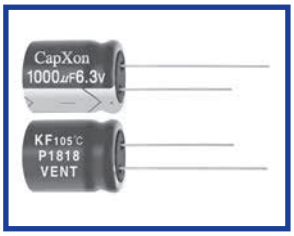
KF Series Low Impedance



Features

- ◆ Used in communication equipments, switching power supply, industrial measuring instruments, etc.
- ◆ Endurance 2000~5000 Hrs at 105℃
- ◆ Safety vent construction design.
- ◆ 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℃

Endurance

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

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

(160-450V : 2000hrs)

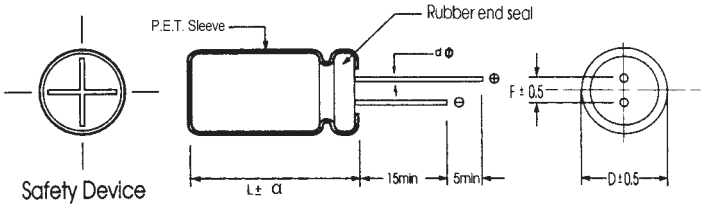
Shelf Life

Test conditions
Duration time : 1000Hrs
Ambient temperature : +105℃
Applied voltage : None
After test requirement at +20℃: Same limits as Endurance.
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	1.0
10＜CAP≦100	0.52	0.65	0.80	0.89	0.97	1.0
100＜CAP≦1000	0.58	0.72	0.84	0.90	0.98	1.0
1000＜CAP	0.63	0.78	0.87	0.91	0.98	1.0

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	L≧20	0.6		0.8		
			0.5	0.6					

α	D＜16	D＝16		D＝18		D＞18
		L:25~35.5	L＜25 and L≧40	L:25~31.5	L＜25 and L≧35.5	
	1.5	1.5	2.0	1.5	2.0	2.0

Radial

Case Size

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
6.3	100	5x11	170	1.00
6.3	120	5x11	175	0.92
6.3	150	6.3x11	220	0.81
6.3	150	5x11	185	0.90
6.3	180	6.3x11	240	0.76
6.3	220	6.3x11	310	0.65
6.3	270	6.3x11	340	0.54
6.3	330	8x11.5	390	0.42
6.3	470	8x11.5	450	0.25
6.3	560	8x11.5	490	0.23
6.3	680	8x11.5	550	0.21
6.3	820	8x16	620	0.20
6.3	1000	10x12.5	770	0.17
6.3	1000	8x16	750	0.18
6.3	1200	10x16	860	0.16
6.3	1500	10x16	1100	0.14
6.3	1800	10x20	1250	0.11
6.3	2200	10x20	1380	0.090
6.3	2200	10x25	1470	0.095
6.3	2700	10x25	1490	0.075
6.3	2700	13x20	1550	0.075
6.3	3300	13x20	1650	0.036
6.3	4700	13x30	2100	0.036
6.3	4700	13x25	1900	0.040
6.3	5600	13x30	2160	0.034
6.3	6800	16x25	2350	0.032
6.3	8200	16x31.5	2550	0.027
6.3	10000	16x35.5	2700	0.024
6.3	15000	18x35.5	2950	0.023
10	22	5x11	98	2.700
10	33	5x11	100	2.600
10	47	5x11	150	1.340
10	56	5x11	160	1.230
10	68	5x11	170	1.050
10	100	5x11	210	0.800
10	120	6.3x11	250	0.750
10	150	6.3x11	290	0.610
10	180	6.3x11	320	0.460
10	220	6.3x11	340	0.350
10	270	8x11.5	400	0.300
10	330	8x11.5	460	0.270
10	470	8x11.5	580	0.250
10	560	10x12.5	635	0.160
10	560	8x11.5	550	0.170
10	680	10x12.5	765	0.110
10	820	10x16	890	0.100
10	1000	10x16	1040	0.076
10	1200	10x16	1200	0.067
10	1500	10x20	1400	0.062
10	1800	10x25	1550	0.058
10	2200	13x20	1750	0.041
10	2200	10x25	1650	0.052
10	2700	13x20	1900	0.035
10	3300	13x25	2000	0.031
10	4700	16x25	2100	0.030
10	5600	16x25	2290	0.028
10	6800	16x31.5	2650	0.026
10	8200	16x35.5	2770	0.026
10	10000	18x35.5	2850	0.024

