

Surface Mount Type

Series: FK

■ Features

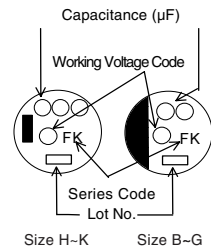
- Low impedance (40 to 60 % less than FC series)
- Miniaturization (30 to 50 % less than FC series)
- Life time: 2000 to 5000 hours at 105 °C



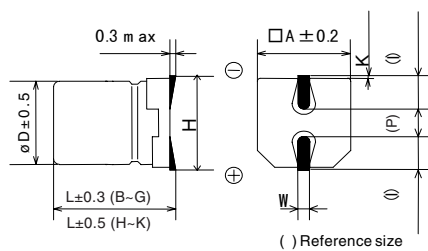
■ Specifications

Operating Temp. Range	-55 to +105 °C										
Rated W.V. Range	6.3 to 100 V. DC										
Nominal Cap. Range	3.3 to 6800 μF										
Capacitance Tolerance	± 20 % (120 Hz/+20 °C)										
Leakage Current	I = 0.01 CV or 3 (μA) (whichever is greater) after 2 minutes application of rated working voltage at +20°C										
Dissipation Factor (tan δ)	Add 0.02 per 1000 μF for products of 1000 μF or more (120 Hz/+20 °C)										
	W.V. (V.DC)	6.3	10	16	25	35	50	63	80	100	(120 Hz/+20 °C)
	Tan δ (max)	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07	
Endurance	After the life test with DC rated working voltage at +105±2 °C for 2000 hours (ø4~ø10), 5000 hours (ø12.5~ø18) the capacitors shall meet the limits specified below. Post-test requirements at +20 °C.										
	Capacitance Change	± 30% of initial measured value									
	D.F. (tan δ)	≤ 200% of initial specified value									
Shelf Life	After storage for 1000 hours at +105±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in "Endurance."										
	Capacitance Change	±10% of initial measured value									
	D.F. (tan δ)	≤ initial specified value									
Resistance to Soldering Heat	After reflow soldering (refer to Application guidelines) and then being stabilized at +20 °C, capacitor shall meet the following limits.										
	Capacitance Change	±10% of initial measured value									
	DC Leakage Current	≤ initial specified value									

■ Marking



■ Dimensions in mm (not to scale)



■ Case Size

W.V.(V) Cap(μF)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	63 (1J)	80 (1K)	100 (2A)
3.3	-	-	-	-	-	-	-	C	-
4.7	-	-	-	-	B	B	C	D	-
10	-	-	B	B	C(B)	D(C)	D	D ₈ ,E	-
22	B	B	C(B)	C	C	D	D ₈ ,E	F	F
33	-	C(B)	-	D(C)	D	D ₈ ,E	F	F	G
47	C(B)	-	D(C)	D	D	D ₈ ,E	F	G	H13
68	-	-	D	D	D ₈	-	G	H13	H13
100	D(C)	-	D	D ₈ ,E	D ₈ ,F	F	G	H13	J16
150	-	D	D ₈	F	F	G	H13	H13	J16
220	D	D ₈ ,E	D ₈ ,E	F	F	G	H13	-	K16
330	D ₈ ,E	F	F	F	G	H13	-	J16	K16
470	F	F	F	G	H13	-	J16	K16	-
680	-	F	G	-	H13	J16	K16	-	-
1000	F	G	-	H13	-	J16	-	-	-
1500	G	-	H13	-	J16	-	-	-	-
2200	-	H13	-	J16	-	-	-	-	-
3300	H13	-	J16	K16	-	-	-	-	-
4700	-	J16	K16	-	-	-	-	-	-
6800	J16	K16	-	-	-	-	-	-	-

(mm)

