

## Surface Mount Type

Series : **FC** Type : **V**

Low impedance



### Features

- Endurance : 105 °C 1000 h
- Low impedance (1/2 for HA series)
- Vibration-proof product is available upon request. ( $\phi 8$  mm and larger)
- RoHS compliant

### Specifications

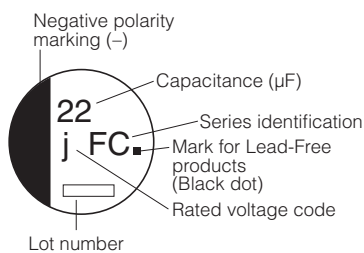
Category temperature range	-40 °C to +105 °C							
Rated voltage range	6.3 V.DC to 50 V.DC							
Capacitance range	1 $\mu$ F to 1500 $\mu$ F							
Capacitance tolerance	$\pm 20$ % (120 Hz/+20 °C)							
Leakage current	$I \leq 0.01$ CV or 3 ( $\mu$ A) After 2 minutes (Whichever is greater)							
Dissipation factor (tan $\delta$ )	Please see the attached characteristics list							
Characteristics at low temperature	V.DC	6.3	10	16	25	35	50	(Impedance ratio at 120 Hz)
	Z(-25 °C) / Z(+20 °C)	2	2	2	2	2	2	
	Z(-40 °C) / Z(+20 °C)	3	3	3	3	3	3	
Endurance	After applying rated working voltage for 1000 hours at +105 °C $\pm 2$ °C and then being stabilized at +20 °C, Capacitors shall meet the following limits.							
	Capacitance change	Within $\pm 20$ % of the initial value						
	tan $\delta$	$\leq 200$ % of the initial limit						
Shelf life	After storage for 1000 hours at +105 °C $\pm 2$ °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance.(With voltage treatment)							
	After reflow soldering and then being stabilized at +20 °C, capacitor shall meet the following limits.							
Resistance to soldering heat	Capacitance change	Within $\pm 10$ % of the initial value						
	tan $\delta$	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

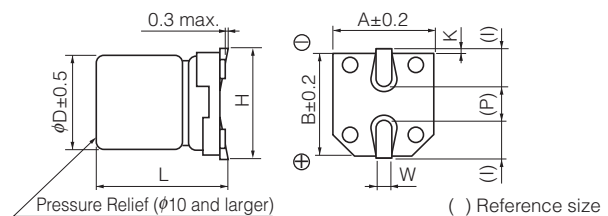
### Marking

Example : 6.3 V.DC 22  $\mu$ F  
Marking color : BLACK



R. Voltage (V.DC)	6.3	10	16	25	35	50
Code	j	A	C	E	V	H

### Dimensions



( ) Reference size

(Unit : mm)

Size code	$\phi D$	L	A, B	H	I	W	P	K
B	4.0	$5.4^{+0.1}_{-0.2}$	4.3	5.5 max.	1.8	$0.65 \pm 0.1$	1.0	$0.35^{+0.15}_{-0.20}$
C	5.0	$5.4^{+0.1}_{-0.2}$	5.3	6.5 max.	2.2	$0.65 \pm 0.1$	1.5	$0.35^{+0.15}_{-0.20}$
D	6.3	$5.4^{+0.1}_{-0.2}$	6.6	7.8 max.	2.6	$0.65 \pm 0.1$	1.8	$0.35^{+0.15}_{-0.20}$
E	8.0	$6.2 \pm 0.3$	8.3	9.5 max.	3.4	$0.65 \pm 0.1$	2.2	$0.35^{+0.15}_{-0.20}$
F	8.0	$10.2 \pm 0.3$	8.3	10.0 max.	3.4	$0.90 \pm 0.2$	3.1	$0.70 \pm 0.2$
G	10.0	$10.2 \pm 0.3$	10.3	12.0 max.	3.5	$0.90 \pm 0.2$	4.6	$0.70 \pm 0.2$