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
16	10	5x11	74	4.700
16	22	5x11	100	2.60
16	33	5x11	114	2.00
16	47	5x11	155	1.10
16	56	5x11	180	0.82
16	68	5x11	195	0.69
16	100	6.3x11	265	0.50
16	120	6.3x11	270	0.47
16	150	6.3x11	290	0.41
16	180	8x11.5	370	0.34
16	180	6.3x11	315	0.38
16	220	8x11.5	480	0.25
16	270	8x11.5	520	0.21
16	330	8x11.5	590	0.156
16	470	10x12.5	750	0.124
16	560	10x12.5	785	0.105
16	680	10x16	1100	0.092
16	820	10x16	1180	0.078
16	1000	10x20	1350	0.065
16	1200	10x25	1500	0.061
16	1500	10x30	1600	0.056
16	1500	13x20	1380	0.060
16	1800	13x20	1800	0.047
16	1800	10x25	1730	0.050
16	2200	13x25	2000	0.038
16	2200	13x20	1880	0.040
16	2700	13x25	2450	0.033
16	3300	16x25	2790	0.030
16	3300	13x30	2640	0.030
16	4700	16x31.5	2880	0.026
16	5600	16x35.5	2990	0.025
16	6800	18x35.5	3200	0.024
16	8200	18x35.5	3320	0.024
16	10000	18x40	3550	0.024
25	4.7	5x11	68	3.950
25	5.6	5x11	75	3.250
25	6.8	5x11	80	2.980
25	10	5x11	85	2.560
25	22	5x11	125	1.950
25	33	5x11	155	1.420
25	47	5x11	190	1.100
25	47	6.3x11	220	1.000
25	56	6.3x11	250	0.790
25	68	6.3x11	280	0.650
25	100	6.3x11	370	0.350
25	120	6.3x11	380	0.330
25	150	8x11.5	410	0.310
25	180	8x11.5	455	0.250
25	220	8x11.5	550	0.150
25	270	10x12.5	720	0.125
25	330	10x12.5	820	0.114
25	470	10x16	1200	0.076
25	560	10x16	1250	0.072
25	680	10x20	1320	0.065
25	820	10x20	1400	0.052
25	820	10x25	1530	0.052
25	1000	13x20	1650	0.045
25	1200	13x25	1980	0.041
25	1500	13x25	2210	0.038

