



LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

LHU Series Upgrade!

- Lineup of high withstand voltage products for server power supplies and solar power generation applications
- Endurance with ripple current : 5,000 hours at 105°C
- Rated voltage range:400 to 500V, Capacitance range:120 to 1,910μF
- Non solvent resistant type
- RoHS2 Compliant

LHU

↑ Downsizing

LHS

↑ Downsizing

LXS

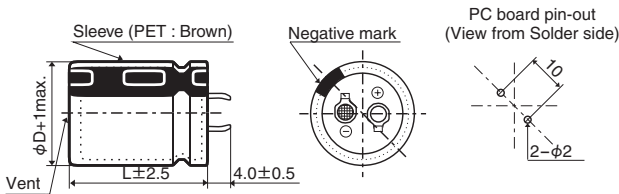


◆ SPECIFICATIONS

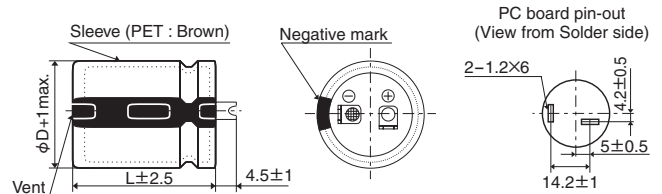
Items	Characteristics	
Category	-40 to +105°C	
Temperature Range	-40 to +105°C	
Rated Voltage Range	400 to 500V _{dc}	
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I ≤ 3/CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	400 to 500V
	tan δ (Max.)	0.20 (at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	400 to 500V
	Z(-25°C)/Z(+20°C)	8 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105°C.	
	Capacitance change	≤ ±20% of the initial value
	D.F. (tan δ)	≤ 200% of the initial specified value
	Leakage current	≤ The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.	
	Capacitance change	≤ ±15% of the initial value
	D.F. (tan δ)	≤ 150% of the initial specified value
	Leakage current	≤ The initial specified value

◆ DIMENSIONS [mm]

● Terminal Code : VS (φ25.4 to φ35) : Standard

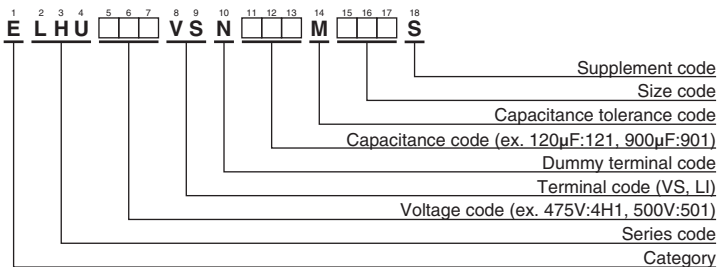


● Terminal Code : LI (φ30, φ35)



The standard design has no plastic disc.

◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"



LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

LHU *Upgrade!*
Series

◆ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	
400	380	25.4 × 35	0.20	1.58	ELHU401VSN381MQ35S	420	960	30 × 55	0.20	2.73	ELHU421VSN961MR55S	
	450	25.4 × 40	0.20	1.75	ELHU401VSN451MQ40S		980	35 × 45	0.20	2.45	ELHU421VSN981MA45S	
	460	35 × 25	0.20	1.53	ELHU401VSN461MA25S		1,040	30 × 60	0.20	2.90	ELHU421VSN1A2MR60S	
	470	30 × 30	0.20	1.71	ELHU401VSN471MR30S		1,100	30 × 65	0.20	3.04	ELHU421VSN112MR65S	
	520	25.4 × 45	0.20	1.92	ELHU401VSN521MQ45S		1,120	35 × 50	0.20	2.68	ELHU421VSN112MA50S	
	580	30 × 35	0.20	1.94	ELHU401VSN581MR35S		1,180	30 × 70	0.20	3.20	ELHU421VSN122MR70S	
	590	25.4 × 50	0.20	2.08	ELHU401VSN591MQ50S		1,250	30 × 75	0.20	3.35	ELHU421VSN1C2MR75S	
	600	35 × 30	0.20	1.78	ELHU401VSN601MA30S		1,260	35 × 55	0.20	2.86	ELHU421VSN1C2MA55S	
	660	25.4 × 55	0.20	2.24	ELHU401VSN661MQ55S		1,340	30 × 80	0.20	3.52	ELHU421VSN1D2MR80S	
	680	30 × 40	0.20	2.16	ELHU401VSN681MR40S		1,400	35 × 60	0.20	3.04	ELHU421VSN142MA60S	
	720	25.4 × 60	0.20	2.38	ELHU401VSN721MQ60S		1,420	35 × 65	0.20	3.12	ELHU421VSN1A2MR65S	
	750	35 × 35	0.20	2.02	ELHU401VSN751MA35S		1,550	35 × 70	0.20	3.32	ELHU421VSN1F2MA70S	
	790	30 × 45	0.20	2.39	ELHU401VSN791MR45S		1,680	35 × 75	0.20	3.51	ELHU421VSN172MA75S	
	890	35 × 40	0.20	2.28	ELHU401VSN891MA40S		1,810	35 × 80	0.20	3.71	ELHU421VSN182MA80S	
	900	30 × 50	0.20	2.60	ELHU401VSN901MR50S		450	320	25.4 × 35	0.20	1.45	ELHU451VSN321MQ35S
	1,010	30 × 55	0.20	2.80	ELHU401VSN102MR55S			390	25.4 × 40	0.20	1.63	ELHU451VSN391MQ40S
	1,040	35 × 45	0.20	2.53	ELHU401VSN1A2MA45S			390	35 × 25	0.20	1.41	ELHU451VSN391MA25S
	1,090	30 × 60	0.20	2.97	ELHU401VSN112MR60S			400	30 × 30	0.20	1.57	ELHU451VSN401MR30S
	1,160	30 × 65	0.20	3.12	ELHU401VSN1B2MR65S			450	25.4 × 45	0.20	1.79	ELHU451VSN1451MQ45S
	1,180	35 × 50	0.20	2.75	ELHU401VSN122MA50S			490	30 × 35	0.20	1.78	ELHU451VSN491MR35S
1,240	30 × 70	0.20	3.28	ELHU401VSN1C2MR70S	510	25.4 × 50		0.20	1.94	ELHU451VSN511MQ50S		
1,310	30 × 75	0.20	3.43	ELHU401VSN132MR75S	520	35 × 30		0.20	1.66	ELHU451VSN521MA30S		
1,320	35 × 55	0.20	2.93	ELHU401VSN132MA55S	570	25.4 × 55		0.20	2.08	ELHU451VSN571MQ55S		
1,410	30 × 80	0.20	3.61	ELHU401VSN142MR80S	590	30 × 40		0.20	2.02	ELHU451VSN591MR40S		
1,470	35 × 60	0.20	3.11	ELHU401VSN1E2MA60S	620	25.4 × 60		0.20	2.21	ELHU451VSN621MQ60S		
1,500	35 × 65	0.20	3.21	ELHU401VSN152MA65S	640	35 × 35		0.20	1.87	ELHU451VSN641MA35S		
1,630	35 × 70	0.20	3.40	ELHU401VSN1G2MA70S	680	30 × 45		0.20	2.22	ELHU451VSN681MR45S		
1,770	35 × 75	0.20	3.61	ELHU401VSN1H2MA75S	770	30 × 50		0.20	2.40	ELHU451VSN771MR50S		
1,910	35 × 80	0.20	3.81	ELHU401VSN192MA80S	770	35 × 40		0.20	2.12	ELHU451VSN771MA40S		
420	360	25.4 × 35	0.20	1.54	ELHU421VSN361MQ35S	860		30 × 55	0.20	2.59	ELHU451VSN861MR55S	
	430	25.4 × 40	0.20	1.72	ELHU421VSN431MQ40S	890		35 × 45	0.20	2.34	ELHU451VSN891MA45S	
	430	35 × 25	0.20	1.48	ELHU421VSN431MA25S	940		30 × 60	0.20	2.76	ELHU451VSN941MR60S	
	440	30 × 30	0.20	1.65	ELHU421VSN441MR30S	1,010		30 × 65	0.20	2.91	ELHU451VSN102MR65S	
	490	25.4 × 45	0.20	1.87	ELHU421VSN491MQ45S	1,020		35 × 50	0.20	2.56	ELHU451VSN102MA50S	
	550	30 × 35	0.20	1.89	ELHU421VSN551MR35S	1,080	30 × 70	0.20	3.06	ELHU451VSN112MR70S		
	560	25.4 × 50	0.20	2.03	ELHU421VSN561MQ50S	1,140	30 × 75	0.20	3.20	ELHU451VSN1B2MR75S		
	570	35 × 30	0.20	1.74	ELHU421VSN571MA30S	1,140	35 × 55	0.20	2.72	ELHU451VSN1B2MA55S		
	630	25.4 × 55	0.20	2.19	ELHU421VSN631MQ55S	1,230	30 × 80	0.20	3.38	ELHU451VSN1C2MR80S		
	650	30 × 40	0.20	2.12	ELHU421VSN651MR40S	1,260	35 × 60	0.20	2.88	ELHU451VSN1C2MA60S		
	680	25.4 × 60	0.20	2.31	ELHU421VSN681MQ60S	1,300	35 × 65	0.20	2.98	ELHU451VSN132MA65S		
	710	35 × 35	0.20	1.97	ELHU421VSN711MA35S	1,410	35 × 70	0.20	3.16	ELHU451VSN142MA70S		
	750	30 × 45	0.20	2.33	ELHU421VSN751MR45S	1,530	35 × 75	0.20	3.35	ELHU451VSN1F2MA75S		
	850	30 × 50	0.20	2.52	ELHU421VSN851MR50S	1,650	35 × 80	0.20	3.54	ELHU451VSN1G2MA80S		
	850	35 × 40	0.20	2.23	ELHU421VSN851MA40S							



