Surface Mount Type

Series : **FK** Type : **V**



Features

- Endurance : 105 °C 2000 h to 5000 h
- Low impedance (40 % to 60 % less than FC series)
  Miniaturized (30 % to 50 % less than FC series)
- Vibration-proof product is available upon request. (φ8 mm and larger)
- RoHS compliant

Specifications

Category temperature range	–55 °C to +105 °C										
Rated voltage range	6.3 V.DC to 100 V.DC										
Capacitance range	3.3 μF to 6800 μF										
Capacitance tolerance	±20 % (120 Hz/+20 °C)										
Leakage current	I ≦ 0.01 CV or 3 (μA) After 2 minutes (Whichever is greater)										
Dissipation factor (tan δ)	Please see the attached characteristics list										
Characteristics at low temperature	V.DC	6.3	10	16	25	35	50	63	80	100	(Impedance ratio at 120 Hz)
	Z(–25 °C)/Z(+20 °C)	2	2	2	2	2	2	2	2	2	
	Z(–40 °C)/Z(+20 °C)	3	3	3	3	3	3	3	3	3	
	Z(–55 °C)/Z(+20 °C)	4	4	4	3	3	3	3	3	3	
Endurance	After applying rated working voltage for 2000 hours at +105 °C±2 °C and then being stabilized at +20 °C, Capacitors shall meet the following limits. (≧φ12.5 and suffix "G" in φ8×10.2, φ10×10.2 are 5000 hours)										
	Capacitance change	Within ±30 % of the initial value (Suffix "G" is 35 %)									
	tan δ	≦200 % of the initial limit (Suffix "G" is 300 %)									
	DC leakage current	Within the initial limit									
Shelf life	After storage for 1000 hours at +105 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance (With voltage treatment)										
Resistance to soldering heat	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.										
	Capacitance change	Within ±10 % of the initial value									
	tan δ	Within the initial limit									
	DC leakage current	Within the initial limit									
AEC-Q200	AEC-Q200 compliant										

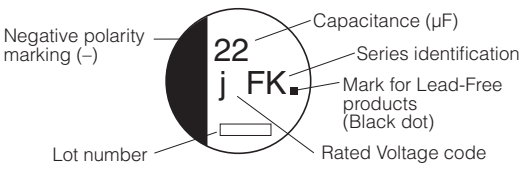
Frequency correction factor for ripple current

Frequency (Hz)	50, 60	120	1 k	10 k	100 k to
Correction factor	0.70	0.75	0.90	0.95	1.00

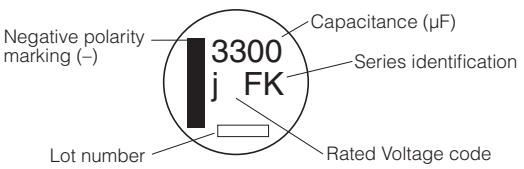
Marking

Example : 6.3 V.DC 22 μF, 6.3 V.DC 3300 μF
Marking color : BLACK

≦ φ10

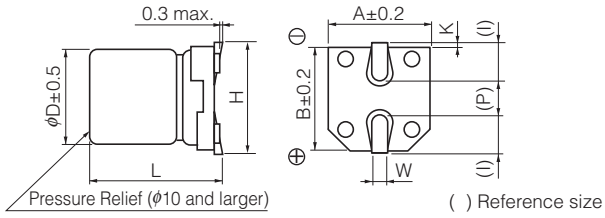


≧ φ12.5



R. Voltage (V.DC)	6.3	10	16	25	35	50	63	80	100
Code	j	A	C	E	V	H	J	K	2A

Dimensions



(Unit : mm)

Size code	φD	L	A,B	H	I	W	P	K
B	4.0	5.8±0.3	4.3	5.5 max.	1.8	0.65±0.1	1.0	0.35 $^{+1.5}_{-0.2}$
C	5.0	5.8±0.3	5.3	6.5 max.	2.2	0.65±0.1	1.5	0.35 $^{+1.5}_{-0.2}$
D	6.3	5.8±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 $^{+1.5}_{-0.2}$
D8	6.3	7.7±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 $^{+1.5}_{-0.2}$
E	8.0	6.2±0.3	8.3	9.5 max.	3.4	0.65±0.1	2.2	0.35 $^{+1.5}_{-0.2}$
F	8.0	10.2±0.3	8.3	10.0 max.	3.4	0.90±0.2	3.1	0.70±0.2
G	10.0	10.2±0.3	10.3	12.0 max.	3.5	0.90±0.2	4.6	0.70±0.2
H13	12.5	13.5±0.5	13.5	15.0 max.	4.7	0.90±0.3	4.4	0.70±0.3
J16	16.0	16.5±0.5	17.0	19.0 max.	5.5	1.20±0.3	6.7	0.70±0.3
K16	18.0	16.5±0.5	19.0	21.0 max.	6.7	1.20±0.3	6.7	0.70±0.3

