

# SNAP MOUNT TYPE ALUMINUM ELECTROLYTIC CAPACITORS

## HL2 Series

Useful of 8,000 hours at 105°C (Warranty of 5,000 hours at 105°C)

- Conform RoHS

### Features

- The size is reduced by around 10%, and higher ripple current is gained by around 10%, of conventional HL1 series through development of electrolyte liquid and etched foil technology.



### Product Specifications

Items	Specifications
Temperature range	-40°C ~ +105°C
Rated voltage	200 ~ 450V.DC
Capacitance tolerance	±20% (20°C, 120Hz)
Leakage current	0.02CV (μA) or 3mA, whichever is smaller or less (20°C, after 5 minutes) [C = nominal capacitance (μF), V = rated voltage (V)]
Dissipation factor	Less than the value specified in the standard products table. (20°C, 120Hz)
Permissible ripple current	As specified in the standard products table. (105°C, 120Hz)
High temp. Load life test	After 105°C, 5000h, rated voltage with specified ripple current application Capacitance variation : Initial value ±15% Dissipation factor : 175% of less of specified initial value Leakage current : Not greater than the specified initial value
Others	JIS C 5101-4.

### Ripple current correction coefficient

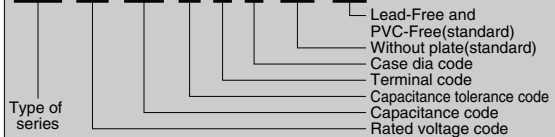
Temperature (°C)	60	70	85	105	
Correction coefficient	2.2	2.0	1.8	1.0	
Frequency (Hz)	50/60	120	300	1k	≥10K
Correction coefficient	0.7	1.0	1.1	1.3	1.4

A continuous load should be avoided over 10 Arms at the terminal in accordance with the permissible current.

Please consult us when the ripple voltage exceeds 70Vp-p.

Product code : (Example) HL2 Series 200V 1500μF ±20%

**HL2 2D 152 M C A WP EC**



Refer to page (97) for other terminal shape available on request

### Standard Products Table

Rated Voltage Code (Surge Voltage) (V. DC)	Capacitance (μF)	Case size øDXL(mm)	tanδ 20°C, 120Hz	Ripple current (Arms) 105°C, 120Hz	ESR(typ.) 20°C, 100Hz (mΩ)	Product name
200 2D (250)	220	20×25	0.15	0.88	413	HL22D221MCWWPEC
	270	20×30	0.15	1.05	336	HL22D271MCWWPEC
	330	20×35	0.15	1.23	275	HL22D331MCWWPEC
		22×30	0.15	1.19	275	HL22D331MCXWPEC
	390	25×25	0.15	1.14	275	HL22D331MCYWPEC
		25×30	0.15	1.32	233	HL22D391MCYWPEC
	470	22×40	0.15	1.58	194	HL22D471MCXWPEC
		25×30	0.15	1.45	194	HL22D471MCYWPEC
		30×25	0.15	1.42	194	HL22D471MCZWPEC
	560	22×45	0.15	1.81	162	HL22D561MCXWPEC
		25×35	0.15	1.67	162	HL22D561MCYWPEC
	680	25×40	0.15	1.93	134	HL22D681MCYWPEC
		30×30	0.15	1.81	134	HL22D681MCZWPEC
	820	25×45	0.15	2.22	111	HL22D821MCYWPEC
		30×35	0.15	2.10	111	HL22D821MCZWPEC
	1000	30×40	0.15	2.43	91	HL22D102MCZWPEC
		35×30	0.15	2.05	91	HL22D102MCAWPEC
	1200	30×45	0.15	2.78	76	HL22D122MCZWPEC
		35×35	0.15	2.36	76	HL22D122MCAWPEC
	1500	35×40	0.15	2.76	61	HL22D152MCAWPEC

Rated Voltage Code (Surge Voltage) (V. DC)	Capacitance (μF)	Case size øDXL(mm)	tanδ 20°C, 120Hz	Ripple current (Arms) 105°C, 120Hz	ESR(typ.) 20°C, 100Hz (mΩ)	Product name
250 2E (300)	150	20×25	0.15	0.73	605	HL22E151MCWWPEC
		20×30	0.15	0.85	504	HL22E181MCWWPEC
	180	22×25	0.15	0.82	504	HL22E181MCXWPEC
		220	20×30	0.15	0.94	413
	270	20×35	0.15	1.11	336	HL22E271MCWWPEC
		25×25	0.15	1.03	336	HL22E271MCYWPEC
	330	22×35	0.15	1.26	275	HL22E331MCXWPEC
		25×30	0.15	1.21	275	HL22E331MCYWPEC
		22×40	0.15	1.44	233	HL22E391MCXWPEC
	390	25×35	0.15	1.39	233	HL22E391MCYWPEC
		30×25	0.15	1.30	233	HL22E391MCZWPEC
		470	22×50	0.15	1.73	194
	25×40		0.15	1.61	194	HL22E471MCYWPEC
	560	30×30	0.15	1.51	194	HL22E471MCZWPEC
		25×45	0.15	1.84	162	HL22E561MCYWPEC
	680	25×50	0.15	2.11	134	HL22E681MCYWPEC
		30×35	0.15	1.91	134	HL22E681MCZWPEC
	820	30×40	0.15	2.20	111	HL22E821MCZWPEC
	1000	30×50	0.15	2.64	91	HL22E102MCZWPEC
	1200	35×45	0.15	2.57	76	HL22E122MCAWPEC
1500	35×50	0.15	2.99	61	HL22E152MCAWPEC	

