

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 (30G guaranteed) is available upon request ($\phi 6.3 \leq$)
- RoHS compliant

Specifications

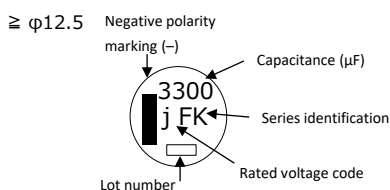
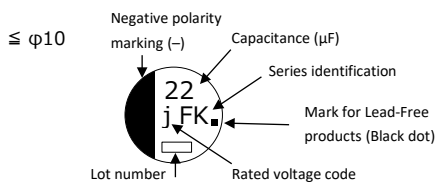
| | | | | | | | | | | | |
|------------------------------------|---|---|----|----|----|----|----|----|----|-----|-----------------------------|
| Category temp. range | -55 °C to +105 °C | | | | | | | | | | |
| Rated voltage range | 6.3 V.DC to 100 V.DC | | | | | | | | | | |
| Capacitance range | 3.3 μ F to 6800 μ F | | | | | | | | | | |
| Capacitance tolerance | ± 20 % (120 Hz / +20 °C) | | | | | | | | | | |
| Leakage current | $I \leq 0.01 CV$ or 3 (μ A) After 2 minutes (Whichever is greater) | | | | | | | | | | |
| Dissipation factor (tan δ) | Please see the attached characteristics list | | | | | | | | | | |
| Characteristics at low temperature | Rated voltage (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 ± 30 % of the initial value (Suffix "G" is 35 %) | | | | | | | | | |
| | Dissipation factor (tan δ) | ≤ 200 % of the initial limit (Suffix "G" is 300 %) | | | | | | | | | |
| | Leakage current | Within 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, capacitors shall meet the following limits. | | | | | | | | | | |
| Resistance to soldering heat | Capacitance change | Within ± 10 % of the initial value | | | | | | | | | |
| | Dissipation factor (tan δ) | Within the initial limit | | | | | | | | | |
| | 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 μ F, 6.3 V.DC 3300 μ F
Marking color : BLACK



| R. voltage code | | Unit : V.DC | |
|-----------------|-----|-------------|-----|
| j | 6.3 | H | 50 |
| A | 10 | J | 63 |
| C | 16 | K | 80 |
| E | 25 | 2A | 100 |
| V | 35 | | |

Dimensions

() Reference size

| Size code | ϕD | 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 ^{+0.15} _{-0.20} |
| C | 5.0 | 5.8 \pm 0.3 | 5.3 | 6.5 max. | 2.2 | 0.65 \pm 0.1 | 1.5 | 0.35 ^{+0.15} _{-0.20} |
| D | 6.3 | 5.8 \pm 0.3 | 6.6 | 7.8 max. | 2.6 | 0.65 \pm 0.1 | 1.8 | 0.35 ^{+0.15} _{-0.20} |
| D8 | 6.3 | 7.7 \pm 0.3 | 6.6 | 7.8 max. | 2.6 | 0.65 \pm 0.1 | 1.8 | 0.35 ^{+0.15} _{-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 |
| 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 |

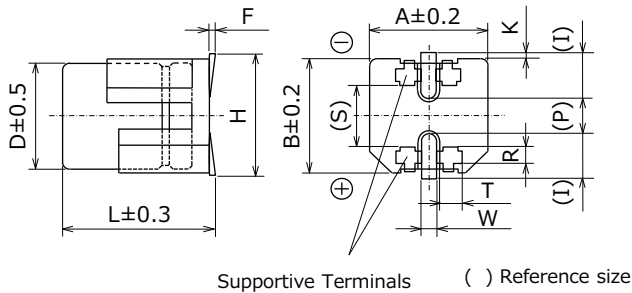
Unit : mm

*The dimensions of the vibration-proof products, please refer to the page of the mounting specification.

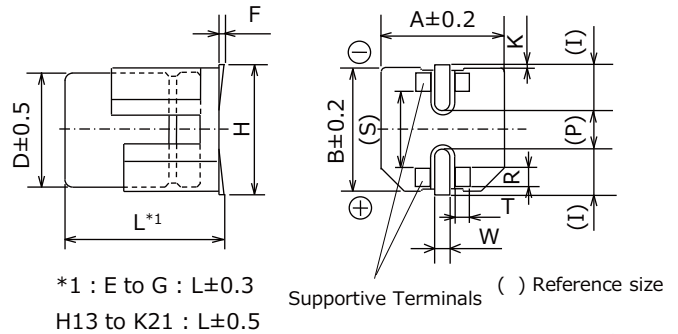
Dimensions (Vibration-proof products)

* The size and shape are different from standard products. Please inquire details of our company.

