

### Radial Lead Type

Series: **FR** Type: **A**

#### ■ Features

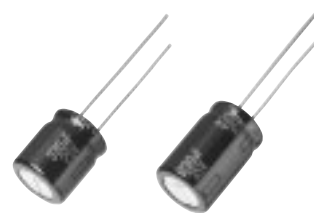
- Low ESR (Same as FM Series)
- Endurance : 5000 h to 10000 h at +105 °C
- RoHS directive compliant

#### ■ Attention

Not applicable for automotive

#### ■ Country of origin

Malaysia



#### ■ Specifications

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|-----------------|
| Category Temp. Range  | -40 °C to +105 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
| Rated W.V. Range      | 6.3 V.DC to 63 V.DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
| Nominal Cap. Range    | 4.7 μF to 8200 μF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
| Capacitance Tolerance | ±20 % (120 Hz/+20 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
| DC Leakage Current    | I ≤ 0.01 CV (μA) After 2 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
| tan δ                 | W.V.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 6.3                                                                                                                                                                                         | 10   | 16   | 25   | 35   | 50   | 63   | (120 Hz/+20 °C) |
|                       | tan δ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.22                                                                                                                                                                                        | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 |                 |
|                       | Add 0.02 per 1000 μF for products of 1000 μF or more.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
| Endurance             | After following life test with DC voltage and +105 °C±2 °C ripple current value applied. (The sum of DC and ripple peak voltage shall not exceed the rated working voltage) when the capacitors are restored to 20 °C, the capacitors shall meet the limits specified below.<br>Duration<br>φ5×11/ φ6.3×11.2 : 5000 hours<br>φ8×11.5/ φ10×12.5 : 6000 hours (* Only EEUFR1V331U (φ10×12.5) 5000 hours)<br>φ8×15/ φ10×16 : 8000 hours, φ8×20 : 9000 hours<br>φ10×20 to φ10×25/ φ12.5×20 to φ12.5×35/ φ16×20 to φ16×25 : 10000 hours |                                                                                                                                                                                             |      |      |      |      |      |      |                 |
|                       | Capacitance change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±25 % of initial measured value (6.3 V to 10 V : ±30 %)                                                                                                                                     |      |      |      |      |      |      |                 |
|                       | 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) |      |      |      |      |      |      |                 |

#### ■ Frequency correction factor for ripple current

| W.V.(V.DC) | Cap (μF)     | Frequency (Hz) |      |      |      |       |
|------------|--------------|----------------|------|------|------|-------|
|            |              | 60             | 120  | 1 k  | 10 k | 100 k |
| 6.3 to 63  | 4.7 to 33    | 0.45           | 0.55 | 0.75 | 0.90 | 1.00  |
|            | 47 to 330    | 0.60           | 0.70 | 0.85 | 0.95 | 1.00  |
|            | 390 to 1000  | 0.65           | 0.75 | 0.90 | 0.98 | 1.00  |
|            | 1200 to 8200 | 0.75           | 0.80 | 0.95 | 1.00 | 1.00  |

#### ■ Dimensions in mm (not to scale)

(Unit : mm)

|                                                                                                               |     |     |     |     |            |          |     |
|---------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|------------|----------|-----|
| <p>* <math>L \leq 16</math> : <math>L \pm 1.5</math><br/> <math>L \geq 20</math> : <math>L \pm 2.0</math></p> |     |     |     |     |            |          |     |
| Body Dia. $\phi D$                                                                                            | 5   | 6.3 | 8   | 10  | 12.5       | 16       |     |
| Body Length L                                                                                                 | —   | —   | —   | —   | 12.5 to 25 | 30 to 35 | —   |
| Lead Dia. $\phi d$                                                                                            | 0.5 | 0.5 | 0.6 | 0.6 | 0.6        | 0.8      | 0.8 |
| Lead space F                                                                                                  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0        |          | 7.5 |

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.

