

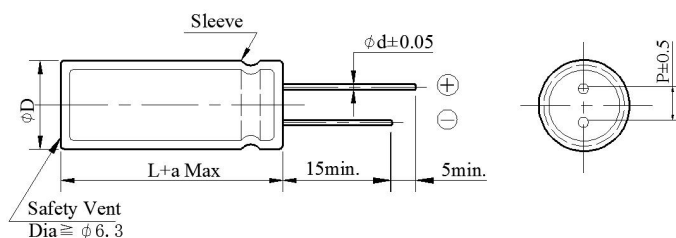
PL Series

- High stability, High ripple current capability.
- Load life 3,000 hours at 105°C.

◆ SPECIFICATIONS

Item	Performance Characteristics							
Category Temperature Range	-40~ +105℃ (160~400V.DC) -25~ +105℃ (450~500V.DC)							
Working Voltage Range	160~500Vdc							
Capacitance Range	1.0~330μF							
Capacitance Tolerance	±20% (at 20℃ and 120Hz)							
Dissipation Factor (tan δ) (at 20℃, 120Hz)	Rated Voltage (V)	160	200	250	400	420	450	500
	tan δ (Max)	0.15	0.15	0.15	0.20	0.20	0.20	0.20
	The above values should be increased by 0.02 for every additional 1000μF							
Leakage Current	I≤0.02CV+10μA I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Apply rated voltage the rated voltage for 2 minutes.							
Low Temperature Characteristics Impedance Ratio(MAX)	Rated Voltage (V)	160~250	400	420~450	500	(at 120Hz)		
	Z(-25℃)/Z(+20℃)	3	5	6	8			
	Z(-40℃)/Z(+20℃)	6	6	-	-			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3,000 hours at 105℃.							
	Capacitance change		≒ ±20% of the initial value					
	Dissipation factor(tan δ)		≒ 200% of the specified value					
	Leakage current		≒ specified value					
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 20℃ after the rated voltage applied for 1,000 hours at 105℃ without voltage applied.							
	Capacitance change		≒ ±20% of the initial value					
	Dissipation factor(tan δ)		≒ 200% of the specified value					
	Leakage current		≒ 200% of the specified value					
Others	Conforms to JIS-C-5101-4 (1998) and IEC 60384-4							

◆ DIMENSIONS(mm)



ΦD	5	6.3	8	10	12.5/13	16	18
ΦD	ΦD ± 0.5 Max						
Φd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
a	$< 20 L \pm 1.5 \text{Max}$ $\geq 20 L \pm 2.0 \text{Max}$						

◆ PART NUMBER SYSTEM(Example : 450V 68μF)

E	P	L	4	5	0	M	6	8	0	M	3	0	L	O	7	5	A	A
Special Request																		
Lead size																		
Lead type																		
Height code (L: 30mm)																		
Diameter code (M: Φ18)																		
Capacitance code (68 μF)																		
Capacitance tolerance code (M: ±20%)																		
Voltage code (450V)																		
Series code (PL)																		
Category code																		

PL Series

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

WV(V)	Nominal capacitance (uF)	Case Size ΦD×L (mm)	Max. Rated ripple current @105°C/120Hz (mA rms)	WV(V)	Nominal capacitance (uF)	Case Size ΦD×L (mm)	Max. Rated ripple current @105°C/120Hz (mA rms)
160	10	8x12	75	200	10	10x13	90
	15	8x12	90		15	10x16	160
	22	10x13	170		22	10x16	220
	33	10x16	240		33	10x16	270
	47	10x20	300		47	10x16	320
	68	10x20	350		100	13x20	490
	100	13x25	560		150	16x26	720
	150	16x21	600		220	18x25	840
	220	16x32	850		270	16x35	920
	270	18x30	900		560	18x45	1420
	330	18x40	980				
250	4.7	8x12	50	350	4.7	10x13	80
	6.8	10x13	80		6.8	10x16	100
	10	10x13	110		10	10x20	160
	15	10x12	130		15	13x20	200
	22	10x16	220		22	13x20	220
	33	13x13	290		33	13x20	280
	56	16x20	500		47	13x25	360
	82	16x20	600		68	16x26	480
	100	13x25	550		100	16x32	660
	150	16x30	810				
	220	18x30	900				
400	4.7	8x12	60	420	10	10x16	100
	6.8	10x12	70		22	8x20	140
	10	10x13	90		33	10x18	190
	12	8x14	90			10x20	200
	15	8x16	110		39	10x20	220
		10x13	120		47	13x25	300
	18	8x17	130		56	16x20	350
	22	8x16	140		68	18x20	400
	27	8x20	170		100	13x40	530
	33	10x17	200			18x25	540
		13x16	220		120	18x25	600
	39	10x18	220				
	47	13x18	280				
	56	13x20	320				
	68	16x20	400				
	100	18x25	570				
	120	16x30	630				
		18x25	620				
	150	18x35	800				
	180	18x40	900				
	220	18x40	930				

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

WV(V)	Nominal capacitance (uF)	Case Size ΦD×L (mm)	Max. Rated ripple current @105°C/120Hz (mA rms)	WV(V)	Nominal capacitance (uF)	Case Size ΦD×L (mm)	Max. Rated ripple current @105°C/120Hz (mA rms)
450	4.7	8x12	50	500	6.8	8x16	70
	6.8	8x14	65		10	10x13	80
	10	10x13	88		12	10x16	95
	18	10x17	130		15	10x17	110
	22	13x16	170		22	12.5x20	160
	33	10x35	250		33	10x40	240
	82	16x30	470			13x20	200
		18x25	460			16x25	250
	100	16x30	600		68	18x30	420
	150	18x35	700		120	18x36	600
	180	18x35	800				
	220	18x45	1000				

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Cap(uF)	Frequency (Hz)			
		120	1K	10K	100K
160 ~ 500	1~47	1.00	1.50	1.75	1.85
	68~330	1.00	1.30	1.40	1.60