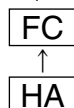


### Surface Mount Type

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. (ø8 mm and larger)
- RoHS directive compliant

### ■ Specifications

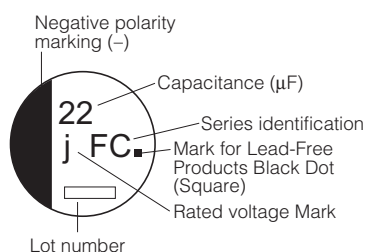
|                                    |                                                                                                                                                                                            |                                    |    |    |    |    |                             |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----|----|----|----|-----------------------------|
| Category Temp. Range               | -40 °C to +105 °C                                                                                                                                                                          |                                    |    |    |    |    |                             |
| Rated W.V. Range                   | 6.3 V.DC to 35 V.DC                                                                                                                                                                        |                                    |    |    |    |    |                             |
| Nominal Cap. Range                 | 1 µF to 1500 µF                                                                                                                                                                            |                                    |    |    |    |    |                             |
| Capacitance Tolerance              | ±20 % (120 Hz/+20 °C)                                                                                                                                                                      |                                    |    |    |    |    |                             |
| DC Leakage Current                 | I ≤ 0.01 CV or 3 (µA) 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                                                                                                                                                                         | ≤ 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) |                                    |    |    |    |    |                             |
| 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                                                                                                                                                                                      | ≤ initial specified value          |    |    |    |    |                             |
|                                    | DC leakage current                                                                                                                                                                         | ≤ initial specified value          |    |    |    |    |                             |

### ■ 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 22 µF  
Marking color : BLACK

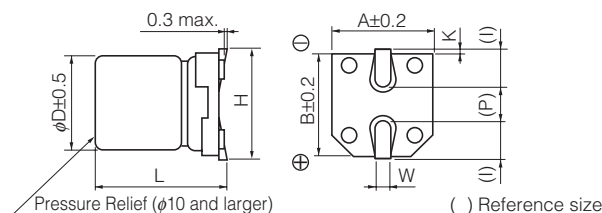


#### Rated Voltage Mark

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

### ■ Dimensions in mm (not to scale)

(Unit : mm)



| Size code | D    | L                                   | A, B | H         | I   | W        | P   | K                                      |
|-----------|------|-------------------------------------|------|-----------|-----|----------|-----|----------------------------------------|
| B         | 4.0  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 4.3  | 5.5 max.  | 1.8 | 0.65±0.1 | 1.0 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| C         | 5.0  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 5.3  | 6.5 max.  | 2.2 | 0.65±0.1 | 1.5 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| D         | 6.3  | 5.4 <sup>+0.1</sup> <sub>-0.2</sub> | 6.6  | 7.8 max.  | 2.6 | 0.65±0.1 | 1.8 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| E         | 8.0  | 6.2±0.3                             | 8.3  | 9.5 max.  | 3.4 | 0.65±0.1 | 2.2 | 0.35 <sup>+0.15</sup> <sub>-0.20</sub> |
| 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                               |