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400 2G (450)	68	20×25	0.15	0.51	1300	HL22G680MCWWPEC
	82	20×30	0.15	0.60	1126	HL22G820MCWWPEC
		22×25	0.15	0.58	1126	HL22G820MCXWPEC
	100	20×35	0.15	0.70	924	HL22G101MCWWPEC
		22×30	0.15	0.68	924	HL22G101MCXWPEC
		25×25	0.15	0.65	924	HL22G101MCYWPEC
	120	20×35	0.15	0.77	770	HL22G121MCWWPEC
		22×35	0.15	0.79	770	HL22G121MCXWPEC
		25×30	0.15	0.76	770	HL22G121MCYWPEC
	150	22×40	0.15	0.93	615	HL22G151MCXWPEC
		25×30	0.15	0.85	615	HL22G151MCYWPEC
		30×25	0.15	0.80	615	HL22G151MCZWPEC
		22×45	0.15	1.07	513	HL22G181MCXWPEC
	180	25×35	0.15	0.99	513	HL22G181MCYWPEC
		30×30	0.15	0.93	513	HL22G181MCZWPEC
		22×50	0.15	1.23	450	HL22G221MCXWPEC
	220	25×40	0.15	1.15	450	HL22G221MCYWPEC
		30×30	0.15	1.03	450	HL22G221MCZWPEC
		25×45	0.15	1.33	366	HL22G271MCYWPEC
	270	30×35	0.15	1.21	366	HL22G271MCZWPEC
		35×30	0.15	1.21	366	HL22G271MCAWPEC
	330	30×40	0.15	1.40	299	HL22G331MCZWPEC
		35×35	0.15	1.40	299	HL22G331MCAWPEC
	390	30×45	0.15	1.59	253	HL22G391MCZWPEC
35×35		0.15	1.52	253	HL22G391MCAWPEC	
470	35×40	0.15	1.75	210	HL22G471MCAWPEC	
560	35×45	0.15	1.99	176	HL22G561MCAWPEC	

Rated Voltage Code (Surge Voltage) (V. DC)	Capacitance (μF)	Case size øDXL (mm)	tanδ 20°C,120Hz	Ripple current (Arms) 105°C,120Hz	ESR(typ.) 20°C,100Hz (mΩ)	Product name
450 2W (500)	47	20×25	0.15	0.42	1880	HL22W470MCWWPEC
	56	20×30	0.15	0.50	1577	HL22W560MCWWPEC
		22×25	0.15	0.48	1577	HL22W560MCXWPEC
	68	20×30	0.15	0.55	1499	HL22W680MCWWPEC
		22×30	0.15	0.56	1499	HL22W680MCXWPEC
		25×25	0.15	0.54	1499	HL22W680MCYWPEC
	82	20×35	0.15	0.64	1242	HL22W820MCWWPEC
	100	22×35	0.15	0.72	1019	HL22W101MCXWPEC
		25×30	0.15	0.69	1019	HL22W101MCYWPEC
		22×40	0.15	0.83	850	HL22W121MCXWPEC
	120	25×35	0.15	0.80	850	HL22W121MCYWPEC
		30×25	0.15	0.72	850	HL22W121MCZWPEC
		22×50	0.15	1.02	679	HL22W151MCXWPEC
	150	25×40	0.15	0.95	679	HL22W151MCYWPEC
		30×30	0.15	0.85	679	HL22W151MCZWPEC
		25×45	0.15	1.08	566	HL22W181MCYWPEC
	180	30×35	0.15	0.98	566	HL22W181MCZWPEC
		30×40	0.15	1.14	463	HL22W221MCZWPEC
	220	35×30	0.15	1.09	463	HL22W221MCAWPEC
		270	30×45	0.15	1.32	377
	330		35×35	0.15	1.27	377
		390	30×50	0.15	1.52	309
	35×40		0.15	1.47	309	HL22W331MCAWPEC
	500 2H (550)	100	25×45	0.20	0.67	960
120		25×50	0.20	0.77	800	HL22H121MCYS7WPEC
		30×35	0.20	0.72	800	HL22H121MCZS4WPEC
		35×30	0.20	0.72	800	HL22H121MCAS3WPEC
150		30×40	0.20	0.85	640	HL22H151MCZS5WPEC
		35×35	0.20	0.85	640	HL22H151MCAS4WPEC
180		30×50	0.20	1.01	540	HL22H181MCZS7WPEC
		35×40	0.20	0.97	540	HL22H181MCAS5WPEC
220		35×45	0.20	1.12	440	HL22H221MCAS6WPEC
270		35×50	0.20	1.29	360	HL22H271MCAS7WPEC

## Life time graph

Useful life depending on ambient temperature Ta and ripple current operating conditions Ir versus rated ripple current at 105°C,120Hz

