

## HL Series Useful of 8,000 hours at 105°C

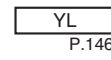
- Conform RoHS

### Features

- The HL series is the miniaturization products of 8,000 hours.



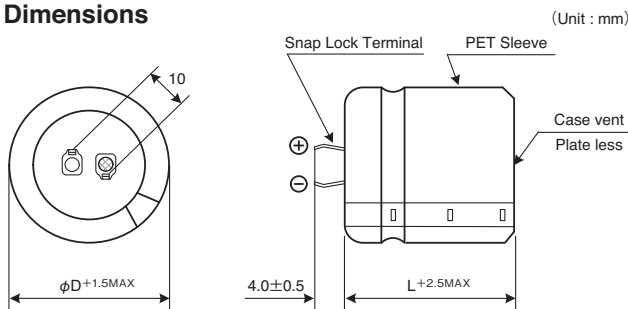
→ Long-life



### Product Specifications

Items	Specifications
Temperature range	-40°C ~ +105°C (200, 250V.DC) -25°C ~ +105°C (315 ~ 500V.DC)
Rated voltage	200 ~ 500V.DC
Capacitance tolerance	±20% (20°C, 120Hz)
Leakage current	0.02CV (µA) or 3 mA, 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)
Endurance	After the rated voltage with specified ripple current is applied at 105°C for 5000 hours : Capacitance change : Within ±20% of the initial value measured Dissipation factor : 200% or less than the initial value specified Leakage current : Less than or equal to the initial value specified
Shelf life	The following specification shall be meet when the capacitor are restored to 20°C after storage of 500 hours at 105°C with no voltage applied. Before the measurement, the capacitor shall be preconditioned by applying the voltage treatment according to Item 4.1 of JIS C 5101-4. Capacitance change : Within ±15% of the initial value measured Dissipation factor : 175% or less than the initial value specified Leakage current : Less than or equal to the initial value specified
Others	JIS C 5101-4

### Dimensions



For details of product specifications please request specification sheet.

### Ripple current correction coefficient

Temperature (°C)	60	70	85	105	
Correction coefficient	1.9	1.7	1.4	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) HL Series 400V 120µF ±20%

**HL 2G 121 M C X S2 WP EC**

- HL: Type of series
- 2G: Rated voltage code
- 121: Capacitance code
- M: Capacitance tolerance code
- C: Case dia code
- X: Case height code
- S2: Without plate(standard)
- WP: PVC-Free(standard)
- EC: Lead-Free and

Refer to page 124-125 for other terminal shape available on request.

