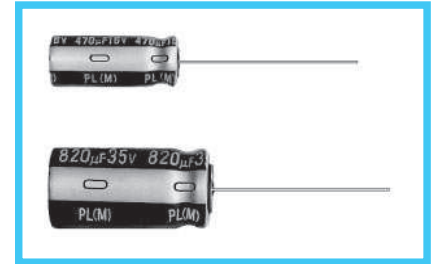


ALUMINUM ELECTROLYTIC CAPACITORS

PL series Extremely Low Impedance, High Reliability



- Same case size as PF series, but extremely low impedance as little as 1/2 of PF series.
- High reliability withstanding 5000 hours load life at + 105°C (3000/2000 hours for smaller case size as specified below).
- Capacitance ranges available based on the numerical values in E12 series under JIS.

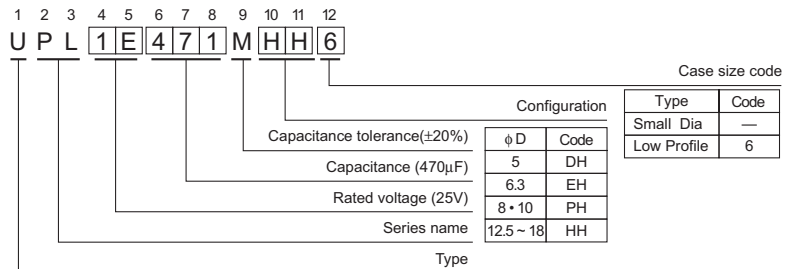
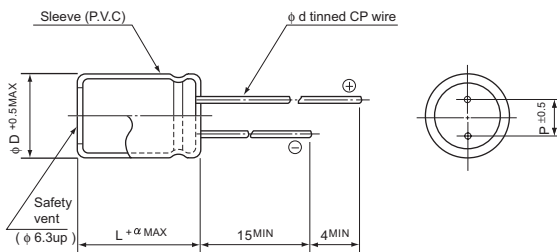


Specifications

Item	Performance Characteristics																
Operating Temperature Range	-55 ~ + 105°C																
Voltage Range	6.3 ~ 63V																
Capacitance Range	0.47 ~ 15000µF																
Capacitance Tolerance	±20% at 120Hz, 20°C																
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4µA, whichever is greater.																
tan δ	For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF. Measurement frequency : 120Hz, Temperature : 20°C																
	<table border="1"> <tr> <td>Rated voltage(V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> </tr> </table>	Rated voltage(V)	6.3	10	16	25	35	50	63	tan δ (MAX.)	0.22	0.19	0.16	0.14	0.12	0.10	0.08
Rated voltage(V)	6.3	10	16	25	35	50	63										
tan δ (MAX.)	0.22	0.19	0.16	0.14	0.12	0.10	0.08										
Stability at Low Temperature	Measurement frequency : 120Hz																
	<table border="1"> <tr> <td>Rated voltage(V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> </tr> <tr> <td>Impedance ratio ZT/Z20(MAX.)</td> <td>Z-55°C/Z + 20°C</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> </tr> </table>	Rated voltage(V)	6.3	10	16	25	35	50	63	Impedance ratio ZT/Z20(MAX.)	Z-55°C/Z + 20°C	4	4	3	3	3	2
Rated voltage(V)	6.3	10	16	25	35	50	63										
Impedance ratio ZT/Z20(MAX.)	Z-55°C/Z + 20°C	4	4	3	3	3	2	2									
Load Life	After an application of D.C. bias voltage plus the rated ripple current for 5000 hours (2000 hours for D = 5 and 6.3, 3000 hours for D = 8) at 105°C the peak voltage shall not exceed the rated D.C. voltage, the capacitors meet the characteristic requirements shown on the right.																
	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>tanδ</td> <td>200% or less of initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Initial specified value or less</td> </tr> </table>	Capacitance change	Within ±20% of initial value	tanδ	200% or less of initial specified value	Leakage current	Initial specified value or less										
	Capacitance change	Within ±20% of initial value															
tanδ	200% or less of initial specified value																
Leakage current	Initial specified value or less																
Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above. The value of tanδ is, however, 150% or less of initial specified value.																
Marking	Printed with white color letter on dark brown sleeve.																
Applicable Standards	JIS C 5141 and JIS C 5102.																

Radial Lead Type

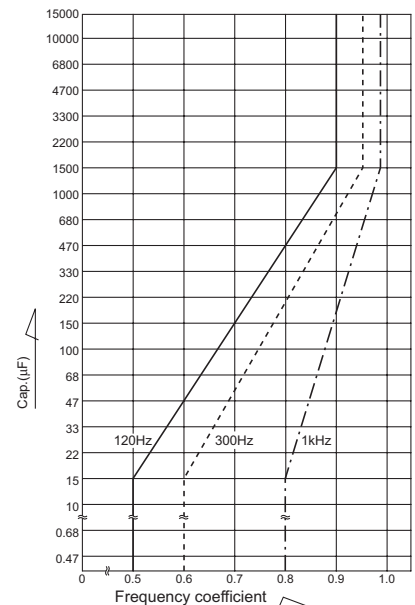
Type numbering system (Example : 25V 470µF φ12.5 × 15)



α	(L < 20)	1.5					
	(L ≥ 20)	2.0					
φ D	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φ d	0.5	0.5	0.6	0.6	0.6*	0.8	0.8

* In case L > 25 for φ 12.5 (D) case sizes, lead diameter φ 0.8 (d) will be applied.

