



# PL Series

- Load life 2,000 hours at 105°C
- Large size for PCB board mounting hole type



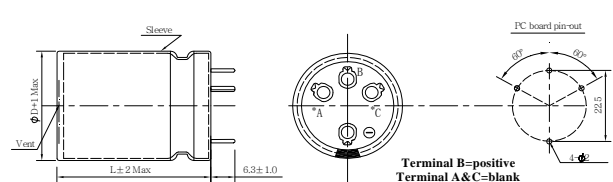
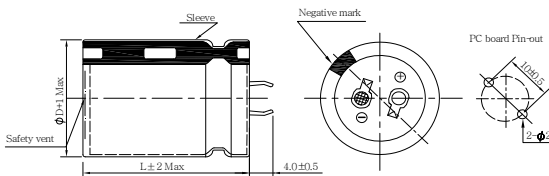
◆ SPECIFICATIONS

Item	Performance Characteristics																																									
Category Temperature Range	-40 ~ +105°C	-25 ~ +105°C																																								
Working Voltage Range	16 ~ 100Vdc	160 ~ 500Vdc																																								
Capacitance Range	560 ~ 47,000µF	39 ~ 2,200µF																																								
Capacitance Tolerance	±20% (at 25°C and 120Hz)																																									
Dissipation Factor (tanδ) (at 25°C, 120Hz)	<table border="1"> <tr> <th>Rated Voltage (V)</th> <td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100 ~ 250</td><td>350 ~ 450</td><td>475</td><td>500</td> </tr> <tr> <th>tanδ(Max)</th> <td>0.35</td><td>0.35</td><td>0.25</td><td>0.25</td><td>0.25</td><td>0.20</td><td>0.15</td><td>0.15</td><td>0.20</td><td>0.20</td> </tr> </table>										Rated Voltage (V)	16	25	35	50	63	80	100 ~ 250	350 ~ 450	475	500	tanδ(Max)	0.35	0.35	0.25	0.25	0.25	0.20	0.15	0.15	0.20	0.20										
	Rated Voltage (V)	16	25	35	50	63	80	100 ~ 250	350 ~ 450	475	500																															
tanδ(Max)	0.35	0.35	0.25	0.25	0.25	0.20	0.15	0.15	0.20	0.20																																
The above values should be increased by 0.02 for every additional 1000µF																																										
Leakage Current	I=0.02CV or 3000µA, whichever is smaller I : Leakage current (µA) C : Rated capacitance (µF) V : Rated voltage (V) Impress the rated voltage for 5 minutes																																									
	<table border="1"> <tr> <th>Rated voltage (V)</th> <td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td><td>160 ~ 250</td><td>400</td><td>420 ~ 500</td> </tr> <tr> <th>Z(-40°C)/Z(+20°C)</th> <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><td>—</td> </tr> <tr> <th>Z(-25°C)/Z(+20°C)</th> <td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>4</td><td>4</td><td>8</td> </tr> </table> (at 120Hz)										Rated voltage (V)	16	25	35	50	63	80	100	160 ~ 250	400	420 ~ 500	Z(-40°C)/Z(+20°C)	15	10	8	6	6	5	5	—	—	—	Z(-25°C)/Z(+20°C)	—	—	—	—	—	—	—	4	4
Rated voltage (V)	16	25	35	50	63	80	100	160 ~ 250	400	420 ~ 500																																
Z(-40°C)/Z(+20°C)	15	10	8	6	6	5	5	—	—	—																																
Z(-25°C)/Z(+20°C)	—	—	—	—	—	—	—	4	4	8																																
Low Temperature Characteristics Impedance Ratio(MAX)																																										
Endurance	The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105°C.																																									
	Capacitance change		≒ ±20% of the initial value																																							
Dissipation factor(tanδ)		≒ 200% of the specified value																																								
Leakage current		≒ specified value																																								
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25°C after exposing them for 500 hours at 105°C without voltage applied.																																									
	Capacitance change		≒ ±20% of the initial value																																							
Dissipation factor(tanδ)		≒ 200% of the specified value																																								
Leakage current		≒ 200% of the specified value																																								
Others	Conforms to JIS-C-5101-4 (1998), characteristic W																																									

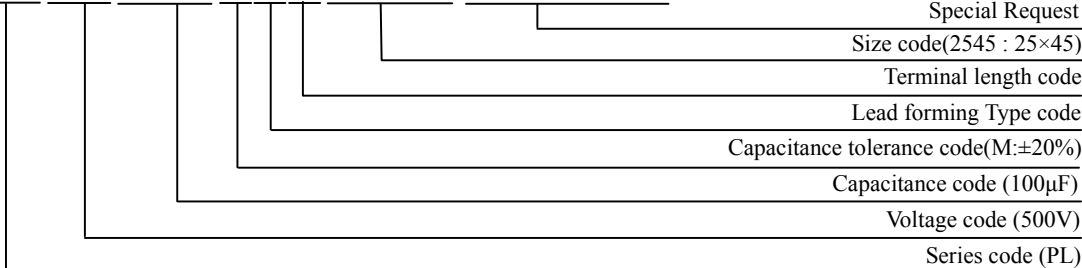
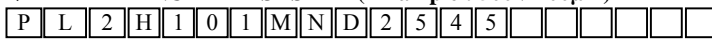
◆ DIMENSIONS (mm)

