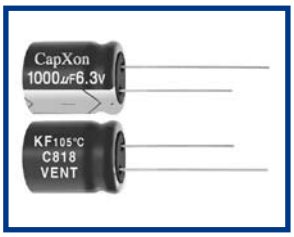
KF Series Low Impedance



Features

- ◆ Used in communication equipments, switching power supply, industrial measuring instruments, etc.
- ◆ Load life 2000~5000 Hrs at 105℃
- ◆ Safety vent construction design.
- ◆ For detail specifications, please refer to Engineering Bulletin No. E126
- ◆ RoHS Compliant

Specifications

Item	Performance Characteristics	
Operating Temperature Range	-40 to +105℃	-25 to +105℃
Rated Voltage Range	6.3 to 100 VDC	160 to 450 VDC
Capacitance Range	0.47 to 15000 μF	0.47 to 470 μF
Capacitance Tolerance	±20%(120Hz,+20℃)	
Leakage Current (+20℃,max.)	I≦0.01 CV or 3 (μA) After 2 minutes whichever is greater measured with rated working voltage applied.	I≦0.03 CV (μA) After 2 minutes withrate working voltage applied.

Dissipation Factor (tan δ ，at 20℃，120Hz)

Working Voltage(VDC)	6.3	10	16	25	35	50	63	100
D.F. (%)max.	18	16	14	12	10	9	8	8

Working Voltage(VDC)	160	200	250	350	400	420	450
D.F. (%)max.	12	12	12	15	15	17	17

For capacitance ＞1000 μF, add 2% per another 1000uF.

Low Temperature Characteristics (at 120Hz)

Impedance ratio max

Working Voltage(VDC)	6.3	10	16	25	35	50	63	100
Z-25℃／Z+20℃	4	3	3	3	3	3	2	2
Z-40℃／Z+20℃	8	6	4	3	3	3	3	3

Working Voltage(VDC)	160	200	250	350	400	450
Z-25℃／Z+20℃	2	2	3	5	5	6
Z-40℃／Z+20℃	3	6	6	6	6	-

For capacitance ＞1000 μF, add 0.5 per another 1000uF for -25℃／+20℃
add 1 per another 1000uF for -40℃／+20℃

Load Life

Test conditions
Duration time : as right
Ambient temperature : +105℃
Applied voltage : Rated DC working voltage
After test requirement at +20℃
Capacitance change : ≦ ±20% of the initial measured value
Dissipation factor : ≦ 200% of the initial specified value
Leakage current : ≦ The initial specified value

D φ	Life hours
5 - 6.3 φ	2000
8 φ	3000
≧ 10 φ	5000

(160-450V : 2000hrs)

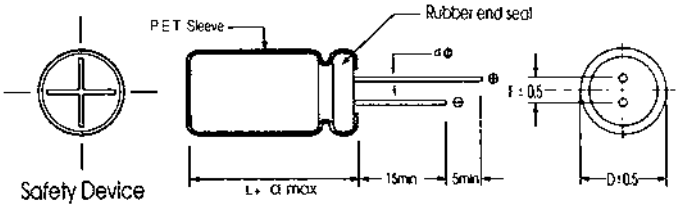
Shelf Life

Test conditions
Duration time : 1000Hrs
Ambient temperature : +105℃
Applied voltage : None
After test requirement at +20℃: Same limits as Load life.
Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.

Multiplier for Ripple Current vs. Frequency

CAP(μF)＼Frequency(Hz)	50(60)	120	400	1K	10K	50K-100K
CAP≦10	0.47	0.59	0.76	0.85	0.97	1
10＜CAP≦100	0.52	0.62	0.80	0.89	0.97	1
100＜CAP≦1000	0.58	0.72	0.84	0.90	0.98	1
1000＜CAP	0.63	0.78	0.87	0.91	0.98	1

Diagram of Dimensions:(unit:mm)



DΦ	5	6.3	8		10	13	16	18	22
F	2.0	2.5	3.5		5.0	5.0	7.5	7.5	10
dΦ	0.5		L＜20 0.5	L≧20 0.6	0.6		0.8		

α	D＜18	D＝18		D＞18
		L＜35.5	L≧35.5	
	1.5	1.5	2.0	2.0

Case Size

φ DxL(mm)

