H = 35 mm L = 43 mm

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Load Life Test

Test	Mount the capacitor on a heat sink with a low thermal resistance path. Apply the maximum rated voltage for 2000 hrs at +150°C with the +150°C maximum ripple current applied to the capacitor. After the test, measure the capacitance, ESR, and DCL at +20°C.
ΔC	Capacitance will be within ±15% of the initial value
ESR	ESR will be less than 2 times the initial value
DCL	The leakage current will be within the specified value
Appearance	No electrolyte leakage or other visible damage. The markings will be legible.

Vibration Test

Test	Clamp the case to the test fixture. Frequency range is 10 - 2000 Hz. Amplitude of 1.5mm or 20 g acceleration. Duration of test is 22 hours in each of three directions. After the test, measure the capacitance at +20°C.
ΔC	Capacitance change from the initial measurement must not exceed 5%.
Appearance	No electrolyte leakage or other visible damage.

Surge Voltage Test

Test	Subject the capacitor to 1000 surge voltage cycles at +150°C. For each cycle, apply 1.15 times the rated voltage for 30 seconds followed by no voltage for 5 min. and 30 seconds. The time constant for charging is 0.1 seconds. After one to two hours, measure the capacitance and esr.
ΔC	Capacitance change from the initial measurement must not exceed 15%.
ESR	The ESR will be < 2x initial value.
Appearance	No electrolyte leakage or other visible damage.

Storage at Low Temperature Test

Test	Subject the capacitor to 72 hours at -55°C. After 16 hours at room temperature, measure the capacitance and DCL.
ΔC	Capacitance change from the initial measurement must not exceed 10%.
DCL	Leakage current will meet the initial specification.
Appearance	No electrolyte leakage or other visible damage. The markings are to be legible.

Charge and Discharge Test

Test	Subject the capacitor to 1 million charge/discharge cycles at +20°C. For each cycle, apply the rated voltage for 0.5 seconds using a 0.1 second charge/discharge time constant. After the test, the following will apply;
ΔC	Capacitance will be within ±10% of the initial value.
Appearance	No electrolyte leakage or other visible damage.

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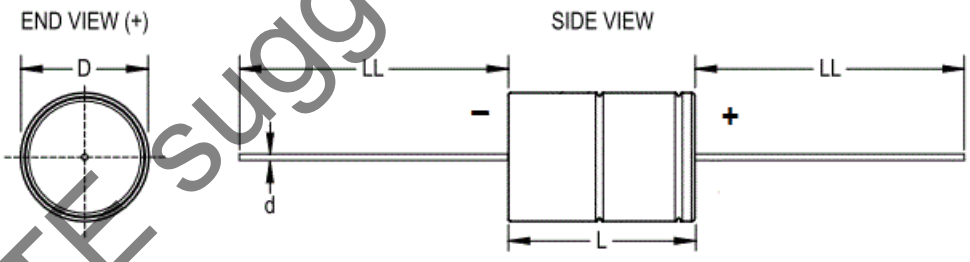
Ratings

Rated Capacitance 100Hz/+20°C (µF)	Capacitance Tolerance (%)	VDC	Cornell Dubilier Part Number	Case Size D x L (mm)	Max. ESR 100 Hz/+20°C (mΩ)	Max. ESR 100 kHz/+20°C (mΩ)	Rated Ripple Current ≥ 5kHz/+125°C (A)	Maximum Ripple Current ≥ 5kHz/+125°C (A)
2200	-10/+30	25	AXLH222P025ED	20 x 27	50	25	7.1	9.1
3300	-10/+30	25	AXLH332P025EH	20 x 35	34	17	8.9	11.3
4700	-10/+30	25	AXLH472P025EL	20 x 43	25	13	10.3	13.1
1500	-10/+30	40	AXLH152P040ED	20 x 27	57	22	7.3	9.3
2200	-10/+30	40	AXLH222P040EH	20 x 35	41	17	8.9	11.2
2700	-10/+30	40	AXLH272P040EL	20 x 43	32	13	10.1	12.8
470	-10/+30	63	AXLH471P063ED	20 x 27	125	32	5.5	7.0
680	-10/+30	63	AXLH681P063EH	20 x 35	87	23	6.9	8.7
900	-10/+30	63	AXLH901P063EL	20 x 43	67	18	8.1	10.2

Outline Drawings & Dimensions Table



Size Code	Dimensions in mm				Approximate Weight (grams)
	D	L	d	LL	
	± 0.5	± 1	± 0.03	±2	
ED	20	26.5	1	40	13
EH	20	34.5	1	40	20
EL	20	42.5	1	40	24

Note: Bend leads at least 3.5 mm from the case.

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Heat-Sinked Ratings

Cornell Dubilier Part Number	Max. ESR 5-100 kHz 125-150°C (mΩ)	Maximum Ripple Current *		
		≥ 5 kHz/+125°C (A)	≥ 5 kHz/+140°C (A)	≥ 5 kHz/+150°C (A)
AXLH222P025ED	10.6	22.2	14	6.3
AXLH332P025EH	7.8	25.8	16.3	7.3
AXLH472P025EL	6.4	28.5	18	8.1
AXLH152P040ED	10	22.8	14.4	6.5
AXLH222P040EH	7.9	25.7	16.2	7.3
AXLH272P040EL	6.7	27.9	17.6	7.9
AXLH471P063ED	17.5	17.3	10.9	4.9
AXLH681P063EH	13	20	12.7	5.7
AXLH901P063EL	10.6	22.2	14	6.3

* When the capacitor is mounted to a heat-sink using low thermal resistance path.

Capacitor Markings

Marking	Description
-- CDM ++	Logo, Polarity Marks
AXLH222P025ED	CDE Part Number
2200 uF 25VDC	Capacitance, Rated Voltage (VDC)
160603	Date Code (Year, Week), Batch Number

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