

**LQ** series Snap-in Terminal Type, Standard



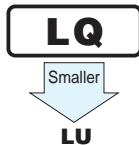
RCJ Approved



Anti-Solvent Feature (Through 100V only)

Approved by Reliability Center for Electronic Component, Japan-Certification No. RCJ-03-25D

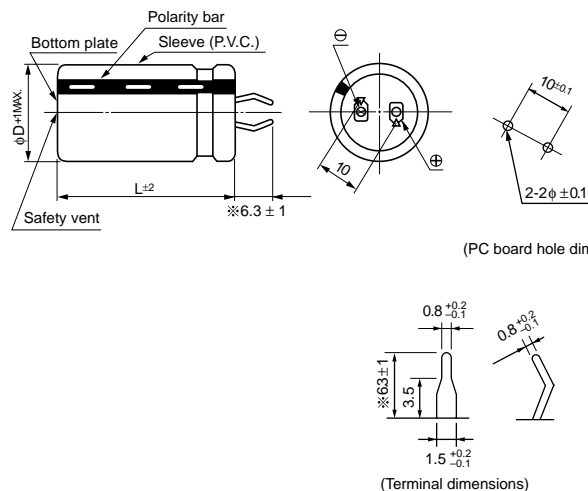
- Rated capacitances available based on the numerical values in E-12 series. (Size :  $\phi 22 \sim \phi 35$ )



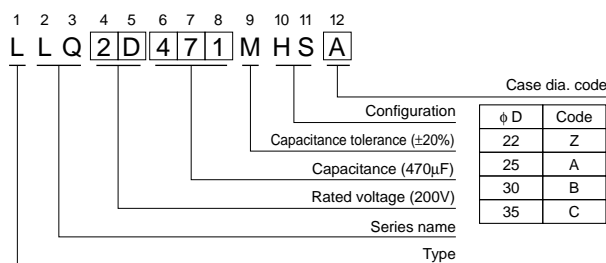
## Specifications

Item	Performance Characteristics																											
Operating Temperature Range	-40 ~ +85°C (16 ~ 250V), -25 ~ +85°C (400 ~ 450V)																											
Voltage Range	16 ~ 450V																											
Capacitance Range	56 ~ 56000 $\mu$ F																											
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20°C																											
Leakage Current	$I \leq 3\sqrt{CV}$ ( $\mu$ A) (After 5 minutes' application of rated voltage) [C: Capacitance( $\mu$ F), V: Voltage(V)]																											
tan $\delta$	Measurement frequency : 120Hz, Temperature : 20°C																											
	<table border="1"> <tr> <th>Rated voltage(V)</th> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> <td>160</td> <td>180</td> <td>200</td> <td>250</td> <td>400</td> <td>450</td> </tr> <tr> <th>tan <math>\delta</math> (MAX.)</th> <td>0.50</td> <td>0.40</td> <td>0.35</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> <td>0.20</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> </tr> </table>	Rated voltage(V)	16	25	35	50	63	80	100	160	180	200	250	400	450	tan $\delta$ (MAX.)	0.50	0.40	0.35	0.30	0.25	0.20	0.20	0.15	0.15	0.15	0.15	0.20
Rated voltage(V)	16	25	35	50	63	80	100	160	180	200	250	400	450															
tan $\delta$ (MAX.)	0.50	0.40	0.35	0.30	0.25	0.20	0.20	0.15	0.15	0.15	0.15	0.20	0.20															
Stability at Low Temperature	Measurement frequency : 120Hz																											
	<table border="1"> <tr> <th colspan="2">Rated voltage(V)</th> <td>16 ~ 100</td> <td>160 ~ 250</td> <td>400 ~ 450</td> </tr> <tr> <th>Impedance ratio</th> <td>Z-25°C/Z + 20°C</td> <td>4</td> <td>3</td> <td>8</td> </tr> <tr> <th>ZT/Z20(MAX.)</th> <td>Z-40°C/Z + 20°C</td> <td>15</td> <td>12</td> <td>—</td> </tr> </table>	Rated voltage(V)		16 ~ 100	160 ~ 250	400 ~ 450	Impedance ratio	Z-25°C/Z + 20°C	4	3	8	ZT/Z20(MAX.)	Z-40°C/Z + 20°C	15	12	—												
Rated voltage(V)		16 ~ 100	160 ~ 250	400 ~ 450																								
Impedance ratio	Z-25°C/Z + 20°C	4	3	8																								
ZT/Z20(MAX.)	Z-40°C/Z + 20°C	15	12	—																								
Load Life	After an application of DC voltage (in the range of rated DC voltage even after over-lapping the specified ripple current) for 2000 hours at 85°C, capacitors shall meet the characteristics requirements indicated at right.																											
	<table border="1"> <tr> <th>Capacitance change</th> <td>Within <math>\pm 20\%</math> of initial value</td> </tr> <tr> <th>tan <math>\delta</math></th> <td>200% or less of initial specified value</td> </tr> <tr> <th>Leakage current</th> <td>Initial specified value or less</td> </tr> </table>	Capacitance change	Within $\pm 20\%$ of initial value	tan $\delta$	200% or less of initial specified value	Leakage current	Initial specified value or less																					
Capacitance change	Within $\pm 20\%$ of initial value																											
tan $\delta$	200% or less of initial specified value																											
Leakage current	Initial specified value or less																											
Shelf Life	After leaving capacitors under no load at 85°C for 1000 hours, they meet the requirements listed at right.																											
	<table border="1"> <tr> <th>Capacitance change</th> <td>Within <math>\pm 15\%</math> of initial value</td> </tr> <tr> <th>tan <math>\delta</math></th> <td>150% or less of initial specified value</td> </tr> <tr> <th>Leakage current</th> <td>Initial specified value or less</td> </tr> </table>	Capacitance change	Within $\pm 15\%$ of initial value	tan $\delta$	150% or less of initial specified value	Leakage current	Initial specified value or less																					
Capacitance change	Within $\pm 15\%$ of initial value																											
tan $\delta$	150% or less of initial specified value																											
Leakage current	Initial specified value or less																											
Marking	Printed with white color letter on black sleeve.																											
Applicable Standards	JIS C 5141 and JIS C 5102.																											