< Size code : D, D8 >



< Size code : E, F, G, H13, J16, K16, K21 >



*1 : E to G : L±0.3
H13 to K21 : L±0.5

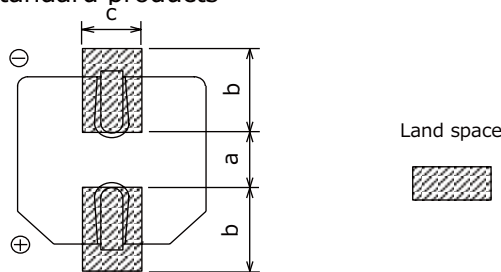
Unit : mm

| Size code | φD | L | A, B | H max. | F | I | W | P | K | R | S | T |
|-----------|------|------|------|--------|---------------|-----|----------|-----|--|----------|----------|----------|
| D | 6.3 | 6.1 | 6.6 | 7.8 | 0 to +0.15 | 2.4 | 0.65±0.1 | 2.2 | 0.35 ^{+0.15} _{-0.20} | 1.1±0.2 | 3.3±0.2 | 1.05±0.2 |
| D8 | 6.3 | 8.0 | 6.6 | 7.8 | 0 to +0.15 | 2.4 | 0.65±0.1 | 2.2 | 0.35 ^{+0.15} _{-0.20} | 1.1±0.2 | 3.3±0.2 | 1.05±0.2 |
| E | 8.0 | 6.5 | 8.3 | 9.5 | 0 to +0.15 | 3.4 | 0.7±0.1 | 2.2 | 0.35 ^{+0.15} _{-0.20} | 0.70±0.2 | 5.3±0.2 | 1.7±0.2 |
| F | 8.0 | 10.5 | 8.3 | 10.0 | 0 to +0.15 | 3.4 | 1.2±0.2 | 3.1 | 0.70±0.2 | 0.70±0.2 | 5.3±0.2 | 1.3±0.2 |
| G | 10.0 | 10.5 | 10.3 | 12.0 | 0 to +0.15 | 3.5 | 1.2±0.2 | 4.6 | 0.70±0.2 | 0.70±0.2 | 6.9±0.2 | 1.3±0.2 |
| H13 | 12.5 | 13.8 | 13.5 | 15.0 | -0.1 to +0.15 | 4.7 | 1.2±0.2 | 4.4 | 0.70±0.3 | 2.2±0.2 | 7.1±0.2 | 2.4±0.2 |
| J16 | 16.0 | 16.8 | 17.0 | 19.0 | -0.1 to +0.15 | 5.5 | 1.4±0.2 | 6.7 | 0.70±0.3 | 3.0±0.2 | 9.0±0.2 | 1.9±0.2 |
| K16 | 18.0 | 16.8 | 19.0 | 21.0 | -0.1 to +0.15 | 6.7 | 1.4±0.2 | 6.7 | 0.70±0.3 | 3.0±0.2 | 11.0±0.2 | 1.9±0.2 |
| K21 | 18.0 | 21.8 | 19.0 | 21.0 | -0.1 to +0.15 | 6.7 | 1.4±0.2 | 6.7 | 0.70±0.3 | 3.0±0.2 | 11.0±0.2 | 1.9±0.2 |

Land / Pad pattern

The circuit board land/pad pattern size for chip capacitors is specified in the following table. The land pitch influences installation strength and consider it.