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
25	1800	16x25	2510	0.036
25	2200	16x25	2650	0.035
25	2700	16x25	2820	0.031
25	3300	16x31.5	3240	0.026
25	4700	16x35.5	3650	0.024
25	5600	18x35.5	3720	0.024
25	6800	18x40	3850	0.024
35	4.7	5x11	85	3.650
35	5.6	5x11	92	3.090
35	6.8	5x11	97	2.820
35	10	5x11	105	2.370
35	22	5x11	150	1.500
35	33	5x11	180	1.210
35	47	6.3x11	280	0.800
35	56	6.3x11	310	0.640
35	68	8x11.5	350	0.520
35	100	8x11.5	450	0.250
35	120	8x11.5	510	0.220
35	150	8x11.5	540	0.191
35	180	10x12.5	650	0.172
35	220	10x12.5	750	0.114
35	270	10x16	910	0.095
35	330	10x16	1050	0.079
35	470	10x20	1200	0.065
35	560	10x25	1500	0.061
35	680	13x20	1570	0.056
35	820	13x20	1700	0.048
35	1000	13x25	1900	0.042
35	1200	13x30	2130	0.039
35	1500	16x25	2270	0.036
35	1800	16x31.5	2700	0.035
35	2200	16x31.5	2780	0.034
35	2700	16x35.5	2850	0.029
35	3300	18x35.5	3100	0.026
35	4700	18x40	3500	0.024
50	0.47	5x11	25	5.400
50	1	5x11	40	4.000
50	2.2	5x11	55	2.800
50	3.3	5x11	60	2.200
50	4.7	5x11	90	2.000
50	5.6	5x11	105	1.930
50	6.8	5x11	110	1.890
50	10	5x11	120	1.820
50	22	6.3x11	150	1.250
50	33	6.3x11	250	0.800
50	47	6.3x11	290	0.650
50	56	8x11.5	310	0.490
50	68	8x11.5	375	0.330
50	100	10x12.5	480	0.170
50	120	10x12.5	530	0.156
50	150	10x12.5	590	0.132
50	180	10x16	860	0.114
50	220	10x16	930	0.096
50	270	10x20	1060	0.078
50	330	10x25	1150	0.065
50	470	13x20	1590	0.055
50	560	13x20	1740	0.050
50	680	13x25	1930	0.044
50	820	13x30	2100	0.039
50	1000	16x25	2300	0.036
50	1200	16x31.5	2650	0.036

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
50	1500	16x35.5	2750	0.034
50	1800	16x35.5	2850	0.034
50	2200	18x35.5	3040	0.032
50	2700	18x40	3070	0.027
50	3300	18x40	3100	0.025
63	0.47	5x11	25	5.400
63	1	5x11	33	4.000
63	2.2	5x11	45	2.800
63	3.3	5x11	58	2.200
63	4.7	5x11	65	2.000
63	5.6	5x11	95	1.900
63	6.8	5x11	100	1.820
63	10	5x11	110	1.750
63	22	6.3x11	180	0.800
63	33	8x11.5	270	0.610
63	47	8x11.5	300	0.560
63	56	8x11.5	330	0.380
63	68	10x12.5	480	0.210
63	100	10x16	610	0.140
63	120	10x16	620	0.130
63	150	10x16	700	0.110
63	180	10x20	800	0.100
63	220	10x20	920	0.080
63	270	13x20	1150	0.065
63	330	13x20	1250	0.055
63	470	13x25	1620	0.053
63	560	13x25	1680	0.049
63	680	13x30	1950	0.043
63	820	16x25	2150	0.038
63	1000	16x31.5	2350	0.034
63	1200	16x35.5	2550	0.032
63	1500	18x35.5	2710	0.031
63	1800	18x40	3000	0.027
80	0.47	5x11	18	5.850
80	1	5x11	24	4.300
80	2.2	5x11	36	3.200
80	3.3	5x11	47	2.700
80	4.7	5x11	63	2.500
80	5.6	5x11	85	2.300
80	6.8	5x11	92	1.850
80	10	5x11	105	1.700
80	22	6.3x11	175	0.830
80	33	8x11.5	280	0.610
80	47	8x11.5	310	0.550
80	56	8x11.5	360	0.410
80	68	8x16	400	0.280
80	100	8x20	500	0.220
80	120	10x16	580	0.180
80	150	10x20	680	0.150
80	180	10x20	800	0.112
80	220	13x20	900	0.090
80	270	13x20	1080	0.095
80	330	13x25	1210	0.085
80	470	16x25	1500	0.070
80	560	16x25	1640	0.062
80	680	18x25	1680	0.059
80	820	18x31.5	1780	0.056
80	1000	18x31.5	1850	0.045
80	1200	18x35.5	1960	0.042
80	1500	18x40	2160	0.036
100	0.47	5x11	20	5.900

