

## LP series 85°C 2000hours

- Standard series general purposes
- Endurance:85°C 2000 hours
- ROHS compliant

### ■SPECIFICATIONS

Item	Performance Characteristics																																	
Operating Temperature Range	-40~85°C ( 10V~400V ) -25~85°C ( 450V )																																	
Rated Voltage Range	10~450V																																	
Capacitance Range	68~82000uF																																	
Capacitance Tolerance	±20% at 120Hz,20°C																																	
Leakage Current (MAX)	After 5 minutes at 20°C application of rated voltage,current is not more than 0.01CV or 1.5mA whichever is smaller. I=Leakage Current ( uA ) ,C=Nominal Capacitance ( uF ) ,V=Rated Voltage ( V )																																	
Dissipation Factor (tan δ)	<table border="1"> <thead> <tr> <th>Rated voltage(V)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160~400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Tan δ</td> <td>0.50</td> <td>0.40</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> </tr> </tbody> </table> <p style="text-align: right;">20°C 120Hz</p>	Rated voltage(V)	10	16	25	35	50	63	80	100	160~400	450	Tan δ	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	0.15	0.15											
Rated voltage(V)	10	16	25	35	50	63	80	100	160~400	450																								
Tan δ	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	0.15	0.15																								
Low Temperature Stability Impedance Ratio	<p style="text-align: center;">Measurement frequency:120Hz</p> <table border="1"> <thead> <tr> <th>Rated voltage(V)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160~400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C) / Z ( +20°C )</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>4</td> <td>6</td> </tr> <tr> <td>Z(-40°C) / Z ( +20°C )</td> <td>15</td> <td>15</td> <td>10</td> <td>8</td> <td>6</td> <td>6</td> <td>5</td> <td>5</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Rated voltage(V)	10	16	25	35	50	63	80	100	160~400	450	Z(-25°C) / Z ( +20°C )	4	4	3	3	2	2	2	2	4	6	Z(-40°C) / Z ( +20°C )	15	15	10	8	6	6	5	5	-	-
Rated voltage(V)	10	16	25	35	50	63	80	100	160~400	450																								
Z(-25°C) / Z ( +20°C )	4	4	3	3	2	2	2	2	4	6																								
Z(-40°C) / Z ( +20°C )	15	15	10	8	6	6	5	5	-	-																								
Load Life	<p>After application of the rated DC coltage with rated ripple current at 85°C 2000hours the capacitors shall meet the requirement bellow</p> <table border="1"> <tbody> <tr> <td>Leakage Current</td> <td>≤The initial specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>±20% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>≤200% of the initial specified value</td> </tr> </tbody> </table>	Leakage Current	≤The initial specified value	Capacitance Change	±20% of the initial value	Dissipation Factor	≤200% of the initial specified value																											
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Shelf Life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 85°C without voltage applied.</p> <table border="1"> <tbody> <tr> <td>Leakage Current</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>±20% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>≤150% of the initial specified value</td> </tr> </tbody> </table>	Leakage Current	≤200% of the initial specified value	Capacitance Change	±20% of the initial value	Dissipation Factor	≤150% of the initial specified value																											
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### ■MULTIPLIER FOR RIPPLE CURRENT

#### Frequency coefficient

Cap(uF) \ Frequency(Hz)	60 ( 50 )	120	1k	10k	≥20k
≤50	0.95	1.00	1.10	1.15	1.15
63~100	0.95	1.00	1.16	1.30	1.33
≥160	0.95	1.00	1.20	1.50	1.55

#### Temperature coefficient

Temperature Coefficient	40°C	55°C	70°C	85°C
< 160	2.1	1.8	1.5	1.0
≥160	1.7	1.5	1.3	1.0

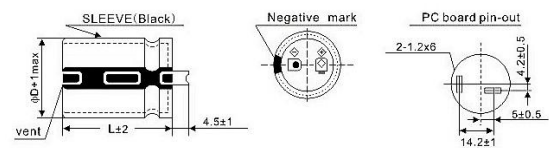
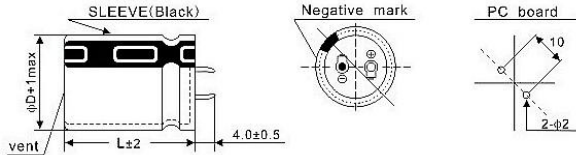
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## ■DIMENSIONS(mm)

Terminal code:K ( Φ22 to Φ35 ) :Standard

Terminal code:L ( Φ35 to Φ40 )



