# RNL

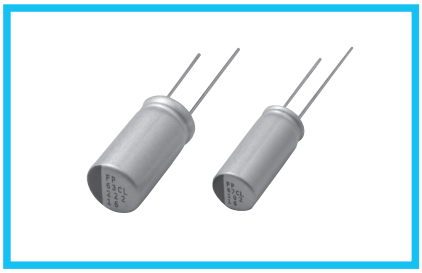
Large Sized, High Capacitance

HR High Ripple Current | Z Low Impedance | F For High Frequency | Anti-Solvent Feature

- Low ESR, High Capacitance, High ripple current.
- Large Sized.
- Load life of 2000 / 5000 hours at 105°C.
- Radial lead type : Lead free flow soldering condition correspondence.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

RNE
Higher Capacitance
RNL

**FPCAP**

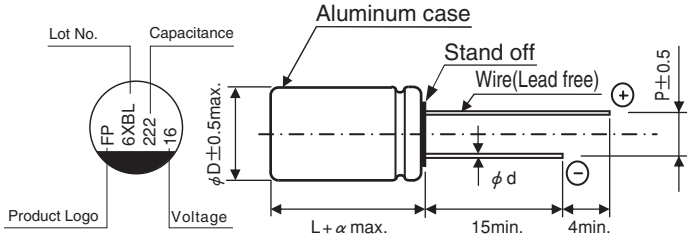


## ■ Specifications

| Item | Performance Characteristics | |
|---|---|---|
| Category Temperature Range | –55 to +105°C | |
| Rated Voltage Range | 16 to 25V | |
| Rated Capacitance Range | 270 to 2400µF | |
| Capacitance Tolerance | ±20% at 120Hz, 20°C | |
| Tangent of loss angle (tan δ) | Less than or equal to the specified value at 120Hz, 20°C | |
| ESR (※1) | Less than or equal to the specified value at 100kHz, 20°C | |
| Leakage Current (※2) | Less than or equal to the specified value. After 2 minutes' application of rated voltage at 20°C | |
| Endurance | Test condition | 105°C, rated voltage 2000 / 5000Hrs. |
| | Capacitance change | Within ±20% of initial value before test |
| | tan δ | 150% or less than the initial specified value |
| | ESR(※1) | 150% or less than the initial specified value |
| | Leakage current (※2) | Less than or equal to the initial specified value |

※1 ESR should be measured at both of the terminal ends closest to the capacitor body.
※2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.

## ■ Dimensions




(mm)

| ϕD×L | ϕd | P | α |
|---|---|---|---|
| ϕ8×16L | 0.6 | 3.5 | 1.5 |
| ϕ8×20L | 0.6 | 3.5 | 1.5 |
| ϕ10×16L | 0.6 | 5.0 | 1.5 |
| ϕ10×20L | 0.6 | 5.0 | 1.5 |

● Frequency coefficient of rated ripple current

| Frequency | 120 Hz | 1 kHz | 10 kHz | 100 kHz | 300 kHz |
|---|---|---|---|---|---|
| Coefficient | 0.10 | 0.45 | 0.50 | 1.00 | 1.00 |

Type numbering system (Example : 16V 2200µF)
Nichicon part number

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R | N | L | 1 | C | 2 | 2 | 2 | M | D | S | 1 | C | G |

14 Lead Forming
13 Control code
12 Configuration
11 Capacitance tolerance (±20%)
9–8 Rated capacitance (2200µF)
5–4 Rated voltage (16V)
3–2 Series name
1 Type

FPCAP part number

| FP | 016 | RE | 222 | M | NL | CG | |
|---|---|---|---|---|---|---|---|

Control code
Lead Forming
Series name
Capacitance tolerance (±20%)
Capacitance (2200µF)
Configuration
Voltage (16V)
Type

● Dimension table in next page.