● Standard products



(Table of board land size vs. capacitor size)

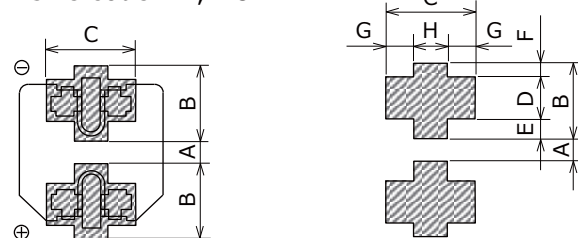
| Size code | a | b | c |
|----------------|-----|-----|-----|
| B (φ4) | 1.0 | 2.5 | 1.6 |
| C (φ5) | 1.5 | 2.8 | 1.6 |
| D (φ6.3) | 1.8 | 3.2 | 1.6 |
| D8 (φ6.3x7.7L) | 1.8 | 3.2 | 1.6 |
| E (φ8x6.2L) | 2.2 | 4.0 | 1.6 |
| F (φ8x10.2L) | 3.1 | 4.0 | 2.0 |
| G (φ10x10.2L) | 4.6 | 4.1 | 2.0 |
| H (φ12.5) | 4.0 | 5.7 | 2.0 |
| J (φ16) | 6.0 | 6.5 | 2.5 |
| K (φ18) | 6.0 | 7.5 | 2.5 |

Unit : mm

When size "a" is wide, back fillet can be made, decreasing fitting strength.

● Vibration-proof products

< Size code : D, D8 >



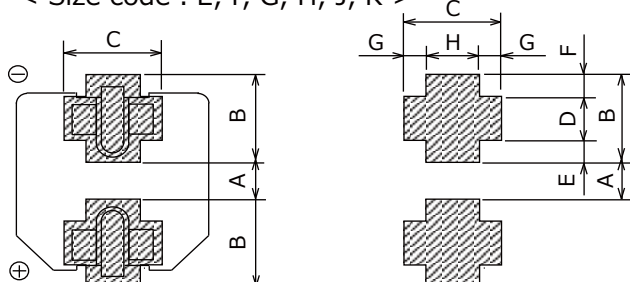
(Table of board land size vs. capacitor size)

| Size code | A | B | C | D | E | F | G | H |
|----------------|-----|-----|-----|-----|------|------|-----|-----|
| D (φ6.3xL6.1) | 1.2 | 3.6 | 3.2 | 2.0 | 0.95 | 0.65 | 1.0 | 1.2 |
| D8 (φ6.3xL8.0) | 1.2 | 3.6 | 3.2 | 2.0 | 0.95 | 0.65 | 1.0 | 1.2 |
| E (φ8x6.5L) | 1.8 | 4.2 | 5.0 | 1.3 | 1.5 | 1.4 | 1.5 | 2.0 |
| F (φ8x10.5L) | 2.7 | 4.0 | 4.7 | 1.3 | 1.0 | 1.7 | 1.1 | 2.5 |
| G (φ10) | 3.9 | 4.4 | 4.7 | 1.3 | 1.2 | 1.9 | 1.1 | 2.5 |
| H (φ12.5) | 3.9 | 6.0 | 6.9 | 2.8 | 1.3 | 1.9 | 2.2 | 2.5 |
| J (φ16) | 5.8 | 6.8 | 6.2 | 3.6 | 1.3 | 1.9 | 1.7 | 2.8 |
| K (φ18) | 5.8 | 7.3 | 6.2 | 3.6 | 1.8 | 1.9 | 1.7 | 2.8 |

Unit : mm

When size "A" is wide, back fillet can be made, decreasing fitting strength.

< Size code : E, F, G, H, J, K >



* Take mounting conditions, solderability and fitting strength into consideration when selecting parts for your company's design.

* The vibration-proof capacitors of size φ6.3 has support terminals extending from the bottom side to the lead edge. Then, make sure to find appropriate soldering conditions to form fillet on the support terminals if required for appearance inspection.