03 Apr. 2013

### ■ Case size/Impedance/Ripple current

| W.V.(V.DC)<br>Case size<br>( $\phi$ D×L) | 6.3 V to 35 V                     |        |                                       | 50 V                              |        |                                       |
|------------------------------------------|-----------------------------------|--------|---------------------------------------|-----------------------------------|--------|---------------------------------------|
|                                          | Impedance<br>( $\Omega$ /100 kHz) |        | Ripple Current<br>(mA r.m.s./100 kHz) | Impedance<br>( $\Omega$ /100 kHz) |        | Ripple Current<br>(mA r.m.s./100 kHz) |
|                                          | +20 °C                            | −10 °C | +105 °C                               | +20 °C                            | −10 °C | +105 °C                               |
| 5 × 11                                   | 0.300                             | 1.000  | 280                                   | 0.340                             | 1.130  | 250                                   |
| 6.3 × 11.2                               | 0.130                             | 0.430  | 455                                   | 0.140                             | 0.460  | 405                                   |
| 8 × 11.5                                 | 0.056                             | 0.168  | 950                                   | 0.061                             | 0.183  | 870                                   |
| 8 × 15                                   | 0.041                             | 0.123  | 1240                                  | 0.045                             | 0.135  | 1140                                  |
| 8 × 20                                   | 0.030                             | 0.090  | 1560                                  | 0.033                             | 0.099  | 1430                                  |
| 10 × 12.5                                | 0.043                             | 0.114  | 1290                                  | 0.042                             | 0.126  | 1170                                  |
| 10 × 16                                  | 0.028                             | 0.078  | 1790                                  | 0.030                             | 0.090  | 1650                                  |
| 10 × 20                                  | 0.020                             | 0.057  | 2180                                  | 0.023                             | 0.069  | 1890                                  |
| 10 × 25                                  | 0.018                             | 0.054  | 2470                                  | 0.022                             | 0.066  | 2150                                  |
| 12.5 × 20                                | 0.018                             | 0.045  | 2600                                  | 0.022                             | 0.055  | 2260                                  |
| 12.5 × 25                                | 0.015                             | 0.038  | 3190                                  | 0.018                             | 0.045  | 2660                                  |
| 12.5 × 30                                | 0.013                             | 0.033  | 3630                                  | 0.016                             | 0.040  | 3160                                  |
| 12.5 × 35                                | 0.012                             | 0.030  | 3750                                  | 0.014                             | 0.035  | 3270                                  |
| 16 × 20                                  | 0.017                             | 0.043  | 3300                                  | 0.019                             | 0.048  | 2870                                  |
| 16 × 25                                  | 0.014                             | 0.035  | 3820                                  | 0.016                             | 0.040  | 3320                                  |

| W.V.(V.DC)<br>Case size<br>( $\phi$ D×L) | 63 V                              |        |                                       |
|------------------------------------------|-----------------------------------|--------|---------------------------------------|
|                                          | Impedance<br>( $\Omega$ /100 kHz) |        | Ripple Current<br>(mA r.m.s./100 kHz) |
|                                          | +20 °C                            | −10 °C | +105 °C                               |
| 5 × 11                                   | 0.510                             | 2.040  | 175                                   |
| 6.3 × 11.2                               | 0.210                             | 0.840  | 284                                   |
| 8 × 11.5                                 | 0.092                             | 0.368  | 566                                   |
| 8 × 15                                   | 0.068                             | 0.272  | 741                                   |
| 8 × 20                                   | 0.050                             | 0.200  | 930                                   |
| 10 × 12.5                                | 0.063                             | 0.252  | 761                                   |
| 10 × 16                                  | 0.045                             | 0.180  | 1073                                  |
| 10 × 20                                  | 0.035                             | 0.140  | 1229                                  |
| 10 × 25                                  | 0.033                             | 0.132  | 1500                                  |
| 12.5 × 20                                | 0.033                             | 0.125  | 1582                                  |
| 12.5 × 25                                | 0.027                             | 0.092  | 1995                                  |
| 12.5 × 30                                | 0.024                             | 0.082  | 2528                                  |
| 12.5 × 35                                | 0.021                             | 0.071  | 2780                                  |
| 16 × 20                                  | 0.029                             | 0.093  | 2153                                  |
| 16 × 25                                  | 0.024                             | 0.074  | 2988                                  |