Terminal Code : ND : Standard

Terminal Code :K6 (ø35)



◆ PART NUMBER SYSTEM ( Example : 500V 100µF )





**PL Series**

◆ Case size & Permissible rated ripple current (mA rms) at 105°C / 120Hz

Vdc ΦD uF	16								Vdc ΦD uF	25							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
6800	22×25	1490							4700	22×25	1425						
10000	22×30	1870	25×25	1870					5600	22×25	1545						
12000	22×35	2100	25×30	2100	30×25	2100			6800	22×30	1765	25×25	1765				
15000	22×40	2450	25×35	2450	30×25	2450			8200	22×35	2000	25×30	2000	30×25	2000		
18000	22×45	2725	25×40	2725	30×30	2725	35×25	2725	10000	22×40	2270	25×35	2270	30×25	2270		
22000			25×45	3150	30×35	3150	35×25	3150	12000	22×45	2600	25×40	2600	30×30	2600	35×25	2600
27000			25×50	3580	30×40	3580	35×30	3580	15000			25×45	3100	30×35	3100	35×30	3100
33000					30×45	4080	35×35	4080	18000			25×50	3360	30×40	3360	35×30	3360
39000					30×50	4565	35×40	4565	22000					30×45	3800	35×35	3800
47000							35×45	5155	27000							35×45	4490

Vdc ΦD uF	35								Vdc ΦD uF	50							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
3300	22×25	1330							1800	22×25	1260						
3900	22×30	1490							2200	22×30	1600	25×25	1600				
4700	22×30	1630	25×25	1630					3300	22×35	1830	25×30	1830				
5600	22×35	1860	25×30	1860	30×25	1860			3900	22×40	2070	25×35	2070	30×25	2070		
6800	22×40	2090	25×35	2090	30×25	2090			4700	22×45	2355	25×35	2355	30×30	2355	35×25	2355
8200	22×45	2610	25×40	2610	30×30	2610	35×25	2610	5600	22×50	2565	25×40	2565	30×35	2565	35×25	2565
10000			25×45	2755	30×35	2755	35×30	2755	6800			25×50	3135	30×40	3135	35×30	3135
12000			25×50	3075	30×40	3075	35×30	3075	8200					30×45	3420	35×35	3420
15000					30×45	3530	35×35	3530	10000					30×50	3825	35×40	3825
18000							35×40	4150	12000							35×45	4320
22000							35×50	4670	15000								

Vdc ΦD uF	63								Vdc ΦD uF	80							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
1200	22×25	1130							820	22×25	1050						
1500	22×25	1260							1000	22×25	1155						
1800	22×30	1440	25×25	1440					1200	22×30	1320	25×25	1320				
2200	22×35	1650	25×30	1650					1500	22×35	1525	25×30	1525				
2700	22×40	1890	25×35	1890	30×25	1890			1800	22×40	1710	25×30	1710	30×25	1710		
3300	22×50	2155	25×40	2155	30×30	2155	35×25	2155	2200	22×45	1965	25×35	1965	30×30	1965	35×25	1965
3900			25×45	2420	30×35	2420	35×25	2420	2700			25×45	2240	30×35	2240	35×25	2240
4700			25×50	2715	30×40	2715	35×30	2715	3300			25×50	2545	30×40	2545	35×30	2545
5600					30×45	3055	35×35	3055	3900					30×45	2850	35×35	2850
6800					30×50	3465	35×40	3465	4700					30×50	3220	35×40	3220
8200							35×45	3700	5600							35×45	3610
10000							35×50	4180	6800							35×50	3700



**PL Series**

◆ Case size & Permissible rated ripple current (mA rms) at 105°C / 120Hz

Vdc ΦD uF	100								Vdc ΦD uF	160							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
560	22×25	995							220	22×25	760						
820	22×30	1260	25×25	1260					330	22×25	1140	25×25	1140				
1000	22×35	1425	25×30	1425					390	22×30	1215	25×25	1215	30×25	1215		
1200	22×40	1620	25×35	1620	30×25	1620			470	22×35	1330	25×25	1330	30×25	1330		
1500	22×45	1880	25×40	1880	30×30	1880	35×25	1880	560	22×40	1460	25×30	1460	30×25	1460	35×25	1460
1800			25×45	2115	30×35	2115	35×25	2115	680	22×45	1615	25×35	1615	30×25	1615	35×25	1615
2200			25×50	2565	30×40	2565	35×30	2565	820	22×50	1900	25×40	1900	30×30	1900	35×25	1900
2700					30×45	2735	35×35	2735	1000			25×45	2110	30×35	2110	35×25	2110
3300					30×50	3115	35×40	3115	1200			25×50	2315	30×40	2315	35×30	2315
3900							35×45	3485	1500					30×45	2675	35×35	2675
4700							35×50	3610	1800					30×50	3140	35×45	3140
5600									2200							35×50	3580