Characteristics list

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

| Rated volt. (V.DC) | Cap. (±20 %) (μF) | Case size (mm) | | | Size code *1 | Specification | | | Part No. | | Reflow | Min. Packaging Q'ty |
|--------------------|-------------------|----------------|----------|-----------------|--------------|-------------------------------|------------|-------------|--------------|-----------------|--------|---------------------|
| | | φD | L | | | Ripple current *2 (mA r.m.s.) | ESR *3 (Ω) | tan δ *4 | Standard | Vibration-proof | | |
| | | | Standard | Vibration-proof | | | | | | | | |
| 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 | 6.1 | D | 240 | 0.36 | 0.26 | EEEFK0J101P | EEEFK0J101V | (1) | 1000 |
| | 220 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.26 | EEEFK0J221P | EEEFK0J221V | (1) | 1000 |
| | 330 | 6.3 | 7.7 | 8.0 | D8 | 280 | 0.34 | 0.26 | EEEFK0J331XP | EEEFK0J331XV | (1) | 900 |
| | | 8 | 6.2 | 6.5 | E | 300 | 0.26 | 0.26 | EEEFK0J331P | EEEFK0J331V | (2) | 1000 |
| | 470 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.26 | EEEFK0J471P | EEEFK0J471V | (2) | 500 |
| | 1000 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.26 | EEEFK0J102P | EEEFK0J102V | (2) | 500 |
| 10 | 1500 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.26 | EEEFK0J152P | EEEFK0J152V | (2) | 500 |
| | 3300 | 12.5 | 13.5 | 13.8 | H13 | 1100 | 0.06 | 0.30 | EEVFK0J332Q | EEVFK0J332V | (3) | 200 |
| | 6800 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.36 | EEVFK0J682M | EEVFK0J682V | (3) | 125 |
| | 22 | 4 | 5.8 | — | B | 90 | 1.35 | 0.19 | EEEFK1A220R | — | (1) | 2000 |
| | | 4 | 5.8 | — | (B) | 90 | 1.35 | 0.19 | EEEFK1A330UR | — | (1) | 2000 |
| | 33 | 5 | 5.8 | — | C | 160 | 0.70 | 0.19 | EEEFK1A330R | — | (1) | 1000 |
| | | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.19 | EEEFK1A151P | EEEFK1A151V | (1) | 1000 |
| | 150 | 6.3 | 7.7 | 8.0 | D8 | 280 | 0.34 | 0.19 | EEEFK1A221XP | EEEFK1A221XV | (1) | 900 |
| | 220 | 8 | 6.2 | 6.5 | E | 300 | 0.26 | 0.19 | EEEFK1A221P | EEEFK1A221V | (2) | 1000 |
| | | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.19 | EEEFK1A331P | EEEFK1A331V | (2) | 500 |
| 16 | 470 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.19 | EEEFK1A471P | EEEFK1A471V | (2) | 500 |
| | 680 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.19 | EEEFK1A681P | EEEFK1A681V | (2) | 500 |
| | 1000 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.19 | EEEFK1A102P | EEEFK1A102V | (2) | 500 |
| | 2200 | 12.5 | 13.5 | 13.8 | H13 | 1100 | 0.06 | 0.21 | EEVFK1A222Q | EEVFK1A222V | (3) | 200 |
| | 4700 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.25 | EEVFK1A472M | EEVFK1A472V | (3) | 125 |
| | 6800 | 18 | 16.5 | 16.8 | K16 | 2060 | 0.033 | 0.29 | EEVFK1A682M | EEVFK1A682V | (3) | 125 |
| | 10 | 4 | 5.8 | — | B | 90 | 1.35 | 0.16 | EEEFK1C100R | — | (1) | 2000 |
| | | 4 | 5.8 | — | (B) | 90 | 1.35 | 0.16 | EEEFK1C220UR | — | (1) | 2000 |
| | 22 | 5 | 5.8 | — | C | 160 | 0.70 | 0.16 | EEEFK1C220R | — | (1) | 1000 |
| | | 5 | 5.8 | — | (C) | 160 | 0.70 | 0.16 | EEEFK1C470UR | — | (1) | 1000 |
| 47 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.16 | EEEFK1C470P | EEEFK1C470V | (1) | 1000 | |
| 68 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.16 | EEEFK1C680P | EEEFK1C680V | (1) | 1000 | |
| 25 | 100 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.16 | EEEFK1C101P | EEEFK1C101V | (1) | 1000 |
| | 150 | 6.3 | 7.7 | 8.0 | D8 | 280 | 0.34 | 0.16 | EEEFK1C151XP | EEEFK1C151XV | (1) | 900 |
| | 220 | 6.3 | 7.7 | 8.0 | D8 | 280 | 0.34 | 0.16 | EEEFK1C221XP | EEEFK1C221XV | (1) | 900 |
| | | 8 | 6.2 | 6.5 | E | 300 | 0.26 | 0.16 | EEEFK1C221P | EEEFK1C221V | (2) | 1000 |
| | 330 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.16 | EEEFK1C331P | EEEFK1C331V | (2) | 500 |
| | 470 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.16 | EEEFK1C471P | EEEFK1C471V | (2) | 500 |
| | 680 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.16 | EEEFK1C681P | EEEFK1C681V | (2) | 500 |
| | 1500 | 12.5 | 13.5 | 13.8 | H13 | 1100 | 0.06 | 0.16 | EEVFK1C152Q | EEVFK1C152V | (3) | 200 |
| | 3300 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.20 | EEVFK1C332M | EEVFK1C332V | (3) | 125 |
| | 4700 | 18 | 16.5 | 16.8 | K16 | 2060 | 0.033 | 0.22 | EEVFK1C472M | EEVFK1C472V | (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 | 6.1 | D | 240 | 0.36 | 0.14 | EEEFK1E330P | EEEFK1E330V | (1) | 1000 |
| | 47 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.14 | EEEFK1E470P | EEEFK1E470V | (1) | 1000 |
| | 68 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.14 | EEEFK1E680P | EEEFK1E680V | (1) | 1000 |
| | 100 | 6.3 | 7.7 | 8.0 | D8 | 280 | 0.34 | 0.14 | EEEFK1E101XP | EEEFK1E101XV | (1) | 900 |
| | | 8 | 6.2 | 6.5 | E | 300 | 0.26 | 0.14 | EEEFK1E101P | EEEFK1E101V | (2) | 1000 |
| | 150 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.14 | EEEFK1E151P | EEEFK1E151V | (2) | 500 |
| | 220 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.14 | EEEFK1E221P | EEEFK1E221V | (2) | 500 |
| | 330 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.14 | EEEFK1E331P | EEEFK1E331V | (2) | 500 |
| | 470 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.14 | EEEFK1E471P | EEEFK1E471V | (2) | 500 |
| | 1000 | 12.5 | 13.5 | 13.8 | H13 | 1100 | 0.06 | 0.14 | EEVFK1E102Q | EEVFK1E102V | (3) | 200 |
| | 1500 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.14 | EEVFK1E152M | EEVFK1E152V | (3) | 125 |
| 2200 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.16 | EEVFK1E222M | EEVFK1E222V | (3) | 125 | |
| 3300 | 18 | 16.5 | 16.8 | K16 | 2060 | 0.033 | 0.18 | EEVFK1E332M | EEVFK1E332V | (3) | 125 | |