## ■ Standard Products

| W.V. | Cap.<br>(±20 %) | Case size |        | Specification                                              |                                                |                           | Lead Length          |            |              |               | Part No.       | Min. Packaging Q'ty |        |
|------|-----------------|-----------|--------|------------------------------------------------------------|------------------------------------------------|---------------------------|----------------------|------------|--------------|---------------|----------------|---------------------|--------|
|      |                 | Dia.      | Length | Ripple<br>Current<br>(100 kHz)<br>(+105 °C)<br>(mA r.m.s.) | Imped-<br>ance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Endur-<br>ance<br>(hours) | Lead<br>Dia.<br>(mm) | Lead Space |              |               |                | Straight<br>Leads   | Taping |
|      |                 |           |        |                                                            |                                                |                           |                      | Straight   | Taping<br>*B | Taping<br>*H  |                |                     |        |
| (V)  | (μF)            | (mm)      | (mm)   | (mA r.m.s.)                                                | (Ω)                                            | (hours)                   | (mm)                 | (mm)       | (mm)         | (mm)          |                | (pcs)               | (pcs)  |
| 6.3  | 150             | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5           | EEUFR0J151( )  | 200                 | 2000   |
|      | 220             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5           | EEUFR0J221( )  | 200                 | 2000   |
|      | 330             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5           | EEUFR0J331( )  | 200                 | 2000   |
|      | 470             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5           | EEUFR0J471( )  | 200                 | 2000   |
|      | 820             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR0J821( )  | 200                 | 1000   |
|      | 1000            | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR0J102( )  | 200                 | 1000   |
|      | 1200            | 8         | 15     | 1240                                                       | 0.041                                          | 8000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR0J122L( ) | 200                 | 1000   |
|      |                 | 10        | 12.5   | 1290                                                       | 0.043                                          | 6000                      | 0.6                  | 5.0        | 5.0          |               | EEUFR0J122( )  | 200                 | 500    |
|      | 1500            | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR0J152L( ) | 200                 | 1000   |
|      | 1800            | 10        | 16     | 1790                                                       | 0.028                                          | 8000                      | 0.6                  | 5.0        | 5.0          |               | EEUFR0J182( )  | 200                 | 500    |
|      | 2200            | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR0J222( )  | 200                 | 500    |
|      | 2700            | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR0J272L( ) | 200                 | 500    |
|      | 3300            | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR0J332L( ) | 200                 | 500    |
|      | 3900            | 12.5      | 20     | 2600                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR0J392( )  | 200                 | 500    |
|      | 4700            | 12.5      | 25     | 3190                                                       | 0.015                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR0J472( )  | 200                 | 500    |
|      | 5600            | 12.5      | 30     | 3630                                                       | 0.013                                          | 10000                     | 0.8                  | 5.0        |              |               | EEUFR0J562L    | 100                 |        |