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Should a safety concern arise regarding this product, please be sure to contact us immediately.

Characteristics list

Endurance : 105 °C 2000 h (≧ φ12.5 : 5000 h)

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm) φD	Case size (mm) L	Size* code	Specification: Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Specification: Impedance (100 kHz) (+20 °C) (Ω)	Specification: tan δ (120 Hz) (+20 °C)	Part No.	Reflow	Min. Packaging Q'ty Taping (pcs)
6.3	22	4	5.8	B	90	1.35	0.26	EEEFK0J220R	(1)	2000
	47	4	5.8	(B)	90	1.35	0.26	EEEFK0J470UR	(1)	2000
		5	5.8	C	160	0.70	0.26	EEEFK0J470R	(1)	1000
	100	5	5.8	(C)	160	0.70	0.26	EEEFK0J101UR	(1)	1000
		6.3	5.8	D	240	0.36	0.26	EEEFK0J101P	(1)	1000
	220	6.3	5.8	D	240	0.36	0.26	EEEFK0J221P	(1)	1000
	330	6.3	7.7	D8	280	0.34	0.26	EEEFK0J331XP	(1)	900
		8	6.2	E	300	0.26	0.26	EEEFK0J331P	(2)	1000
	470	8	10.2	F	600	0.16	0.26	EEEFK0J471P	(2)	500
	1000	8	10.2	F	600	0.16	0.26	EEEFK0J102P	(2)	500
	1500	10	10.2	G	850	0.08	0.26	EEEFK0J152P	(2)	500
	3300	12.5	13.5	H13	1100	0.06	0.30	EEVFK0J332Q	(3)	200
	6800	16	16.5	J16	1800	0.035	0.36	EEVFK0J682M	(3)	125
10	22	4	5.8	B	90	1.35	0.19	EEEFK1A220R	(1)	2000
	33	4	5.8	(B)	90	1.35	0.19	EEEFK1A330UR	(1)	2000
		5	5.8	C	160	0.70	0.19	EEEFK1A330R	(1)	1000
	150	6.3	5.8	D	240	0.36	0.19	EEEFK1A151P	(1)	1000
	220	6.3	7.7	D8	280	0.34	0.19	EEEFK1A221XP	(1)	900
		8	6.2	E	300	0.26	0.19	EEEFK1A221P	(2)	1000
	330	8	10.2	F	600	0.16	0.19	EEEFK1A331P	(2)	500
	470	8	10.2	F	600	0.16	0.19	EEEFK1A471P	(2)	500
	680	8	10.2	F	600	0.16	0.19	EEEFK1A681P	(2)	500
	1000	10	10.2	G	850	0.08	0.19	EEEFK1A102P	(2)	500
	2200	12.5	13.5	H13	1100	0.06	0.21	EEVFK1A222Q	(3)	200
	4700	16	16.5	J16	1800	0.035	0.25	EEVFK1A472M	(3)	125
	6800	18	16.5	K16	2060	0.033	0.29	EEVFK1A682M	(3)	125
16	10	4	5.8	B	90	1.35	0.16	EEEFK1C100R	(1)	2000
	22	4	5.8	(B)	90	1.35	0.16	EEEFK1C220UR	(1)	2000
		5	5.8	C	160	0.70	0.16	EEEFK1C220R	(1)	1000
	47	5	5.8	(C)	160	0.70	0.16	EEEFK1C470UR	(1)	1000
		6.3	5.8	D	240	0.36	0.16	EEEFK1C470P	(1)	1000
	68	6.3	5.8	D	240	0.36	0.16	EEEFK1C680P	(1)	1000
	100	6.3	5.8	D	240	0.36	0.16	EEEFK1C101P	(1)	1000
	150	6.3	7.7	D8	280	0.34	0.16	EEEFK1C151XP	(1)	900
	220	6.3	7.7	D8	280	0.34	0.16	EEEFK1C221XP	(1)	900
		8	6.2	E	300	0.26	0.16	EEEFK1C221P	(2)	1000
	330	8	10.2	F	600	0.16	0.16	EEEFK1C331P	(2)	500
	470	8	10.2	F	600	0.16	0.16	EEEFK1C471P	(2)	500
	680	10	10.2	G	850	0.08	0.16	EEEFK1C681P	(2)	500
	1500	12.5	13.5	H13	1100	0.06	0.16	EEVFK1C152Q	(3)	200
	3300	16	16.5	J16	1800	0.035	0.20	EEVFK1C332M	(3)	125
	4700	18	16.5	K16	2060	0.033	0.22	EEVFK1C472M	(3)	125
25	10	4	5.8	B	90	1.35	0.14	EEEFK1E100R	(1)	2000
	22	5	5.8	C	160	0.70	0.14	EEEFK1E220R	(1)	1000
	33	5	5.8	(C)	160	0.70	0.14	EEEFK1E330UR	(1)	1000
		6.3	5.8	D	240	0.36	0.14	EEEFK1E330P	(1)	1000
	47	6.3	5.8	D	240	0.36	0.14	EEEFK1E470P	(1)	1000
	68	6.3	5.8	D	240	0.36	0.14	EEEFK1E680P	(1)	1000
	100	6.3	7.7	D8	280	0.34	0.14	EEEFK1E101XP	(1)	900
		8	6.2	E	300	0.26	0.14	EEEFK1E101P	(2)	1000
	150	8	10.2	F	600	0.16	0.14	EEEFK1E151P	(2)	500
	220	8	10.2	F	600	0.16	0.14	EEEFK1E221P	(2)	500
	330	8	10.2	F	600	0.16	0.14	EEEFK1E331P	(2)	500
	470	10	10.2	G	850	0.08	0.14	EEEFK1E471P	(2)	500
	1000	12.5	13.5	H13	1100	0.06	0.14	EEVFK1E102Q	(3)	200
	1500	16	16.5	J16	1800	0.035	0.14	EEVFK1E152M	(3)	125
	2200	16	16.5	J16	1800	0.035	0.16	EEVFK1E222M	(3)	125
	3300	18	16.5	K16	2060	0.033	0.18	EEVFK1E332M	(3)	125