## Drawing



## Type numbering system (Example : 200V 470 $\mu$ F)



※ Shorter terminal ( $4.0 \pm 0.5$ ) is also available upon request. Please refer to page 153 (LU series) for schematic of dimensions.

## Frequency coefficient of allowable ripple current

Coef.	Frequency(Hz)	50	60	120	1 k	10k ~
		16 ~ 100V	0.88	0.90	1.00	1.15
	160 ~ 250V	0.85	0.88	1.00	1.15	1.20
	400 ~ 450V	0.88	0.90	1.00	1.10	1.15

Minimum order quantity : 50pcs.

Dimension table in next pages.



## ■ Dimensions

D×L(mm)

Cap.(μF)	V(Code) Code	φD	16V(1C)				25V(1E)				35V(1V)				50V(1H)			
			22	25	30	35	22	25	30	35	22	25	30	35	22	25	30	35
3300	332													22×30	25×25			
														2.35	2.35			
3900	392									22×25				22×35	25×30			
										2.16				2.66	2.68			
4700	472									22×30	25×25			22×40	25×35	30×25	35×25	
										2.42	2.42			3.02	3.07	2.98	3.30	
5600	562					22×25				22×35				22×45	25×40	30×30		
						2.11				2.66				3.40	3.47	3.42		
6800	682					22×30	25×25			22×40	25×30	30×25		22×50	25×40	30×35		
						2.47	2.47			2.97	2.82	2.93		3.84	3.74	3.93		
8200	822	22×25				22×35				22×45	25×35			25×50	30×40	35×30		
		2.55				2.86				3.29	3.17			4.44	4.47	4.36		
10000	103	22×30				22×40	25×30	30×25		22×50	25×40	30×30				30×45	35×35	
		2.89				3.31	3.15	3.27		3.75	3.65	3.60				5.08	5.01	
12000	123	22×30	25×25			22×45	25×35	30×30		25×45	30×35	35×30				30×50	35×40	
		3.01	3.01			3.77	3.63	3.80		4.15	4.14	4.27				5.72	5.69	
15000	153	22×35	25×30	30×25		22×50	25×40					30×40	35×35				35×45	
		3.45	3.48	3.61		4.21	4.10					4.77	4.95				6.56	
18000	183	22×40	25×35			25×45	30×35	35×30				30×45	35×40				35×50	
		3.84	3.91			4.53	4.52	4.66				5.30	5.52				7.14	
22000	223	22×50	25×40	30×30			30×45	35×35				35×45						
		4.52	4.40	4.34			5.33	5.26				6.20						
27000	273		25×45	30×35			30×50	35×40				35×50						
			4.96	4.95			5.96	5.93				6.89						
33000	333			30×40	35×30			35×45										
				5.60	5.46			6.65										
39000	393			30×45	35×35			35×50										
				6.21	6.12			7.31										
47000	473			30×50	35×40													
				6.93	6.89													
56000	563				35×45													
					7.69													