# SNAP MOUNT TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Products Table

Rated Voltage (V. DC)	Capacitance (μF)	Case size φ D × L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms)		ESR(typ.) (mΩ) 20°C, 100Hz	Product name
				105°C, 120Hz	20°C, 100Hz		
200	330	22×25	0.15	1.09	330	HL2D331MCXS2WPEC	
		22×30	0.15	1.37	240	HL2D471MCXS3WPEC	
	470	25×25	0.15	1.36	240	HL2D471MCYS2WPEC	
		22×35	0.15	1.57	200	HL2D561MCXS4WPEC	
	560	25×30	0.15	1.57	200	HL2D561MCYS3WPEC	
		22×40	0.15	1.81	160	HL2D681MCXS5WPEC	
	680	30×25	0.15	1.75	160	HL2D681MCZS2WPEC	
		22×45	0.15	2.06	140	HL2D821MCXS6WPEC	
	820	25×35	0.15	1.99	140	HL2D821MCYS4WPEC	
		25×45	0.15	2.37	110	HL2D102MCYS6WPEC	
	1,000	30×30	0.15	2.24	110	HL2D102MCZS3WPEC	
		35×25	0.15	1.94	110	HL2D102MCAS2WPEC	
	1,200	25×50	0.15	2.67	100	HL2D122MCYS7WPEC	
		30×35	0.15	2.56	100	HL2D122MCZS4WPEC	
	1,500	35×30	0.15	2.23	100	HL2D122MCAS3WPEC	
		30×45	0.15	3.08	80	HL2D152MCZS6WPEC	
	1,800	35×35	0.15	2.61	80	HL2D152MCXS4WPEC	
		30×50	0.15	3.49	70	HL2D182MCZS7WPEC	
	2,200	35×40	0.15	2.97	70	HL2D182MCAS5WPEC	
		2,700	35×45	0.15	3.39	50	HL2D222MCAS6WPEC
2,700	35×50	0.15	3.86	50	HL2D272MCAS7WPEC		
	270	22×25	0.15	0.98	360	HL2E271MCXS2WPEC	
330		22×30	0.15	1.15	290	HL2E331MCXS3WPEC	
	390	25×25	0.15	1.14	290	HL2E331MCYS2WPEC	
470		22×35	0.15	1.31	250	HL2E391MCXS4WPEC	
	470	22×40	0.15	1.50	210	HL2E471MCXS5WPEC	
470		25×30	0.15	1.43	210	HL2E471MCYS3WPEC	
	470	30×25	0.15	1.45	210	HL2E471MCZS2WPEC	
560		22×45	0.15	1.70	180	HL2E561MCXS6WPEC	
	560	25×35	0.15	1.64	180	HL2E561MCYS4WPEC	
680		22×50	0.15	1.94	150	HL2E681MCXS7WPEC	
	680	25×40	0.15	1.88	150	HL2E681MCYS5WPEC	
680		30×30	0.15	1.85	150	HL2E681MCZS3WPEC	
	680	35×25	0.15	1.60	150	HL2E681MCAS2WPEC	
820		25×45	0.15	2.14	120	HL2E821MCYS6WPEC	
	820	30×35	0.15	2.12	120	HL2E821MCZS4WPEC	
820		35×30	0.15	1.84	120	HL2E821MCAS3WPEC	
	1,000	30×40	0.15	2.44	100	HL2E102MCZS5WPEC	
1,200	30×45	0.15	2.76	80	HL2E122MCZS6WPEC		
1,200	35×35	0.15	2.33	80	HL2E122MCAS4WPEC		
1,500	35×45	0.15	2.80	70	HL2E152MCAS6WPEC		
1,800	35×50	0.15	3.16	60	HL2E182MCAS7WPEC		
315	150	22×25	0.20	0.86	850	HL2F151MCXS2WPEC	
		22×30	0.20	1.10	580	HL2F221MCXS3WPEC	
	220	25×25	0.20	1.10	580	HL2F221MCYS2WPEC	
		22×35	0.20	1.24	480	HL2F271MCXS4WPEC	
	270	25×30	0.20	1.25	480	HL2F271MCYS3WPEC	
		22×40	0.20	1.40	390	HL2F331MCXS5WPEC	
	330	25×35	0.20	1.44	390	HL2F331MCYS4WPEC	
		30×25	0.20	1.43	390	HL2F331MCZS2WPEC	
	390	22×45	0.20	1.56	330	HL2F391MCXS6WPEC	
		25×40	0.20	1.60	330	HL2F391MCYS5WPEC	
	390	30×30	0.20	1.56	330	HL2F391MCZS3WPEC	
		25×45	0.20	1.79	280	HL2F471MCYS6WPEC	
	470	35×25	0.20	1.48	280	HL2F471MCAS2WPEC	
		25×50	0.20	1.99	230	HL2F561MCYS7WPEC	
	560	30×35	0.20	1.93	230	HL2F561MCZS4WPEC	
		35×30	0.20	1.70	230	HL2F561MCAS3WPEC	
	680	30×40	0.20	2.19	190	HL2F681MCZS5WPEC	
		35×35	0.20	1.96	190	HL2F681MCAS4WPEC	
	820	30×50	0.20	2.51	160	HL2F821MCZS7WPEC	
		35×40	0.20	2.23	160	HL2F821MCAS5WPEC	
1,000	35×45	0.20	2.55	130	HL2F102MCAS6WPEC		
1,200	35×50	0.20	2.87	110	HL2F122MCAS7WPEC		

