

# FPCAP Functional Polymer Aluminum Solid Electrolytic Capacitors

## NS series

### Features

By using Functional Polymer cathode, Frequency & Temp. characteristics are greatly improved.

- Low ESR at a high frequency range.
- High ripple current capability.
- Long life and high reliability.

### Applications

- Switching Power Supply and DC/DC Converter.
- Back up Power Supplies of CPU (VRM etc.)
- Miniature high Power Supply.

### Environmental Correspondence

- Corresponding to Lead-free, RoHS compliance and Halogen-free.
- The Lead-free of terminal plating (Sn)

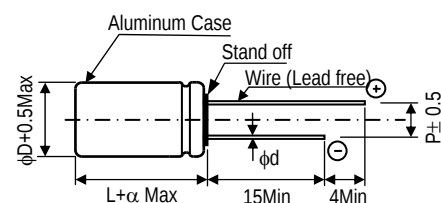
### Specifications

| Items                 |                 | Characteristics                            |
|-----------------------|-----------------|--------------------------------------------|
|                       |                 | NS                                         |
| Operating Temp. Range |                 | -55 to +105°C                              |
| Rated Voltage Range   |                 | 4.0 to 25V <sub>DC</sub>                   |
| Capacitance Range     |                 | 10 to 1200 $\mu$ F                         |
| Capacitance Tolerance |                 | $\pm 20\%$ (M)                             |
| Endurance             | Condition       | 105°C 2000Hrs at rated voltage             |
|                       | Capacitance     | Within $\pm 20\%$ of the value before test |
|                       | Leakage Current | Not to exceed the value specified          |
|                       | $\tan \delta$   | Not to exceed 150% of the value specified  |
| Failure Rate          |                 | 0.1% / 1000Hrs. Max (60%CL)                |

### Size List

| R.V (S.V.)<br>Cap. [ $\mu$ F] | 4.0<br>(4.6) | 6.3<br>(7.2) | 10<br>(11.5) | 16<br>(18.4) | 20<br>(23) | 25<br>(28.7) |
|-------------------------------|--------------|--------------|--------------|--------------|------------|--------------|
| 10                            |              |              |              |              |            | 6.3×7        |
| 15                            |              |              |              |              | 6.3×7      | 6.3×10       |
| 22                            |              |              |              | 6.3×7        | 6.3×7      | 8×11.5       |
| 33                            |              |              | 6.3×7        | 6.3×7        | 6.3×10     | 10×12.5      |
| 47                            |              | 6.3×7        |              | 6.3×10       | 8×11.5     | 10×12.5      |
| 68                            |              |              | 6.3×10       | 8×11.5       | 8×11.5     |              |
| 100                           |              |              | 8×11.5       | 8×11.5       | 10×12.5    | 10×12.5      |
| 150                           |              | 8×11.5       |              | 10×12.5      |            |              |
| 180                           |              |              |              | 8×11.5       |            |              |
| 220                           |              | 8×11.5       | 10×12.5      |              |            |              |
| 330                           |              | 10×12.5      |              | 10×12.5      |            |              |
| 390                           |              | 8×11.5       |              |              |            |              |
| 470                           |              |              | 10×12.5      |              |            |              |
| 560                           | 8×11.5       |              |              |              |            |              |
| 680                           |              | 10×12.5      |              |              |            |              |
| 820                           | 10×12.5      | 10×12.5      |              |              |            |              |
| 1000                          |              | 10×12.5      |              |              |            |              |
| 1200                          | 10×12.5      |              |              |              |            |              |

### Dimensions



| [Unit : mm]       |          |     |          |
|-------------------|----------|-----|----------|
| $\phi D \times L$ | $\phi d$ | P   | $\alpha$ |
| 6.3×7             | 0.45     | 2.5 | 1.0      |
| 6.3×10            | 0.5      | 2.5 | 1.0      |
| 8×11.5            | 0.6      | 3.5 | 1.5      |
| 10×12.5           | 0.6      | 5.0 | 1.5      |