- Frequency coefficient of allowable ripple current (10kHz ~ 200kHz = 1)



Please refer to page 17, 18, 19 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

Dimension table in next pages.

ALUMINUM ELECTROLYTIC CAPACITORS

PL series

■ Dimensions

D×L(mm)

Cap.(μF)	V(Code) Size code	6.3 (0J)		10 (1A)		16 (1C)		25 (1E)		35 (1V)		50 (1H)		63 (1J)	
		—	6	—	6	—	6	—	6	—	6	—	6	—	6
0.47	R47											5×11			
0.68	R68											5×11			
1	010											5×11			
1.5	1R5											5×11			
2.2	2R2											5×11			
3.3	3R3											5×11			
4.7	4R7											5×11			
6.8	6R8											5×11			
10	100											5×11		5×11	
12	120											5×11		5×11	
15	150											5×11		6.3×11	
18	180											5×11		6.3×11	
22	220									5×11		6.3×11		6.3×11	
27	270									5×11		6.3×11		6.3×11	
33	330							5×11		6.3×11		6.3×11		6.3×15	
39	390							5×11		6.3×11		6.3×11		6.3×15	
47	470					5×11		6.3×11		6.3×11		6.3×15		8×11.5	
56	560					5×11		6.3×11		6.3×11		6.3×15		8×15	10×12.5
68	680			5×11		6.3×11		6.3×11		6.3×15		8×11.5		8×15	10×12.5
82	820			5×11		6.3×11		6.3×11		6.3×15		8×15	10×12.5	8×20	10×15
100	101	5×11		6.3×11		6.3×11		6.3×15		8×11.5		8×20	10×15	10×20	12.5×15
120	121	5×11		6.3×11		6.3×11		6.3×15		8×15	10×12.5	8×20	10×15	10×20	12.5×15
150	151	6.3×11		6.3×11		6.3×15		8×11.5		8×15	10×12.5	10×20	12.5×15	10×25	12.5×15
180	181	6.3×11		6.3×11		6.3×15		8×15	10×12.5	8×20	10×15	10×20	12.5×15	10×31.5	16×15
220	221	6.3×11		6.3×15		8×11.5		8×15	10×12.5	8×20	10×15	10×25	12.5×15	12.5×20	16×15
270	271	6.3×15		6.3×15		8×15	10×12.5	8×20	10×15	10×20	12.5×15	10×31.5	16×15	12.5×25	18×15
330	331	6.3×15		8×11.5		8×15	10×12.5	8×20	10×15	10×20	12.5×15	10×31.5	16×15	12.5×25	18×15
390	391	8×11.5		8×15	10×12.5	8×20	10×15	10×20	12.5×15	10×25	12.5×15	12.5×25	16×15	12.5×31.5	16×20
470	471	8×15	10×12.5	8×15	10×12.5	8×20	10×15	10×20	12.5×15	10×31.5	16×15	12.5×25	18×15	12.5×35.5	16×25
560	561	8×15	10×12.5	8×20	10×15	10×20	12.5×15	10×25	12.5×15	12.5×20	16×15	12.5×31.5	16×20	12.5×40	18×20
680	681	8×20	10×15	8×20	10×15	10×20	12.5×15	10×31.5	16×15	12.5×25	18×15	12.5×35.5	16×20	16×31.5	18×25
820	821	8×20	10×15	10×20	12.5×15	10×25	12.5×15	12.5×20	16×15	12.5×25	18×15	12.5×40	18×20	16×35.5	18×31.5
1000	102	10×20	12.5×15	10×20	12.5×15	10×31.5	16×15	12.5×25	18×15	12.5×31.5	16×20	16×31.5	18×25	16×40	18×35.5
1200	122	10×20	12.5×15	10×25	12.5×15	12.5×20	16×15	12.5×25	18×15	12.5×35.5	16×25	16×35.5	18×31.5	18×40	
1500	152	10×25	12.5×15	10×31.5	16×15	12.5×25	18×15	12.5×31.5	16×20	12.5×40	18×20	16×40	18×31.5		
1800	182	10×31.5	16×15	12.5×20	16×15	12.5×31.5	16×20	12.5×35.5	16×25	16×31.5	18×25	18×35.5			
2200	222	10×31.5	16×15	12.5×25	18×15	12.5×31.5	16×20	12.5×40	18×20	16×35.5	18×31.5	18×40			
2700	272	12.5×25	18×15	12.5×31.5	16×20	12.5×35.5	16×25	16×31.5	18×25	16×40	18×35.5				
3300	332	12.5×25	18×15	12.5×35.5	16×20	12.5×40	18×20	16×35.5	18×31.5	18×40					
3900	392	12.5×31.5	16×20	12.5×40	18×20	16×31.5	18×25	16×40	18×35.5						
4700	472	12.5×35.5	18×20	16×31.5	18×25	16×35.5	18×31.5	18×40							
5600	562	12.5×40	18×20	16×35.5	18×25	16×40	18×35.5								
6800	682	16×31.5	18×25	16×35.5	18×31.5	18×35.5									
8200	822	16×35.5	18×31.5	16×40	18×35.5	18×40									
10000	103	16×40	18×31.5	18×40											
12000	123	18×35.5													
15000	153	18×40													

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.