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
100	1	5x11	30	4.400
100	2.2	5x11	42	3.300
100	3.3	5x11	55	2.800
100	4.7	5x11	72	2.600
100	5.6	5x11	100	2.330
100	6.8	6.3x11	115	1.950
100	10	6.3x11	130	1.770
100	22	8x11.5	220	0.850
100	33	10x12.5	320	0.690
100	47	10x12.5	370	0.580
100	56	10x12.5	400	0.430
100	56	10x16	440	0.420
100	68	10x16	470	0.350
100	100	10x25	560	0.300
100	120	10x25	660	0.220
100	150	13x20	780	0.174
100	180	13x20	820	0.142
100	220	13x25	950	0.130
100	270	13x30	1120	0.110
100	330	16x25	1440	0.100
100	470	16x31.5	1650	0.090
100	560	16x35.5	1720	0.085
100	680	18x35.5	1790	0.080
100	820	18x35.5	1840	0.071
100	1000	18x40	1930	0.066
160	0.47	5x11	36	18.500
160	1	6.3x11	45	12.000
160	2.2	6.3x11	55	9.90
160	3.3	8x11.5	70	4.31
160	4.7	8x11.5	80	4.16
160	5.6	10x12.5	91	3.61
160	6.8	10x16	100	3.12
160	10	10x12.5	126	3.00
160	10	10x16	140	2.69
160	22	10x16	205	1.30
160	33	10x20	260	1.10
160	47	10x20	276	1.65
160	47	13x20	320	0.91
160	56	13x20	340	0.67
160	56	13x25	370	0.66
160	68	13x25	450	0.56
160	100	16x25	540	0.47
160	120	16x25	560	0.35
160	150	16x31.5	710	0.26
160	180	16x35.5	760	0.22
160	220	16x35.5	820	0.19
160	270	18x35.5	990	0.18
160	330	18x40	1180	0.16
200	0.47	5x11	36	16.50
200	0.47	6.3x11	41	16.50
200	1	6.3x11	45	7.76
200	2.2	6.3x11	55	5.18
200	3.3	8x11.5	71	4.25
200	4.7	8x11.5	78	5.00
200	4.7	10x12.5	85	4.12
200	5.6	8x11.5	90	4.50
200	5.6	10x12.5	95	3.55
200	6.8	8x16	115	3.25
200	6.8	10x16	140	2.71
200	10	8x11.5	115	3.75
200	10	10x16	150	2.02

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
200	22	10x16	186	1.80
200	22	10x20	205	1.40
200	33	10x20	280	1.00
200	33	13x20	330	0.80
200	47	10x20	311	0.72
200	47	13x20	360	0.65
200	47	13x25	400	0.62
200	56	13x20	430	0.45
200	68	13x25	480	0.42
200	68	16x25	540	0.35
200	68	16x25	780	0.30
200	100	16x31.5	820	0.28
200	120	16x25	740	0.28
200	120	16x31.5	830	0.26
200	150	16x31.5	840	0.25
200	150	16x35.5	860	0.23
200	180	18x31.5	920	0.20
200	220	18x35.5	1050	0.19
200	220	18x40	1090	0.16
250	0.47	5x11	40	8.85
250	1	6.3x11	50	6.54
250	2.2	8x11.5	72	4.12
250	3.3	8x11.5	75	3.85
250	4.7	8x11.5	85	3.50
250	4.7	10x12.5	100	2.95
250	5.6	8x11.5	95	2.93
250	5.6	10x12.5	105	2.90
250	6.8	8x16	124	2.80
250	6.8	10x12.5	126	2.80
250	6.8	10x16	140	1.86
250	10	8x16	141	1.80
250	10	10x12.5	144	1.75
250	10	10x16	160	1.40
250	22	10x16	190	1.60
250	22	10x20	210	1.30
250	33	10x20	224	1.40
250	33	10x25	248	1.25
250	33	13x20	310	0.90
250	47	13x20	375	0.60
250	47	13x25	405	0.45
250	56	13x25	420	0.42
250	68	16x25	490	0.38
250	68	16x31.5	675	0.27
250	120	16x31.5	692	0.26
250	120	16x35.5	730	0.25
250	150	16x35.5	750	0.24
250	150	18x31.5	750	0.23
250	180	18x35.5	830	0.21
250	220	18x31.5	850	0.20
250	220	18x40	910	0.19
350	0.47	6.3x11	40	8.82
350	1	6.3x11.5	50	7.90
350	1	6.3x11	58	6.35
350	2.2	8x11.5	75	5.30
350	2.2	10x12.5	86	4.02
350	3.3	10x12.5	90	3.80
350	3.3	10x16	100	3.52
350	4.7	10x16	118	3.13
350	4.7	10x20	130	2.77
350	5.6	10x16	120	2.76
350	5.6	10x20	132	2.58