✻ Size code( ) : Miniaturization product
· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".
· When requesting vibration-proof product, please put the last "V" instead to "P"

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Characteristics list

Endurance : 105 °C 2000 h (≧ φ12.5 : 5000 h)

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm) φD	Case size (mm) L	Size* code	Specification: Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Specification: Impedance (100 kHz) (+20 °C) (Ω)	Specification: tan δ (120 Hz) (+20 °C)	Part No.	Reflow	Min. Packaging Q'ty Taping (pcs)
35	4.7	4	5.8	B	90	1.35	0.12	EEEFK1V4R7R	(1)	2000
	10	4	5.8	(B)	90	1.35	0.12	EEEFK1V100UR	(1)	2000
		5	5.8	C	160	0.70	0.12	EEEFK1V100R	(1)	1000
	22	5	5.8	C	160	0.70	0.12	EEEFK1V220R	(1)	1000
	33	6.3	5.8	D	240	0.36	0.12	EEEFK1V330P	(1)	1000
	47	6.3	5.8	D	240	0.36	0.12	EEEFK1V470P	(1)	1000
	68	6.3	7.7	D8	280	0.34	0.12	EEEFK1V680XP	(1)	900
	100	6.3	7.7	D8	280	0.34	0.12	EEEFK1V101XP	(1)	900
		8	10.2	F	600	0.16	0.12	EEEFK1V101P	(2)	500
	150	8	10.2	F	600	0.16	0.12	EEEFK1V151P	(2)	500
	220	8	10.2	F	600	0.16	0.12	EEEFK1V221P	(2)	500
	330	10	10.2	G	850	0.08	0.12	EEEFK1V331P	(2)	500
	470	12.5	13.5	H13	1100	0.06	0.12	EEVFK1V471Q	(3)	200
	680	12.5	13.5	H13	1100	0.06	0.12	EEVFK1V681Q	(3)	200
	1000	16	16.5	J16	1800	0.035	0.12	EEVFK1V102M	(3)	125
	1500	16	16.5	J16	1800	0.035	0.12	EEVFK1V152M	(3)	125
50	4.7	4	5.8	B	60	2.90	0.10	EEEFK1H4R7R	(1)	2000
	10	5	5.8	(C)	85	1.52	0.10	EEEFK1H100UR	(1)	1000
		6.3	5.8	D	165	0.88	0.10	EEEFK1H100P	(1)	1000
	22	6.3	5.8	D	165	0.88	0.10	EEEFK1H220P	(1)	1000
	33	6.3	7.7	D8	195	0.68	0.10	EEEFK1H330XP	(1)	900
		8	6.2	E	195	0.68	0.10	EEEFK1H330P	(2)	1000
	47	6.3	7.7	D8	195	0.68	0.10	EEEFK1H470XP	(1)	900
		8	6.2	E	195	0.68	0.10	EEEFK1H470P	(2)	1000