# Part number & Specifications

| Rated Voltage<br>(V) | Rated Capacitance<br>(μF, 120Hz) | Part Number    |                   | Leakage Current *<br>(μA, 2 min) | tanδ<br>(120Hz) | ESR<br>(mΩ, 100kHz) | Rated Ripple Current<br>(mA, r.m.s.) | Case Size<br>φD×L(mm) |
|----------------------|----------------------------------|----------------|-------------------|----------------------------------|-----------------|---------------------|--------------------------------------|-----------------------|
|                      |                                  | NICHICON       | FPCAP             |                                  |                 |                     |                                      |                       |
| 4.0                  | 560                              | RNS0G561MDN1□□ | FP-4R0RE561M-NS□□ | 336                              | 0.08            | 10                  | 5230                                 | 8 × 11.5              |
|                      | 820                              | RNS0G821MDN1□□ | FP-4R0RE821M-NS□□ | 492                              | 0.08            | 10                  | 5500                                 | 10 × 12.5             |
|                      | 1200                             | RNS0G122MDN1□□ | FP-4R0RE122M-NS□□ | 720                              | 0.15            | 10                  | 5500                                 | 10 × 12.5             |
| 6.3                  | 47                               | RNS0J470MDS1□□ | FP-6R3RE470M-NS□□ | 50                               | 0.07            | 42                  | 2050                                 | 6.3 × 7               |
|                      | 150                              | RNS0J151MDN1□□ | FP-6R3RE151M-NS□□ | 142                              | 0.07            | 21                  | 3900                                 | 8 × 11.5              |
|                      | 220                              | RNS0J221MDN1□□ | FP-6R3RE221M-NS□□ | 208                              | 0.07            | 21                  | 3900                                 | 8 × 11.5              |
|                      | 330                              | RNS0J331MDN1□□ | FP-6R3RE331M-NS□□ | 312                              | 0.07            | 10                  | 5500                                 | 10 × 12.5             |
|                      | 390                              | RNS0J391MDN1□□ | FP-6R3RE391M-NS□□ | 369                              | 0.08            | 10                  | 5230                                 | 8 × 11.5              |
|                      | 680                              | RNS0J681MDN1□□ | FP-6R3RE681M-NS□□ | 643                              | 0.08            | 10                  | 5500                                 | 10 × 12.5             |
|                      | 820                              | RNS0J821MDN1□□ | FP-6R3RE821M-NS□□ | 775                              | 0.12            | 10                  | 5500                                 | 10 × 12.5             |
|                      | 1000                             | RNS0J102MDN1□□ | FP-6R3RE102M-NS□□ | 945                              | 0.12            | 10                  | 5500                                 | 10 × 12.5             |
|                      |                                  |                |                   |                                  |                 |                     |                                      |                       |
| 10                   | 33                               | RNS1A330MDS1□□ | FP-010RE330M-NS□□ | 50                               | 0.07            | 49                  | 1900                                 | 6.3 × 7               |
|                      | 68                               | RNS1A680MDS1□□ | FP-010RE680M-NS□□ | 102                              | 0.07            | 35                  | 2650                                 | 6.3 × 10              |
|                      | 100                              | RNS1A101MDN1□□ | FP-010RE101M-NS□□ | 150                              | 0.07            | 21                  | 3900                                 | 8 × 11.5              |
|                      | 220                              | RNS1A221MDN1□□ | FP-010RE221M-NS□□ | 330                              | 0.07            | 10                  | 5500                                 | 10 × 12.5             |
|                      | 470                              | RNS1A471MDN1□□ | FP-010RE471M-NS□□ | 705                              | 0.08            | 10                  | 5500                                 | 10 × 12.5             |
| 16                   | 22                               | RNS1C220MDS1□□ | FP-016RE220M-NS□□ | 53                               | 0.06            | 49                  | 1900                                 | 6.3 × 7               |
|                      | 33                               | RNS1C330MDS1□□ | FP-016RE330M-NS□□ | 79                               | 0.06            | 49                  | 1900                                 | 6.3 × 7               |
|                      | 47                               | RNS1C470MDS1□□ | FP-016RE470M-NS□□ | 113                              | 0.06            | 42                  | 2400                                 | 6.3 × 10              |
|                      | 68                               | RNS1C680MDN1□□ | FP-016RE680M-NS□□ | 163                              | 0.06            | 25                  | 3600                                 | 8 × 11.5              |
|                      | 100                              | RNS1C101MDN1□□ | FP-016RE101M-NS□□ | 240                              | 0.06            | 21                  | 3900                                 | 8 × 11.5              |
|                      | 150                              | RNS1C151MDN1□□ | FP-016RE151M-NS□□ | 360                              | 0.06            | 10                  | 5500                                 | 10 × 12.5             |
|                      | 180                              | RNS1C181MDN1□□ | FP-016RE181M-NS□□ | 432                              | 0.08            | 16                  | 4700                                 | 8 × 11.5              |
|                      | 330                              | RNS1C331MDN1□□ | FP-016RE331M-NS□□ | 792                              | 0.08            | 10                  | 5500                                 | 10 × 12.5             |
| 20                   | 15                               | RNS1D150MDS1□□ | FP-020RE150M-NS□□ | 50                               | 0.06            | 63                  | 1700                                 | 6.3 × 7               |
|                      | 22                               | RNS1D220MDS1□□ | FP-020RE220M-NS□□ | 66                               | 0.06            | 49                  | 1900                                 | 6.3 × 7               |
|                      | 33                               | RNS1D330MDS1□□ | FP-020RE330M-NS□□ | 99                               | 0.06            | 49                  | 2200                                 | 6.3 × 10              |
|                      | 47                               | RNS1D470MDN1□□ | FP-020RE470M-NS□□ | 141                              | 0.06            | 28                  | 3400                                 | 8 × 11.5              |
|                      | 68                               | RNS1D680MDN1□□ | FP-020RE680M-NS□□ | 204                              | 0.06            | 25                  | 3600                                 | 8 × 11.5              |
|                      | 100                              | RNS1D101MDN1□□ | FP-020RE101M-NS□□ | 300                              | 0.06            | 15                  | 4500                                 | 10 × 12.5             |
| 25                   | 10                               | RNS1E100MDS1□□ | FP-025RE100M-NS□□ | 50                               | 0.06            | 63                  | 1700                                 | 6.3 × 7               |
|                      | 15                               | RNS1E150MDS1□□ | FP-025RE150M-NS□□ | 75                               | 0.06            | 49                  | 2200                                 | 6.3 × 10              |
|                      | 22                               | RNS1E220MDN1□□ | FP-025RE220M-NS□□ | 110                              | 0.06            | 28                  | 3400                                 | 8 × 11.5              |
|                      | 33                               | RNS1E330MDN1□□ | FP-025RE330M-NS□□ | 165                              | 0.06            | 20                  | 3800                                 | 10 × 12.5             |
|                      | 47                               | RNS1E470MDN1□□ | FP-025RE470M-NS□□ | 235                              | 0.06            | 20                  | 3800                                 | 10 × 12.5             |
|                      | 100                              | RNS1E101MDN1□□ | FP-025RE101M-NS□□ | 500                              | 0.08            | 15                  | 4500                                 | 10 × 12.5             |