Rated Voltage (V. DC)	Capacitance (μF)	Case size φ D × L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms)		ESR(typ.) (mΩ) 20°C, 100Hz	Product name
				105°C, 120Hz	20°C, 100Hz		
400	120	22×25	0.20	0.77	800	HL2G121MCXS2WPEC	
		22×25	0.20	0.87	640	HL2G151MCXS2WPEC	
	150	22×30	0.20	0.92	640	HL2G151MCXS3WPEC	
		25×25	0.20	0.90	640	HL2G151MCYS2WPEC	
	180	22×30	0.20	1.01	540	HL2G181MCXS3WPEC	
		22×35	0.20	1.05	540	HL2G181MCXS4WPEC	
	180	25×25	0.20	0.99	540	HL2G181MCYS2WPEC	
		25×30	0.20	1.05	540	HL2G181MCYS3WPEC	
	220	22×35	0.20	1.17	440	HL2G221MCXS4WPEC	
		22×40	0.20	1.22	440	HL2G221MCXS5WPEC	
	220	25×30	0.20	1.16	440	HL2G221MCYS3WPEC	
		25×35	0.20	1.21	440	HL2G221MCYS4WPEC	
	270	30×25	0.20	1.17	440	HL2G221MCZS2WPEC	
		22×40	0.20	1.35	360	HL2G271MCXS5WPEC	
	270	22×45	0.20	1.40	360	HL2G271MCXS6WPEC	
		25×35	0.20	1.35	360	HL2G271MCYS4WPEC	
	270	25×40	0.20	1.40	360	HL2G271MCZS5WPEC	
		30×25	0.20	1.28	360	HL2G271MCZS2WPEC	
	330	22×45	0.20	1.54	290	HL2G331MCXS6WPEC	
		22×50	0.20	1.59	290	HL2G331MCXS7WPEC	
330	25×40	0.20	1.55	290	HL2G331MCYS5WPEC		
	25×45	0.20	1.61	290	HL2G331MCYS6WPEC		
390	30×30	0.20	1.49	290	HL2G331MCZS3WPEC		
	35×25	0.20	1.52	290	HL2G331MCAS2WPEC		
390	25×45	0.20	1.74	250	HL2G391MCYS6WPEC		
	25×50	0.20	1.80	250	HL2G391MCYS7WPEC		
470	30×30	0.20	1.62	250	HL2G391MCZS3WPEC		
	30×35	0.20	1.70	250	HL2G391MCZS4WPEC		
470	35×25	0.20	1.59	250	HL2G391MCAS2WPEC		
	35×30	0.20	1.68	250	HL2G391MCAS3WPEC		
560	25×50	0.20	1.98	210	HL2G471MCYS7WPEC		
	30×35	0.20	1.86	210	HL2G471MCZS4WPEC		
560	30×40	0.20	1.94	210	HL2G471MCZS5WPEC		
	35×30	0.20	1.84	210	HL2G471MCAS3WPEC		
560	35×35	0.20	1.92	210	HL2G471MCAS4WPEC		
	30×40	0.20	2.11	180	HL2G561MCZS5WPEC		
680	30×45	0.20	2.19	180	HL2G561MCZS6WPEC		
	35×35	0.20	2.09	180	HL2G561MCAS4WPEC		
680	35×40	0.20	2.18	180	HL2G561MCAS5WPEC		
	30×50	0.20	2.48	150	HL2G681MCZS7WPEC		
820	35×40	0.20	2.40	150	HL2G681MCAS5WPEC		
	35×45	0.20	2.48	150	HL2G681MCAS6WPEC		
1,000	35×45	0.20	2.72	120	HL2G821MCAS6WPEC		
	35×50	0.20	2.80	120	HL2G821MCAS7WPEC		
1,000	35×50	0.20	3.09	100	HL2G102MCAS7WPEC		

