

# LP series

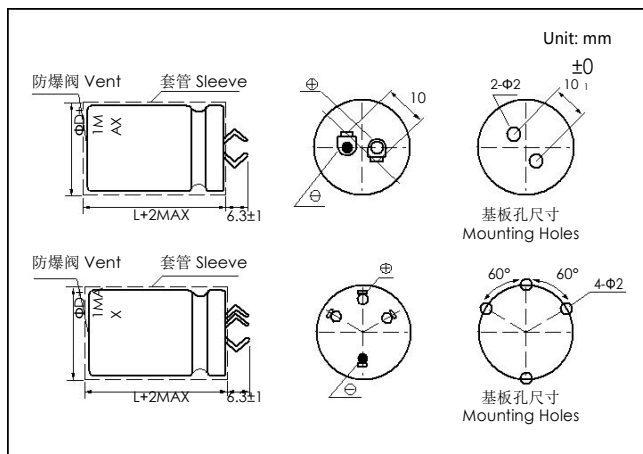
■ 85°C 5000 hrs .

High ripple current, load life of 5000 hrs at 85°C .

## Specifications

Item	Performance Characteristics	
Operating Temperature Range	-40~+85°C	-25~+85°C
Rated Voltage Range	10~400V	450V
Nominal Capacitance Range	68~22000 $\mu$ F	
Capacitance Tolerance	$\pm 20\%$ (120Hz, +25°C )	
Leakage Current	$I \leq 0.01CV$ or 1.5mA ( after 5 minutes , Whichever is smaller )	
Dissipation Factor ( +25°C ,120Hz )	$U_R(V)$	10    16    25    35    50    63~100    160~450
	$tg\delta$	0.8    0.6    0.50    0.40    0.30    0.20    0.15
Temperature Characteristics (Impedance ratio at 120Hz)	$U_R(V)$	10    16~35    50~100    160~200    250~400    450
	Z-25°C /+20°C	5    4    3    3    4    4
	Z-40°C /+20°C	18    15    10    6    8    -
Load Life	After applying rated voltage with specified ripple current for 5000 hours at +85°C and then resumed 24 hours: Capacitance change : $\pm 20\%$ of the initial measured value Leakage current : $\leq$ the initial specified value Dissipation factor : $\leq 200\%$ of the initial specified value	
Shelf Life	After storage for 1000 hours at +85°C , $U_R$ to be applied for 30 minutes and then resumed 24 hours: Capacitance change : $\pm 15\%$ of the initial measured value Leakage current : $\leq$ the initial specified value Dissipation factor : $\leq 150\%$ of the initial specified value	

## Diagram of Dimensions



## Multiplier for Ripple Current

### 频率系数 Frequency coefficient

U(V)	Frequency (Hz)	50	120	1K	10K	100K
$\leq 50$		0.90	1.00	1.10	1.15	1.15
63~100		0.90	1.00	1.16	1.30	1.33
$\geq 160$		0.85	1.00	1.20	1.50	1.55

### 温度系数 Temperature coefficient

U(V)	Temperature (°C)	+40	+55	+70	+85
$< 160$		2.1	1.8	1.5	1.0
$\geq 160$		1.7	1.5	1.3	1.0