*1: Size code (): Miniaturization product

*2: Ripple current (100 kHz / +105 °C)

*3: ESR (100 kHz / +20 °C)

*4: tan δ (120 Hz / +20 °C)

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

Characteristics list

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

| Rated volt. (V.DC) | Cap. (±20 %) (μF) | Case size (mm) | | | Size code *1 | Specification | | | Part No. | | Reflow | Min. Packaging Q'ty |
|--------------------|-------------------|----------------|----------|-----------------|--------------|-------------------------------|------------|-------------|--------------|-----------------|--------|---------------------|
| | | φD | L | | | Ripple current *2 (mA r.m.s.) | ESR *3 (Ω) | tan δ *4 | Standard | Vibration-proof | | |
| | | | Standard | Vibration-proof | | | | | | | | 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 | 6.1 | D | 240 | 0.36 | 0.12 | EEEFK1V330P | EEEFK1V330V | (1) | 1000 |
| | 47 | 6.3 | 5.8 | 6.1 | D | 240 | 0.36 | 0.12 | EEEFK1V470P | EEEFK1V470V | (1) | 1000 |
| | 68 | 6.3 | 7.7 | 8 | D8 | 280 | 0.34 | 0.12 | EEEFK1V680XP | EEEFK1V680XV | (1) | 900 |
| | 100 | 6.3 | 7.7 | 8 | D8 | 280 | 0.34 | 0.12 | EEEFK1V101XP | EEEFK1V101XV | (1) | 900 |
| | | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.12 | EEEFK1V101P | EEEFK1V101V | (2) | 500 |
| | 150 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.12 | EEEFK1V151P | EEEFK1V151V | (2) | 500 |
| | 220 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.12 | EEEFK1V221P | EEEFK1V221V | (2) | 500 |
| | 330 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.12 | EEEFK1V331P | EEEFK1V331V | (2) | 500 |
| | 470 | 12.5 | 13.5 | 13.8 | H13 | 1100 | 0.06 | 0.12 | EEVFK1V471Q | EEVFK1V471V | (3) | 200 |
| | 680 | 12.5 | 13.5 | 13.8 | H13 | 1100 | 0.06 | 0.12 | EEVFK1V681Q | EEVFK1V681V | (3) | 200 |
| 1000 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.12 | EEVFK1V102M | EEVFK1V102V | (3) | 125 | |
| 1500 | 16 | 16.5 | 16.8 | J16 | 1800 | 0.035 | 0.12 | EEVFK1V152M | EEVFK1V152V | (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 | 6.1 | D | 165 | 0.88 | 0.10 | EEEFK1H100P | EEEFK1H100V | (1) | 1000 |
| | 22 | 6.3 | 5.8 | 6.1 | D | 165 | 0.88 | 0.10 | EEEFK1H220P | EEEFK1H220V | (1) | 1000 |
| | 33 | 6.3 | 7.7 | 8 | D8 | 195 | 0.68 | 0.10 | EEEFK1H330XP | EEEFK1H330XV | (1) | 900 |
| | | 8 | 6.2 | 6.5 | E | 195 | 0.68 | 0.10 | EEEFK1H330P | EEEFK1H330V | (2) | 1000 |
| | 47 | 6.3 | 7.7 | 8 | D8 | 195 | 0.68 | 0.10 | EEEFK1H470XP | EEEFK1H470XV | (1) | 900 |
| | | 8 | 6.2 | 6.5 | E | 195 | 0.68 | 0.10 | EEEFK1H470P | EEEFK1H470V | (2) | 1000 |
| | 100 | 8 | 10.2 | 10.5 | F | 350 | 0.34 | 0.10 | EEEFK1H101P | EEEFK1H101V | (2) | 500 |
| | 150 | 10 | 10.2 | 10.5 | G | 670 | 0.18 | 0.10 | EEEFK1H151P | EEEFK1H151V | (2) | 500 |
| | 220 | 10 | 10.2 | 10.5 | G | 670 | 0.18 | 0.10 | EEEFK1H221P | EEEFK1H221V | (2) | 500 |
