

## 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. ( $\phi 8$  mm and larger)
- RoHS compliant

### Specifications

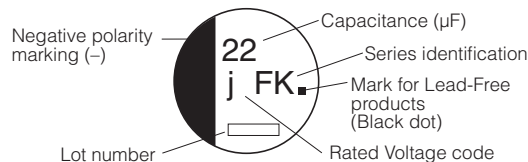
|                                      |  |   |    |    |    |    |    |    |    |     |                             |
|--------------------------------------|--|---|----|----|----|----|----|----|----|-----|-----------------------------|
| Category temperature range           | -55 °C to +105 °C  |   |    |    |    |    |    |    |    |     |                             |
| Rated voltage range                  | 6.3 V.DC to 100 V.DC   |   |    |    |    |    |    |    |    |     |                             |
| Capacitance range                    | 3.3 $\mu$ F to 6800 $\mu$ 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 | 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 $\pm 2$ °C and then being stabilized at +20 °C, Capacitors shall meet the following limits. ( $\geq \phi 12.5$ and suffix "G" in $\phi 8 \times 10.2$ , $\phi 10 \times 10.2$ are 5000 hours) |   |    |    |    |    |    |    |    |     |                             |
|                                      | Capacitance change   | Within $\pm 30$ % of the initial value (Suffix "G" is 35 %) |    |    |    |    |    |    |    |     |                             |
|                                      | $\tan \delta$  | $\leq 200$ % of the initial limit (Suffix "G" is 300 %)     |    |    |    |    |    |    |    |     |                             |
| 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, capacitors 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, 6.3 V.DC 3300  $\mu$ F  
Marking color : BLACK  
 $\leq \phi 10$

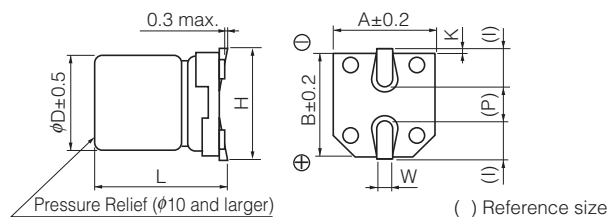


$\geq \phi 12.5$



|                   |     |    |    |    |    |    |    |    |     |
|-------------------|-----|----|----|----|----|----|----|----|-----|
| 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 | $\phi D$ | L              | A, B | H         | I   | W              | P   | K                      |
|-----------|----------|----------------|------|-----------|-----|----------------|-----|------------------------|
| B         | 4.0      | 5.8 $\pm 0.3$  | 4.3  | 5.5 max.  | 1.8 | 0.65 $\pm 0.1$ | 1.0 | 0.35 $^{+0.05}_{-0.2}$ |
| C         | 5.0      | 5.8 $\pm 0.3$  | 5.3  | 6.5 max.  | 2.2 | 0.65 $\pm 0.1$ | 1.5 | 0.35 $^{+0.05}_{-0.2}$ |
| D         | 6.3      | 5.8 $\pm 0.3$  | 6.6  | 7.8 max.  | 2.6 | 0.65 $\pm 0.1$ | 1.8 | 0.35 $^{+0.05}_{-0.2}$ |
| D8        | 6.3      | 7.7 $\pm 0.3$  | 6.6  | 7.8 max.  | 2.6 | 0.65 $\pm 0.1$ | 1.8 | 0.35 $^{+0.05}_{-0.2}$ |
| E         | 8.0      | 6.2 $\pm 0.3$  | 8.3  | 9.5 max.  | 3.4 | 0.65 $\pm 0.1$ | 2.2 | 0.35 $^{+0.05}_{-0.2}$ |
| 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 $\pm 0.2$         |
| H13       | 12.5     | 13.5 $\pm 0.5$ | 13.5 | 15.0 max. | 4.7 | 0.90 $\pm 0.3$ | 4.4 | 0.70 $\pm 0.3$         |
| J16       | 16.0     | 16.5 $\pm 0.5$ | 17.0 | 19.0 max. | 5.5 | 1.20 $\pm 0.3$ | 6.7 | 0.70 $\pm 0.3$         |
| K16       | 18.0     | 16.5 $\pm 0.5$ | 19.0 | 21.0 max. | 6.7 | 1.20 $\pm 0.3$ | 6.7 | 0.70 $\pm 0.3$         |

## Characteristics list

Endurance : 105 °C 2000 h (≥ φ12.5 : 5000 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              | 5.8  | 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                |
|                      |                   | 6.3            | 7.7  | D8         | 280  | 0.34                             | 0.16                    | EEEFK1C221XP | (1)         | 900                |
|                      | 220               | 8              | 6.2  | E          | 300  | 0.26                             | 0.16                    | EEEFK1C221P  | (2)         | 1000               |
|                      |                   | 330            | 8    | 10.2       | F  | 600                              | 0.16                    | 0.16         | EEEFK1C331P | (2)                |
|                      | 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               |
|                      |                   | 5              | 5.8  | (C)        | 160  | 0.70                             | 0.14                    | EEEFK1E330UR | (1)         | 1000               |
|                      | 33                | 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)                |
|                      | 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"

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.

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) |      | 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)       |
| 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                |
|                      | 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               |
| 6.3                  |                   | 7.7            | D8   | 60         | 2.40   | 0.08                             | EEEFK1K100XP            | (1)          | 900    |                    |
| 10                   | 8                 | 6.2            | E    | 60         | 2.40   | 0.08                             | EEEFK1K100P             | (2)          | 1000   |                    |
|                      | 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  
 · 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"

## Characteristics list

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

· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

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