ALUMINUM ELECTROLYTIC CAPACITORS

# SNAP MOUNT TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Products Table

Rated Voltage (V. DC)	Capacitance (μF)	Case size φD×L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms) 105°C, 120Hz	ESR(typ.) (mΩ) 20°C, 100Hz	Product name
420	100	22×25	0.20	0.71	1,020	HL420V101MCXS2WPEC
	120	22×25	0.20	0.77	850	HL420V121MCXS2WPEC
		22×30	0.20	0.82	850	HL420V121MCXS3WPEC
	150	22×30	0.20	0.92	680	HL420V151MCXS3WPEC
		22×35	0.20	0.96	680	HL420V151MCXS4WPEC
		25×25	0.20	0.90	680	HL420V151MCYS2WPEC
	180	22×35	0.20	1.05	570	HL420V181MCXS4WPEC
		22×40	0.20	1.10	570	HL420V181MCXS5WPEC
		25×25	0.20	0.99	570	HL420V181MCYS2WPEC
		25×30	0.20	1.05	570	HL420V181MCYS3WPEC
	220	22×40	0.20	1.22	470	HL420V221MCXS5WPEC
		22×45	0.20	1.26	470	HL420V221MCXS6WPEC
		25×30	0.20	1.16	470	HL420V221MCYS3WPEC
		25×35	0.20	1.21	470	HL420V221MCYS4WPEC
		30×25	0.20	1.15	470	HL420V221MCZS2WPEC
	270	22×45	0.20	1.40	380	HL420V271MCXS6WPEC
		22×50	0.20	1.44	380	HL420V271MCXS7WPEC
		25×35	0.20	1.35	380	HL420V271MCYS4WPEC
		25×40	0.20	1.40	380	HL420V271MCYS5WPEC
		30×25	0.20	1.28	380	HL420V271MCZS2WPEC
		30×30	0.20	1.35	380	HL420V271MCZS3WPEC
	330	35×25	0.20	1.38	380	HL420V271MCAS2WPEC
		22×50	0.20	1.59	310	HL420V331MCXS7WPEC
		25×40	0.20	1.55	310	HL420V331MCYS5WPEC
		25×45	0.20	1.61	310	HL420V331MCYS6WPEC
		30×30	0.20	1.49	310	HL420V331MCZS3WPEC
		30×35	0.20	1.56	310	HL420V331MCZS4WPEC
	390	35×25	0.20	1.46	310	HL420V331MCAS2WPEC
		25×45	0.20	1.74	270	HL420V391MCYS6WPEC
		25×50	0.20	1.80	270	HL420V391MCYS7WPEC
		30×35	0.20	1.70	270	HL420V391MCZS4WPEC
		30×40	0.20	1.76	270	HL420V391MCZS5WPEC
	470	35×30	0.20	1.67	270	HL420V391MCAS3WPEC
		25×50	0.20	1.98	220	HL420V471MCYS7WPEC
		30×40	0.20	1.94	220	HL420V471MCZS5WPEC
		30×45	0.20	2.00	220	HL420V471MCZS6WPEC
		35×30	0.20	1.84	220	HL420V471MCAS3WPEC
	560	35×35	0.20	1.92	220	HL420V471MCAS4WPEC
		30×45	0.20	2.19	190	HL420V561MCZS6WPEC
		30×50	0.20	2.25	190	HL420V561MCZS7WPEC
		35×35	0.20	2.09	190	HL420V561MCAS4WPEC
		35×40	0.20	2.18	190	HL420V561MCAS5WPEC
680	30×50	0.20	2.48	150	HL420V681MCZS7WPEC	
	35×40	0.20	2.40	150	HL420V681MCAS5WPEC	
	35×45	0.20	2.48	150	HL420V681MCAS6WPEC	
820	35×45	0.20	2.72	130	HL420V821MCAS6WPEC	