Size Code	øD	L	A	H	*I	W	*P	K
B	4.0	5.8	4.3	5.5MAX	1.8	0.65±0.1	1.0	0.35 ^{+0.15} _{-0.20}
C	5.0	5.8	5.3	6.5MAX	2.2	0.65±0.1	1.5	0.35 ^{+0.15} _{-0.20}
D	6.3	5.8	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 ^{+0.15} _{-0.20}
D ₈	6.3	7.7	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 ^{+0.15} _{-0.20}
E	8.0	6.2	8.3	9.5MAX	3.4	0.65±0.1	2.2	0.35 ^{+0.15} _{-0.20}
F	8.0	10.2	8.3	10.0MAX	3.4	0.90±0.3	3.1	0.70±0.2
G	10.0	10.2	10.3	12.0MAX	3.5	0.90±0.3	4.6	0.70±0.2
H13	12.5	13.5	13.5	15.0MAX	4.7	0.90±0.3	4.4	0.70±0.3
J16	16	16.5	17.0	19.0MAX	5.5	1.2±0.3	6.7	0.70±0.3
K16	18	16.5	19.0	21.0MAX	6.7	1.2±0.3	6.7	0.70±0.3

*Just For Reference

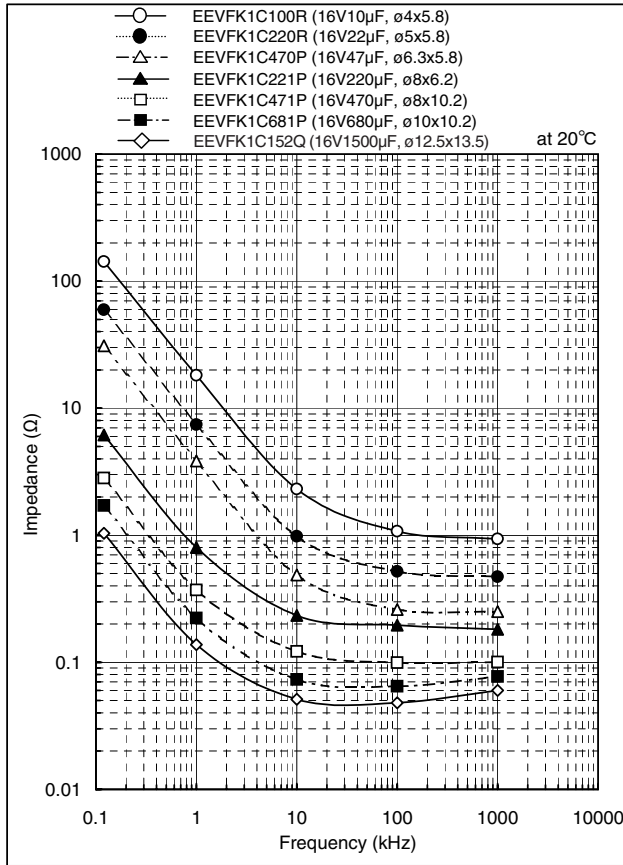
W.V. [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Imp./ESR [Ω]	Size	
						D	L
6.3	22	EEVFK0J220R	0.26	90	1.35	4	5.8
	47	EEVFK0J470UR	0.26	90	1.35	4	5.8
	47	EEVFK0J470R	0.26	160	0.70	5	5.8
	100	EEVFK0J101UR	0.26	160	0.70	5	5.8
	100	EEVFK0J101P	0.26	240	0.36	6.3	5.8
	220	EEVFK0J221P	0.26	240	0.36	6.3	5.8
	330	EEVFK0J331XP	0.26	280	0.34	6.3	7.7
	330	EEVFK0J331P	0.26	300	0.26	8	6.2
	470	EEVFK0J471P	0.26	600	0.16	8	10.2
	1000	EEVFK0J102P	0.26	600	0.16	8	10.2
	1500	EEVFK0J152P	0.26	850	0.080	10	10.2
	3300	EEVFK0J332Q	0.30	1100	0.060	12.5	13.5
6800	EEVFK0J682M	0.36	1800	0.035	16	16.5	
10	22	EEVFK1A220R	0.19	90	1.35	4	5.8
	33	EEVFK1A330UR	0.19	90	1.35	4	5.8
	33	EEVFK1A330R	0.19	160	0.70	5	5.8
	150	EEVFK1A151P	0.19	240	0.36	6.3	5.8
	220	EEVFK1A221XP	0.19	280	0.34	6.3	7.7
	220	EEVFK1A221P	0.19	300	0.26	8	6.2
