

# ALUMINUM ELECTROLYTIC CAPACITORS



## PF Series

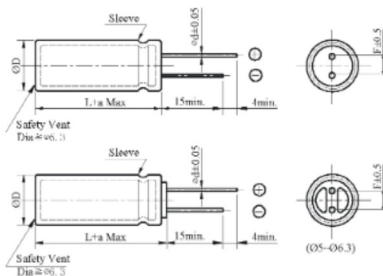
- General standard size
- Load life 2,000 hours at 105°C



### SPECIFICATIONS

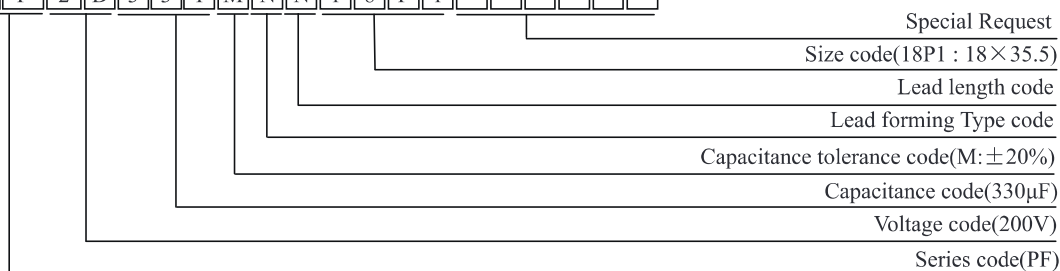
Item	Performance Characteristics	
Category Temperature Range	-40 ~ +105°C	-25 ~ +105°C
Working Voltage Range	6.3 ~ 100Vdc	160 ~ 450Vdc
Capacitance Range	0.47 ~ 22,000μF	0.47 ~ 560 μF
Capacitance Tolerance	±20% (at 25°C and 120Hz)	
Dissipation Factor (tanδ) (at 25°C, 120Hz)	Rated Voltage (V)	6.3 10 16 25 35 50 63 100 160 ~ 250 350 ~ 450
	tanδ(Max)	0.26 0.22 0.18 0.16 0.14 0.12 0.10 0.10 0.15 0.20
The above values should be increased by 0.02 for every additional 1000μF		
Leakage Current	$I=0.01CV$ or $3\mu A$ whichever is greater (6.3 ~ 100V) $I=0.03CV + 10\mu A$ (160 ~ 450V) I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Impress the rated voltage for 2 minutes.	
Endurance	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage 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 the rated voltage applied for 1,000 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)



ΦD	5	6.3	8	10	12.5 L<35	12.5 L≥35	16	18	20	22
ΦD	ΦD +0.5 Max						ΦD +1.0 Max			
Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0		7.5	7.5	10	10
a	L+1.5 Max				$\leq 35 L+1.5 \text{ Max}$ $\geq 40 L+2.0 \text{ Max}$		L+1.5 Max	L+2.0 Max		

### PART NUMBERING SYSTEM (Example : 200V 330μF)



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

uF \ Vdc	6.3		10		16		25	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
10					5×11	40	5×11	43
15					5×11	45	5×11	47
22	5×11	45	5×11	51	5×11	55	5×11	60
33	5×11	55	5×11	60	5×11	70	5×11	75
47	5×11	65	5×11	75	5×11	85	5×11	90
68	5×11	70	5×11	80	5×11	100	6.3×11	125
100	5×11	100	5×11	110	6.3×11	140	6.3×11	145
150	6.3×11	120	6.3×11	130	8×11.5	180	8×11.5	200
220	6.3×11	180	6.3×11	190	8×11.5	240	8×11.5	250
330	6.3×11	190	8×11.5	270	8×11.5	285	10×12.5	350
470	8×11.5	300	8×11.5	330	10×12.5	380	10×16	460
680	10×12.5	320	10×12.5	420	10×16	530	10×20	650
1000	10×12.5	480	10×16	570	10×20	680	12.5×20	830
1500	10×16	600	10×20	750	12.5×20	860	12.5×25	1020
2200	10×20	830	12.5×20	980	12.5×25	1130	16×25	1210
3300	12.5×20	1100	12.5×25	1250	16×25	1270	16×31.5	1540
4700	12.5×25	1320	16×25	1350	16×31.5	1570	16×35.5	1650
6800	16×25	1495	16×31.5	1670	18×35.5	1930	18×35.5	1950
10000	16×31.5	1832	18×35.5	2010	18×40	2060	18×40	2100
15000	18×35.5	2235	18×40	2360				
22000	18×40	2375						