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Standard Size

Rated Voltage (Vdc)	Surge Voltage (Vdc)	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120HZ (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)
10 1A	13	10000	106	74	2.5	22×25
		12000	89	62	2.7	22×25
		15000	71	50	3.2	22×30
			71	50	3.1	25×25
		18000	59	41	3.6	22×35
			59	41	3.6	25×30
		22000	48	34	4	22×40
			48	34	4.1	25×35
48	34		4.1	30×25		
16 1C	20	8200	97	68	2.2	22×25
		10000	80	56	2.6	22×30
			80	56	2.6	25×25
		12000	66	46	2.9	22×35
		15000	53	37	3.3	22×40
			53	37	3.3	25×30
			53	37	3.4	30×25
		18000	44	31	3.8	22×45
			44	31	3.7	25×35
		22000	36	25	4.2	22×50
			36	25	4.2	25×40
			36	25	4.2	30×30
			36	25	4.4	35×25
		25 1E	32	5600	119	83
6800	98			68	2.3	22×30
	98			68	2.3	25×25
8200	81			57	2.6	22×35
10000	66			46	2.9	22×40
	66			46	2.8	25×30
	66			46	3	30×25
12000	55			39	3.3	22×45
	55			39	3.2	25×35
	55			39	3.4	30×30
15000	44			31	3.7	25×40
	44			31	3.9	35×25
18000	37			26	4.3	25×50
	37			26	4.2	30×35
	37			26	4.4	35×30
22000	30			21	4.8	30×40
	30			21	5	35×35
35 1V	44			3300	161	113
		3900	136	95	2.1	22×30
		4700	113	79	2.2	25×25
		5600	95	66	2.3	22×35
			95	66	2.3	25×30
			78	55	2.9	22×40

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Rated Voltage (V <sub>dc</sub> )	Surge Voltage (V <sub>dc</sub> )	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120HZ (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)
35 1V	44	10000	53	37	3.1	25×45
			53	37	3.2	30×35
		12000	44	31	3.5	25×50
			44	31	3.5	30×40
		15000	44	31	3.6	35×30
			35	25	4.1	30×45
		18000	35	25	4.1	35×35
			30	21	4.6	30×50
30	21	4.7	35×40			
22000	24	17	5.3	35×45		
50 1H	63	2200	181	127	1.7	22×25
		2700	147	103	1.9	22×30
			147	103	1.9	25×25
		3300	121	85	2.0	22×30
		3900	102	72	2.1	22×35
			102	72	2.1	25×30
		4700	102	72	2.4	30×25
			85	59	2.4	22×40
		85	59	59	2.4	25×35
			71	50	2.5	22×50
		5600	71	50	2.5	25×40
			71	50	2.5	30×30
			71	50	2.6	35×25
		6800	59	41	2.8	25×45
			59	41	2.8	30×35
		8200	49	34	3.2	25×50
			49	34	3	30×40
			49	34	3	35×30
10000	40	28	3.4	30×45		
	40	28	3.4	35×35		
12000	33	23	3.8	30×50		
	33	23	3.8	35×40		
15000	27	19	4.5	35×50		
63 1J	79	1500	177	124	1.6	22×25
		1800	147	103	1.8	22×25
		2200	121	84	2	22×30
			121	84	2	25×25
		2700	98	69	2.2	22×35
			98	69	2.3	25×30
		3300	80	56	2.3	22×40
			80	56	2.3	25×35
			80	56	2.3	30×25
		3900	68	48	2.5	22×45
			68	48	2.6	25×40
			68	48	2.6	30×30

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Rated Voltage (V <sub>dc</sub> )	Surge Voltage (V <sub>dc</sub> )	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120HZ (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)		
63 1J	79	6800	39	27	3.6	30×40		
			39	27	3.7	35×35		
		8200	32	23	3.7	30×50		
			32	23	3.8	35×40		
		10000	27	19	4.3	35×45		
		12000	22	16	4.8	35×50		
80 1K	100	1000	265	186	1.3	22×25		
		1200	221	155	1.5	22×30		
		1500	177	124	1.7	25×25		
			147	103	1.9	22×35		
		1800	147	103	1.9	25×30		
			121	84	2.1	22×40		
		2200	121	84	2.2	25×35		
			121	84	2.2	30×25		
			98	69	2.5	22×50		
		2700	98	69	2.5	25×40		
			98	69	2.5	30×30		
			98	69	2.5	35×25		
		3300	80	56	2.8	25×45		
			80	56	2.8	30×35		
		3900	68	48	3.1	25×50		
			68	48	3.2	30×40		
			68	48	3.2	35×30		
		4700	57	40	3.6	30×45		
			57	40	3.6	35×35		
		5600	47	33	3.8	30×50		
			47	33	3.8	35×40		
		6800	22	16	4.1	35×50		
		100 2A	125	680	390	273	1.1	22×25
				820	324	227	1.2	22×30
1000	265			186	1.4	25×25		
1200	221			155	1.6	22×35		
	221			155	1.6	25×30		
1500	177			124	1.8	22×40		
	177			124	1.7	25×35		
	177			124	1.8	30×25		
1800	147			103	2.1	22×50		
	147			103	2	25×40		
	147			103	2.1	30×30		
	147			103	2.2	35×25		
2200	121			84	2.2	25×45		
	121			84	2.3	30×35		
	121			84	2.5	35×30		
2700	98			69	2.6	25×50		
	98			69	2.7	30×40		

