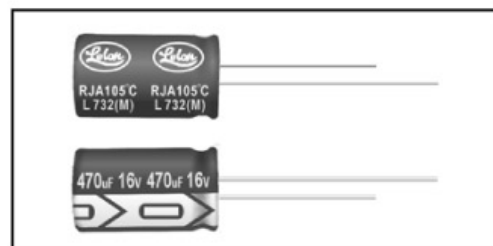


Features

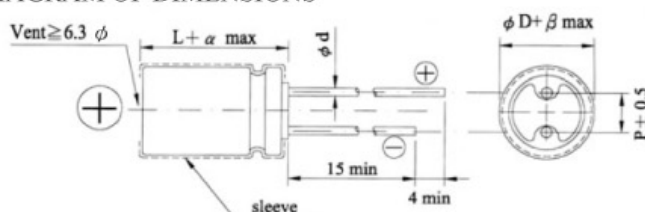
- 105°C, wide temperature range
- Suitable for high reliability products
- RoHS Compliance



SPECIFICATIONS

Items	Performance	
Operating Temperature Range	6.3 ~ 63V	100 ~ 450V
	-55°C ~ +105°C	-40°C ~ +105°C
Capacitance Tolerance	±20% (at 120Hz, 20°C)	
Leakage Current (at 20°C)	Rated voltage	≤ 100V
	Time	after 2 minutes
	after 5 minutes	
	Leakage Current	$I = 0.01CV$ or $3 (\mu A)$ whichever is greater $CV \leq 1,000$ $I = 0.03CV + 15 (\mu A)$ $CV > 1,000$ $I = 0.02CV + 25 (\mu A)$
Where, C = rated capacitance in μF V = rated DC working voltage in V		
Dissipation Factor (Tan δ at 120 Hz, 20°C)	Rated Voltage	6.3 10 16 25 35 50 63 100 160 200 250 350 400 450
	Tan δ (max)	0.23 0.20 0.16 0.14 0.12 0.10 0.09 0.08 0.12 0.14 0.17 0.20 0.25 0.25
When the capacitance exceeds 1,000 μF , 0.02 shall be added every 1,000 μF increase.		
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.	
	Rated Voltage	6.3 10 16 25 35 50 63 100 160 200 250 350 400 450
	Impedance Ratio	$Z(-25^\circ C) / Z(+20^\circ C)$ $\phi D < 16$ 4 3 3 2 2 2 2 2 3 3 6 8 12 14 16 $\phi D \geq 16$ 5 4 3 2 2 2 2 2 3 4 8 10 16 18 20
		$Z(-40^\circ C) / Z(+20^\circ C)$ $\phi D < 16$ 8 6 4 4 4 3 3 3 4 8 10 16 18 20 $\phi D \geq 16$ 12 8 6 4 3 3 3 6 4 8 10 16 18 20
Load Life Test	Test Time	2,000 hrs
	Capacitance Change	Within ±20% of initial value
	Dissipation Factor	Less than 200% of specified value
	Leakage Current	Within specified value
* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2,000 hrs at 105°C.		
Shelf Life Test	Test Time	1,000 hrs
	Capacitance Change	Within ±20% of initial value
	Dissipation Factor	Less than 200% of specified value
	Leakage Current	Within specified value
* The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hrs at 105°C without voltage applied. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V (Refer to JIS C 5101-4 4.1).		
Ripple Current & Frequency Multipliers	Freq.(Hz)	60 120 500 1K 10K up
	Cap.(μF)	Under 100 0.70 1.00 1.30 1.40 1.50
	100 < C ≤ 1,000	0.75 1.00 1.20 1.30 1.35
	1,000 up above	0.80 1.00 1.10 1.12 1.15

DIAGRAM OF DIMENSIONS



LEAD SPACING AND DIAMETER

Unit: mm

	5	6.3	8	10	12.5	16	18	22
φ D	2.0	2.5	3.5	5.0	5.0	7.5	7.5	1.0
P	0.5		0.6		0.8			1.0
α	1.0		1.5					2.0
β			0.5					

Dimension: $\phi D \times L(mm)$

Ripple Current: mA/rms at 120 Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC		6.3V (0J)				10V (1A)				16V (1C)				25V (1E)			
μF	Contents	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA
10	100									5×11	36			5×11	40		
22	220									5×11	58			5×11	68		
33	330									5×11	71			5×11	78		
47	470					5×11	76			5×11	90			5×11	97		
100	101	5×11	103			5×11	105			6.3×11	133	5×11	110	6.3×11	142		
220	221	6.3×11	160	5×11	140	6.3×11	175	5×11	150	8×11.5	215	6.3×11	180	8×11.5	236		
330	331	8×11.5	219	6.3×11	190	8×11.5	245	6.3×11	200	8×11.5	260			10×12.5	335	8×11.5	330
470	471	8×11.5	261	6.3×11	230	8×11.5	290	6.3×11	250	10×12.5	370	8×11.5	310	10×16	440	10×12.5	380
1000	102	10×12.5	455	8×11.5	380	10×16	550	10×12.5	460	10×20	640	10×16	560	12.5×20	770	10×20	680
2200	222	10×20	750			12.5×20	860	10×20	760	12.5×25	1,000	12.5×20	920	16×25	1,170	12.5×25	1,090
3300	332	12.5×20	920	10×20	840	12.5×20	1,100			16×25	1,300	12.5×25	1,170	16×31.5	1,460	16×25	1,400
4700	472	16×25	1,330	12.5×20	1,090	16×25	1,400	12.5×25	1,260	16×31.5	1,600	16×25	1,480	18×35.5	1,780	16×31.5	1,710