**Characteristics list**

Endurance : 105 °C 1000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm)		Size code	Specification			Part No.	Reflow	Min. Packaging Qty	
		φD	L		Ripple current (100 kHz) (+105 °C) (mA r.m.s.)	Impedance (100 kHz) (+20 °C) (Ω)	tan δ (120 Hz) (+20 °C)			Taping (pcs)	
6.3	22	4	5.4	B	60	3.00	0.26	EEEF0J220R	(1)	2000	
	47	5	5.4	C	95	1.80	0.26	EEEF0J470R	(1)	1000	
	68	6.3	5.4	D	140	1.00	0.26	EEEF0J680P	(1)	1000	
	100	6.3	5.4	D	140	1.00	0.26	EEEF0J101P	(1)	1000	
	220	8	6.2	E	230	0.40	0.26	EEEF0J221P	(2)	1000	
	330	8	10.2	F	450	0.30	0.26	EEEF0J331P	(2)	500	
	1000	10	10.2	G	670	0.15	0.26	EEEF0J102P	(2)	500	
	1500	10	10.2	G	670	0.15	0.26	EEEF0J152P	(2)	500	
10	33	5	5.4	C	95	1.80	0.19	EEEF1A330R	(1)	1000	
	100	8	6.2	E	230	0.40	0.19	EEEF1A101P	(2)	1000	
	150	8	6.2	E	230	0.40	0.19	EEEF1A151P	(2)	1000	
	220	8	10.2	F	450	0.30	0.19	EEEF1A221P	(2)	500	
	470	10	10.2	G	670	0.15	0.19	EEEF1A471P	(2)	500	
	1000	10	10.2	G	670	0.15	0.19	EEEF1A102P	(2)	500	
16	10	4	5.4	B	60	3.00	0.16	EEEF1C100R	(1)	2000	
	22	5	5.4	C	95	1.80	0.16	EEEF1C220R	(1)	1000	
	47	6.3	5.4	D	140	1.00	0.16	EEEF1C470P	(1)	1000	
	68	8	6.2	E	230	0.40	0.16	EEEF1C680P	(2)	1000	
	100	8	6.2	E	230	0.40	0.16	EEEF1C101P	(2)	1000	
	220	10	10.2	G	670	0.15	0.16	EEEF1C221P	(2)	500	
	330	10	10.2	G	670	0.15	0.16	EEEF1C331P	(2)	500	
	470	10	10.2	G	670	0.15	0.16	EEEF1C471P	(2)	500	
	680	10	10.2	G	670	0.15	0.16	EEEF1C681P	(2)	500	
25	6.8	4	5.4	B	60	3.00	0.14	EEEF1E68R	(1)	2000	
	22	6.3	5.4	D	140	1.00	0.14	EEEF1E220P	(1)	1000	
	33	6.3	5.4	D	140	1.00	0.14	EEEF1E330P	(1)	1000	
	47	8	6.2	E	230	0.40	0.14	EEEF1E470P	(2)	1000	
	68	8	10.2	F	450	0.30	0.14	EEEF1E680P	(2)	500	
	100	8	10.2	F	450	0.30	0.14	EEEF1E101P	(2)	500	
	220	10	10.2	G	670	0.15	0.14	EEEF1E221P	(2)	500	
	330	10	10.2	G	670	0.15	0.14	EEEF1E331P	(2)	500	
	470	10	10.2	G	670	0.15	0.14	EEEF1E471P	(2)	500	
35	1	4	5.4	B	60	3.00	0.12	EEEF1V1R0R	(1)	2000	
	2.2	4	5.4	B	60	3.00	0.12	EEEF1V2R2R	(1)	2000	
	3.3	4	5.4	B	60	3.00	0.12	EEEF1V3R3R	(1)	2000	
	4.7	4	5.4	B	60	3.00	0.12	EEEF1V4R7R	(1)	2000	
	6.8	5	5.4	C	95	1.80	0.12	EEEF1V6R8R	(1)	1000	
	10	5	5.4	C	95	1.80	0.12	EEEF1V100R	(1)	1000	
	22	6.3	5.4	D	140	1.00	0.12	EEEF1V220P	(1)	1000	
	33	8	6.2	E	230	0.40	0.12	EEEF1V330P	(2)	1000	
	47	8	6.2	E	230	0.40	0.12	EEEF1V470P	(2)	1000	
	100	10	10.2	G	670	0.15	0.12	EEEF1V101P	(2)	500	
	220	10	10.2	G	670	0.15	0.12	EEEF1V221P	(2)	500	
	330	10	10.2	G	670	0.15	0.12	EEEF1V331P	(2)	500	
50	1	4	5.4	B	30	5.00	0.12	EEEF1H1R0R	(1)	2000	
	2.2	4	5.4	B	30	5.00	0.12	EEEF1H2R2R	(1)	2000	
	3.3	4	5.4	B	30	5.00	0.12	EEEF1H3R3R	(1)	2000	
	4.7	5	5.4	C	50	3.00	0.12	EEEF1H4R7R	(1)	1000	
	10	6.3	5.4	D	70	2.00	0.12	EEEF1H100P	(1)	1000	
	22	8	6.2	E	120	0.70	0.12	EEEF1H220P	(2)	1000	
	33	8	10.2	F	300	0.60	0.12	EEEF1H330P	(2)	500	
	47	10	10.2	G	500	0.30	0.12	EEEF1H470P	(2)	500	
	100	10	10.2	G	500	0.30	0.12	EEEF1H101P	(2)	500	
	220	10	10.2	G	500	0.30	0.12	EEEF1H221P	(2)	500	

- 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"