\* In case of some doubt about measured values, measure after applying rated voltage for 120 minutes at 105°C.

## Part Number (EX) 16V, 100μF

Nichicon P/N

|          |             |               |                   |                       |               |              |              |
|----------|-------------|---------------|-------------------|-----------------------|---------------|--------------|--------------|
| <b>R</b> | <b>NS</b>   | <b>1C</b>     | <b>101</b>        | <b>M</b>              | <b>DN</b>     | <b>1</b>     |              |
| Type     | Series Name | Rated Voltage | Rated Capacitance | Capacitance Tolerance | Configuration | Control Code | Lead Forming |

FPCAP P/N

|                |               |                |                   |                       |             |              |              |
|----------------|---------------|----------------|-------------------|-----------------------|-------------|--------------|--------------|
| <b>FP</b>      | <b>016</b>    | <b>RE</b>      | <b>101</b>        | <b>M</b>              | <b>NS</b>   | <b>R</b>     |              |
| Commodity Mark | Rated Voltage | Classification | Rated Capacitance | Capacitance Tolerance | Series Name | Lead Forming | Control Code |

CG: Cut lead (Bulk)  
JX: φ6.3x10 2.5mm pitch taping  
JT: φ6.3x7, 2.5mm pitch taping  
KX: φ8, 3.5mm pitch taping  
PX: φ6.3&φ8, 5.0mm pitch taping  
PH: φ10, 5.0mm pitch taping

R: Long lead (Bulk)  
CG: Cut lead (Bulk)  
J : φ6.3x10, 2.5mm pitch taping  
JT: φ6.3x7, 2.5mm pitch taping  
K : φ8, 3.5mm pitch taping  
P : φ6.3&φ8, 5.0mm pitch taping  
PH: φ10, 5.0mm pitch taping