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◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.
475	150	25.4 × 25	0.20	1.03	ELHU4H1VSN151MQ25S	500	120	25.4 × 25	0.20	0.93	ELHU501VSN121MQ25S
	190	25.4 × 30	0.20	1.20	ELHU4H1VSN191MQ30S		160	25.4 × 30	0.20	1.10	ELHU501VSN161MQ30S
	220	30 × 25	0.20	1.32	ELHU4H1VSN221MR25S		180	30 × 25	0.20	1.20	ELHU501VSN181MR25S
	240	25.4 × 35	0.20	1.40	ELHU4H1VSN241MQ35S		200	25.4 × 35	0.20	1.28	ELHU501VSN201MQ35S
	270	35 × 25	0.20	1.48	ELHU4H1VSN271MA25S		240	25.4 × 40	0.20	1.43	ELHU501VSN241MQ40S
	280	25.4 × 40	0.20	1.54	ELHU4H1VSN281MQ40S		240	30 × 30	0.20	1.40	ELHU501VSN241MR30S
	290	30 × 30	0.20	1.54	ELHU4H1VSN291MR30S		240	35 × 25	0.20	1.37	ELHU501VSN241MA25S
	330	25.4 × 45	0.20	1.71	ELHU4H1VSN331MQ45S		280	25.4 × 45	0.20	1.57	ELHU501VSN281MQ45S
	360	30 × 35	0.20	1.75	ELHU4H1VSN361MR35S		300	30 × 35	0.20	1.60	ELHU501VSN301MR35S
	360	35 × 30	0.20	1.71	ELHU4H1VSN361MA30S		320	25.4 × 50	0.20	1.71	ELHU501VSN321MQ50S
	370	25.4 × 50	0.20	1.84	ELHU4H1VSN371MR50S		330	35 × 30	0.20	1.63	ELHU501VSN331MA30S
	420	25.4 × 55	0.20	1.99	ELHU4H1VSN421MQ55S		370	25.4 × 55	0.20	1.87	ELHU501VSN371MQ55S
	420	30 × 40	0.20	1.95	ELHU4H1VSN421MR40S		370	30 × 40	0.20	1.83	ELHU501VSN371MR40S
	450	35 × 35	0.20	1.94	ELHU4H1VSN451MA35S		410	25.4 × 60	0.20	2.00	ELHU501VSN411MQ60S
	460	25.4 × 60	0.20	2.12	ELHU4H1VSN461MQ60S		410	35 × 35	0.20	1.85	ELHU501VSN411MA35S
	490	30 × 45	0.20	2.16	ELHU4H1VSN491MR45S		430	30 × 45	0.20	2.02	ELHU501VSN431MR45S
	540	35 × 40	0.20	2.20	ELHU4H1VSN541MA40S		490	30 × 50	0.20	2.19	ELHU501VSN491MR50S
	560	30 × 50	0.20	2.34	ELHU4H1VSN561MR50S		490	35 × 40	0.20	2.09	ELHU501VSN491MA40S
	620	30 × 55	0.20	2.51	ELHU4H1VSN621MR55S		550	30 × 55	0.20	2.37	ELHU501VSN551MR55S
	630	35 × 45	0.20	2.43	ELHU4H1VSN631MA45S		580	35 × 45	0.20	2.33	ELHU501VSN581MA45S
	690	30 × 60	0.20	2.70	ELHU4H1VSN691MR60S		610	30 × 60	0.20	2.54	ELHU501VSN611MR60S
	710	30 × 65	0.20	2.79	ELHU4H1VSN711MR65S		650	30 × 65	0.20	2.67	ELHU501VSN651MR65S
	720	35 × 50	0.20	2.65	ELHU4H1VSN721MA50S		660	35 × 50	0.20	2.54	ELHU501VSN661MA50S
	770	30 × 70	0.20	2.96	ELHU4H1VSN771MR70S		710	30 × 70	0.20	2.84	ELHU501VSN711MR70S
810	35 × 55	0.20	2.87	ELHU4H1VSN811MA55S	740	35 × 55	0.20	2.74	ELHU501VSN741MA55S		
840	30 × 75	0.20	3.14	ELHU4H1VSN841MR75S	770	30 × 75	0.20	3.01	ELHU501VSN771MR75S		
900	30 × 80	0.20	3.31	ELHU4H1VSN901MR80S	830	30 × 80	0.20	3.18	ELHU501VSN831MR80S		
900	35 × 60	0.20	3.08	ELHU4H1VSN901MA60S	830	35 × 60	0.20	2.95	ELHU501VSN831MA60S		
960	35 × 65	0.20	3.24	ELHU4H1VSN961MA65S	880	35 × 65	0.20	3.10	ELHU501VSN881MA65S		
1,040	35 × 70	0.20	3.43	ELHU4H1VSN1A2MA70S	960	35 × 70	0.20	3.29	ELHU501VSN961MA70S		
1,130	35 × 75	0.20	3.64	ELHU4H1VSN1B2MA75S	1,040	35 × 75	0.20	3.49	ELHU501VSN1A2MA75S		
1,220	35 × 80	0.20	3.85	ELHU4H1VSN122MA80S	1,120	35 × 80	0.20	3.69	ELHU501VSN112MA80S		

