

SRL SERIES Long Life Assurance(長壽命), High Ripple Current(高紋波)

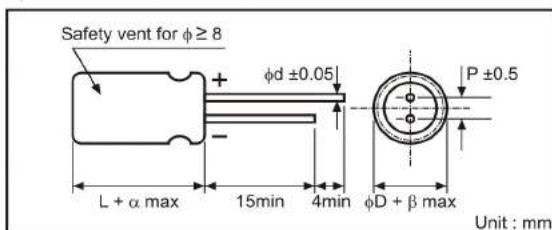
- For general purpose, -40°C to +105°C.
- This series is for communication equipments, switching power supply, industrial measuring instruments, etc.



◆ SPECIFICATIONS

Item	Performance Characteristics																																												
Operating temperature range	-40 to +105°C	-25 to +105°C																																											
Rated Working Voltage Range	6.3 to 100V	160 to 450V																																											
Nominal Capacitance Range	1 to 22000μF																																												
Capacitance Tolerance	±20(120Hz, +20°C)																																												
Leakage Current	$I \leq 0.01CV$ or $4(\mu A)$ after 1 minutes whichever is greater measured with rated working voltage applied at +20 °C	$I \leq 0.03CV + 40(\mu A)$ after 2 minutes application of rated working voltage at +20 °C																																											
Dissipation Factor tan δ(120Hz, +20°C)	<table border="1"> <tr> <td>Working 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> <td>100</td> </tr> <tr> <td>tan δ(max)</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> </tr> </table> <table border="1"> <tr> <td>Working Voltage(V)</td> <td>160</td> <td>200</td> <td>220</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>tan δ(max)</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.25</td> <td>0.25</td> <td>0.25</td> <td>0.25</td> </tr> </table> <p>For capacitance value > 1000μF, add 0.02 per another 1000μF</p>		Working Voltage(V)	6.3	10	16	25	35	50	63	100	tan δ(max)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	Working Voltage(V)	160	200	220	250	350	400	450	tan δ(max)	0.20	0.20	0.20	0.25	0.25	0.25	0.25									
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Low Temperature Characteristics	<p>Impedance ratio max at 120Hz</p> <table border="1"> <tr> <td>Working 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> <td>100</td> </tr> <tr> <td>Z-25°C/Z+20°C</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>12</td> <td>10</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> <table border="1"> <tr> <td>Working Voltage(V)</td> <td>160</td> <td>200</td> <td>250</td> <td>315</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z-25°C/Z+20°C</td> <td>3</td> <td>3</td> <td>4</td> <td>4</td> <td>4</td> <td>6</td> <td>15</td> </tr> </table> <p>For capacitance value > 1000μF, Add 0.5 per another 1000μF for Z-25°C/Z+20°C Add 1.0 per another 1000μF for Z-40°C/Z+20°C</p>		Working Voltage(V)	6.3	10	16	25	35	50	63	100	Z-25°C/Z+20°C	5	4	3	2	2	2	2	2	Z-40°C/Z+20°C	12	10	8	5	4	3	3	3	Working Voltage(V)	160	200	250	315	350	400	450	Z-25°C/Z+20°C	3	3	4	4	4	6	15
Working Voltage(V)	6.3	10	16	25	35	50	63	100																																					
Z-25°C/Z+20°C	5	4	3	2	2	2	2	2																																					
Z-40°C/Z+20°C	12	10	8	5	4	3	3	3																																					
Working Voltage(V)	160	200	250	315	350	400	450																																						
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High Temperature Loading	<p>Test conditions</p> <p>Duration :</p> <table border="1"> <tr> <td>ΦD</td> <td>5~6.3</td> <td>8~10</td> <td>12.5~</td> </tr> <tr> <td>Life</td> <td>3000</td> <td>5000</td> <td>8000</td> </tr> </table> <p>Ambient temp : +105°C Applied voltage: Rated DC working voltage with max. ripple current.</p>	ΦD	5~6.3	8~10	12.5~	Life	3000	5000	8000	<p>Post test requirements at +20°C</p> <p>Leakage current : ≤ Initial specified value Cap. Change : ≤ ±20% of Initial measured value tan δ : ≤ 200% of Initial specified value</p>																																			
ΦD	5~6.3	8~10	12.5~																																										
Life	3000	5000	8000																																										
Shelf Life	<p>Test conditions</p> <p>Duration : 1000 hours Ambient temp : +105°C Applied voltage: (None)</p>	<p>Post test requirements at +20°C</p> <p>Leakage current : ≤ Initial specified value Cap. Change : ≤ ±20% of Initial measured value tan δ : ≤ 200% of Initial specified value</p>																																											