	330	EEVFK1A331P	0.19	600	0.16	8	10.2
	470	EEVFK1A471P	0.19	600	0.16	8	10.2
	680	EEVFK1A681P	0.49	600	0.016	10	10.5
	1000	EEVFK1A102P	0.19	850	0.080	10	10.2
	2200	EEVFK1A222Q	0.21	1100	0.060	12.5	13.5
	4700	EEVFK1A472M	0.25	1800	0.035	16	16.5
6800	EEVFK1A682M	0.29	2060	0.033	18	16.5	
16	10	EEVFK1C100R	0.16	90	1.35	4	5.8
	22	EEVFK1C220UR	0.16	90	1.35	4	5.8
	22	EEVFK1C220R	0.16	160	0.70	5	5.8
	47	EEVFK1C470UR	0.16	160	0.70	5	5.8
	47	EEVFK1C470P	0.16	240	0.36	6.3	5.8
	68	EEVFK1C680P	0.16	240	0.36	6.3	5.8
	100	EEVFK1C101P	0.16	240	0.36	6.3	5.8
	150	EEVFK1C151XP	0.16	280	0.34	6.3	7.7
	220	EEVFK1C221XP	0.16	280	0.34	6.3	7.7
	220	EEVFK1C221P	0.16	300	0.26	8	6.2
	330	EEVFK1C331P	0.16	600	0.16	8	10.2
	470	EEVFK1C471P	0.16	600	0.16	8	10.2
680	EEVFK1C681P	0.16	850	0.08	10	10.2	
1500	EEVFK1C152Q	0.16	1100	0.060	12.5	13.5	
3300	EEVFK1C332M	0.20	1800	0.035	16	16.5	
4700	EEVFK1C472M	0.22	2060	0.033	18	16.5	
25	10	EEVFK1E100R	0.14	90	1.35	4	5.8
	22	EEVFK1E220R	0.14	160	0.70	5	5.8
	33	EEVFK1E330UR	0.14	160	0.70	5	5.8
	33	EEVFK1E330P	0.14	240	0.36	6.3	5.8
	47	EEVFK1E470P	0.14	240	0.36	6.3	5.8
	68	EEVFK1E680P	0.14	240	0.36	6.3	5.8
	100	EEVFK1E101XP	0.14	280	0.34	6.3	7.7
	100	EEVFK1E101P	0.14	300	0.26	8	6.2
	150	EEVFK1E151P	0.14	600	0.16	8	10.2
	220	EEVFK1E221P	0.14	600	0.16	8	10.2
	330	EEVFK1E331P	0.14	600	0.16	8	10.2
	470	EEVFK1E471P	0.14	850	0.080	10	10.2
1000	EEVFK1E102Q	0.14	1100	0.060	12.5	13.5	
2200	EEVFK1E222M	0.16	1800	0.035	16	16.5	
3300	EEVFK1E332M	0.18	2060	0.033	18	16.5	