|      | 6800            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |               | EEUFR0J682L    | 100                 |        |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |               | EEUFR0J682S( ) | 100                 | 250    |
|      | 8200            | 16        | 25     | 3820                                                       | 0.014                                          | 10000                     | 0.8                  | 7.5        | 7.5          |               | EEUFR0J822( )  | 100                 | 250    |
| 10   | 100             | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5           | EEUFR1A101( )  | 200                 | 2000   |
|      | 150             | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5           | EEUFR1A151( )  | 200                 | 2000   |
|      | 220             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5           | EEUFR1A221( )  | 200                 | 2000   |
|      | 270             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5           | EEUFR1A271( )  | 200                 | 2000   |
|      | 470             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR1A471( )  | 200                 | 1000   |
|      | 680             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR1A681( )  | 200                 | 1000   |
|      | 820             | 10        | 12.5   | 1290                                                       | 0.043                                          | 6000                      | 0.6                  | 5.0        | 5.0          |               | EEUFR1A821( )  | 200                 | 500    |
|      | 1000            | 10        | 16     | 1790                                                       | 0.028                                          | 8000                      | 0.6                  | 5.0        | 5.0          |               | EEUFR1A102( )  | 200                 | 500    |
|      |                 | 8         | 15     | 1240                                                       | 0.041                                          | 8000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR1A102L( ) | 200                 | 1000   |
|      | 1500            | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |               | EEUFR1A152L( ) | 200                 | 1000   |
|      |                 | 10        | 16     | 1790                                                       | 0.028                                          | 8000                      | 0.6                  | 5.0        | 5.0          |               | EEUFR1A152( )  | 200                 | 500    |
|      | 1800            | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR1A182( )  | 200                 | 500    |
|      | 2200            | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR1A222L( ) | 200                 | 500    |
|      | 3300            | 12.5      | 20     | 2600                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR1A332( )  | 200                 | 500    |
|      | 3900            | 12.5      | 25     | 3190                                                       | 0.015                                          | 10000                     | 0.6                  | 5.0        | 5.0          |               | EEUFR1A392( )  | 200                 | 500    |
|      | 4700            | 12.5      | 30     | 3630                                                       | 0.013                                          | 10000                     | 0.8                  | 5.0        |              |               | EEUFR1A472L    | 100                 |        |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |               | EEUFR1A472S( ) | 100                 | 250    |
|      | 5600            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |               | EEUFR1A562L    | 100                 |        |
|      | 6800            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |               | EEUFR1A682L    | 100                 |        |
| 16   |                 | 25        | 3820   | 0.014                                                      | 10000                                          | 0.8                       | 7.5                  | 7.5        |              | EEUFR1A682( ) | 100            | 250                 |        |