Rated Voltage (V. DC)	Capacitance (μF)	Case size φD×L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms) 105°C, 120Hz	ESR(typ.) (mΩ) 20°C, 100Hz	Product name
450	82	22×25	0.20	0.64	1,250	HL2W820MCXS2WPEC
	100	22×25	0.20	0.71	1,020	HL2W101MCXS2WPEC
		22×30	0.20	0.82	850	HL2W121MCXS3WPEC
	120	25×25	0.20	0.81	850	HL2W121MCYS2WPEC
		22×30	0.20	0.92	680	HL2W151MCXS3WPEC
	150	22×35	0.20	0.96	680	HL2W151MCXS4WPEC
		25×25	0.20	0.90	680	HL2W151MCYS2WPEC
		25×30	0.20	0.96	680	HL2W151MCYS3WPEC
		22×35	0.20	1.05	570	HL2W181MCXS4WPEC
	180	22×40	0.20	1.10	570	HL2W181MCXS5WPEC
		25×30	0.20	1.05	570	HL2W181MCYS3WPEC
		25×35	0.20	1.10	570	HL2W181MCYS4WPEC
		30×25	0.20	1.06	570	HL2W181MCZS2WPEC
	220	22×40	0.20	1.22	470	HL2W221MCXS5WPEC
		22×45	0.20	1.26	470	HL2W221MCXS6WPEC
		25×35	0.20	1.21	470	HL2W221MCYS4WPEC
		25×40	0.20	1.27	470	HL2W221MCYS5WPEC
		30×25	0.20	1.15	470	HL2W221MCZS2WPEC
		30×30	0.20	1.22	470	HL2W221MCZS3WPEC
	270	35×25	0.20	1.24	470	HL2W221MCAS2WPEC
		22×50	0.20	1.44	380	HL2W271MCXS7WPEC
		25×40	0.20	1.40	380	HL2W271MCYS5WPEC
		25×45	0.20	1.45	380	HL2W271MCYS6WPEC
		30×30	0.20	1.35	380	HL2W271MCZS3WPEC
		30×35	0.20	1.41	380	HL2W271MCZS4WPEC
	330	35×25	0.20	1.32	380	HL2W271MCAS2WPEC
		25×45	0.20	1.61	310	HL2W331MCYS6WPEC
		25×50	0.20	1.66	310	HL2W331MCYS7WPEC
		30×35	0.20	1.56	310	HL2W331MCZS4WPEC
		30×40	0.20	1.62	310	HL2W331MCZS5WPEC
	390	35×30	0.20	1.54	310	HL2W331MCAS3WPEC
		30×40	0.20	1.76	270	HL2W391MCZS5WPEC
		30×45	0.20	1.82	270	HL2W391MCZS6WPEC
		35×30	0.20	1.67	270	HL2W391MCAS3WPEC
	470	35×35	0.20	1.75	270	HL2W391MCAS4WPEC
		30×45	0.20	2.00	220	HL2W471MCZS6WPEC
		30×50	0.20	2.07	220	HL2W471MCZS7WPEC
		35×35	0.20	1.92	220	HL2W471MCAS4WPEC
	560	35×40	0.20	1.99	220	HL2W471MCAS5WPEC
		30×50	0.20	2.25	190	HL2W561MCZS7WPEC
		35×40	0.20	2.18	190	HL2W561MCAS5WPEC
	680	35×45	0.20	2.25	190	HL2W561MCAS6WPEC
		35×45	0.20	2.48	150	HL2W681MCAS6WPEC
		35×50	0.20	2.55	150	HL2W681MCAS7WPEC