	100	8	10.2	F	350	0.34	0.10	EEEFK1H101P	(2)	500
	150	10	10.2	G	670	0.18	0.10	EEEFK1H151P	(2)	500
	220	10	10.2	G	670	0.18	0.10	EEEFK1H221P	(2)	500
	330	12.5	13.5	H13	900	0.12	0.10	EEVFK1H331Q	(3)	200
	390	12.5	13.5	H13	900	0.12	0.10	EEVFK1H391Q	(3)	200
	470	16	16.5	J16	1610	0.073	0.10	EEVFK1H471M	(3)	125
	560	16	16.5	J16	1610	0.073	0.10	EEVFK1H561M	(3)	125
	680	16	16.5	J16	1610	0.073	0.10	EEVFK1H681M	(3)	125
	1000	16	16.5	J16	1610	0.073	0.10	EEVFK1H102M	(3)	125
63	4.7	5	5.8	C	50	3.00	0.08	EEEFK1J4R7R	(1)	1000
	10	6.3	5.8	D	80	1.50	0.08	EEEFK1J100P	(1)	1000
	22	6.3	7.7	D8	120	1.20	0.08	EEEFK1J220XP	(1)	900
		8	6.2	E	120	1.20	0.08	EEEFK1J220P	(2)	1000
	33	8	10.2	F	250	0.65	0.08	EEEFK1J330P	(2)	500
	47	8	10.2	F	250	0.65	0.08	EEEFK1J470P	(2)	500
	68	8	10.2	(F)	250	0.65	0.08	EEEFK1J680UP	(2)	500
	100	10	10.2	G	400	0.35	0.08	EEEFK1J101P	(2)	500
	150	12.5	13.5	H13	800	0.16	0.08	EEVFK1J151Q	(3)	200
	220	12.5	13.5	H13	800	0.16	0.08	EEVFK1J221Q	(3)	200
	470	16	16.5	J16	1410	0.082	0.08	EEVFK1J471M	(3)	125
	680	18	16.5	K16	1690	0.08	0.08	EEVFK1J681M	(3)	125
80	3.3	5	5.8	C	25	5.00	0.08	EEEFK1K3R3R	(1)	1000
	4.7	6.3	5.8	D	40	3.00	0.08	EEEFK1K4R7P	(1)	1000
	10	6.3	7.7	D8	60	2.40	0.08	EEEFK1K100XP	(1)	900
		8	6.2	E	60	2.40	0.08	EEEFK1K100P	(2)	1000
	22	8	10.2	F	130	1.30	0.08	EEEFK1K220P	(2)	500
	33	8	10.2	F	130	1.30	0.08	EEEFK1K330P	(2)	500
	47	10	10.2	G	200	0.70	0.08	EEEFK1K470P	(2)	500
	68	12.5	13.5	H13	500	0.32	0.08	EEVFK1K680Q	(3)	200
	100	12.5	13.5	H13	500	0.32	0.08	EEVFK1K101Q	(3)	200
	150	12.5	13.5	H13	500	0.32	0.08	EEVFK1K151Q	(3)	200
	330	16	16.5	J16	793	0.17	0.08	EEVFK1K331M	(3)	125
	470	18	16.5	K16	917	0.153	0.08	EEVFK1K471M	(3)	125

✻ Size code( ) : Miniaturization product
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Characteristics list

