

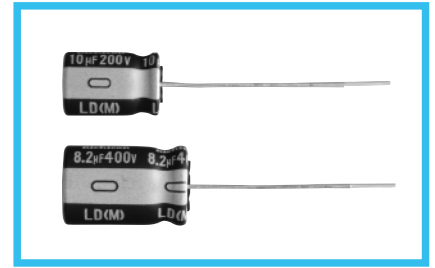
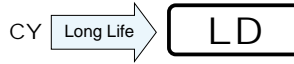
# ALUMINUM ELECTROLYTIC CAPACITORS

**LD** series Miniature sized, Long Life Assurance



**NEW**

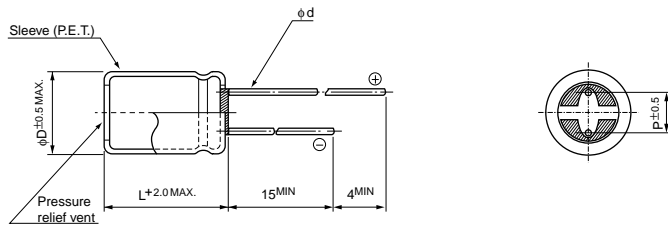
- Long Life product withstanding load life of 12000 to 20000 hours at +105°C.
- Suited for the power supply for LED lighting.
- Compliant to the RoHS directive (2011/65/EU).



## Specifications

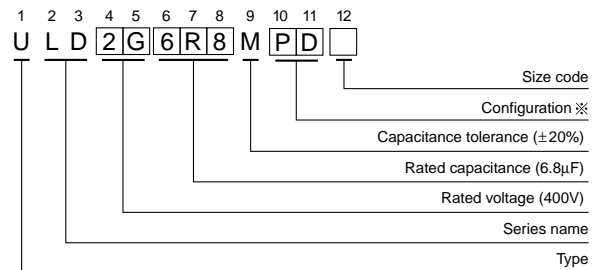
Item	Performance Characteristics																			
Category Temperature Range	-40 to +105°C(160 to 400V), -25 to +105°C(450V)																			
Rated Voltage Range	160 to 450V																			
Rated Capacitance Range	1 to 68µF																			
Capacitance Tolerance	±20% at 120Hz, 20°C																			
Leakage Current	After 1 minute's application of rated voltage, CV ≤ 1000 : I = 0.1CV+40 (µA) or less. After 1 minute's application of rated voltage, CV > 1000 : I = 0.04CV+100 (µA) or less.																			
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C																			
	<table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>160</th> <th>200</th> <th>250</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>tan δ (MAX.)</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table>	Rated voltage (V)	160	200	250	400	450	tan δ (MAX.)	0.24	0.24	0.24	0.24	0.24							
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Stability at Low Temperature	Measurement frequency : 120Hz																			
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Endurance	<p>The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 20000 hours (12000 hours for φ6.3 × 11L, φ8 × 9L, φ10 × 9L, 15000 hours φ8 × 11.5L, φ10 × 12.5L) at 105°C, the peak voltage shall not exceed the rated voltage.</p> <table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±30% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>300% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </tbody> </table>	Capacitance change	Within ±30% of the initial capacitance value	tan δ	300% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value													
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Shelf Life	After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.																			
Marking	Printed with white color letter on dark brown sleeve.																			

## Radial Lead Type



	(mm)					
φD	6.3	8	10	12.5	16	18
P	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.6	0.6	0.6	0.8	0.8

## Type numbering system (Example : 400V 6.8µF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
6.3	ED
8 + 10	PD
12.5 to 18	HD

- Please refer to page 20 about the end seal configuration.
- Please refer to page 20, 21, 22 about the formed or taped product spec.
- Please refer to page 4 for the minimum order quantity.

## ■ Dimensions

Cap	Code	160		200		250		400		450	
		2C		2D		2E		2G		2W	
1	010							6.3 × 11	24	Case size φD × L (mm)	※
1.2	1R2							8 × 9	28		
1.5	1R5							6.3 × 11	29		
								▲ 8 × 9	30		
1.8	1R8					6.3 × 11	33	8 × 9	33		
2.2	2R2			6.3 × 11	36	6.3 × 11	36	8 × 11.5	40		
								▲ 8 × 9	33		
2.7	2R7							8 × 11.5	43		
3.3	3R3			6.3 × 11	42	6.3 × 11	42	8 × 11.5	47		
								▲ 10 × 9	48		
3.9	3R9							10 × 12.5	57		
4.7	4R7			6.3 × 11	49	8 × 9	53	10 × 12.5	61		
5.6	5R6	6.3 × 11	52	6.3 × 11	50	8 × 11.5	62	10 × 12.5	64	10 × 16	58
				▲ 8 × 9	56						
6.8	6R8	6.3 × 11	55	8 × 9	62	8 × 11.5	68	10 × 16	85	10 × 16	62
8.2	8R2			8 × 9	66	10 × 9	76	10 × 16	88	10 × 20	88
10	100	8 × 9	70	8 × 11.5	80	10 × 12.5	90			10 × 20	92
12	120			10 × 9	88	10 × 12.5	97				
15	150	8 × 11.5	92							12.5 × 20	140
		▲ 10 × 9	95								
18	180			10 × 12.5	113	10 × 16	129				
22	220	10 × 12.5	121							12.5 × 25	240
										▲ 16 × 20	292
27	270			10 × 16	149					16 × 20	305
33	330	10 × 16	158							16 × 25	392
										▲ 18 × 20	312
47	470									18 × 25	480
68	680									18 × 31.5	520

※: Rated ripple current (Arms) at 105°C 120Hz

▲: In this case, [6] will be put at 12th digit of type numbering system.

### • Frequency coefficient of rated ripple current

Frequency Cap. (μF)	120Hz	1kHz	10kHz	100kHz or more
1 to 5.6μF	1.00	1.60	1.80	2.00
6.8 to 18μF	1.00	1.50	1.70	1.90
22 to 68μF	1.00	1.40	1.60	1.80