# RNL

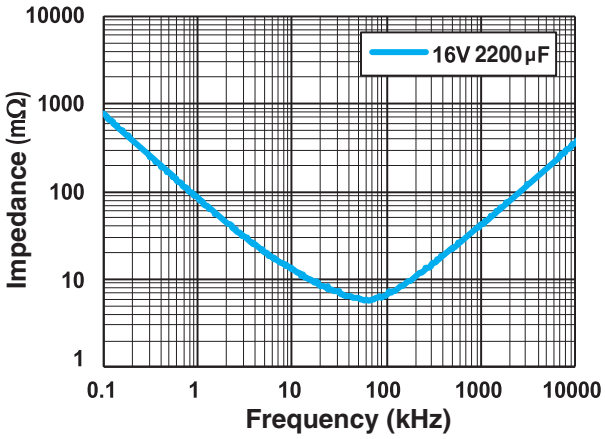
## ■ Dimensions

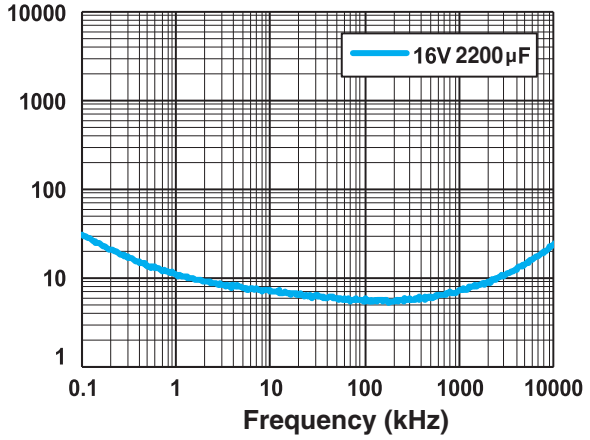
| Rated Voltage (V) (code) | Surge Voltage (V) | Rated Capacitance (μF) | Case Size φD×L (mm) | tan δ | Leakage Current (μA) (at 20°C after 2 minutes) | ESR (mΩ) (20°C/100kHz) | Rated Ripple Current (mArms) (105°C/100kHz) | NICHICON | FFPCAP |
|---|---|---|---|---|---|---|---|---|---|
| 16 (1C) | 18.4 | 680 | 8×16 | 0.12 | 1088 | 8 | 7000 | RNL1C681MDS1□□ | FP-016RE681M-NL□□ |
| | | 820 | ▲ 8×16 | 0.12 | 1312 | 8 | 7000 | RNL1C821MDS6□□ | FP-016RE821M-NL□□-DS |
| | | 820 | 8×20 | 0.12 | 1312 | 8 | 7500 | RNL1C821MDS1□□ | FP-016RE821M-NL □□ |
| | | ＊820 | 8×20 | 0.12 | 1312 | 8 | 7500 | RNL1C821MDSASQ□□ | FP-016RE821M-NL□□-5K |
| | | 1000 | 8×20 | 0.12 | 1600 | 8 | 7500 | RNL1C102MDS1□□ | FP-016RE102M-NL□□ |
| | | ＊1000 | 8×20 | 0.12 | 1600 | 8 | 7500 | RNL1C102MDSASQ□□ | FP-016RE102M-NL□□-5K |
| | | 1000 | 10×16 | 0.12 | 1600 | 8 | 7700 | RNL1C102MDS4□□ | FP-016RE102M-NL□□-MS |
| | | ＊1000 | 10×16 | 0.12 | 1600 | 8 | 7700 | RNL1C102MDSBSQ□□ | FP-016RE102M-NL□□-5K-MS |
| | | 1200 | 8×20 | 0.12 | 1920 | 8 | 7500 | RNL1C122MDS1 □□ | FP-016RE122M-NL□□ |
| | | ＊1200 | 8×20 | 0.12 | 1920 | 8 | 7500 | RNL1C122MDSASQ□□ | FP-016RE122M-NL□□-5K |
| | | 1200 | 10×16 | 0.12 | 1920 | 8 | 7700 | RNL1C122MDS4 □□ | FP-016RE122M-NL □□ -MS |
| | | ＊1200 | 10×16 | 0.12 | 1920 | 8 | 7700 | RNL1C122MDSBSQ□□ | FP-016RE122M-NL□□-5K-MS |
| | | 1500 | ▲ 8×20 | 0.12 | 2400 | 8 | 7500 | RNL1C152MDS6 □□ | FP-016RE152M-NL □□ -DS |
| | | 1500 | 10×16 | 0.12 | 2400 | 8 | 7700 | RNL1C152MDS4□□ | FP-016RE152M-NL□□-MS |
| | | ＊1500 | 10×16 | 0.12 | 2400 | 8 | 7700 | RNL1C152MDSBSQ□□ | FP-016RE152M-NL□□-5K-MS |
| | | 1500 | 10×20 | 0.12 | 2400 | 8 | 8100 | RNL1C152MDS1□□ | FP-016RE152M-NL□□ |
| | | ＊1500 | 10×20 | 0.12 | 2400 | 8 | 8100 | RNL1C152MDSASQ□□ | FP-016RE152M-NL□□-5K |
| | | 1800 | 10×16 | 0.12 | 2880 | 8 | 7700 | RNL1C182MDS4□□ | FP-016RE182M-NL□□-MS |
| | | ＊1800 | 10×16 | 0.12 | 2880 | 8 | 7700 | RNL1C182MDSBSQ□□ | FP-016RE182M-NL□□-5K-MS |
| | | 1800 | 10×20 | 0.12 | 2880 | 8 | 8100 | RNL1C182MDS1□□ | FP-016RE182M-NL□□ |
| | | ＊1800 | 10×20 | 0.12 | 2880 | 8 | 8100 | RNL1C182MDSASQ□□ | FP-016RE182M-NL□□-5K |
| | | 2200 | 10×20 | 0.12 | 3520 | 8 | 8100 | RNL1C222MDS1□□ | FP-016RE222M-NL□□ |
| | | ＊2200 | 10×20 | 0.12 | 3520 | 8 | 8100 | RNL1C222MDSASQ□□ | FP-016RE222M-NL□□-5K |