## ■STANDARD SIZE PERMISSIBLE RIPPLE CURRENT

Size  $\Phi D \times L$ (mm)Ripple Current(mA 85°C,100kHz)r.m.s

W.V	CAP ( uF )	SIZE	Ripple current
10	10000	22×25	2.48
	12000	22×25	2.52
	15000	22×30	3.10
		25×25	3.10
	18000	22×35	3.45
		25×30	3.50
	22000	22×40	3.85
		25×35	3.88
		30×25	3.90
	33000	25×40	4.42
		30×30	4.58
		35×25	4.65
	39000	25×45	5.00
		30×35	5.15
	47000	25×50	5.60
		30×40	5.85
		35×30	6.00
	56000	30×45	6.58
35×35		6.62	
68000	30×50	7.38	
	35×40	7.65	
82000	35×45	8.55	
16	8200	22×25	2.32
	10000	22×30	2.65
		25×25	2.62
	12000	22×35	2.98
		25×25	2.96
	15000	22×40	3.47
		25×30	3.45
		30×25	3.56
	18000	22×45	3.92
		25×35	3.90
		30×30	3.88
	22000	22×50	4.05
		25×40	4.05
		30×30	4.10
		35×25	4.20
	27000	25×45	4.98
		30×35	4.90
	33000	30×40	5.45
35×30		5.40	
39000	30×45	6.15	
	35×35	6.02	

W.V	CAP ( uF )	SIZE	Ripple current
16	47000	30×50	6.90
		35×40	7.10
		35×45	7.88
25	5600	22×25	2.10
		22×30	2.42
		22×35	2.70
	8200	25×25	2.65
		22×40	2.88
		25×30	2.75
	10000	30×25	2.98
		22×40	3.48
		25×35	3.45
	12000	30×25	3.50
		22×50	3.95
		25×40	3.92
	15000	30×30	3.93
		25×45	4.55
		30×35	4.62
	18000	35×30	4.65
		30×40	5.15
		35×35	5.18
22000	30×45	6.00	
	35×40	6.02	
	33000	35×45	6.68
39000	35×50	7.55	
	3900	2.15	2.15
	4700	2.45	2.45
2.40		2.40	
2.76		2.76	
5600	2.74	2.74	
	2.85	2.85	
	2.87	2.87	
6800	2.98	2.98	
	3.45	3.45	
	3.29	3.29	
8200	3.26	3.26	
	3.55	3.55	
	3.54	3.54	
10000	3.58	3.58	
	3.98	3.98	
	4.00	4.00	
12000	4.00	4.00	
	4.70	4.07	
15000	4.72	4.72	

W.V	CAP ( uF )	SIZE	Ripple current
35	18000	30×45	5.08
		35×40	5.65
		35×45	6.25
27000	35×50	6.82	
	2200	22×25	1.88
	2700	22×30	2.14
3300	22×30	2.31	
	25×25	2.28	
	22×35	2.62	
3900	25×30	2.56	
	22×40	2.93	
	25×30	2.97	
4700	30×25	2.94	
	22×50	2.45	
	25×40	2.45	
5600	30×30	2.47	
	35×25	2.56	
	25×45	2.76	
6800	30×35	2.74	
	25×50	3.15	
	30×40	2.96	
8200	35×30	2.96	
	30×45	3.35	
	35×35	3.35	
10000	30×50	3.76	
	12000	35×40	3.73
	15000	35×50	4.46
1500	22×25	1.54	
	1800	22×30	1.75
	2200	22×30	1.94
2200	25×25	1.96	
	2700	22×35	2.15
	25×30	2.26	
3300	22×40	2.26	
	25×35	2.25	
	30×25	2.26	
3900	22×45	2.46	
	25×40	2.55	
	30×30	2.55	
5600	35×25	2.67	
	25×45	3.05	
	30×35	3.16	
35×30	3.25		

**LP**

series 85°C 2000hours

## ■STANDARD SIZE PERMISSIBLE RIPPLE CURRENT

Size  $\Phi D \times L$ (mm)Ripple Current(mA 85°C,100kHz)r.m.s

W.V	CAP ( uF )	SIZE	Ripple current
160	560	25×30	1.87
		30×25	1.96
	680	22×40	2.06
		25×35	2.14
	820	22×50	2.46
		26×40	2.37
		30×30	2.46
		35×25	2.36
		25×45	2.65
	1000	30×35	2.65
		35×30	2.76
		25×50	3.05
	1200	30×40	3.16
		35×35	2.94
	1500	30×45	3.64
		35×40	3.47
	1800	35×45	3.84
	2200	35×50	4.46
180	270	22×25	1.16
	330	22×30	1.35
	390	25×25	1.44
	470	22×35	1.63
		25×30	1.63
		30×25	1.75
	560	22×40	1.86
		25×35	1.95
	680	22×50	2.24
		25×40	2.16
		30×30	2.24
		35×25	2.16
	820	25×45	2.46
		30×35	2.57
		35×30	2.46
	1000	25×50	2.88
		30×40	2.88
	1200	30×45	3.26
35×35		3.24	
1500	35×45	3.56	
1800	35×50	4.06	
200	200	22×25	1.06
	270	22×30	1.17
	330	22×30	1.35
		22×35	1.40
	390	22×35	1.56
		25×30	1.56
	470	22×40	1.74
		30×25	1.86
	560	22×45	1.95
		25×35	1.95
		30×30	2.04
		22×40	1.90
		35×25	1.94
	680	22×45	2.10
		25×36	2.25
		25×40	2.26
		30×35	2.34
	820	25×50	2.56