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
350	6.8	10x16	148	2.43
350	6.8	10x25	180	1.65
350	10	10x16	165	1.64
350	10	10x25	200	1.35
350	22	13x20	220	1.22
350	33	13x20	263	1.02
350	33	13x25	290	0.86
350	47	16x25	389	0.76
350	47	16x31.5	430	0.62
350	56	16x35.5	460	0.60
350	68	16x31.5	475	0.57
350	68	16x35.5	481	0.56
350	100	18x31.5	487	0.56
350	100	18x35.5	513	0.55
350	120	18x35.5	525	0.54
350	120	18x40	560	0.52
350	150	18x40	590	0.50
400	0.47	6.3x11	26	33.0
400	1	8x11.5	36	16.5
400	2.2	10x12.5	76	13.0
400	2.2	8x11.5	65	13.0
400	3.3	8x9	78	14.0
400	3.3	8x11.5	86	12.0
400	4.7	8x11.5	89	11.0
400	4.7	10x12.5	105	10.0
400	5.6	8x16	105	8.0
400	5.6	10x12.5	120	9.0
400	6.8	10x12.5	144	7.7
400	6.8	10x16	160	7.5
400	10	10x14	201	5.0
400	10	10x16	213	3.8
400	10	10x20	235	3.6
400	15	10x20	240	3.0
400	22	13x16	268	2.8
400	22	13x20	295	2.7
400	33	13x20	399	1.8
400	33	13x25	440	1.6
400	33	16x20	459	1.9
400	47	16x20	539	1.6
400	47	16x25	580	1.4
400	56	16x25	587	1.03

WV (Vdc)	Cap (uF)	Size (mm)	Ripple current (mArms/105℃ /100KHz)	Max ESR(Ω) at 20℃/100KHz
400	56	16x31.5	650	0.85
400	68	16x31.5	800	0.80
400	68	18x25	774	0.76
400	100	18x31.5	854	0.70
400	100	18x35.5	900	1.30
400	120	18x35.5	930	1.30
420	0.47	6.3x11	28	34.00
420	1	8x11.5	38	17.00
420	2.2	10x12.5	58	12.10
420	3.3	10x12.5	87	11.00
420	4.7	10x16	102	8.50
420	5.6	10x16	109	6.80
420	6.8	10x16	160	6.00
420	10	10x20	180	3.70
420	22	13x25	330	2.70
420	33	16x25	480	1.80
420	47	16x31.5	620	1.10
420	56	16x35.5	670	0.90
420	68	18x31.5	750	0.80
420	100	18x35.5	820	0.70
450	0.47	8x11.5	30	34.00
450	1	8x11.5	45	17.35
450	2.2	10x16	65	10.250
450	3.3	10x16	89	10.00
450	4.7	10x20	105	5.00
450	5.6	10x20	110	4.75
450	6.8	10x20	135	4.05
450	10	10x20	163	7.00
450	10	10x25	180	3.75
450	10	13x20	189	6.80
450	22	13x25	320	2.80
450	33	16x25	460	2.20
450	33	18x20	458	2.70
450	47	16x35.5	650	1.05
450	47	18x25	596	1.65
450	56	18x31.5	730	0.95
450	68	18x31.5	721	0.80
450	68	18x35.5	760	0.75
450	100	18x35.5	825	1.10
450	100	18x40	880	0.74
450	120	18x40	980	1.00

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