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Rated Voltage (V <sub>dc</sub> )	Surge Voltage (V <sub>dc</sub> )	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120HZ (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)
160 2C	200	220	905	633	1.0	22×25
		270	737	516	1.1	22×25
		330	603	422	1.3	22×25
		390	510	357	1.5	22×30
			510	357	1.5	25×25
		470	424	297	1.7	25×25
		560	355	249	1.9	22×35
			355	249	1.9	25×30
			355	249	2	30×25
		680	293	205	2.1	22×40
			293	205	2.2	25×35
		820	243	170	2.5	22×50
			243	170	2.4	25×40
			243	170	2.5	30×30
			243	170	2.4	35×25
		1000	199	139	2.7	25×45
			199	139	2.8	30×35
			199	139	2.7	35×30
		1200	166	116	3.1	25×50
			166	116	3.2	30×40
			166	116	3	35×35
		1500	133	93	3.7	30×45
133	93		3.5	35×40		
1800	111	77	3.9	35×45		
2200	91	63	4.5	35×50		
180 2K	225	270	737	516	1.2	22×25
		330	603	422	1.4	22×30
		390	510	357	1.5	25×25
		470	424	296	1.7	22×35
			424	296	1.7	25×30
			424	296	1.8	30×25
		560	355	249	1.9	22×40
			355	249	2	25×35
		680	293	205	2.3	22×50
			293	205	2.2	25×40
			293	205	2.3	30×30
			293	205	2.2	35×25
		820	243	170	2.5	25×45
			243	170	2.6	30×35
		820	243	170	2.5	35×30
			243	170	2.5	35×30
		1000	199	139	2.9	25×50
			199	139	2.9	30×40
1200	166	116	3.3	30×45		
	166	116	3.1	35×35		
1500	133	93	3.6	35×45		
1800	111	77	4.1	35×50		

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Rated Voltage (V <sub>dc</sub> )	Surge Voltage (V <sub>dc</sub> )	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120Hz (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)
200 2D	250	470	424	296	1.8	22×40
			424	296	1.9	30×25
		560	355	249	2	22×45
			355	249	2	25×35
			355	249	2.1	30×30
			355	249	2	35×25
			355	249	2	35×25
		680	293	205	2.3	25×40
			293	205	2.4	30×35
		820	243	170	2.6	25×50
			243	170	2.7	30×40
			243	170	2.5	35×30
		1000	199	139	3.1	30×45
			199	139	2.8	35×35
		1200	166	116	3.4	30×50
166	116		3.2	35×40		
1500	133	93	3.8	35×50		
250 2E	300	180	1106	774	0.94	22×25
		220	905	633	1.1	22×30
			905	633	1.1	25×25
		270	737	516	1.2	22×35
		330	603	422	1.4	22×40
			603	422	1.4	25×30
			603	422	1.5	30×25
		390	510	357	1.6	22×45
			510	357	1.6	25×35
		470	424	296	1.8	22×50
			424	296	1.8	25×40
			424	296	1.8	30×30
			424	296	1.9	35×25
		560	355	249	2	25×45
			355	249	2	30×35
		680	293	205	2.3	30×40
			293	205	2.4	35×30
		820	243	170	2.6	30×45
			243	170	2.6	35×35
		1000	199	139	3	35×40
1200	166	116	3.4	35×45		
315 2F	365	100	1990	1393	0.67	22×25
		120	1659	1161	0.75	22×30
		150	1327	929	0.85	22×30
			1327	929	0.85	25×25
		180	1106	774	0.96	22×35
			1106	774	0.96	25×30
		220	905	633	1.1	22×40
			905	633	1.1	25×35
			905	633	1.1	30×25