- When requesting taped product, please put the letter "B" or "H" between the "( )". Lead wire pitch B=5 mm, 7.5 mm, H=2.5 mm.
- Please refer to the page of "Taping Dimensions".

## ■ Standard Products

| W.V. | Cap.<br>(±20 %) | Case size |        | Specification                                              |                                                |                           | Lead Length          |            |              |              | Part No.       | Min. Packaging Q'ty        |                 |
|------|-----------------|-----------|--------|------------------------------------------------------------|------------------------------------------------|---------------------------|----------------------|------------|--------------|--------------|----------------|----------------------------|-----------------|
|      |                 | Dia.      | Length | Ripple<br>Current<br>(100 kHz)<br>(+105 °C)<br>(mA r.m.s.) | Imped-<br>ance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Endur-<br>ance<br>(hours) | Lead<br>Dia.<br>(mm) | Lead Space |              |              |                | Straight<br>Leads<br>(pcs) | Taping<br>(pcs) |
|      |                 |           |        |                                                            |                                                |                           |                      | Straight   | Taping<br>*B | Taping<br>*H |                |                            |                 |
| (V)  | (μF)            | (mm)      | (mm)   | (mA r.m.s.)                                                | (Ω)                                            | (hours)                   | (mm)                 | (mm)       | (mm)         | (mm)         |                |                            |                 |
| 16   | 68              | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1C680( )  | 200                        | 2000            |
|      | 100             | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1C101( )  | 200                        | 2000            |
|      | 120             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1C121( )  | 200                        | 2000            |
|      | 220             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1C221( )  | 200                        | 2000            |
|      | 470             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1C471( )  | 200                        | 1000            |
|      | 680             | 8         | 15     | 1240                                                       | 0.041                                          | 8000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1C681L( ) | 200                        | 1000            |
|      |                 | 10        | 12.5   | 1290                                                       | 0.043                                          | 6000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1C681( )  | 200                        | 500             |
|      | 1000            | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1C102L( ) | 200                        | 1000            |
|      |                 | 10        | 16     | 1790                                                       | 0.028                                          | 8000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1C102( )  | 200                        | 500             |
|      | 1500            | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1C152( )  | 200                        | 500             |
|      |                 | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1C152L( ) | 200                        | 500             |
|      | 1800            | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1C182L( ) | 200                        | 500             |
|      | 2200            | 12.5      | 20     | 2600                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1C222( )  | 200                        | 500             |
|      | 2700            | 12.5      | 25     | 3190                                                       | 0.015                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1C272( )  | 200                        | 500             |
|      | 3300            | 12.5      | 30     | 3630                                                       | 0.013                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1C332L    | 100                        |                 |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1C332S( ) | 100                        | 250             |
|      | 3900            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1C392L    | 100                        |                 |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1C392S( ) | 100                        | 250             |
|      | 4700            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1C472L    | 100                        |                 |
|      |                 | 16        | 25     | 3820                                                       | 0.014                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1C472( )  | 100                        | 250             |
|      | 5600            | 16        | 25     | 3820                                                       | 0.014                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1C562( )  | 100                        | 250             |
| 25   | 47              | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1E470( )  | 200                        | 2000            |
|      | 68              | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1E680( )  | 200                        | 2000            |
|      | 100             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1E101( )  | 200                        | 2000            |
|      | 150             | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1E151( )  | 200                        | 2000            |
|      | 220             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E221( )  | 200                        | 1000            |
|      | 330             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E331( )  | 200                        | 1000            |
|      | 390             | 8         | 15     | 1240                                                       | 0.041                                          | 8000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E391L( ) | 200                        | 1000            |
|      | 470             | 8         | 15     | 1240                                                       | 0.041                                          | 8000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E471Y( ) | 200                        | 1000            |
|      |                 | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E471L( ) | 200                        | 1000            |
|      |                 | 10        | 12.5   | 1290                                                       | 0.043                                          | 6000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1E471( )  | 200                        | 500             |
|      | 560             | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E561L( ) | 200                        | 1000            |
|      | 680             | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1E681L( ) | 200                        | 1000            |
|      |                 | 10        | 16     | 1790                                                       | 0.028                                          | 8000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1E681( )  | 200                        | 500             |
|      | 820             | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1E821( )  | 200                        | 500             |
|      | 1000            | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1E102( )  | 200                        | 500             |
|      |                 | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1E102L( ) | 200                        | 500             |
|      | 1200            | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1E122L( ) | 200                        | 500             |
|      | 1500            | 12.5      | 20     | 2600                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1E152( )  | 200                        | 500             |
|      | 1800            | 12.5      | 25     | 3190                                                       | 0.015                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1E182( )  | 200                        | 500             |
|      | 2200            | 12.5      | 30     | 3630                                                       | 0.013                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1E222L    | 100                        |                 |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1E222S( ) | 100                        | 250             |
|      | 2700            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1E272L    | 100                        |                 |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1E272S( ) | 100                        | 250             |
|      | 3300            | 16        | 25     | 3820                                                       | 0.014                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1E332( )  | 100                        | 250             |

· When requesting taped product, please put the letter "B" or "H" between the "( )". Lead wire pitch B=5 mm, 7.5 mm, H=2.5 mm.  
 · Please refer to the page of "Taping Dimensions".