WV(SV) / Cap(μF)	6.3 (8)			10 (13)			16 (20)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
10							5x11	74	4.7
22				5x11	98	2.7	5x11	100	2.6
33				5x11	100	2.6	5x11	114	2
47				5x11	150	1.34	5x11	155	1.1
56				5x11	160	1.23	5x11	180	0.82
68				5x11	170	1.05	5x11	195	0.69
100	5x11	170	1.00	5x11	210	0.8	6.3x11	265	0.5
120	5x11	175	0.92	6.3x11	250	0.75	6.3x11	270	0.47
150	6.3x11	220	0.81	6.3x11	290	0.61	6.3x11	290	0.41
	5x11	185	0.90						
180	6.3x11	240	0.76	6.3x11	320	0.46	8x11.5	370	0.34
							6.3x11	315	0.38
220	6.3x11	310	0.65	6.3x11	340	0.35	8x11.5	480	0.25
270	6.3x11	340	0.54	8x11.5	400	0.3	8x11.5	520	0.21
330	8x11.5	390	0.42	8x11.5	460	0.27	8x11.5	590	0.156
470	8x11.5	450	0.25	8x11.5	580	0.25	10x12.5	750	0.124
560	8x11.5	490	0.23	10x12.5	635	0.16	10x12.5	785	0.105
				8x11.5	550	0.17			
680	8x11.5	550	0.21	10x12.5	765	0.11	10x16	1100	0.092
820	8x16	620	0.20	10x16	890	0.1	10x16	1180	0.078
1000	10x12.5	770	0.17	10x16	1040	0.076	10x20	1350	0.065
	8x16	750	0.15						
1200	10x16	860	0.16	10x16	1200	0.067	10x25	1500	0.061
1500	10x16	1100	0.14	10x20	1400	0.062	10x30	1600	0.056
							13x20	1380	0.06
1800	10x20	1250	0.11	10x25	1550	0.058	13x20	1800	0.047
							10x25	1730	0.05
2200	10x20	1380	0.090	13x20	1750	0.041	13x25	2000	0.038
	10x25	1470	0.095	10x25	1650	0.52	13x20	1880	0.04
2700	10x25	1490	0.075	13x20	1900	0.035	13x25	2450	0.033
	13x20	1550	0.075						
3300	13x20	1650	0.036	13x25	2000	0.031	16x25	2790	0.030
							13x30	2640	0.030
4700	13x30	2100	0.036	16x25	2100	0.030	16x31.5	2880	0.026
	13x25	1900	0.040						
5600	13x30	2160	0.034	16x25	2290	0.028	16x35.5	2990	0.025
6800	16x25	2350	0.032	16x31.5	2650	0.026	18x35.5	3200	0.024
8200	16x31.5	2550	0.027	16x35.5	2770	0.026	18x35.5	3320	0.024
10000	16x35.5	2700	0.024	18x35.5	2850	0.024	18x41	3550	0.024
15000	18x35.5	2950	0.023						

Ripple Current (mA, rms) at 105℃ 100KHz

Max Impedance (Ω) at 20℃ 100KHz

ϕDxL(mm)