uF \ Vdc	35		50		63		100	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
0.47			5×11	11	5×11	8	5×11	12
1			5×11	16	5×11	12	5×11	18
2.2			5×11	23	5×11	20	5×11	27
3.3			5×11	29	5×11	24	5×11	33
4.7			5×11	34	5×11	34	5×11	39
6.8			5×11	35	5×11	37	5×11	46
10	5×11	47	5×11	50	5×11	50	6.3×11	65
15	5×11	50	5×11	52	5×11	65	6.3×11	66
22	5×11	65	5×11	75	6.3×11	85	6.3×11	85
33	5×11	88	6.3×11	100	6.3×11	110	8×11.5	125
47	6.3×11	115	6.3×11	125	8×11.5	150	10×12.5	165
68	8×11.5	130	8×11.5	159	10×12.5	198	10×16	200
100	8×11.5	200	8×11.5	210	10×12.5	250	10×20	265
150	10×12.5	240	10×12.5	290	10×16	330	12.5×20	335
220	10×12.5	320	10×16	370	10×20	410	12.5×25	440
330	10×16	420	10×20	550	12.5×20	550	16×25	660
470	10×20	570	12.5×20	660	12.5×25	720	16×31.5	880
680	12.5×20	730	12.5×25	860	16×25	1000	16×35.5	1202
1000	12.5×25	1000	16×25	1020	16×31.5	1130	18×35.5	1300
1500	16×25	1110	16×31.5	1350	16×35.5	1450		
2200	16×31.5	1450	18×35.5	1690	18×40	1780		
3300	18×31.5	1600	18×40	2060				
4700	18×35.5	1910						

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

uF \ Vdc	160		200		250		350	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
0.47	5×11	13	5×11	13	5×11	13	5×11	11
1	5×11	18	5×11	15	6.3×11	18	6.3×11	15
2.2	6.3×11	27	6.3×11	27	6.3×11	23	8×11.5	23
3.3	6.3×11	28	6.3×11	28	8×11.5	30	8×11.5	30
4.7	6.3×11	32	8×11.5	36	8×11.5	39	10×12.5	40
6.8	8×11.5	38	8×11.5	40	10×12.5	42	10×16	42
10	8×11.5	55	10×12.5	60	10×16	75	10×20	70
15	10×12.5	70	10×16	75	10×16	85	12.5×20	140
22	10×20	140	10×20	150	12.5×20	160	12.5×25	145
33	10×20	145	12.5×20	160	12.5×20	165	16×25	165
47	12.5×20	195	12.5×20	195	12.5×25	195	16×25	200
56	12.5×20	215	12.5×20	215	12.5×25	215	16×31.5	230
68	12.5×25	270	12.5×25	250	16×25	240	16×35.5	240
82	12.5×25	290	16×25	270	16×25	280	18×31.5	280
100	16×25	340	16×25	320	16×31.5	310	18×31.5	320
120	16×25	360	16×31.5	340	16×31.5	330	18×35.5	365
150	16×31.5	435	16×31.5	360	16×35.5	460	18×40	400
180	16×35.5	450	16×35.5	400	18×35.5	470	18×45	460
220	16×35.5	500	16×35.5	500	18×35.5	485		
330	18×35.5	600	18×35.5	610	18×45	610		
470	18×45	740	18×45	750				
560	18×50	800	18×50	805				

uF \ Vdc	400		450	
	ΦD × L	RC	ΦD × L	RC
0.47	6.3×11	15	6.3×11	16
1	6.3×11	14	8×11.5	21
2.2	8×11.5	25	8×11.5	22
3.3	8×11.5	30	10×12.5	30
4.7	10×16	42	10×16	36
6.8	10×16	45	10×20	40
10	10×20	70	12.5×20	75
15	12.5×20	90	12.5×25	80
22	12.5×25	140	16×25	105
33	16×25	165	16×31.5	130
47	16×25	200	18×31.5	160
56	16×31.5	210	18×31.5	170
68	16×35.5	240	18×35.5	190
82	18×31.5	270	18×40	200
100	18×31.5	310	18×40	215
120	18×35.5	340	18×45	230
150	18×40	375		
180	18×45	410		

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Cap.(uF)	Frequency (Hz)				
		50/60	120	1K	10K	100K
6.3 ~ 250	0.47 ~ 68	0.75	1.00	1.57	2.00	2.00
	100 ~ 680	0.80	1.00	1.34	1.40	1.50
	1000 ~ 22000	0.85	1.00	1.13	1.13	1.13
350 ~ 450	0.47 ~ 220	0.80	1.00	1.40	1.40	1.40
	330 ~ 560	0.90	1.00	1.13	1.13	1.13