W.V. [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Imp./ESR [Ω]	Size		
						D	L	
35	4.7	EEVFK1V4R7R	0.12	90	1.35	4	5.8	
	10	EEVFK1V100UR	0.12	90	1.35	4	5.8	
	10	EEVFK1V100R	0.12	160	0.70	5	5.8	
	22	EEVFK1V220R	0.12	160	0.70	5	5.8	
	33	EEVFK1V330P	0.12	240	0.36	6.3	5.8	
	47	EEVFK1V470P	0.12	240	0.36	6.3	5.8	
	68	EEVFK1V680XP	0.12	280	0.34	6.3	7.7	
	100	EEVFK1V101XP	0.12	280	0.34	6.3	7.7	
	100	EEVFK1V101P	0.12	600	0.16	8	10.2	
	150	EEVFK1V151P	0.12	600	0.16	8	10.2	
	220	EEVFK1V221P	0.12	600	0.16	8	10.2	
	330	EEVFK1V331P	0.12	850	0.080	10	10.2	
	470	EEVFK1V471Q	0.12	1100	0.060	12.5	13.5	
	680	EEVFK1V681Q	0.12	1100	0.060	12.5	13.5	
	1500	EEVFK1V152M	0.12	1800	0.035	16	16.5	
50	4.7	EEVFK1H4R7R	0.10	60	2.90	4	5.8	
	10	EEVFK1H100UR	0.10	85	1.52	5	5.8	
	10	EEVFK1H100P	0.10	165	0.88	6.3	5.8	
	22	EEVFK1H220P	0.10	165	0.88	6.3	5.8	
	33	EEVFK1H330XP	0.10	195	0.68	6.3	7.7	
	33	EEVFK1H330P	0.10	195	0.68	8	6.2	
	47	EEVFK1H470XP	0.10	195	0.68	6.3	7.7	
	47	EEVFK1H470P	0.10	195	0.68	8	6.2	
	100	EEVFK1H101P	0.10	350	0.34	8	10.2	
	150	EEVFK1H151P	0.10	670	0.18	10	10.2	
	220	EEVFK1H221P	0.10	670	0.18	10	10.2	
	330	EEVFK1H331Q	0.10	900	0.12	12.5	13.5	
	680	EEVFK1H681P	0.10	1610	0.073	16	16.5	
	1000	EEVFK1H102M	0.10	1610	0.073	16	16.5	
	63	4.7	EEVFK1J4R7R	0.08	50	3.00	5	5.8
10		EEVFK1J100P	0.08	80	1.50	6.3	5.8	
22		EEVFK1J220XP	0.08	120	1.20	6.3	7.7	
22		EEVFK1J220P	0.08	120	1.20	8	6.2	
33		EEVFK1J330P	0.08	250	0.65	8	10.2	
47		EEVFK1J470P	0.08	250	0.65	8	10.2	
68		EEVFK1J680P	0.08	400	0.35	10	10.2	
100		EEVFK1J101P	0.08	400	0.35	10	10.2	
150		EEVFK1J151Q	0.08	800	0.16	12.5	13.5	
220		EEVFK1J221Q	0.08	800	0.16	12.5	13.5	
470		EEVFK1J471M	0.08	1410	0.082	16	16.5	
680		EEVFK1J681M	0.08	1690	0.080	18	16.5	
80		3.3	EEVFK1K3R3R	0.08	25	5.00	5	5.8
		4.7	EEVFK1K4R7P	0.08	40	3.00	6.3	5.8
		10	EEVFK1K100XP	0.08	60	2.40	6.3	7.7
	10	EEVFK1K100P	0.08	60	2.40	8	6.2	
	22	EEVFK1K220P	0.08	130	1.30	8	10.2	
	33	EEVFK1K330P	0.08	130	1.30	8	10.2	
	47	EEVFK1K470P	0.08	200	0.70	10	10.2	
	68	EEVFK1K680Q	0.08	500	0.32	12.5	13.5	
	100	EEVFK1K101Q	0.08	500	0.32	12.5	13.5	
	150	EEVFK1K151Q	0.08	500	0.32	12.5	13.5	
	330	EEVFK1K331M	0.08	793	0.17	16	16.5	
	470	EEVFK1K471M	0.08	917	0.153	18	16.5	
	100	22	EEVFK2A220P	0.07	130	1.30	8	10.2
		33	EEVFK2A330P	0.07	200	0.70	10	10.2
		47	EEVFK2A470Q	0.07	500	0.32	12.5	13.5
68		EEVFK2A680Q	0.07	500	0.32	12.5	13.5	
100		EEVFK2A101P	0.07	793	0.17	16	16.5	
150		EEVFK2A151M	0.07	793	0.17	16	16.5	
220		EEVFK2A221M	0.07	917	0.153	18	16.5	
330		EEVFK2A331M	0.07	917	0.153	18	16.5	