| | | 2400 | 10×20 | 0.12 | 3840 | 8 | 8100 | RNL1C242MDS1□□ | FP-016RE242M-NL□□ |
| | | ＊2400 | 10×20 | 0.12 | 3840 | 8 | 8100 | RNL1C242MDSASQ□□ | FP-016RE242M-NL□□-5K |
| 25 (1E) | 28.7 | 270 | 8×16 | 0.12 | 675 | 10 | 5800 | RNL1E271MDS1□□ | FP-025RE271M-NL□□ |
| | | 330 | 8×16 | 0.12 | 825 | 10 | 5800 | RNL1E331MDS1□□ | FP-025RE331M-NL□□ |
| | | 390 | 8×16 | 0.12 | 975 | 10 | 5800 | RNL1E391MDS1□□ | FP-025RE391M-NL□□ |
| | | 470 | 8×16 | 0.12 | 1175 | 10 | 5800 | RNL1E471MDS1□□ | FP-025RE471M-NL□□ |
| | | 560 | 8×16 | 0.12 | 1400 | 10 | 5800 | RNL1E561MDS1□□ | FP-025RE561M-NL□□ |
| | | 560 | 10×16 | 0.12 | 1400 | 10 | 5800 | RNL1E561MDS4□□ | FP-025RE561M-NL□□-MS |
| | | ＊560 | 10×16 | 0.12 | 1400 | 10 | 5800 | RNL1E561MDSBSQ□□ | FP-025RE561M-NL□□-5K-MS |
| | | 680 | 10×16 | 0.12 | 1700 | 10 | 5800 | RNL1E681MDS4□□ | FP-025RE681M-NL□□-MS |
| | | ＊680 | 10×16 | 0.12 | 1700 | 10 | 5800 | RNL1E681MDSBSQ□□ | FP-025RE681M-NL□□-5K-MS |
| | | 680 | 10×20 | 0.12 | 1700 | 10 | 8100 | RNL1E681MDS9□□ | FP-025RE681M-NL□□-US |
| | | ＊680 | 10×20 | 0.12 | 1700 | 10 | 8100 | RNL1E681MDSCSQ□□ | FP-025RE681M-NL□□-5K-US |
| | | 820 | 10×16 | 0.12 | 2050 | 10 | 5800 | RNL1E821MDS4□□ | FP-025RE821M-NL□□-MS |
| | | ＊820 | 10×16 | 0.12 | 2050 | 10 | 5800 | RNL1E821MDSBSQ□□ | FP-025RE821M-NL□□-5K-MS |
| | | 820 | 10×20 | 0.12 | 2050 | 10 | 8100 | RNL1E821MDS1□□ | FP-025RE821M-NL□□ |
| | | ＊820 | 10×20 | 0.12 | 2050 | 10 | 8100 | RNL1E821MDSASQ□□ | FP-025RE821M-NL□□-5K |
| | | 1000 | 10×16 | 0.12 | 2500 | 10 | 5800 | RNL1E102MDS4□□ | FP-025RE102M-NL□□-MS |
| | | ＊1000 | 10×16 | 0.12 | 2500 | 10 | 5800 | RNL1E102MDSBSQ□□ | FP-025RE102M-NL□□-5K-MS |
| | | 1000 | 10×20 | 0.12 | 2500 | 10 | 8100 | RNL1E102MDS1□□ | FP-025RE102M-NL□□ |
| | | ＊1000 | 10×20 | 0.12 | 2500 | 10 | 8100 | RNL1E102MDSASQ□□ | FP-025RE102M-NL□□-5K |
| | | 1200 | 10×20 | 0.12 | 3000 | 10 | 8100 | RNL1E122MDS1□□ | FP-025RE122M-NL□□ |
| | | ＊1200 | 10×20 | 0.12 | 3000 | 10 | 8100 | RNL1E122MDSASQ□□ | FP-025RE122M-NL□□-5K |

＊: Load life 5000hours.

"▲" In this case, 6 will be put at 12th digit of type numbering system

## ■ Frequency Characteristics (The frequency characteristics are typical and not a guaranteed value.)




• For formed lead or taped product specifications and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.