WV(SV) / Cap(μF)	25 (32)			35 (44)			50 (63)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47							5x11	25	5.4
1							5x11	40	4
2.2							5x11	55	2.8
3.3							5x11	60	2.2
4.7	5x11	68	3.95	5x11	85	3.65	5x11	90	2
5.6	5x11	75	3.25	5x11	92	3.09	5x11	105	1.93
6.8	5x11	80	2.98	5x11	97	2.82	5x11	110	1.89
10	5x11	85	2.56	5x11	105	2.37	5x11	120	1.82
22	5x11	125	1.95	5x11	150	1.5	6.3x11	150	1.25
33	5x11	155	1.42	5x11	180	1.21	6.3x11	250	0.8
47	5x11	190	1.10	6.3x11	280	0.8	6.3x11	290	0.65
	6.3x11	220	1.00						
56	6.3x11	250	0.79	6.3x11	310	0.64	8x11.5	310	0.49
68	6.3x11	280	0.65	8x11.5	350	0.52	8x11.5	375	0.33
100	6.3x11	370	0.35	8x11.5	450	0.25	10x12.5	480	0.17
120	6.3x11	380	0.33	8x11.5	510	0.22	10x12.5	530	0.156
150	8x11.5	410	0.31	8x11.5	540	0.191	10x12.5	590	0.132
180	8x11.5	455	0.25	10x12.5	650	0.172	10x16	860	0.114
220	8x11.5	550	0.15	10x12.5	750	0.114	10x16	930	0.096
270	10x12.5	720	0.125	10x16	910	0.095	10x20	1060	0.078
330	10x12.5	820	0.114	10x16	1050	0.079	10x25	1150	0.065
470	10x16	1200	0.076	10x20	1200	0.065	13x20	1590	0.055
560	10x16	1250	0.072	10x25	1500	0.061	13x20	1740	0.05
680	10x20	1320	0.065	13x20	1570	0.056	13x25	1930	0.044
820	10x20	1400	0.052	13x20	1700	0.048	13x30	2100	0.039
	10x25	1530	0.052						
1000	13x20	1650	0.045	13x25	1900	0.042	16x25	2300	0.036
1200	13x25	1980	0.041	13x30	2130	0.039	16x31.5	2650	0.036
1500	13x25	2210	0.038	16x25	2270	0.036	16x35.5	2750	0.034
1800	16x25	2510	0.036	16x31.5	2700	0.035	16x35.5	2850	0.034
2200	16x25	2650	0.035	16x31.5	2780	0.034	18x35.5	3040	0.032
2700	16x25	2820	0.031	16x35.5	2850	0.029	18x41	3070	0.027
3300	16x31.5	3240	0.026	18x35.5	3100	0.026	18x41	3100	0.025
4700	16x35.5	3650	0.024	18x41	3500	0.024			
5600	18x35.5	3720	0.024						
6800	18x41	3850	0.024						

Ripple Current (mA, rms) at 105℃ 100KHz

Max Impedance (Ω) at 20℃ 100KHz

ϕDxL(mm)

WV(SV) / Cap(μF)	63 (79)			100 (125)			160 (200)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	5x11	25	5.4	5x11	20	5.9	5x11	36	9.44
1	5x11	33	4	5x11	30	4.4	6.3x11	45	7.85
2.2	5x11	45	2.8	5x11	42	3.3	6.3x11	55	5.21
3.3	5x11	58	2.2	5x11	55	2.8	8x11.5	70	4.31
4.7	5x11	65	2	5x11	72	2.6	8x11.5	80	4.16
5.6	5x11	95	1.9	5x11	100	2.33	10x12.5	91	3.61
6.8	5x11	100	1.82	6.3x11	115	1.95	10x16	100	3.12
10	5x11	110	1.75	6.3x11	130	1.77	10x16	140	2.69
22	6.3x11	180	0.80	8x11.5	220	0.85	10x16	205	1.3
33	8x11.5	270	0.61	10x12.5	320	0.69	10x20	260	1.1
47	8x11.5	300	0.56	10x12.5	370	0.58	13x20	320	0.91
56	8x11.5	330	0.38	10x12.5	400	0.43	13x20	340	0.67
				10x16	440	0.42	13x25	370	0.66
68	10x12.5	480	0.21	10x16	470	0.35	13x25	450	0.56
100	10x16	610	0.14	10x25	560	0.3	16x25	540	0.47
120	10x16	620	0.13	10x25	660	0.22	16x25	560	0.35
150	10x16	700	0.11	13x20	780	0.174	16x31.5	710	0.26
180	10x20	800	0.10	13x20	820	0.142	16x35.5	760	0.22
220	10x20	920	0.080	13x25	950	0.13	16x35.5	820	0.19
270	13x20	1150	0.065	13x30	1120	0.11	18x35.5	990	0.18
330	13x20	1250	0.055	16x25	1440	0.1	18x41	1180	0.16
470	13x25	1620	0.053	16x31.5	1650	0.09			
560	13x25	1680	0.049	16x35.5	1720	0.085			
680	13x30	1950	0.043	18x35.5	1790	0.08			
820	16x25	2150	0.038	18x35.5	1840	0.071			
1000	16x31.5	2350	0.034	18x41	1930	0.066			
1200	16x35.5	2550	0.032						
1500	18x35.5	2710	0.031						
1800	18x41	3000	0.027						