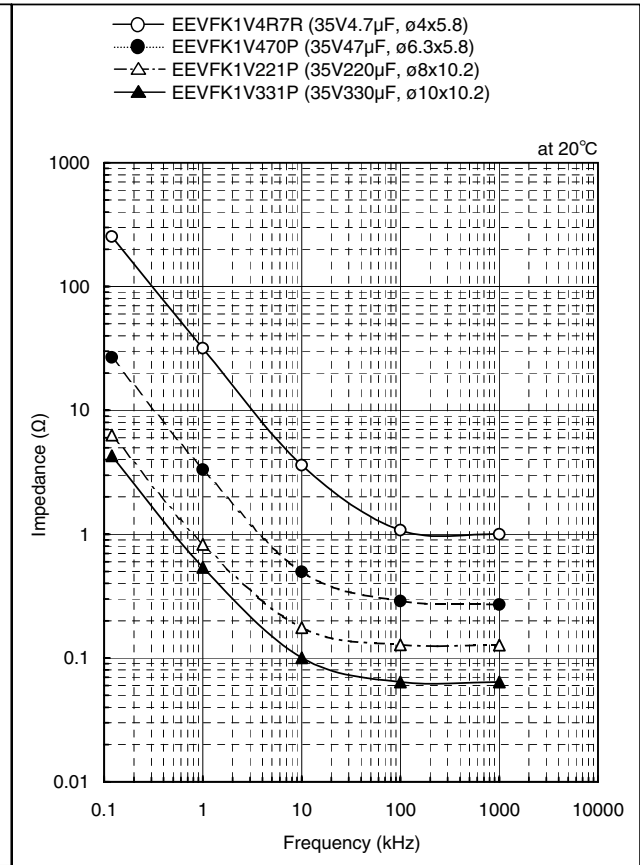
Tan δ = at 120Hz/+20°C
Ripple current = at 100kHz/+105°C
Impedance/ESR = at 100kHz/+20°C