V.DC		35V (1V)				50V (1H)				63V (1J)				100V (2A)			
μF	Contents	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA
0.1	0R1					5×11	1.3			5×11	2.1			5×11	2.4		
0.22	R22					5×11	2.9			5×11	3.2			5×11	3.8		
0.33	R33					5×11	4.3			5×11	5.4			5×11	5.8		
0.47	R47					5×11	7.1			5×11	7.1			5×11	7.1		
1	010					5×11	13			5×11	15			5×11	15		
2.2	2R2					5×11	20			5×11	30			5×11	26		
3.3	3R3					5×11	30			5×11	31			5×11	31		
4.7	4R7					5×11	33			5×11	36			6.3×11	40		
10	100	5×11	45			5×11	50			5×11	54			8×11.5	66	6.3×11	54
22	220	5×11	71			5×11	78			6.3×11	86			8×11.5	111	6.3×11	93
33	330	6.3×11	90	5×11	85	6.3×11	96	5×11	90	8×11.5	141	6.3×11	100	10×12.5	183	8×11.5	144
47	470	6.3×11	105	5×11	90	8×11.5	130	6.3×11	117	8×11.5	151	6.3×11	129	10×16	193	10×12.5	204
100	101	8×11.5	170	6.3×11	150	8×11.5	188			10×12.5	235			12.5×20	320	10×20	285
220	221	10×12.5	300	8×11.5	270	10×20	355	10×16	335	10×20	400	10×16	360	16×25	507	13×25	440
330	331	10×16	400	10×12.5	350	10×20	460	10×16	410	12.5×20	520	10×20	490	16×31.5	674	16×25	478
470	471	10×20	520	10×16	460	12.5×25	610	10×20	530	12.5×25	720	12.5×20	665	18×35.5	880	16×31.5	688
1000	102	12.5×25	920	12.5×20	830	16×25	1,080	12.5×25	980	16×31.5	1,260	16×25	1,190				
2200	222	16×31.5	1,340	16×25	1,260	18×35.5	1,530	16×35.5	1,470								
3300	332	18×35.5	1,650	16×35.5	1,610	22×40	1,707	18×35.5	1,650								
4700	472	18×40	1,900	18×35.5	1,900												

V.DC		160V (2C)				200V (2D)				250V (2E)				350V (2V)			
μF	Contents	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA
0.47	R47	6.3×11	13	5×11	11	6.3×11	14	5×11	12	8×11.5	18			8×11.5	18	6.3×11	16
1	010	6.3×11	20	5×11	17	6.3×11	21	5×11	18	8×11.5	27			8×11.5	27	6.3×11	23
2.2	2R2	6.3×11	29	5×11	25	8×11.5	37	6.3×11	30	8×11.5	41	6.3×11	35	10×16	53	8×11.5	41
3.3	3R3	8×11.5	42	6.3×11	36	8×11.5	45	6.3×11	39	10×12.5	59	8×11.5	50	10×16	65	10×12.5	59
4.7	4R7	8×11.5	50	6.3×11	43	10×12.5	64	8×11.5	54	10×16	93	8×11.5	60	10×20	86	10×16	78
10	100	10×16	96	10×12.5	87	10×20	115	10×12.5	94	10×20	150	10×16	115	12.5×20	145	10×20	125
22	220	12.5×20	180	10×20	158	12.5×20	195	10×20	170	12.5×20	255	10×20	215	12.5×25	235	12.5×20	210
33	330	12.5×20	225	10×20	190	12.5×25	265	12.5×20	240	12.5×25	348	12.5×20	315	16×31.5	365	16×25	325
47	470	12.5×25	295	12.5×20	265	16×25	355	12.5×25	315	16×25	468	12.5×25	350	16×35.5	415	16×31.5	395
100	101	16×25	485	12.5×25	425	16×35.5	565	16×25	485	18×40	685	16×35.5	610	18×40	575		
220	221	18×35.5	750	16×31.5	660	18×40	885	18×35.5	835	22×40	945						
330	331	18×40	865	18×35.5	820												

V.DC		400V (2G)				450V (2W)			
μF	Contents	$\phi D \times L$	mA	* $\phi D \times L$	mA	$\phi D \times L$	mA	* $\phi D \times L$	mA
0.47	R47	10×12.5	22	8×11.5	18	10×12.5	22	8×11.5	18
1	010	10×12.5	32	8×11.5	27	10×12.5	32	8×11.5	27
2.2	2R2	10×16	53	10×12.5	48	10×16	53	10×12.5	48
3.3	3R3	10×20	72	10×16	65	10×20	72	10×16	65
4.7	4R7	12.5×20	100	10×20	86	12.5×20	100	10×20	86
10	100	12.5×25	160	12.5×20	145	12.5×25	160	12.5×20	145
22	220	16×25	265	12.5×25	235	16×25	265		
33	330	18×35.5	410	16×31.5	360	18×35.5	410	16×31.5	360
47	470	18×35.5	490	16×35.5	420	18×40	515	16×35.5	420
100	101	22×40	595			22×45	625		

Case size in mark of "*" is downsize.