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
400 to 450V _{dc}	0.77	1.00	1.10	1.21	1.32	1.33
475, 500V _{dc}	0.77	1.00	1.11	1.20	1.25	1.33

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
- Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.
- The products listed in this catalog are designed and manufactured for general electronics equipment use and are not intended for use in applications that can adversely affect human life; where the malfunction of equipment may cause damage to life or property. In addition, our products are not intended to be used in specific applications that may cause a major social impact. Please consult with us in advance of usage of our products in the following listed applications. ① Aerospace equipment ② Power generation equipment such as thermal power, nuclear power etc. ③ Medical equipment ④ Transport equipment (automobiles, trains, ships, etc.) ⑤ Transportation control equipment ⑥ Disaster prevention / crime prevention equipment ⑦ Highly publicized information processing equipment ⑧ Submarine equipment ⑨ Other applications that are not considered general-purpose applications.
- The circuits described as examples in this catalog and the "delivery specifications" are featured in order to show the operations and usage of our products, however, this fact does not guarantee that the circuits are available to function in your equipment systems. We are not in any case responsible for any failures or damage caused by the use of information contained herein. You should examine our products, of which the characteristics are described in the "delivery specifications" and other documents, and determine whether or not our products suit your requirements according to the specifications of your equipment systems. Therefore, you bear final responsibility regarding the use of our products.
Please make sure that you take appropriate safety measures such as use of redundant design and malfunction prevention measures in order to prevent fatal accidents and/or fires in the event any of our products malfunction.
- We strongly recommend our customers to purchase Nippon Chemi-Con products only through our official sales channels. We assume no responsibility for any defects or damages caused by using products purchased from outside our official sales channel or of counterfeit goods. In addition, we will ask the customer to pay the investigation cost for products purchased outside our official sales channel.
- We reserve the right to discontinue production and delivery of products. We do not guarantee that all the products included in this catalog will be available in the future.
The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products
- We continually strive to improve the quality and reliability of our products, but in any case that our product does not meet our published specifications, please stop using it promptly and contact us immediately. As for compensation for non-conforming goods delivered by Chemi-Con, we will limit it only to goods found in non-compliance of our published specifications. This may be accomplished by a no cost replacement of non-conforming individual products, a credit of the piece price paid per each individual non-conforming product, or in other ways deemed necessary.
In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.

[Part Numbering System](#)

[Part Numbering System \(Appendix\)](#)

[Standardization](#)

[Available Items by Manufacturing Locations](#)

[Environmental Measures](#)

[Technical Note](#)

[Precautions and Guidelines](#)

[Recommended Soldering Conditions](#)

[Taping, Lead-preforming and Packaging](#)

[Available Terminals for Snap-in and Screw Mount Type](#)