Frequency Characteristics (Impedance)

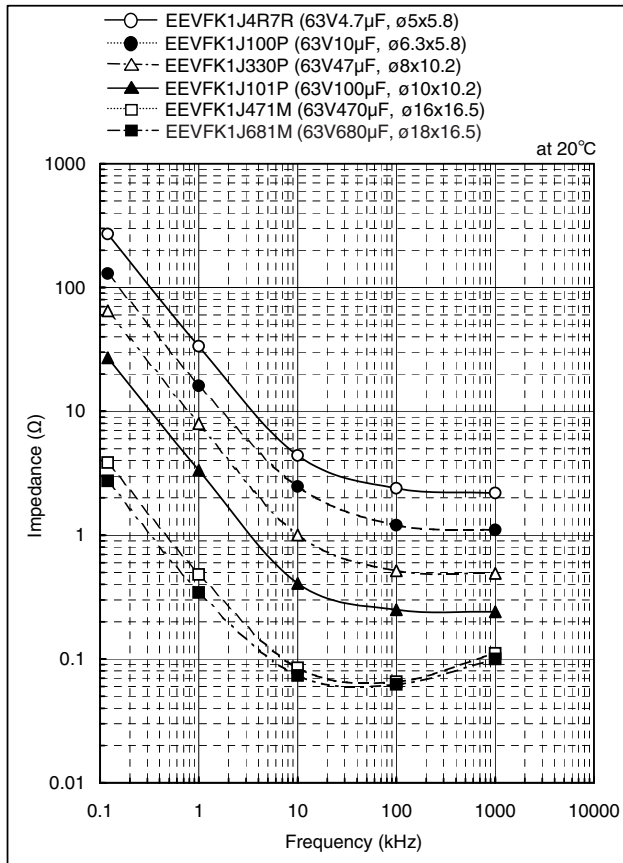
● 16WV



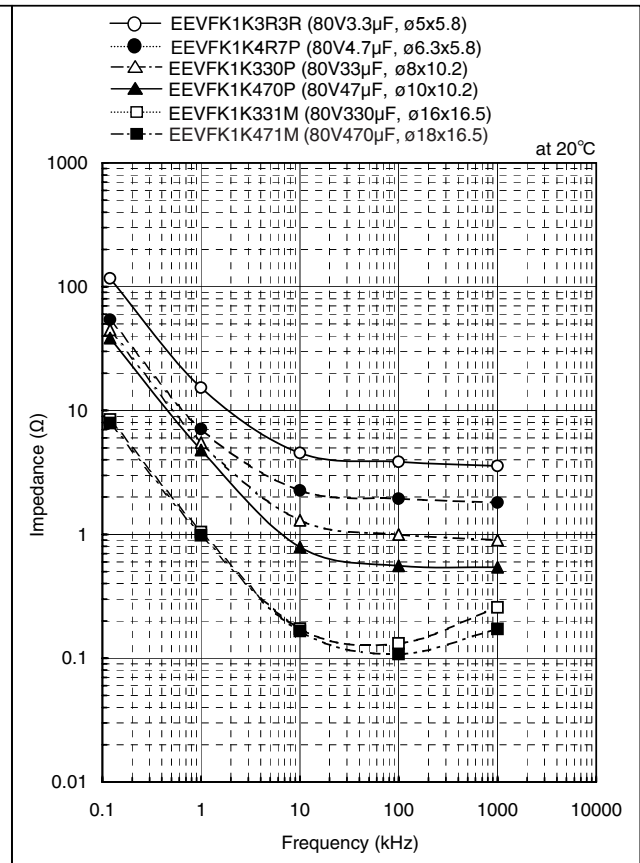
● 35WV



● 63WV

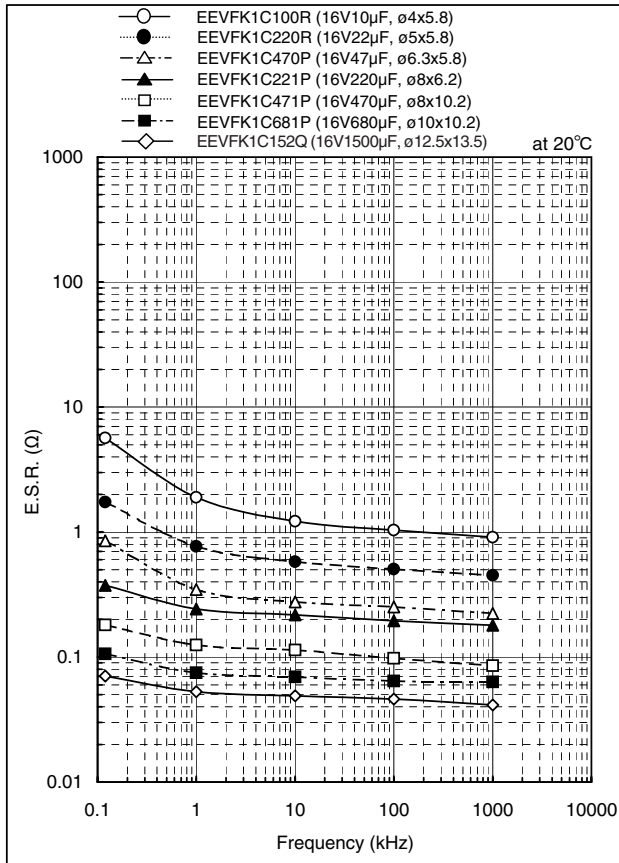


● 80WV

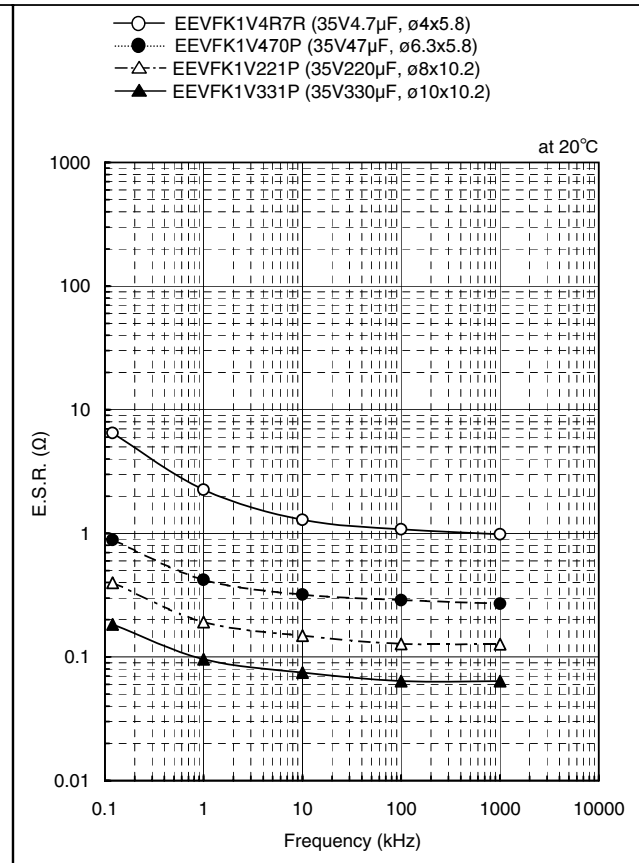


Frequency Characteristics (ESR)

