

Surface Mount Type

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

FC High temperature Lead-Free reflow(suffix:A*)

Low impedance



■ Features

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

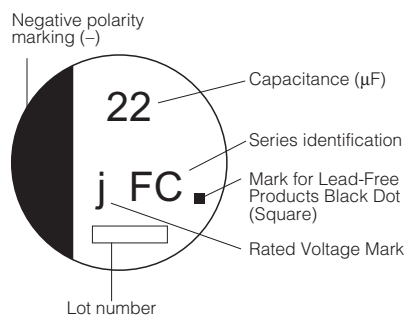
■ Specifications

| | | | | | | | |
|------------------------------------|--|---|----|----|----|----|-----------------------------|
| Category Temp. Range | -40 °C to +105 °C | | | | | | |
| Rated W.V. Range | 6.3 V.DC to 35 V.DC | | | | | | |
| Nominal Cap. Range | 1 μ F to 1500 μ F | | | | | | |
| Capacitance Tolerance | ± 20 % (120 Hz/+20 °C) | | | | | | |
| DC Leakage Current | $I \leq 0.01$ CV or 3 (μ A) After 2 minutes (Whichever is greater) | | | | | | |
| tan δ | Please see the attached High temperature lead-free reflow products list. | | | | | | |
| Characteristics at Low Temperature | W.V. (V) | 6.3 | 10 | 16 | 25 | 35 | (Impedance ratio at 120 Hz) |
| | Z(-25 °C) / Z(+20 °C) | 2 | 2 | 2 | 2 | 2 | |
| | Z(-40 °C) / Z(+20 °C) | 3 | 3 | 3 | 3 | 3 | |
| Endurance | After applying rated working voltage for 1000 hours at +105 °C ± 2 °C and then being stabilized at +20 °C, Capacitors shall meet the following limits. | | | | | | |
| | Capacitance change | ± 20 % of initial measured value | | | | | |
| | tan δ | ≤ 200 % of initial specified value | | | | | |
| | DC leakage current | \leq initial specified value | | | | | |
| 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) | | | | | | |
| | After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits. | | | | | | |
| Resistance to Soldering Heat | After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits. | | | | | | |
| | Capacitance change | ± 10 % of initial measured value | | | | | |
| | tan δ | \leq initial specified value | | | | | |
| | DC leakage current | \leq initial specified value | | | | | |

■ Marking

Example: 6.3 V 22 μ F

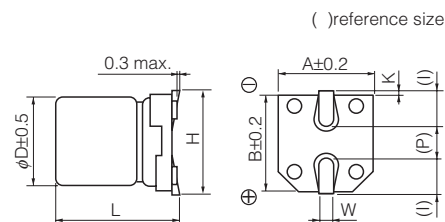
Marking color : BLACK



Rated Voltage Mark

| | |
|---|-------|
| j | 6.3 V |
| A | 10 V |
| C | 16 V |
| E | 25 V |
| V | 35 V |

■ Dimensions in mm (not to scale)



(mm)

| Size code | 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 |

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.