◆ CASE SIZE TABLE



ΦD	5	6.3	8	10	12.5	16	18	22
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
α			(L < 20) 1.5		(L ≥ 20) 2.0			
β			(D < 20) 0.5		(D ≥ 20) 1.0			

◆ RIPPLE CURRENT MULTIPLIER

(1) Frequency Coefficient

Rated Voltage(V)	cap(μf)	freq. (Hz)				
		50	120	300	1k	10k~
6.3~100	≤ 47	0.75	1	1.35	1.57	2
	100~470	0.8	1	1.23	1.34	1.5
	≥ 560	0.85	1	1.1	1.13	1.15
180~450	0.47~220	0.8	1	1.25	1.4	1.6
	> 270	0.9	1	1.1	1.13	1.15

(2) Temperature Coefficient

Temperatu	-55	60	70	85	105
FACTOR	2.23	2.17	2.00	1.75	1.00

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◆ DIMENSIONS

Voltage	6.3V		10V		16V	
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple
47					5*11	165
56					5*11	168
68					5*11	172
82			5*11	175	5*11	178
100			5*11	186	6.3*11	270
120					6.3*11	276
150			6.3*11	270		
180			6.3*11	276	8*12	450
220	6.3*11	270	6.3*11	280	8*12	530
			8*12	532		
270	6.3*11	276			8*12	540
330	6.3*11	282	8*12	532	8*12	560
	8*12	530				
390	8*12	540	8*12	546	10*12.5	732
470	8*12	560	8*12	578	8*16	713
					10*12.5	733
560	8*12	580	10*12.5	733	10*16	1061
680			8*16	713	8*20	921
			10*12.5	733	10*16	1030
820	8*16	702	10*16	1030	10*20	1097
	10*12.5	720			12.5*15	1272
1000	10*12.5	750	8*20	921	10*20	1228
			10*16	1030	10*25	
1200	8*20	900	10*20	1228	10*25	1422
	10*16	1030	12.5*15	1272	16*15	1649
1500	10*20	1240	10*25	1272	10*30	1675
					12.5*20	1638
					16*15	1570
1800	10*25	1412	10*20	1638	12.5*25	1815
			16*15	1649	18*15	1687
2200	10*25	1412	10*30	1675	12.5*25	1815
	16*15	1623	12.5*20	1638	16*20	1938
2700	10*30	1642	12.5*25	1815	12.5*30	2201
	12.5*20	1620				
	16*15	1649	18*15	1751	16*20	1938
3300	12.5*20	1638	12.5*30	2201	12.5*35	2206
	18*15	1751	16*20	1938	18*20	2157
3900	12.5*25	1815	12.5*35	2006	16*25	2838
			16*20	1938	18*20	2788
4700	12.5*30	2201	12.5*40	2798	16*30	3257
	16*20	1938	16*25	2738	18*25	3130
10000	16*35	2740	18*35	3963	18*40	4120
22000	22*40	4000	22*45	6726		

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD X L (mm)

SRL

SERIES Long Life Assurance(長壽命),High Ripple Current(高紋波)