## ■ Standard Products

| W.V. | Cap.<br>(±20 %) | Case size |        | Specification                                              |                                                |                           | Lead Length          |            |              |              | Part No.       | Min. Packaging Q'ty |        |
|------|-----------------|-----------|--------|------------------------------------------------------------|------------------------------------------------|---------------------------|----------------------|------------|--------------|--------------|----------------|---------------------|--------|
|      |                 | Dia.      | Length | Ripple<br>Current<br>(100 kHz)<br>(+105 °C)<br>(mA r.m.s.) | Imped-<br>ance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Endur-<br>ance<br>(hours) | Lead<br>Dia.<br>(mm) | Lead Space |              |              |                | Straight<br>Leads   | Taping |
|      |                 |           |        |                                                            |                                                |                           |                      | Straight   | Taping<br>*B | Taping<br>*H |                |                     |        |
| (V)  | (μF)            | (mm)      | (mm)   | (mA r.m.s.)                                                | (Ω)                                            | (hours)                   | (mm)                 | (mm)       | (mm)         | (mm)         |                | (pcs)               | (pcs)  |
| 35   | 33              | 5         | 11     | 280                                                        | 0.300                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1V330( )  | 200                 | 2000   |
|      | 68              | 6.3       | 11.2   | 455                                                        | 0.130                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1V680( )  | 200                 | 2000   |
|      | 100             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1V101( )  | 200                 | 1000   |
|      | 180             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1V181( )  | 200                 | 1000   |
|      | 220             | 8         | 11.5   | 950                                                        | 0.056                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1V221( )  | 200                 | 1000   |
|      | 270             | 8         | 15     | 1240                                                       | 0.041                                          | 8000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1V271L( ) | 200                 | 1000   |
|      |                 | 10        | 12.5   | 1290                                                       | 0.043                                          | 6000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1V271( )  | 200                 | 500    |
|      | 330             | 10        | 12.5   | 1330                                                       | 0.043                                          | 5000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1V331U( ) | 200                 | 500    |
|      | 390             | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1V391L( ) | 200                 | 1000   |
|      | 470             | 8         | 20     | 1560                                                       | 0.030                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1V471L( ) | 200                 | 1000   |
|      |                 | 10        | 16     | 1790                                                       | 0.028                                          | 8000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1V471( )  | 200                 | 500    |
|      | 560             | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1V561( )  | 200                 | 500    |
|      | 680             | 10        | 20     | 2180                                                       | 0.020                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1V681( )  | 200                 | 500    |
|      |                 | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1V681L( ) | 200                 | 500    |
|      | 820             | 10        | 25     | 2470                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1V821L( ) | 200                 | 500    |
|      | 1000            | 12.5      | 20     | 2600                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1V102( )  | 200                 | 500    |
|      | 1200            | 12.5      | 25     | 3190                                                       | 0.015                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1V122( )  | 200                 | 500    |
|      | 1500            | 12.5      | 30     | 3630                                                       | 0.013                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1V152L    | 100                 |        |
|      |                 | 16        | 20     | 3300                                                       | 0.017                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1V152S( ) | 100                 | 250    |
|      | 1800            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1V182L    | 100                 |        |
|      |                 | 16        | 25     | 3820                                                       | 0.014                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1V182( )  | 100                 | 250    |
|      | 2200            | 12.5      | 35     | 3750                                                       | 0.012                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1V222L    | 100                 |        |
|      |                 | 16        | 25     | 3820                                                       | 0.014                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1V222( )  | 100                 | 250    |
| 50   | 4.7             | 5         | 11     | 185                                                        | 0.620                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1H4R7( )  | 200                 | 2000   |
|      | 10              | 5         | 11     | 250                                                        | 0.340                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1H100( )  | 200                 | 2000   |
|      | 22              | 5         | 11     | 250                                                        | 0.340                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1H220( )  | 200                 | 2000   |
|      | 47              | 6.3       | 11.2   | 405                                                        | 0.140                                          | 5000                      | 0.5                  | 2.5        | 5.0          |              | EEUFR1H470( )  | 200                 | 2000   |
|      | 56              | 6.3       | 11.2   | 405                                                        | 0.140                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1H560( )  | 200                 | 2000   |
|      | 100             | 8         | 11.5   | 870                                                        | 0.061                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1H101( )  | 200                 | 1000   |
|      | 120             | 8         | 15     | 1140                                                       | 0.045                                          | 8000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1H121L( ) | 200                 | 1000   |
|      | 150             | 10        | 12.5   | 1170                                                       | 0.042                                          | 6000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1H151( )  | 200                 | 500    |