00 Sep. 2010

High temperature Lead-Free reflow Products

Endurance : 105 °C 1000 h

| W.V. | Cap. (±20 %) | Case size | | | Specification | | | Part No. (RoHS:compliant) | Reflow | Min. Packaging Q'ty |
|------|-----------------|-----------|--------|--------------|---|-------------------------------|---|------------------------------|--------|------------------------|
| | | Dia. | Length | Size Code | Ripple Current (100 kHz) (+105°C) (mA r.m.s.) | tan δ (120 Hz) (+20 °C) | Impedance (100 kHz) (+20 °C) (Ω) | | | Taping (pcs) |
| (V) | (μF) | (mm) | (mm) | | | | | | | |
| 6.3 | 22 | 4 | 5.4 | B | 60 | 0.26 | 3.00 | EEEFC0J220AR | (5) | 2000 |
| | 47 | 5 | 5.4 | C | 95 | 0.26 | 1.80 | EEEFC0J470AR | (5) | 1000 |
| | 68 | 6.3 | 5.4 | D | 140 | 0.26 | 1.00 | EEEFC0J680AP | (5) | 1000 |
| | 100 | 6.3 | 5.4 | D | 140 | 0.26 | 1.00 | EEEFC0J101AP | (5) | 1000 |
| | 220 | 8 | 6.2 | E | 230 | 0.26 | 0.40 | EEEFC0J221AP | (6) | 1000 |
| | 330 | 8 | 10.2 | F | 450 | 0.26 | 0.30 | EEEFC0J331AP | (6) | 500 |
| | 1000 | 10 | 10.2 | G | 670 | 0.26 | 0.15 | EEEFC0J102AP | (6) | 500 |
| 10 | 1500 | 10 | 10.2 | G | 670 | 0.26 | 0.15 | EEEFC0J152AP | (6) | 500 |
| | 33 | 5 | 5.4 | C | 95 | 0.19 | 1.80 | EEEFC1A330AR | (5) | 1000 |
| | 100 | 8 | 6.2 | E | 230 | 0.19 | 0.40 | EEEFC1A101AP | (6) | 1000 |
| | 150 | 8 | 6.2 | E | 230 | 0.19 | 0.40 | EEEFC1A151AP | (6) | 1000 |
| | 220 | 8 | 10.2 | F | 450 | 0.19 | 0.30 | EEEFC1A221AP | (6) | 500 |
| | 470 | 10 | 10.2 | G | 670 | 0.19 | 0.15 | EEEFC1A471AP | (6) | 500 |
| 16 | 1000 | 10 | 10.2 | G | 670 | 0.19 | 0.15 | EEEFC1A102AP | (6) | 500 |
| | 10 | 4 | 5.4 | B | 60 | 0.16 | 3.00 | EEEFC1C100AR | (5) | 2000 |
| | 22 | 5 | 5.4 | C | 95 | 0.16 | 1.80 | EEEFC1C220AR | (5) | 1000 |
| | 47 | 6.3 | 5.4 | D | 140 | 0.16 | 1.00 | EEEFC1C470AP | (5) | 1000 |
| | 68 | 8 | 6.2 | E | 230 | 0.16 | 0.40 | EEEFC1C680AP | (6) | 1000 |
| | 100 | 8 | 6.2 | E | 230 | 0.16 | 0.40 | EEEFC1C101AP | (6) | 1000 |
| | 220 | 10 | 10.2 | G | 670 | 0.16 | 0.15 | EEEFC1C221AP | (6) | 500 |
| | 330 | 10 | 10.2 | G | 670 | 0.16 | 0.15 | EEEFC1C331AP | (6) | 500 |
| | 470 | 10 | 10.2 | G | 670 | 0.16 | 0.15 | EEEFC1C471AP | (6) | 500 |
| 25 | 680 | 10 | 10.2 | G | 670 | 0.16 | 0.15 | EEEFC1C681AP | (6) | 500 |
| | 6.8 | 4 | 5.4 | B | 60 | 0.14 | 3.00 | EEEFC1E6R8AR | (5) | 2000 |
| | 22 | 6.3 | 5.4 | D | 140 | 0.14 | 1.00 | EEEFC1E220AP | (5) | 1000 |
| | 33 | 6.3 | 5.4 | D | 140 | 0.14 | 1.00 | EEEFC1E330AP | (5) | 1000 |
| | 47 | 8 | 6.2 | E | 230 | 0.14 | 0.40 | EEEFC1E470AP | (6) | 1000 |
| | 68 | 8 | 10.2 | F | 450 | 0.14 | 0.30 | EEEFC1E680AP | (6) | 500 |
| | 100 | 8 | 10.2 | F | 450 | 0.14 | 0.30 | EEEFC1E101AP | (6) | 500 |
| | 220 | 10 | 10.2 | G | 670 | 0.14 | 0.15 | EEEFC1E221AP | (6) | 500 |
| 35 | 330 | 10 | 10.2 | G | 670 | 0.14 | 0.15 | EEEFC1E331AP | (6) | 500 |
| | 470 | 10 | 10.2 | G | 670 | 0.14 | 0.15 | EEEFC1E471AP | (6) | 500 |
| | 1 | 4 | 5.4 | B | 60 | 0.12 | 3.00 | EEEFC1V1R0AR | (5) | 2000 |
| | 2.2 | 4 | 5.4 | B | 60 | 0.12 | 3.00 | EEEFC1V2R2AR | (5) | 2000 |
| | 3.3 | 4 | 5.4 | B | 60 | 0.12 | 3.00 | EEEFC1V3R3AR | (5) | 2000 |
| | 4.7 | 4 | 5.4 | B | 60 | 0.12 | 3.00 | EEEFC1V4R7AR | (5) | 2000 |
| | 6.8 | 5 | 5.4 | C | 95 | 0.12 | 1.80 | EEEFC1V6R8AR | (5) | 1000 |
| | 10 | 5 | 5.4 | C | 95 | 0.12 | 1.80 | EEEFC1V100AR | (5) | 1000 |
| | 22 | 6.3 | 5.4 | D | 140 | 0.12 | 1.00 | EEEFC1V220AP | (5) | 1000 |
| | 33 | 8 | 6.2 | E | 230 | 0.12 | 0.40 | EEEFC1V330AP | (6) | 1000 |
| 35 | 47 | 8 | 6.2 | E | 230 | 0.12 | 0.40 | EEEFC1V470AP | (6) | 1000 |
| | 100 | 10 | 10.2 | G | 670 | 0.12 | 0.15 | EEEFC1V101AP | (6) | 500 |
| | 220 | 10 | 10.2 | G | 670 | 0.12 | 0.15 | EEEFC1V221AP | (6) | 500 |
| | 330 | 10 | 10.2 | G | 670 | 0.12 | 0.15 | EEEFC1V331AP | (6) | 500 |

The taping dimensions are explained on EE188 of our Catalog.
Please use it as a reference guide.
Reflow Profile (Fig-1 to Fig-11) listed on EE186 of our Catalog.

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00 Sep. 2010