## ■ High temperature Lead-Free reflow Products

Endurance : 105 °C 1000 h

| W.V. | Cap.<br>(±20 %) | Case size |        |              | Specification                                             |                                       |                                           | Part No.<br>(RoHS:compliant) | Reflow | Min.<br>Packaging Q'ty |
|------|-----------------|-----------|--------|--------------|-----------------------------------------------------------|---------------------------------------|-------------------------------------------|------------------------------|--------|------------------------|
|      |                 | Dia.      | Length | Size<br>Code | Ripple<br>Current<br>(100 kHz)<br>(+105°C)<br>(mA r.m.s.) | $\tan \delta$<br>(120 Hz)<br>(+20 °C) | Impedance<br>(100 kHz)<br>(+20 °C)<br>(Ω) |                              |        | Taping                 |
| (V)  | (μF)            | (mm)      | (mm)   |              |                                                           |                                       |                                           |                              |        | (pcs)                  |
| 6.3  | 22              | 4         | 5.4    | B            | 60                                                        | 0.26                                  | 3.00                                      | EEEF0J220AR                  | (5)    | 2000                   |
|      | 47              | 5         | 5.4    | C            | 95                                                        | 0.26                                  | 1.80                                      | EEEF0J470AR                  | (5)    | 1000                   |
|      | 68              | 6.3       | 5.4    | D            | 140                                                       | 0.26                                  | 1.00                                      | EEEF0J680AP                  | (5)    | 1000                   |
|      | 100             | 6.3       | 5.4    | D            | 140                                                       | 0.26                                  | 1.00                                      | EEEF0J101AP                  | (5)    | 1000                   |
|      | 220             | 8         | 6.2    | E            | 230                                                       | 0.26                                  | 0.40                                      | EEEF0J221AP                  | (6)    | 1000                   |
|      | 330             | 8         | 10.2   | F            | 450                                                       | 0.26                                  | 0.30                                      | EEEF0J331AP                  | (6)    | 500                    |
|      | 1000            | 10        | 10.2   | G            | 670                                                       | 0.26                                  | 0.15                                      | EEEF0J102AP                  | (6)    | 500                    |
|      | 1500            | 10        | 10.2   | G            | 670                                                       | 0.26                                  | 0.15                                      | EEEF0J152AP                  | (6)    | 500                    |
| 10   | 33              | 5         | 5.4    | C            | 95                                                        | 0.19                                  | 1.80                                      | EEEF0A330AR                  | (5)    | 1000                   |
|      | 100             | 8         | 6.2    | E            | 230                                                       | 0.19                                  | 0.40                                      | EEEF0A101AP                  | (6)    | 1000                   |
|      | 150             | 8         | 6.2    | E            | 230                                                       | 0.19                                  | 0.40                                      | EEEF0A151AP                  | (6)    | 1000                   |
|      | 220             | 8         | 10.2   | F            | 450                                                       | 0.19                                  | 0.30                                      | EEEF0A221AP                  | (6)    | 500                    |
|      | 470             | 10        | 10.2   | G            | 670                                                       | 0.19                                  | 0.15                                      | EEEF0A471AP                  | (6)    | 500                    |
|      | 1000            | 10        | 10.2   | G            | 670                                                       | 0.19                                  | 0.15                                      | EEEF0A102AP                  | (6)    | 500                    |
| 16   | 10              | 4         | 5.4    | B            | 60                                                        | 0.16                                  | 3.00                                      | EEEF0C100AR                  | (5)    | 2000                   |
|      | 22              | 5         | 5.4    | C            | 95                                                        | 0.16                                  | 1.80                                      | EEEF0C220AR                  | (5)    | 1000                   |
|      | 47              | 6.3       | 5.4    | D            | 140                                                       | 0.16                                  | 1.00                                      | EEEF0C470AP                  | (5)    | 1000                   |
|      | 68              | 8         | 6.2    | E            | 230                                                       | 0.16                                  | 0.40                                      | EEEF0C680AP                  | (6)    | 1000                   |
|      | 100             | 8         | 6.2    | E            | 230                                                       | 0.16                                  | 0.40                                      | EEEF0C101AP                  | (6)    | 1000                   |
|      | 220             | 10        | 10.2   | G            | 670                                                       | 0.16                                  | 0.15                                      | EEEF0C221AP                  | (6)    | 500                    |
|      | 330             | 10        | 10.2   | G            | 670                                                       | 0.16                                  | 0.15                                      | EEEF0C331AP                  | (6)    | 500                    |
|      | 470             | 10        | 10.2   | G            | 670                                                       | 0.16                                  | 0.15                                      | EEEF0C471AP                  | (6)    | 500                    |
|      | 680             | 10        | 10.2   | G            | 670                                                       | 0.16                                  | 0.15                                      | EEEF0C681AP                  | (6)    | 500                    |
| 25   | 6.8             | 4         | 5.4    | B            | 60                                                        | 0.14                                  | 3.00                                      | EEEF0E6R8AR                  | (5)    | 2000                   |
|      | 22              | 6.3       | 5.4    | D            | 140                                                       | 0.14                                  | 1.00                                      | EEEF0E220AP                  | (5)    | 1000                   |
|      | 33              | 6.3       | 5.4    | D            | 140                                                       | 0.14                                  | 1.00                                      | EEEF0E330AP                  | (5)    | 1000                   |
|      | 47              | 8         | 6.2    | E            | 230                                                       | 0.14                                  | 0.40                                      | EEEF0E470AP                  | (6)    | 1000                   |
|      | 68              | 8         | 10.2   | F            | 450                                                       | 0.14                                  | 0.30                                      | EEEF0E680AP                  | (6)    | 500                    |
|      | 100             | 8         | 10.2   | F            | 450                                                       | 0.14                                  | 0.30                                      | EEEF0E101AP                  | (6)    | 500                    |
|      | 220             | 10        | 10.2   | G            | 670                                                       | 0.14                                  | 0.15                                      | EEEF0E221AP                  | (6)    | 500                    |
|      | 330             | 10        | 10.2   | G            | 670                                                       | 0.14                                  | 0.15                                      | EEEF0E331AP                  | (6)    | 500                    |
|      | 470             | 10        | 10.2   | G            | 670                                                       | 0.14                                  | 0.15                                      | EEEF0E471AP                  | (6)    | 500                    |
| 35   | 1               | 4         | 5.4    | B            | 60                                                        | 0.12                                  | 3.00                                      | EEEF0V1R0AR                  | (5)    | 2000                   |
|      | 2.2             | 4         | 5.4    | B            | 60                                                        | 0.12                                  | 3.00                                      | EEEF0V2R2AR                  | (5)    | 2000                   |
|      | 3.3             | 4         | 5.4    | B            | 60                                                        | 0.12                                  | 3.00                                      | EEEF0V3R3AR                  | (5)    | 2000                   |
|      | 4.7             | 4         | 5.4    | B            | 60                                                        | 0.12                                  | 3.00                                      | EEEF0V4R7AR                  | (5)    | 2000                   |
|      | 6.8             | 5         | 5.4    | C            | 95                                                        | 0.12                                  | 1.80                                      | EEEF0V6R8AR                  | (5)    | 1000                   |
|      | 10              | 5         | 5.4    | C            | 95                                                        | 0.12                                  | 1.80                                      | EEEF0V100AR                  | (5)    | 1000                   |
|      | 22              | 6.3       | 5.4    | D            | 140                                                       | 0.12                                  | 1.00                                      | EEEF0V220AP                  | (5)    | 1000                   |
|      | 33              | 8         | 6.2    | E            | 230                                                       | 0.12                                  | 0.40                                      | EEEF0V330AP                  | (6)    | 1000                   |
|      | 47              | 8         | 6.2    | E            | 230                                                       | 0.12                                  | 0.40                                      | EEEF0V470AP                  | (6)    | 1000                   |
|      | 100             | 10        | 10.2   | G            | 670                                                       | 0.12                                  | 0.15                                      | EEEF0V101AP                  | (6)    | 500                    |
|      | 220             | 10        | 10.2   | G            | 670                                                       | 0.12                                  | 0.15                                      | EEEF0V221AP                  | (6)    | 500                    |
|      | 330             | 10        | 10.2   | G            | 670                                                       | 0.12                                  | 0.15                                      | EEEF0V331AP                  | (6)    | 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"

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9