Vdc ΦD uF	200								Vdc ΦD uF	220							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
150	22×25	625							150	22×25	650						
180	22×25	680							180	22×25	695						
220	22×25	750	25×25	750					220	22×25	800	25×25	800				
330	22×30	1140	25×25	1140	30×25	1140			330	22×30	1160	25×25	1160	30×25	1160		
390	22×35	1240	25×25	1240	30×25	1240			390	22×40	1300	25×30	1300	30×25	1300	35×25	1300
470	22×40	1335	25×30	1335	30×25	1335	35×25	1335	470	22×45	1355	25×35	1355	30×30	1355	35×25	1355
560	22×45	1480	25×35	1480	30×25	1480	35×25	1480	560	22×50	1550	25×40	1550	30×35	1550	35×25	1550
680	22×50	1650	25×40	1650	30×30	1650	35×25	1650	680			25×45	1700	30×40	1700	35×30	1700
820			25×50	1935	30×35	1935	35×30	1935	820			25×50	1820	30×45	1820	35×30	1820
1000					30×45	2185	35×35	2185	1000					30×50	2010	35×35	2010
1200					30×50	2515	35×40	2515	1200							35×40	2200
1500							35×45	2925	1500							35×45	2460

Vdc ΦD uF	250								Vdc ΦD uF	400							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
120	22×25	560							47	22×25	350						
150	22×25	675							68	22×25	480	25×25	480				
180	22×25	710	25×25	710					82	22×30	600	25×25	600				
220	22×30	870	25×25	870	30×25	870			100	22×30	635	25×25	635	30×25	635		
330	22×40	1195	25×30	1195	30×25	1195	35×25	1195	120	22×35	680	25×30	680	30×25	680		
390	22×45	1415	25×35	1415	30×25	1415	35×25	1415	150	22×40	795	25×35	795	30×25	795	35×25	795
470	22×50	1490	25×40	1490	30×30	1490	35×25	1490	180	22×50	890	25×40	890	30×30	890	35×25	890
560			25×45	1700	30×35	1700	35×30	1700	220			25×45	1015	30×35	1015	35×30	1015
680			25×50	1870	30×40	1870	35×30	1870	330					30×45	1280	35×35	1280
820					30×45	1880	35×35	1880	390					30×50	1460	35×40	1460
1000							35×40	2185	470							35×45	1650
1200							35×45	2300									



## PL Series

◆ Case size & Permissible rated ripple current (mA rms) at 105°C / 120Hz

Vdc ΦD uF	420								Vdc ΦD uF	450							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
47	22×25	370							47								
68	22×25	505	25×25	505					68	22×30	475	25×25	475				
82	22×30	550	25×25	550					82	22×35	520	25×25	520				
100	22×30	605	25×25	605	30×25	605			100	22×40	600	25×30	600	30×25	600		
120	22×35	665	25×30	665	30×25	665			120	22×45	680	25×35	680	30×25	680		
150	22×40	740	25×35	740	30×25	740	35×25	740	150	22×50	710	25×40	710	30×30	710	35×25	710
180	22×50	810	25×40	810	30×30	810	35×25	810	180			25×45	825	30×35	825	35×30	825
220			25×45	900	30×35	900	35×30	900	220			25×50	930	30×40	930	35×30	930
330					30×45	1295	35×35	1295	330					30×50	1310	35×40	1310
390					30×50	1465	35×40	1465	390							35×45	1470
470							35×45	1600	470							35×50	1630

Vdc ΦD uF	475								Vdc ΦD uF	500							
	Φ 22		Φ 25		Φ 30		Φ 35			Φ 22		Φ 25		Φ 30		Φ 35	
	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC		ΦD×L	RC	ΦD×L	RC	ΦD×L	RC	ΦD×L	RC
39	22×25	370							39	22×30	350						
47	22×25	420							47	22×35	410						
56	22×30	475	25×25	475					56	22×40	470						
68	22×30	555	25×25	555					68	22×45	540						
82	22×35	590	25×30	590	30×25	590			82	22×50	620						
100	22×40	665	25×35	665	30×25	665	35×25	665	100			25×45	670				
120	22×50	760	25×40	760	30×30	760	35×25	760	120			25×50	770			35×30	720
150			25×45	825	30×35	825	35×30	825	150					30×40	850		
180					30×45	930	35×35	930	180					30×50	1010		
220					30×50	1090	35×40	1090	220							35×45	1120
270							35×45	1200	270							35×50	1290

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Frequency (Hz)				
	50	120	1K	10K	≥50K
16 ~ 100	0.95	1.00	1.05	1.08	1.08
160 ~ 250	0.81	1.00	1.32	1.45	1.50
350 ~ 500	0.77	1.00	1.30	1.41	1.43