| | 330 | 12.5 | 13.5 | 13.8 | H13 | 900 | 0.12 | 0.10 | EEVFK1H331Q | EEVFK1H331V | (3) | 200 |
| | 390 | 12.5 | 13.5 | 13.8 | H13 | 900 | 0.12 | 0.10 | EEVFK1H391Q | EEVFK1H391V | (3) | 200 |
| | 470 | 16 | 16.5 | 16.8 | J16 | 1610 | 0.073 | 0.10 | EEVFK1H471M | EEVFK1H471V | (3) | 125 |
| 560 | 16 | 16.5 | 16.8 | J16 | 1610 | 0.073 | 0.10 | EEVFK1H561M | EEVFK1H561V | (3) | 125 | |
| 680 | 16 | 16.5 | 16.8 | J16 | 1610 | 0.073 | 0.10 | EEVFK1H681M | EEVFK1H681V | (3) | 125 | |
| 1000 | 16 | 16.5 | 16.8 | J16 | 1610 | 0.073 | 0.10 | EEVFK1H102M | EEVFK1H102V | (3) | 125 | |
| 63 | 4.7 | 5 | 5.8 | — | C | 50 | 3.00 | 0.08 | EEEFK1J4R7R | — | (1) | 1000 |
| | 10 | 6.3 | 5.8 | 6.1 | D | 80 | 1.50 | 0.08 | EEEFK1J100P | EEEFK1J100V | (1) | 1000 |
| | | 6.3 | 7.7 | 8 | D8 | 120 | 1.20 | 0.08 | EEEFK1J220XP | EEEFK1J220XV | (1) | 900 |
| | 22 | 8 | 6.2 | 6.5 | E | 120 | 1.20 | 0.08 | EEEFK1J220P | EEEFK1J220V | (2) | 1000 |
| | 33 | 8 | 10.2 | 10.5 | F | 250 | 0.65 | 0.08 | EEEFK1J330P | EEEFK1J330V | (2) | 500 |
| | 47 | 8 | 10.2 | 10.5 | F | 250 | 0.65 | 0.08 | EEEFK1J470P | EEEFK1J470V | (2) | 500 |
| | 68 | 8 | 10.2 | 10.5 | (F) | 250 | 0.65 | 0.08 | EEEFK1J680UP | EEEFK1J680UV | (2) | 500 |
| | 100 | 10 | 10.2 | 10.5 | G | 400 | 0.35 | 0.08 | EEEFK1J101P | EEEFK1J101V | (2) | 500 |
| | 150 | 12.5 | 13.5 | 13.8 | H13 | 800 | 0.16 | 0.08 | EEVFK1J151Q | EEVFK1J151V | (3) | 200 |
| | 220 | 12.5 | 13.5 | 13.8 | H13 | 800 | 0.16 | 0.08 | EEVFK1J221Q | EEVFK1J221V | (3) | 200 |
| 80 | 470 | 16 | 16.5 | 16.8 | J16 | 1410 | 0.082 | 0.08 | EEVFK1J471M | EEVFK1J471V | (3) | 125 |
| | 680 | 18 | 16.5 | 16.8 | K16 | 1690 | 0.08 | 0.08 | EEVFK1J681M | EEVFK1J681V | (3) | 125 |
| | 3.3 | 5 | 5.8 | — | C | 25 | 5.00 | 0.08 | EEEFK1K3R3R | — | (1) | 1000 |
| | 4.7 | 6.3 | 5.8 | 6.1 | D | 40 | 3.00 | 0.08 | EEEFK1K4R7P | EEEFK1K4R7V | (1) | 1000 |
| | 10 | 6.3 | 7.7 | 8 | D8 | 60 | 2.40 | 0.08 | EEEFK1K100XP | EEEFK1K100XV | (1) | 900 |
| | | 8 | 6.2 | 6.5 | E | 60 | 2.40 | 0.08 | EEEFK1K100P | EEEFK1K100V | (2) | 1000 |
| | 22 | 8 | 10.2 | 10.5 | F | 130 | 1.30 | 0.08 | EEEFK1K220P | EEEFK1K220V | (2) | 500 |
| | 33 | 8 | 10.2 | 10.5 | F | 130 | 1.30 | 0.08 | EEEFK1K330P | EEEFK1K330V | (2) | 500 |
| 47 | 10 | 10.2 | 10.5 | G | 200 | 0.70 | 0.08 | EEEFK1K470P | EEEFK1K470V | (2) | 500 | |
| 68 | 12.5 | 13.5 | 13.8 | H13 | 500 | 0.32 | 0.08 | EEVFK1K680Q | EEVFK1K680V | (3) | 200 | |
| 100 | 12.5 | 13.5 | 13.8 | H13 | 500 | 0.32 | 0.08 | EEVFK1K101Q | EEVFK1K101V | (3) | 200 | |
| 150 | 12.5 | 13.5 | 13.8 | H13 | 500 | 0.32 | 0.08 | EEVFK1K151Q | EEVFK1K151V | (3) | 200 | |
| 330 | 16 | 16.5 | 16.8 | J16 | 793 | 0.17 | 0.08 | EEVFK1K331M | EEVFK1K331V | (3) | 125 | |
| 470 | 18 | 16.5 | 16.8 | K16 | 917 | 0.153 | 0.08 | EEVFK1K471M | EEVFK1K471V | (3) | 125 | |