W.V	CAP ( uF )	SIZE	Ripple current
160	560	25×30	1.87
		30×25	1.96
	680	22×40	2.06
		25×35	2.14
	820	22×50	2.46
		26×40	2.37
		30×30	2.46
		35×25	2.36
		25×45	2.65
	1000	30×35	2.65
		35×30	2.76
		25×50	3.05
	1200	30×40	3.16
		35×35	2.94
	1500	30×45	3.64
		35×40	3.47
	1800	35×45	3.84
	2200	35×50	4.46
180	270	22×25	1.16
	330	22×30	1.35
	390	25×25	1.44
	470	22×35	1.63
		25×30	1.63
		30×25	1.75
	560	22×40	1.86
		25×35	1.95
	680	22×50	2.24
		25×40	2.16
		30×30	2.24
		35×25	2.16
	820	25×45	2.46
		30×35	2.57
		35×30	2.46
	1000	25×50	2.88
		30×40	2.88
	1200	30×45	3.26
35×35		3.24	
1500	35×45	3.56	
1800	35×50	4.06	
200	200	22×25	1.06
	270	22×30	1.17
	330	22×30	1.35
		22×35	1.40
	390	22×35	1.56
		25×30	1.56
	470	22×40	1.74
		30×25	1.86
	560	22×45	1.95
		25×35	1.95
		30×30	2.04
		22×40	1.90
		35×25	1.94
	680	22×45	2.10
		25×36	2.25
		25×40	2.26
		30×35	2.34
	820	25×50	2.56

W.V	CAP ( uF )	SIZE	Ripple current
200	820	30×40	2.64
		35×30	2.44
	1000	30×45	3.06
		35×35	2.74
		30×50	3.35
	1200	35×40	3.16
35×50		3.77	
220	100	22×25	0.63
	180	22×25	0.90
	220	22×30	1.06
250	220	25×25	1.06
		22×35	1.14
	330	22×40	1.35
		25×30	1.35
	390	30×25	1.47
		22×45	1.56
	470	25×35	1.56
		22×50	1.74
		25×40	1.74
	560	30×30	1.74
		35×25	2.35
		25×45	1.95
	680	30×35	1.95
		30×40	2.26
	820	35×30	2.54
30×45		2.54	
1000	35×35	2.54	
	35×40	2.97	
	35×45	3.35	
315	100	22×25	0.62
	150	22×30	0.80
		25×25	0.80
	180	22×35	0.91
		25×30	0.90
	220	22×40	1.05
		25×35	1.06
		30×25	1.06
	270	22×45	1.13
		25×40	1.27
		30×30	1.27
		35×25	1.27
25×45		1.35	
330	30×35	1.37	
	25×50	1.54	
390	30×40	1.55	
	35×30	1.55	
470	30×45	1.76	
	35×35	1.76	
	30×50	1.93	
560	35×40	1.93	
	35×45	2.26	
350	82	22×25	0.59
	100	22×25	0.77
	120	22×30	0.78
25×25		0.75	
150	22×35	0.90	
	25×30	0.90	

**LP**

series

85°C 2000hours

## ■STANDARD SIZE PERMISSIBLE RIPPLE CURRENT

Size  $\Phi D \times L$ (mm)Ripple Current(mA 85°C,100kHz)r.m.s

W.V	CAP ( uF )	SIZE	Ripple current	W.V	CAP ( uF )	SIZE	Ripple current	W.V	CAP ( uF )	SIZE	Ripple current	
350	180	22×40	1.05	450	180	35×25	1.13					
		30×25	1.05									
	220	22×45	1.16		220	220	25×50	1.13				
		25×35	1.16				30×40	1.26				
		30×30	1.16					35×30	1.26			
		35×25	1.25			30×45	1.34					
		25×45	1.37				35×35	1.46				
	270	30×35	1.37		330	30×50	1.65					
		25×50	1.56			390	35×45	1.88				
	330	35×30	1.56		470		35×50	2.17				
		30×40	1.64			35×60	2.78					
	390	35×35	1.75		560	35×60	2.95					
		30×45	1.95			680	35×60	3.25				
	470	35×40	1.95		820		40×60	5.00				
560		35×45	2.26									
400	68	22×25	0.50									
		22×25	0.60									
	100	22×30	0.64									
		25×25	0.64									
	120	22×35	0.75									
		22×40	0.86									
	150	25×30	0.85									
		30×25	0.90									
		22×45	0.95									
	180	25×35	0.95									
		30×30	1.04									
		30×40	1.09									
		35×25	1.16									
	220	22×50	1.04									
		25×40	1.15									
		30×35	1.14									
	270	25×45	1.25									
		25×50	1.34									
		30×40	1.46									
	330	35×30	1.55									
		30×45	1.64									
	390	35×35	1.76									
		35×40	1.76									
		30×50	1.76									
	470	35×45	2.03									
		35×60	2.70									
	560	35×50	2.28									
		35×60	3.00									
	680	35×60	3.20									
	450	68	22×30	0.51								
22×35			0.63									
100		22×35	0.66									
		25×30	0.68									
120		22×40	0.75									
		25×35	0.80									
150		25×40	0.91									
		30×30	0.91									
		35×25	0.93									
180		25×45	1.06									
		30×35	1.06									