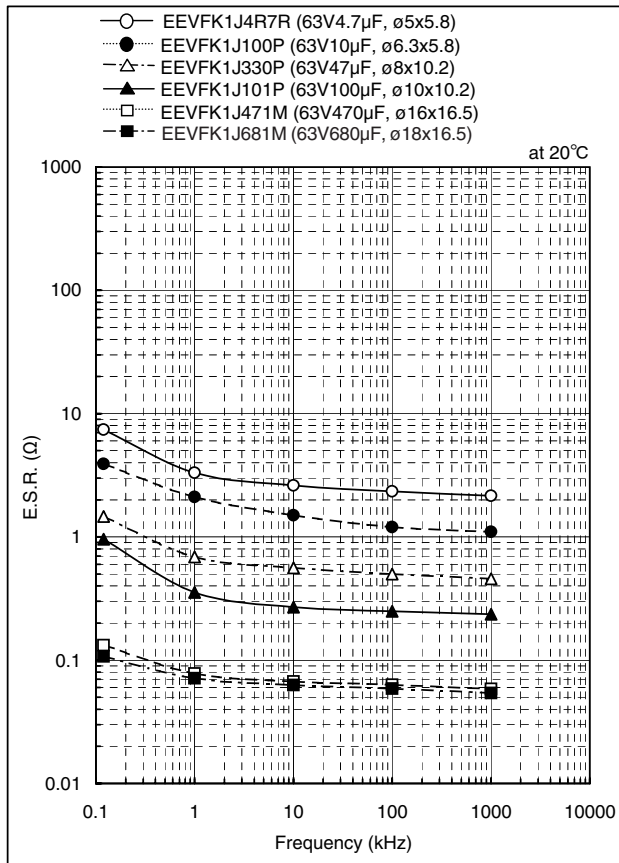
● 16VV



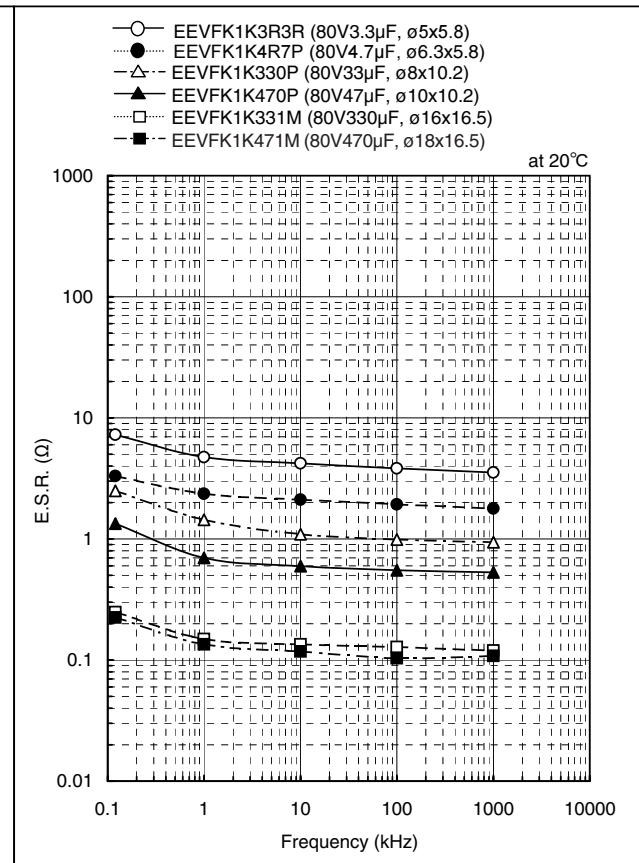
● 35VV



● 63VV

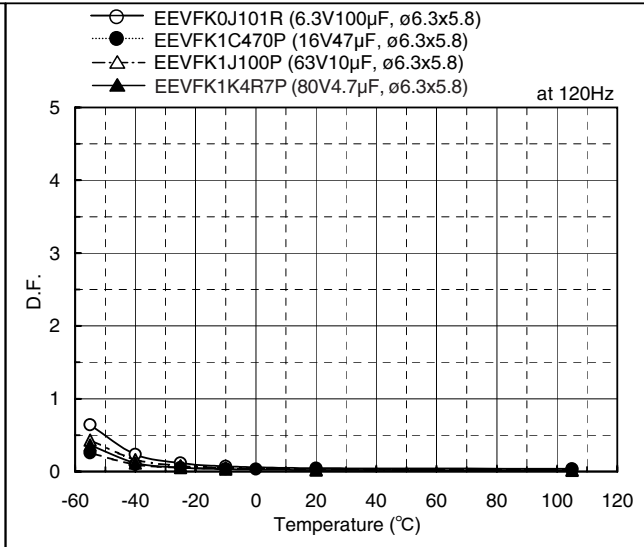
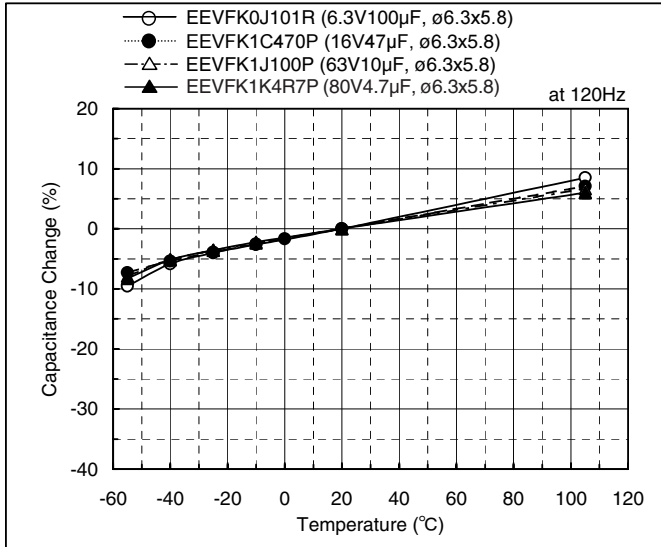