*1: Size code (): Miniaturization product

*2: Ripple current (100 kHz / +105 °C)

*3: ESR (100 kHz / +20 °C)

*4: tan δ (120 Hz / +20 °C)

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

Characteristics list

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

| Rated volt. (V.DC) | Cap. (±20 %) (μF) | Case size (mm) | | | Size code *1 | Specification | | | Part No. | | Reflow | Min. Packaging Q'ty |
|--------------------|-------------------|----------------|----------|-----------------|--------------|-------------------------------|-----------|---------|-------------|-----------------|--------|---------------------|
| | | φD | L | | | Ripple current *2 (mA r.m.s.) | ESR*3 (Ω) | tan δ*4 | Standard | Vibration-proof | | Taping (pcs) |
| | | | Standard | Vibration-proof | | | | | | | | |
| 100 | 22 | 8 | 10.2 | 10.5 | F | 130 | 1.30 | 0.07 | EEEFK2A220P | EEEFK2A220V | (2) | 500 |
| | 33 | 10 | 10.2 | 10.5 | G | 200 | 0.70 | 0.07 | EEEFK2A330P | EEEFK2A330V | (2) | 500 |
| | 47 | 12.5 | 13.5 | 13.8 | H13 | 500 | 0.32 | 0.07 | EEVFK2A470Q | EEVFK2A470V | (3) | 200 |
| | 68 | 12.5 | 13.5 | 13.8 | H13 | 500 | 0.32 | 0.07 | EEVFK2A680Q | EEVFK2A680V | (3) | 200 |
| | 100 | 16 | 16.5 | 16.8 | J16 | 793 | 0.17 | 0.07 | EEVFK2A101M | EEVFK2A101V | (3) | 125 |
| | 150 | 16 | 16.5 | 16.8 | J16 | 793 | 0.17 | 0.07 | EEVFK2A151M | EEVFK2A151V | (3) | 125 |
| | 220 | 18 | 16.5 | 16.8 | K16 | 917 | 0.153 | 0.07 | EEVFK2A221M | EEVFK2A221V | (3) | 125 |
| | 330 | 18 | 16.5 | 16.8 | K16 | 917 | 0.153 | 0.07 | EEVFK2A331M | EEVFK2A331V | (3) | 125 |