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Standard Products Table

Rated Voltage (V. DC)	Capacitance (μF)	Case size φ D × L (mm)	tanδ 20°C, 120Hz	Ripple current (Arms)		ESR(typ.) (mΩ) 20°C, 100Hz	Product name
				105°C, 120Hz	20°C, 100Hz		
500	56	22×25	0.20	0.40	1,710	HL2H560MCXS2WPEC	
		22×25	0.20	0.45	1,410	HL2H680MCXS2WPEC	
	68	22×30	0.20	0.48	1,410	HL2H680MCXS3WPEC	
		25×25	0.20	0.49	1,410	HL2H680MCYS2WPEC	
	82	22×30	0.20	0.54	1,170	HL2H820MCXS3WPEC	
		22×35	0.20	0.56	1,170	HL2H820MCXS4WPEC	
		25×25	0.20	0.55	1,170	HL2H820MCYS2WPEC	
		25×30	0.20	0.57	1,170	HL2H820MCYS3WPEC	
	100	22×35	0.20	0.62	960	HL2H101MCXS4WPEC	
		22×40	0.20	0.65	960	HL2H101MCXS5WPEC	
		25×30	0.20	0.64	960	HL2H101MCYS3WPEC	
		25×35	0.20	0.67	960	HL2H101MCYS4WPEC	
	120	30×25	0.20	0.68	960	HL2H101MCZS2WPEC	
		22×40	0.20	0.72	800	HL2H121MCXS5WPEC	
		22×45	0.20	0.75	800	HL2H121MCXS6WPEC	
		25×35	0.20	0.74	800	HL2H121MCYS4WPEC	
	150	25×40	0.20	0.77	800	HL2H121MCYS5WPEC	
		30×25	0.20	0.75	800	HL2H121MCZS2WPEC	
		30×30	0.20	0.79	800	HL2H121MCZS3WPEC	
		22×45	0.20	0.85	640	HL2H151MCXS6WPEC	
	180	25×40	0.20	0.88	640	HL2H151MCYS5WPEC	
		25×45	0.20	0.91	640	HL2H151MCYS6WPEC	
		30×30	0.20	0.90	640	HL2H151MCZS3WPEC	
		30×35	0.20	0.94	640	HL2H151MCZS4WPEC	
	220	35×25	0.20	0.94	640	HL2H151MCAS2WPEC	
		25×45	0.20	1.01	540	HL2H181MCYS6WPEC	
		25×50	0.20	1.04	540	HL2H181MCYS7WPEC	
		30×35	0.20	1.04	540	HL2H181MCZS4WPEC	
	270	30×40	0.20	1.08	540	HL2H181MCZS5WPEC	
		35×25	0.20	1.04	540	HL2H181MCAS2WPEC	
		35×30	0.20	1.09	540	HL2H181MCAS3WPEC	
		25×50	0.20	1.17	440	HL2H221MCYS7WPEC	
	330	30×40	0.20	1.21	440	HL2H221MCZS5WPEC	
		30×45	0.20	1.26	440	HL2H221MCZS6WPEC	
		35×30	0.20	1.22	440	HL2H221MCAS3WPEC	
		35×35	0.20	1.28	440	HL2H221MCAS4WPEC	
	390	30×45	0.20	1.41	360	HL2H271MCZS6WPEC	
		30×50	0.20	1.45	360	HL2H271MCZS7WPEC	
		35×35	0.20	1.44	360	HL2H271MCAS4WPEC	
	470	35×40	0.20	1.49	360	HL2H271MCAS5WPEC	
		30×50	0.20	1.63	290	HL2H331MCZS7WPEC	
		35×40	0.20	1.67	290	HL2H331MCAS5WPEC	
	560	35×45	0.20	1.73	290	HL2H331MCAS6WPEC	
		30×60*	0.20	1.89	250	HL2H391MCZS9WPEC	
		35×45	0.20	1.90	250	HL2H391MCAS6WPEC	
	560	35×50	0.20	1.96	250	HL2H391MCAS7WPEC	
		470	35×50	0.20	2.18	210	HL2H471MCAS7WPEC
	560	560	35×60*	0.20	2.53	180	HL2H561MCAS9WPEC

\* When this capacitor is mounted on printed circuit board, reinforce it with any mounting adhesives.

## Life time graph

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