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Rated Voltage (V <sub>dc</sub> )	Surge Voltage (V <sub>dc</sub> )	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120HZ (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)
315 2F	365	390	510	357	1.6	25×50
			510	357	1.6	30×40
			510	357	1.6	35×30
		470	424	296	1.8	30×45
			424	296	1.8	35×35
			424	296	1.8	35×40
560	355	249	2	30×50		
	355	249	2	35×40		
680	293	205	2.3	35×45		
	293	205	2.3	35×50		
350 2V	400	82	2427	1699	0.64	22×25
		100	1990	1393	0.72	22×25
		120	1659	1161	0.82	22×30
			1659	1161	0.81	25×25
		150	1327	929	0.94	22×35
			1327	929	0.94	25×30
		180	1106	774	1.1	22×40
			1106	774	1.1	30×25
		220	905	633	1.2	22×45
			905	633	1.2	25×35
			905	633	1.2	30×30
			905	633	1.3	35×25
		270	737	516	1.4	25×45
			737	516	1.4	30×35
		330	603	422	1.6	25×50
			603	422	1.6	35×30
		390	510	357	1.7	30×40
			510	357	1.8	35×35
		470	424	296	2	30×45
			424	296	2	35×40
560	355	249	2.3	35×45		
	355	249	2.3	35×50		
680	293	205	2.6	35×50		
	293	205	2.6	35×55		
400 2G	450	68	2927	2049	0.55	22×25
		82	2427	1699	0.6	22×25
		100	1990	1393	0.7	22×30
			1990	1393	0.7	25×25
		120	1659	1161	0.79	22×35
			1659	1161	0.79	25×30
		150	1327	929	0.9	22×40
			1327	929	0.89	25×30
			1327	929	0.95	30×25
		180	1106	774	1	22×45
			1106	774	1	25×35
			1106	774	1.1	30×30
			1106	774	1.2	35×25
		220	905	633	1.1	22×50
			905	633	1.2	25×40
			905	633	1.2	30×35
		270	737	516	1.3	25×45
			737	516	1.4	30×40
			737	516	1.6	35×30
		330	603	422	1.6	30×45
603	422		1.7	35×35		

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Rated Voltage (V <sub>dc</sub> )	Surge Voltage (V <sub>dc</sub> )	Rated Capacitance (μF)	Max ESR 25°C 120Hz (mΩ)	Type ESR 25°C 120HZ (mΩ)	Rated ripple current 85°C 120Hz (Arms)	Size ΦD×L (mm)
450 2W	500	68	2927	2049	0.57	22×30
		82	2427	1699	0.64	22×35
		100	1990	1393	0.72	22×35
			1990	1393	0.73	25×30
		120	1659	1161	0.8	22×40
			1659	1161	0.83	25×35
		150	1327	929	0.95	22×50
			1327	929	0.95	25×40
			1327	929	0.98	30×30
		180	1106	774	1.1	25×45
			1106	774	1.1	30×35
			1106	774	1.2	35×25
		220	905	633	1.2	25×50
			905	633	1.3	30×40
			905	633	1.3	35×30
		270	737	516	1.4	30×45
737	516		1.5	35×35		
330	603	423	1.7	30×50		
390	510	357	1.9	35×45		
470	424	296	2.2	35×50		

Custom designed capacitors available