Cap.(μF)	V(Code) Code	φD	63V(1J)				80V(1K)				100V(2A)							
			22	25	30	35	22	25	30	35	22	25	30	35				
1200	122					22×25				22×30	25×25							
						1.66				2.11	2.11							
1500	152					22×30				22×35	25×30	30×25						
						1.96				2.45	2.47	2.56						
1800	182	22×25				22×30	25×25			22×40	25×35							
		1.82				2.11	2.11			2.77	2.81							
2200	222	22×30	25×25			22×35	25×30	30×25		22×45	25×40	30×30						
		2.14	2.14			2.44	2.46	2.56		3.15	3.21	3.17						
2700	272	22×35	25×30			22×40	25×35			25×45	30×35	35×30						
		2.49	2.52			2.82	2.86			3.66	3.65	3.77						
3300	332	22×35	25×30	30×25		22×45	25×40	30×30		25×50	30×40							
		2.72	2.74	2.84		3.23	3.29	3.25		4.15	4.18							
3900	392	22×40	25×35			22×50	25×45	30×35				30×45	35×35					
		3.09	3.13			3.62	3.71	3.70				4.67	4.61					
4700	472	22×50	25×40	30×30	35×25		25×50	30×40	35×30			30×50	35×40					
		3.69	3.59	3.54	3.25		4.20	4.23	4.12			5.26	5.23					
5600	562		25×45	30×35				30×45	35×35									35×45
			4.01	4.00				4.70	4.64									5.88
6800	682		25×50	30×40	35×30			30×50	35×40									
			4.52	4.55	4.44			5.27	5.24									
8200	822			30×45	35×35				35×45									
				5.12	5.05				5.89									
10000	103			30×50	35×40				35×50									
				5.78	5.75				6.63									
12000	123				35×45													
					6.47													

Allowable Ripple (A rms) at 85°C 120Hz



## ■ Dimensions

D×L(mm)

Cap.(μF)	V(Code)	Code	φD	160V(2C)				180V(2Z)				200V(2D)				250V(2E)						
				22	25	30	35	22	25	30	35	22	25	30	35	22	25	30	35			
220	221																	22×25 1.15				
270	271													22×25 1.25				22×30 1.25	25×25 1.25			
330	331							22×25 1.35						22×30 1.40				22×35 1.45	25×30 1.45			
390	391			22×25 1.55				22×30 1.55						22×30 1.60	25×25 1.60			22×40 1.70	25×30 1.70	30×25 1.70		
470	471			22×30 1.75	25×25 1.75			22×35 1.75	25×25 1.75					22×35 1.80	25×30 1.80			22×45 1.90	25×35 1.90	30×30 1.90		
560	561			22×35 1.90	25×30 1.90			22×40 2.00	25×30 2.00					22×40 2.00	25×35 2.00	30×25 2.00		22×50 2.15	25×40 2.15	30×30 2.15	35×25 2.15	
680	681			22×40 2.15	25×30 2.15	30×25 2.15		22×45 2.25	25×35 2.25	30×25 2.25				22×45 2.30	25×40 2.25	30×30 2.30			25×45 2.35	30×35 2.35	35×30 2.35	
820	821			22×45 2.45	25×35 2.45	30×30 2.45		22×50 2.50	25×40 2.50	30×30 2.50	35×25 2.50			22×50 2.50	25×45 2.50	30×35 2.50	35×30 2.50				30×40 2.75	35×35 2.75
1000	102			22×50 2.80	25×40 2.80	30×30 2.80	35×25 2.80		25×45 2.85	30×35 2.85	35×30 2.85					30×40 2.95	35×30 2.95				30×45 3.00	35×40 3.00
1200	122				25×45 3.25	30×35 3.25	35×30 3.25		25×50 3.30	30×40 3.30	35×30 3.30					30×45 3.40	35×35 3.40					35×45 3.50
1500	152					30×40 3.75	35×35 3.75			30×45 3.75	35×35 3.75					30×50 3.80	35×40 3.80					35×50 4.00
1800	182					30×50 4.00	35×40 4.00				35×45 4.05						35×45 4.15					
2200	222						35×45 4.50				35×50 4.60						35×50 4.70					
2700	272						35×50 5.15															

Cap.(μF)	V(Code)	Code	φD	400V(2G)				450V(2W)														
				22	25	30	35	22	25	30	35											
56	560							22×25 0.59														
68	680							22×30 0.63														
82	820			22×25 0.72				22×30 0.78	25×25 0.78													
100	101			22×30 0.77				22×35 0.92	25×30 0.92													
120	121			22×30 0.94	25×25 0.94			22×40 1.06	25×35 1.08	30×25 1.05												
150	151			22×35 1.13	25×30 0.92			22×50 1.28	25×40 1.25	30×30 1.23												
180	181			22×40 1.27	25×35 1.06	30×25 1.26		25×45 1.41	30×40 1.48													
220	221			22×45 1.45	25×40 1.22	30×30 1.46	35×25 1.50	25×50 1.59	30×40 1.60	35×30 1.57												
270	271				25×45 1.69	30×35 1.68	35×30 1.46			30×45 1.83	35×35 1.80											
330	331				25×50 1.92	30×40 1.93	35×30 1.88			30×50 2.08	35×40 2.06											
390	391					30×45 2.16	35×35 2.13															35×45 2.31
470	471					30×50 2.43	35×40 2.42															35×50 2.47
560	561						35×45 2.72															
680	681						35×50 3.08															

Allowable Ripple (A rms) at 85°C 120Hz