◆ DIMENSIONS

Voltage Cap(μF)	25V		35V		50V	
	Size	Ripple	Size	Ripple	Size	Ripple
1					5*11	30
2.2					5*11	43
3.3					5*11	53
4.7					5*11	88
10					5*11	100
12					5*11	100
15					5*11	133
18					5*11	148
22			5*11	165	5*11	176
27			5*11	176	5*11	190
33			5*11	190	6.3*11	235
39	5*11	198	5*11	238	6.3*11	256
47	5*11	226	6.3*11	261	6.3*11	289
56	5*11	165	6.3*11	351	8*12	457
68			6.3*11	386	8*12	425
82	6.3*11	261	8*12	388	8*12	457
100	6.3*11	261	8*12	432	10*12.5	666
120	8*12	346	8*12	452	8*16	640
					10*12.5	666
180	8*12	476	10*12.5	569	8*20	798
					10*16	920
220	8*12	539	8*16	702	10*20	1070
			10*12.5	728	12.5*15	1105
330	8*16	737	8*20	900	10*30	1482
	10*12.5	759	10*16	1020	12.5*20	1456
390	10*16	1000	10*20	1228	12.5*20	1456
			12.5*15	1272	16*15	1482
470	8*20	894	10*20	1196	10*30	1441
	10*16	1003			12.5*25	1668
560	10*20	1228	10*25	1422	12.5*25	1710
	12.5*15	1272	12.5*20	1638	18*15	1693
680	10*20	1228	12.5*15	1272	12.5*30	2026
			12.5*25	1638		
			16*15	1814	16*20	1938
820	10*25	1422	12.5*25	2151	12.5*35	2201
	12.5*20	1638	18*15	1949	18*20	2165
1000	12.5*20	1900	12.5*25	2300	16*25	2555
	10*30	1910	16*20	2230	18*20	2490
2200	12.5*35	2880	16*30	3450	16*40	3725
	16*30	2981	18*25	3140	18*35	3680
3300	18*30	4248	18*40	4220		
4700	18*40	4365				

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD X L (mm)

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◆ DIMENSIONS

Voltage	63V		100V		160V	
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple
6.8			5*11	108		
10					10*16	110
12	5*11	76				
15			6.3*11	156		
18	5*11	89				
22	6.3*11	156	8*12	208	10*20	192
27						
33	6.3*11	198			12.5*20	223
39	8*12	203	8*16	410		
47	8*12	203	10*12.5	450	12.5*25	312
56	8*12	203	8*20	517		
68	8*12	203	10*16	613	16*20	409
82	10*12.5	670	10*20	739	16*20	360
			12.5*16	728		
100	8*16	690	10*25	900	16*25	548
	10*12.5	689				
120	10*16	870	10*30	930		
			12.5*20	950		
150	8*20	920	16*16	1020	16*30	676
180	10*20	1050	12.5*25	1035		
	12.5*15	1008	18*16	1067		
220	10*30	1100	12.5*30	1180	18*35	867
	12.5*25	1250				
	16*20	1350	16*20	1280		
270	16*15	1497	12.5*35	921		
			16*25	1096		
330	10*30	1481	12.5*40	1035	18*45	1005
	12.5*20	1505	18*20	1088		
390	12.5*25	1588	16*30	1377		
	18*15	1807	18*25	1307		
470	12.5*30	1794	16*35	1700		
	16*20	1912	18*30	1810		
560	16*25	2096	18*40	1980		
680	12.5*35	1921	18*35	2320		
	16*25	2096				
	18*20	2088				
820	12.5*40	2035	18*40	2600		
	16*30	2377				
	18*25	2307				
1000	16*30	2367				
	16*35	2488				
1500	18*35	2538				

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD X L (mm)

SRL

SERIES Long Life Assurance(長壽命),High Ripple Current(高紋波)

◆ DIMENSIONS

Voltage	200V		250V		400V	
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple
2.2						
3.3					10*20	58
4.7			10*16	95	10*25	89
10	10*16	152	10*20	110	12.5*25	150
22	10*20	186	12.5*25	182	16*25	223
33	12.5*20	230	12.5*25	220	16*30	304
47	12.5*25	285	16*25	267	18*30	348
100	16*30	435	18*35	411	18*45	598
220	18*35	678	18*40	652	25*40	798

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD X L (mm)

Voltage	450V						
Cap(μF)	Size	Ripple					
2.2	10*16	39					
3.3	10*20	53					
4.7	12.5*20	65					
10	12.5*25	138					
22	16*30	246					
33	18*35	327					
47	18*40	382					
100	22*35	621					
220	25*45	892					

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size ΦD X L (mm)