Endurance : 105 °C 2000 h (≧ φ12.5 : 5000 h)

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm) φD	Case size (mm) L	Size* code	Specification Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Specification Impedance (100 kHz) (+20 °C) (Ω)	Specification tan δ (120 Hz) (+20 °C)	Part No.	Reflow	Min. Packaging Q'ty Taping (pcs)
100	22	8	10.2	F	130	1.30	0.07	EEEFK2A220P	(2)	500
	33	10	10.2	G	200	0.70	0.07	EEEFK2A330P	(2)	500
	47	12.5	13.5	H13	500	0.32	0.07	EEVFK2A470Q	(3)	200
	68	12.5	13.5	H13	500	0.32	0.07	EEVFK2A680Q	(3)	200
	100	16	16.5	J16	793	0.17	0.07	EEVFK2A101M	(3)	125
	150	16	16.5	J16	793	0.17	0.07	EEVFK2A151M	(3)	125
	220	18	16.5	K16	917	0.153	0.07	EEVFK2A221M	(3)	125
	330	18	16.5	K16	917	0.153	0.07	EEVFK2A331M	(3)	125

✻ Size code( ) : Miniaturization product
· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

Characteristics list

Endurance : 105 °C 5000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm) φD	Case size (mm) L	Size* code	Specification Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Specification Impedance (100 kHz) (+20 °C) (Ω)	Specification tan δ (120 Hz) (+20 °C)	Part No.	Reflow	Min. Packaging Q'ty Taping (pcs)
6.3	470	8	10.2	F	600	0.16	0.26	EEEFK0J471GP	(2)	500
	1000	8	10.2	F	600	0.16	0.26	EEEFK0J102GP	(2)	500
	1500	10	10.2	G	850	0.08	0.26	EEEFK0J152GP	(2)	500
10	330	8	10.2	F	600	0.16	0.19	EEEFK1A331GP	(2)	500
	470	8	10.2	F	600	0.16	0.19	EEEFK1A471GP	(2)	500
	680	8	10.2	F	600	0.16	0.19	EEEFK1A681GP	(2)	500
	1000	10	10.2	G	850	0.08	0.19	EEEFK1A102GP	(2)	500
16	330	8	10.2	F	600	0.16	0.16	EEEFK1C331GP	(2)	500
	470	8	10.2	F	600	0.16	0.16	EEEFK1C471GP	(2)	500
	680	10	10.2	G	850	0.08	0.16	EEEFK1C681GP	(2)	500
25	150	8	10.2	F	600	0.16	0.14	EEEFK1E151GP	(2)	500
	220	8	10.2	F	600	0.16	0.14	EEEFK1E221GP	(2)	500
	330	8	10.2	F	600	0.16	0.14	EEEFK1E331GP	(2)	500
	470	10	10.2	G	850	0.08	0.14	EEEFK1E471GP	(2)	500
35	100	8	10.2	F	600	0.16	0.12	EEEFK1V101GP	(2)	500
	150	8	10.2	F	600	0.16	0.12	EEEFK1V151GP	(2)	500
	220	8	10.2	F	600	0.16	0.12	EEEFK1V221GP	(2)	500
	330	10	10.2	G	850	0.08	0.12	EEEFK1V331GP	(2)	500
50	100	8	10.2	F	350	0.34	0.10	EEEFK1H101GP	(2)	500
	150	10	10.2	G	670	0.18	0.10	EEEFK1H151GP	(2)	500
	220	10	10.2	G	670	0.18	0.10	EEEFK1H221GP	(2)	500

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ERJD1CFR030U ETQP3M1R5KVN 16SVPC100M ERA6AEB124V ERJ-XGNJ3R0Y ERJ1TYJ330U AXK5F16547YG ERJ2RKF12R0X ERJB1AF100U ERJD1CJR022U ECQE2273KB ERJ-UP3J750V ERJ8ENF2701V ERJB1CFR018U ERJB1CFR01U EEEFK1A102AP ERA-3AEB912V ERJ-B1AF511U ERJPB3B1001V EEE-FK1E221GP ERJ-8ENF39R0V ERJ-P08F2000V ERJ-P6WF1500V EEUEB1E221SB ERJ-P08J1R0V ERJ1TYJ1R0U ERJU0XJ105Y AXT340124 ERJ-3GEYJ3R0V ERJ-6ENF7501V