● 80VV

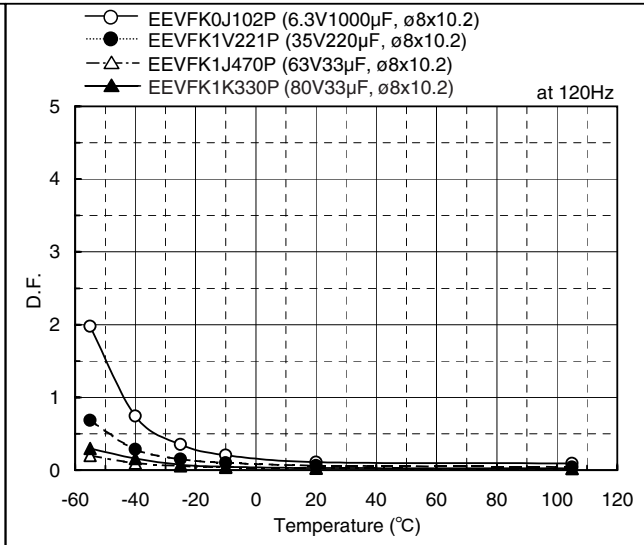
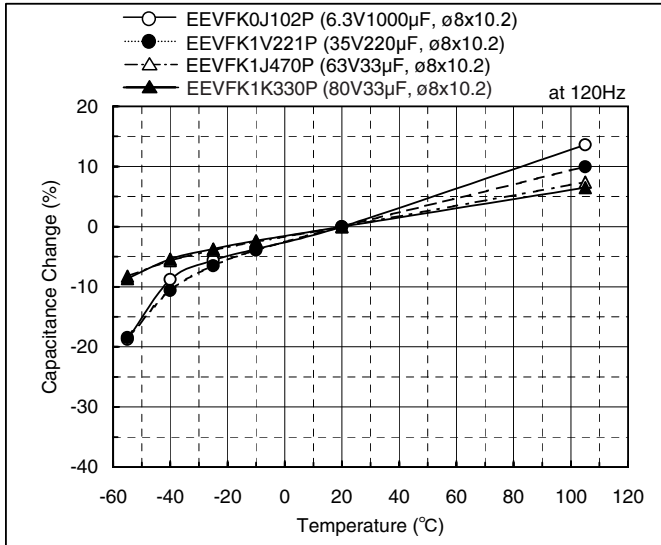


Temperature Characteristics

● $\phi 6.3 \times 5.8$



● $\phi 8 \times 10.2$



■ Load Life

