

# LRS Series

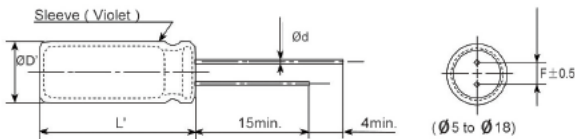
- Low impedance & Long life design
- Life time: +105°C 10000 hours
- Suit for Digital Household Appliance、Car-Audio、Tuner、SMPS、Adaptor...
- RoHs Compliant



## ◆ SPECIFICATIONS

Items	Characteristics											
<b>Category Temperature Range</b>	-40 ~ +105°C						-25 ~ +105°C					
<b>Rated Voltage Range</b>	6.3 ~ 100 Vdc						160 ~ 450 Vdc					
<b>Capacitance Tolerance</b>	±20%(M)						( at 20°C, 120Hz)					
<b>Leakage Current</b>	6.3 to 100Vdc : I=0.01CV(μA) or 3μA, which is greater.						160 to 450Vdc : I≤0.04CV +100μA					
	Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage(V) ( at 20°C after 1 minutes)											
<b>Dissipation Factor (tan δ)</b>	Rated Voltage (Vdc)	6.3v	10v	16v	25v	35v	50v	63v	80v	100v	160 to 250v	350 ~ 450v
	tanδ(Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08	0.20	0.24
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase . ( at 20°C, 120Hz)											
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	Rated Voltage (Vdc)	6.3 to 100v			160 to 250v			350 to 450v			( at 120Hz)	
	Z(-25°C)/Z(+20°C)	2max			3			6				
	Z(-40°C)/Z(+20°C)	3max			6			6				
<b>Endurance</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 10000 hours at 105°C.											
	Capacitance change	≤±20% of the initial value.										
	D.F. (tan δ)	≤150% of the initial specified value.										
	Leakage current	≤ The initial specified value.										
<b>Shelf Life</b>	The following specifications shall be satisfied when the capacitors performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C after exposing them for 1000hours at 105°C without voltage applied.											
	Capacitance change	≤±20% of the initial value.										
	D.F. (tan δ)	≤200% of the initial specified value.										
	Leakage current	≤The initial specified value.										

## ◆ DIMENSIONS [mm]



φD	5	6.3	8	10	12.5	16	18	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
φD'					φD+0.5max.			
L'					L+2.0max.			

## ◆ RATED RIPPLE CURRENT MULTIPLIERS

### FREQUENCY COEFFICIENT

Freq.(Hz) μF	120	1K	10K	100K
6.8 ~ 180	0.40	0.75	0.90	1.00
220 ~ 560	0.44	0.85	0.94	1.00
680 ~ 1800	0.60	0.87	0.95	1.00
2200 ~ 3900	0.75	0.90	0.95	1.00
4700 ~	0.85	0.95	0.98	1.00

### Part number system for Radial type:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		L	R	S	2	G	1	0	0	E	G	0	2	0	M
Type of series					Voltage code(V)		Capacitance code(μF)		Sleeve material	Diameter (mm)	The length(mm)			Capacitance tolerance	

◆ Standard Rating of LRS Series (6.3v-100v)