Ripple Current (mA, rms) at 105℃ 100KHz

Max Impedance (Ω) at 20℃ 100KHz

φ DxL(mm)

WV(SV) / Cap(μF)	200 (250)			250 (300)			350 (400)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	5x11	36	9.38	5x11	40	8.85	6.3x11	40	8.82
1	6.3x11	45	7.76	6.3x11	50	6.54	6.3x11.5	50	7.90
							8x11.5	58	6.35
2.2	6.3x11	55	5.18	8x11.5	72	4.12	8x11.5	75	5.3
							10x12.5	86	4.02
3.3	8x11.5	71	4.25	8x11.5	75	3.85	10x12.5	90	3.80
							10x16	100	3.52
4.7	8x11.5	78	5.00	8x11.5	85	3.50	10x16	118	3.13
	10x12.5	85	4.12	10x12.5	100	2.95	10x20	130	2.77
5.6	8x11.5	90	4.50	8x11.5	95	2.93	10x16	120	2.76
	10x12.5	95	3.55	10x12.5	105	2.72	10x20	132	2.58
6.8	8x16	115	3.25	8x16	124	2.50	10x16	148	2.43
	10x16	140	2.71	10x12.5	126	2.20	10x25	180	1.65
				10x16	140	1.86			
10	10x16	150	2.02	8x16	141	1.80	10x16	165	1.64
				10x12.5	144	1.75	10x25	200	1.35
				10x16	160	1.4			
22	10x16	186	1.80						
	10x20	205	1.40	10x20	210	1.3	13x20	220	1.22
33	10x20	280	1.00	10x25	248	1.25	13x20	263	1.02
	13x20	330	0.80	13x20	310	0.9	13x25	290	0.86
47	13x20	360	0.65	13x20	375	0.60	16x25	389	0.76
	13x25	400	0.62	13x25	405	0.45	16x31.5	430	0.62
56	13x20	430	0.45	13x25	420	0.42	16x35.5	460	0.60
68	13x25	480	0.42						
	16x25	540	0.35	16x25	490	0.38	16x31.5	475	0.57
100	16x25	780	0.30	16x31.5	675	0.27	16x35.5	481	0.56
	16x31.5	820	0.28				18x31.5	487	0.56
							18x35.5	513	0.55
120	16x25	740	0.28	16x31.5	692	0.26	18x35.5	525	0.54
	16x31.5	830	0.26	16x35.5	730	0.25	18x41	560	0.52
150	16x31.5	840	0.25	16x35.5	750	0.24	18x41	590	0.50
	16x35.5	860	0.23	18x31.5	750	0.23			
180	18x31.5	920	0.20	18x35.5	830	0.21			
220	18x35.5	1050	0.19	18x31.5	850	0.20			
	18x41	1090	0.16	18x41	910	0.19			

WV(SV) / Cap(μF)	400 (450)			420 (470)			450 (500)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	6.3x11	26	33.00	6.3x11	28	34.00	8x11.5	30	34.00
1	8x11.5	36	16.50	8x11.5	38	17.00	8x11.5	45	17.35
2.2	10x12.5	76	13.00	10x12.5	58	12.10	10x16	65	10.25
	8x11.5	65	13.00						
3.3	8x11.5	86	12.00	10x12.5	87	11.00	10x16	89	10.00
4.7	10x12.5	105	10.00	10x16	102	8.50	10x20	105	5.00
5.6	8x16	105	8.00	10x16	109	6.80	10x20	110	4.75
	10x12.5	120	9.00						4.60
6.8	10x16	160	7.50	10x16	160	6.00	10x20	135	4.05
10	10x20	235	3.60	10x20	180	3.70	10x25	180	3.75
22	13x20	295	2.65	13x25	330	2.70	13x25	320	2.80
33	13x25	440	1.60	16x25	480	1.80	16x25	460	2.20
47	16x25	580	1.40	16x31.5	620	1.10	16x35.5	650	1.05
56	16x31.5	650	0.85	16x35.5	670	0.90	18x31.5	730	0.95
68	16x31.5	800	0.80	18x31.5	750	0.80	18x35.5	760	0.75
100	18x35.5	900	0.61	18x35.5	820	0.70	18x41	880	0.74

Ripple Current (mA, rms) at 105℃ 100KHz

Max Impedance (Ω) at 20℃ 100KHz

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