Endurance : 105 °C 5000 h

| Rated volt. (V.DC) | Cap. (±20 %) (μF) | Case size (mm) | | | Size code *1 | Specification | | | Part No. | | Reflow | Min. Packaging Q'ty |
|--------------------|-------------------|----------------|----------|-----------------|--------------|-------------------------------|-----------|---------|--------------|-----------------|--------|---------------------|
| | | φD | L | | | Ripple current *2 (mA r.m.s.) | ESR*3 (Ω) | tan δ*4 | Standard | Vibration-proof | | Taping (pcs) |
| | | | Standard | Vibration-proof | | | | | | | | |
| 6.3 | 470 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.26 | EEEFK0J471GP | EEEFK0J471GV | (2) | 500 |
| | 1000 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.26 | EEEFK0J102GP | EEEFK0J102GV | (2) | 500 |
| | 1500 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.26 | EEEFK0J152GP | EEEFK0J152GV | (2) | 500 |
| 10 | 330 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.19 | EEEFK1A331GP | EEEFK1A331GV | (2) | 500 |
| | 470 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.19 | EEEFK1A471GP | EEEFK1A471GV | (2) | 500 |
| | 680 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.19 | EEEFK1A681GP | EEEFK1A681GV | (2) | 500 |
| | 1000 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.19 | EEEFK1A102GP | EEEFK1A102GV | (2) | 500 |
| 16 | 330 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.16 | EEEFK1C331GP | EEEFK1C331GV | (2) | 500 |
| | 470 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.16 | EEEFK1C471GP | EEEFK1C471GV | (2) | 500 |
| | 680 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.16 | EEEFK1C681GP | EEEFK1C681GV | (2) | 500 |
| 25 | 150 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.14 | EEEFK1E151GP | EEEFK1E151GV | (2) | 500 |
| | 220 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.14 | EEEFK1E221GP | EEEFK1E221GV | (2) | 500 |
| | 330 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.14 | EEEFK1E331GP | EEEFK1E331GV | (2) | 500 |
| | 470 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.14 | EEEFK1E471GP | EEEFK1E471GV | (2) | 500 |
| 35 | 100 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.12 | EEEFK1V101GP | EEEFK1V101GV | (2) | 500 |
| | 150 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.12 | EEEFK1V151GP | EEEFK1V151GV | (2) | 500 |
| | 220 | 8 | 10.2 | 10.5 | F | 600 | 0.16 | 0.12 | EEEFK1V221GP | EEEFK1V221GV | (2) | 500 |
| | 330 | 10 | 10.2 | 10.5 | G | 850 | 0.08 | 0.12 | EEEFK1V331GP | EEEFK1V331GV | (2) | 500 |
| 50 | 100 | 8 | 10.2 | 10.5 | F | 350 | 0.34 | 0.10 | EEEFK1H101GP | EEEFK1H101GV | (2) | 500 |
| | 150 | 10 | 10.2 | 10.5 | G | 670 | 0.18 | 0.10 | EEEFK1H151GP | EEEFK1H151GV | (2) | 500 |
| | 220 | 10 | 10.2 | 10.5 | G | 670 | 0.18 | 0.10 | EEEFK1H221GP | EEEFK1H221GV | (2) | 500 |

*1: Size code (): Miniaturization product

*2: Ripple current (100 kHz / +105 °C)

*3: ESR (100 kHz / +20 °C)

*4: tan δ (120 Hz / +20 °C)

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

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