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	IMP.(Ωmax)100KHz		Ripple current mA/105°C, 100KHz
			20°C	-10°C	
6.3(0J)	150	5×11	0.30	1.00	328
	330	6.3×11	0.13	0.41	514
	560	8×11.5	0.072	0.22	790
	820	8×16	0.056	0.17	947
	1000	10×12.5	0.053	0.16	1171
	1200	10×16	0.038	0.12	1362
	1500	10×20	0.023	0.069	1733
	2200	10×25	0.022	0.066	2047
	3300	12.5×20	0.021	0.053	2247
	3900	12.5×25	0.018	0.045	2638
	4700	12.5×30	0.016	0.041	2990
	5600	16×20	0.018	0.045	3133
6800	16×25	0.016	0.043	3295	
10(1A)	100	5×11	0.30	1.00	428
	220	6.3×11	0.13	0.41	619
	470	8×11.5	0.072	0.22	1104
	680	10×12.5	0.053	0.16	1504
	1000	10×16	0.038	0.12	1866
	1200	10×20	0.023	0.069	2095
	1500	10×25	0.022	0.066	2400
	2200	12.5×20	0.021	0.053	2904
	3300	12.5×25	0.018	0.045	3047
	3900	12.5×30	0.016	0.041	3238
	4700	12.5×30	0.015	0.039	3676
	5600	16×25	0.016	0.043	4114
16(1C)	56	5×11	0.30	1.00	371
	120	6.3×11	0.13	0.41	523
	330	8×11.5	0.072	0.22	1038
	470	10×12.5	0.053	0.16	1264
	680	10×16	0.038	0.12	1742
	1000	10×20	0.023	0.069	2123
	1200	10×25	0.022	0.066	2238
	1500	12.5×20	0.021	0.053	2533
	2200	12.5×25	0.018	0.045	2733
	2700	12.5×30	0.016	0.041	3419
	3300	12.5×30	0.015	0.039	3676
	3900	16×25	0.016	0.043	4114
4700	16×25	0.015	0.041	4209	
6800	16×25	0.014	0.049	4361	
25(1E)	47	5×11	0.30	1.00	428
	100	6.3×11	0.13	0.41	666
	220	8×11.5	0.072	0.22	1142
	330	10×12.5	0.053	0.16	1542
	470	10×16	0.038	0.12	1742
	680	10×20	0.023	0.069	2209
	820	10×25	0.022	0.066	2533
	1000	12.5×20	0.021	0.053	2619
	1500	12.5×25	0.018	0.045	2733
	1800	12.5×30	0.016	0.041	3228
	2200	16×25	0.015	0.040	3676
	2700	16×25	0.015	0.039	3742
3300	16×35	0.014	0.039	4152	
3900	18×35	0.015	0.040	4209	
4700	18×40	0.014	0.037	4350	
35(1V)	33	5×11	0.30	1.00	428
	56	6.3×11	0.13	0.41	604
	150	8×11.5	0.072	0.22	1200
	220	10×12.5	0.053	0.16	1647
	330	10×16	0.038	0.12	2028
	470	10×20	0.023	0.069	2495
	560	10×20	0.022	0.066	2714
	680	10×20	0.021	0.053	2904
	1000	12.5×25	0.018	0.045	3057
	1200	12.5×30	0.016	0.041	3323
	1500	16×25	0.016	0.039	3628
	1800	16×25	0.016	0.043	4114
2200	16×35	0.015	0.039	4238	
2700	18×35	0.016	0.041	4447	
3300	18×40	0.015	0.039	4561	
50(1H)	22	5×11	0.34	1.18	428
	56	6.3×11	0.14	0.50	700
	100	8×11.5	0.074	0.22	1352
	120	8×11.5	0.061	0.18	1695
	150	10×12.5	0.061	0.18	1800
	180	10×12.5	0.046	0.14	2057
	220	10×16	0.042	0.12	2257
	270	10×20	0.030	0.090	2333
	330	10×25	0.028	0.085	2542
	470	12.5×20	0.027	0.068	2714
	680	12.5×30	0.021	0.052	2819
	820	16×20	0.023	0.059	3209
1000	16×25	0.021	0.056	3738	
2200	18×30	0.019	0.054	4414	
3300	18×30	0.019	0.054	4757	
3900	22×40	0.018	0.052	5036	
4700	22×40	0.018	0.052	5160	
63(1J)	15	5×11	0.88	3.5	346
	33	6.3×11	0.35	1.4	376
	56	8×11.5	0.22	0.88	590
	82	10×12.5	0.11	0.44	942
	120	10×16	0.076	0.31	1272
	180	10×20	0.056	0.23	1476
	220	10×25	0.046	0.19	1590
	270	12.5×20	0.041	0.13	1714
	390	12.5×25	0.031	0.093	2180
	470	12.5×30	0.028	0.084	2438
	560	16×25	0.023	0.072	2600
	680	16×25	0.025	0.075	2761
820	16×30	0.021	0.063	2990	
1000	16×35	0.019	0.057	3142	
1200	16×40	0.018	0.054	3314	
1500	18×35	0.018	0.054	3428	
1800	18×40	0.017	0.051	3704	
2200	18×40	0.017	0.050	3857	
2700	18×40	0.017	0.050	4057	
3300	22×35	0.016	0.049	4209	
3900	22×40	0.015	0.048	4295	
4700	22×40	0.015	0.048	5028	

**◆ Standard Rating of LRS Series (6.3v-100v)**

WV (Vdc)	Cap ( $\mu$ F)	Case size $\phi$ D×L(mm)	IMP.( $\Omega$ max)100KHz		Ripple current mA/105°C, 100KHz
			20°C	-10°C	
80(1K)	68	10×12.5	0.17	0.66	942
	100	10×16	0.11	0.47	1133
	120	10×20	0.084	0.34	1285
	150	10×25	0.069	0.28	1495
	220	12.5×20	0.062	0.18	1780
	330	12.5×25	0.047	0.14	2104
	390	12.5×30	0.042	0.13	2304
	470	16×25	0.038	0.12	2647
	560	16×30	0.032	0.095	2914
	680	16×30	0.032	0.095	2971
	820	16×35	0.029	0.086	3142
	1000	18×35	0.027	0.081	3285
	1200	18×40	0.026	0.077	3600
	1500	18×40	0.026	0.076	3723
	1800	18×45	0.025	0.075	3980
	2200	18×45	0.025	0.075	4047
2700	22×25	0.023	0.073	4123	
3300	22×30	0.023	0.073	4238	
3900	22×40	0.022	0.073	4752	