|      | 180             | 8         | 20     | 1430                                                       | 0.033                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1H181L( ) | 200                 | 1000   |
|      | 220             | 10        | 16     | 1650                                                       | 0.030                                          | 8000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1H221( )  | 200                 | 500    |
|      | 270             | 10        | 20     | 1890                                                       | 0.023                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1H271( )  | 200                 | 500    |
|      | 330             | 10        | 25     | 2150                                                       | 0.022                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1H331L( ) | 200                 | 500    |
|      | 470             | 12.5      | 20     | 2260                                                       | 0.022                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1H471( )  | 200                 | 500    |
|      | 560             | 12.5      | 25     | 2660                                                       | 0.018                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1H561( )  | 200                 | 500    |
|      | 680             | 12.5      | 30     | 3160                                                       | 0.016                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1H681L    | 100                 |        |
|      | 820             | 12.5      | 35     | 3270                                                       | 0.014                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1H821L    | 100                 |        |
|      |                 | 16        | 20     | 2870                                                       | 0.019                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1H821S( ) | 100                 | 250    |
|      | 1000            | 16        | 25     | 3320                                                       | 0.016                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1H102( )  | 100                 | 250    |
| 63   | 18              | 5         | 11     | 175                                                        | 0.510                                          | 5000                      | 0.5                  | 2.0        | 5.0          | 2.5          | EEUFR1J180( )  | 200                 | 2000   |
|      | 47              | 6.3       | 11.2   | 284                                                        | 0.210                                          | 5000                      | 0.5                  | 2.5        | 5.0          | 2.5          | EEUFR1J470( )  | 200                 | 2000   |
|      | 82              | 8         | 11.5   | 566                                                        | 0.092                                          | 6000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1J820( )  | 200                 | 1000   |
|      | 100             | 8         | 15     | 741                                                        | 0.068                                          | 8000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1J101L( ) | 200                 | 1000   |
|      |                 | 10        | 12.5   | 761                                                        | 0.063                                          | 6000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1J101( )  | 200                 | 500    |
|      | 120             | 8         | 20     | 930                                                        | 0.050                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1J121L( ) | 200                 | 1000   |
|      |                 | 10        | 16     | 1073                                                       | 0.045                                          | 8000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1J121( )  | 200                 | 500    |
|      | 150             | 8         | 20     | 930                                                        | 0.050                                          | 9000                      | 0.6                  | 3.5        | 5.0          |              | EEUFR1J151L( ) | 200                 | 1000   |
|      |                 | 10        | 16     | 1073                                                       | 0.045                                          | 8000                      | 0.6                  | 5.0        | 5.0          |              | EEUFR1J151( )  | 200                 | 500    |
|      | 180             | 10        | 20     | 1229                                                       | 0.035                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J181( )  | 200                 | 500    |
|      | 220             | 10        | 25     | 1500                                                       | 0.033                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J221L( ) | 200                 | 500    |
|      |                 | 10        | 20     | 1229                                                       | 0.035                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J271U( ) | 200                 | 500    |
|      | 270             | 10        | 25     | 1500                                                       | 0.033                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J271L( ) | 200                 | 500    |
|      |                 | 12.5      | 20     | 1582                                                       | 0.033                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J271( )  | 200                 | 500    |
|      | 330             | 12.5      | 20     | 1582                                                       | 0.033                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J331( )  | 200                 | 500    |
|      | 390             | 12.5      | 25     | 1995                                                       | 0.027                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J391( )  | 200                 | 500    |
|      | 470             | 12.5      | 25     | 1995                                                       | 0.027                                          | 10000                     | 0.6                  | 5.0        | 5.0          |              | EEUFR1J471( )  | 200                 | 500    |
|      | 560             | 12.5      | 30     | 2528                                                       | 0.024                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1J561L    | 100                 |        |
|      |                 | 16        | 20     | 2153                                                       | 0.029                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1J561S( ) | 100                 | 250    |
|      | 680             | 12.5      | 35     | 2780                                                       | 0.021                                          | 10000                     | 0.8                  | 5.0        |              |              | EEUFR1J681L    | 100                 |        |
|      | 820             | 16        | 25     | 2988                                                       | 0.024                                          | 10000                     | 0.8                  | 7.5        | 7.5          |              | EEUFR1J821( )  | 100                 | 250    |

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 · Please refer to the page of "Taping Dimensions".

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.