

**NEW**

**Radial Lead Type**

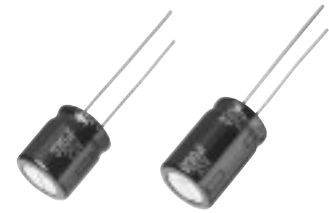
Series: **FR** Type: **A**

■ **Features**

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

■ **Country of origin**

Malaysia



■ **Attention**

Not applicable for automotive

■ **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, φ8×11.5/ φ10×12.5 : 6000 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)

|               |     |     |     |     |            |          |
|---------------|-----|-----|-----|-----|------------|----------|
| Body Dia. φD  | 5   | 6.3 | 8   | 10  | 12.5       | 16       |
| Body Length L | —   | —   | —   | —   | 12.5 to 25 | 30 to 35 |
| Lead Dia. φd  | 0.5 | 0.5 | 0.6 | 0.6 | 0.6        | 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.

■ 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                                  |

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**NEW**

■ Standard Products

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                | Specification   |   |                      | Lead Length       |                  |                      |                      | Part No.       | Min. Packaging Q'ty     |                 |
|-------------|-------------------------|--------------|----------------|---|---|----------------------|-------------------|------------------|----------------------|----------------------|----------------|-------------------------|-----------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | Ripple Current<br>(100 kHz)<br>(+105 °C)<br>(mA r.m.s.) | Impedance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Endurance<br>(hours) | Lead Dia.<br>(mm) | Lead Space       |                      |                      |                | Straight Leads<br>(pcs) | Taping<br>(pcs) |
|             |                         |              |                |   |   |                      |                   | Straight<br>(mm) | Taping<br>*B<br>(mm) | Taping<br>*H<br>(mm) |                |                         |                 |
| 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             |
|             | 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            |
|             | 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                     |                 |
| 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                     |                 |

· 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".

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### Standard Products

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                | Specification   |   |                      | Lead Length       |                  |                      | Part No. | Min. Packaging Q'ty     |                 |                      |
|-------------|-------------------------|--------------|----------------|---|---|----------------------|-------------------|------------------|----------------------|----------|-------------------------|-----------------|----------------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | Ripple Current<br>(100 kHz)<br>(+105 °C)<br>(mA r.m.s.) | Impedance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Endurance<br>(hours) | Lead Dia.<br>(mm) | Lead Space       |                      |          | Straight Leads<br>(pcs) | Taping<br>(pcs) |                      |
|             |                         |              |                |   |   |                      |                   | Straight<br>(mm) | Taping<br>*B<br>(mm) |          |                         |                 | Taping<br>*H<br>(mm) |
| 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                  |
|             | 35                      | 33           | 5              | 11  | 280                                       | 0.300                | 5000              | 0.5              | 2.0                  | 5.0      | 2.5                     | EEUFR1V330( )   | 200                  |
| 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                                     | 6000                 | 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             |                      |
| 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                  |

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

**NEW**

■ Standard Products

| W.V.<br>(V) | Cap.<br>(±20 %)<br>(μF) | Case size    |                | Specification   |   |                      | Lead Length       |                  |                      |                      | Part No.       | Min. Packaging Qty      |                 |
|-------------|-------------------------|--------------|----------------|---|---|----------------------|-------------------|------------------|----------------------|----------------------|----------------|-------------------------|-----------------|
|             |                         | Dia.<br>(mm) | Length<br>(mm) | Ripple Current<br>(100 kHz)<br>(+105 °C)<br>(mA r.m.s.) | Impedance<br>(100 kHz)<br>(+20 °C)<br>(Ω) | Endurance<br>(hours) | Lead Dia.<br>(mm) | Lead Space       |                      |                      |                | Straight Leads<br>(pcs) | Taping<br>(pcs) |
|             |                         |              |                |   |   |                      |                   | Straight<br>(mm) | Taping<br>*B<br>(mm) | Taping<br>*H<br>(mm) |                |                         |                 |
| 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             |
|             | 63                      | 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             |
| 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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