WV (Vdc)	Cap ( $\mu$ F)	Case size $\phi$ D×L(mm)	IMP.( $\Omega$ max)100KHz		Ripple current mA/105°C, 100KHz
			20°C	-10°C	
100 (2A)	6.8	5×11	1.4	5.6	414
	15	6.3×11	0.57	2.3	485
	27	8×11.5	0.36	1.4	619
	39	10×12.5	0.25	1.0	780
	47	10×12.5	0.17	0.66	904
	56	10×16	0.17	0.66	1228
	68	10×16	0.11	0.47	1285
	82	10×20	0.084	0.34	1419
	100	12.5×20	0.084	0.34	1600
	120	12.5×20	0.069	0.28	1647
	150	12.5×20	0.062	0.18	1809
	220	12.5×25	0.047	0.14	1933
	270	12.5×30	0.042	0.13	2476
	330	16×25	0.038	0.12	2723
	390	16×30	0.032	0.095	2857
	470	18×25	0.032	0.095	3019
	560	18×30	0.030	0.090	3142
	680	18×35	0.027	0.081	3600
820	18×40	0.026	0.077	3809	

**◆ Standard Rating of LRS Series (160v-450v)**

WV (Vdc)	Cap ( $\mu$ F)	Case size $\phi$ D×L(mm)	tan $\delta$	Ripple current(mA/105°C)	
				120Hz	100KHz
160 (2C)	10	10×16	0.20	170	425
	22	10×20	0.20	219	547
	33	10×20	0.20	247	618
	47	10×20	0.20	305	765
	68	12.5×20	0.20	466	1165
	82	12.5×20	0.20	562	1405
	100	12.5×30	0.20	686	1715
	150	16×20	0.20	838	2095
	220	16×25	0.20	1160	2636
330	18×30	0.20	1485	3375	
200 (2D)	10	10×16	0.20	190	475
	22	10×20	0.20	266	665
	33	10×20	0.20	342	855
	47	12.5×20	0.20	428	1070
	68	12.5×20	0.20	538	1345
	82	16×20	0.20	600	1500
	100	16×20	0.20	690	1725
	150	16×25	0.20	923	2307
	220	18×30	0.20	1180	2680
330	18×35	0.20	1566	3559	
250 (2E)	10	10×20	0.20	219	547
	22	10×20	0.20	304	760
	33	12.5×20	0.20	400	1000
	47	12.5×20	0.20	495	1237
	68	16×20	0.20	619	1547
	82	16×20	0.20	695	1737
	100	16×25	0.20	800	2000
	150	18×30	0.20	1047	2617
220	18×30	0.20	1323	3006	

WV (Vdc)	Cap ( $\mu$ F)	Case size $\phi$ D×L(mm)	tan $\delta$	Ripple current(mA/105°C)		
				120Hz	100KHz	
350 (2V)	6.8	10×16	0.24	228	570	
	10	10×20	0.24	252	630	
	22	12.5×20	0.24	323	807	
	33	16×20	0.24	476	1190	
	47	16×20	0.24	552	1380	
	68	16×25	0.24	657	1642	
	82	18×25	0.24	733	1832	
	100	18×25	0.24	876	2190	
	120	18×30	0.24	933	2332	
	150	18×35	0.24	1133	2832	
	400 (2G)	6.8	10×16	0.24	252	630
		10	10×20	0.24	323	807
15		12.5×20	0.24	390	975	
22		12.5×20	0.24	476	1190	
33		16×20	0.24	552	1380	
47		16×25	0.24	657	1642	
68		18×25	0.24	733	1832	
82		18×25	0.24	876	2190	
100		18×30	0.24	933	2332	
120		18×35	0.24	1133	2832	
150		18×40	0.24	1190	2975	
450 (2W)		6.8	10×20	0.24	323	807
	10	12.5×20	0.24	390	975	
	15	12.5×25	0.24	476	1190	
	22	16×20	0.24	552	1380	
	47	16×25	0.24	733	1832	
	68	18×30	0.24	876	2190	
	82	18×35	0.24	933	2332	
	100	18×40	0.24	1133	2832	

- Taping, Cutting Products & other customized demands are available upon request.
- Please check with us about the specified actual demanding.