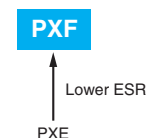


## NPCAP™-PXF Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2 to 10V<sub>dc</sub>, Capacitance range : 120 to 1,000μF
- Case size range : φ5x3.9L to φ8x7.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant
- Halogen Free



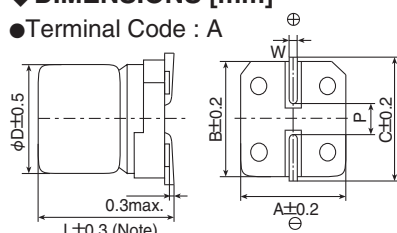
### ◆SPECIFICATIONS

| Items                                                  | Characteristics                                                                                                                                                                                                  |                                                                                                                                                                                                             |     |     |     |    |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|----|
| Category Temperature Range                             | -55 to +105℃                                                                                                                                                                                                     |                                                                                                                                                                                                             |     |     |     |    |
| Rated Voltage Range                                    | 2 to 10V <sub>dc</sub>                                                                                                                                                                                           |                                                                                                                                                                                                             |     |     |     |    |
| Capacitance Tolerance                                  | ±20% (M) (at 20℃, 120Hz)                                                                                                                                                                                         |                                                                                                                                                                                                             |     |     |     |    |
| Leakage Current<br><small>*Note</small>                | Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)                                                                                                                                      |                                                                                                                                                                                                             |     |     |     |    |
| Dissipation Factor (tan δ)                             | 0.12 max. (at 20℃, 120Hz)                                                                                                                                                                                        |                                                                                                                                                                                                             |     |     |     |    |
| Low Temperature Characteristics (Max. Impedance Ratio) | Z(-25℃)/Z(+20℃)≤1.15<br>Z(-55℃)/Z(+20℃)≤1.25 (at 100kHz)                                                                                                                                                         |                                                                                                                                                                                                             |     |     |     |    |
| Endurance                                              | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 15,000 hours (E40, E46, F45 : 3,000 hours ) at 105℃.                              |                                                                                                                                                                                                             |     |     |     |    |
|                                                        | Appearance                                                                                                                                                                                                       | No significant damage                                                                                                                                                                                       |     |     |     |    |
|                                                        | Capacitance change                                                                                                                                                                                               | ≤ ±20% of the initial value                                                                                                                                                                                 |     |     |     |    |
|                                                        | D.F. (tan δ )                                                                                                                                                                                                    | ≤150% of the initial specified value                                                                                                                                                                        |     |     |     |    |
|                                                        | ESR                                                                                                                                                                                                              | ≤150% of the initial specified value                                                                                                                                                                        |     |     |     |    |
|                                                        | Leakage current                                                                                                                                                                                                  | ≤The initial specified value                                                                                                                                                                                |     |     |     |    |
| Bias Humidity                                          | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours (E40, E46, F45 : 500 hours ) .        |                                                                                                                                                                                                             |     |     |     |    |
|                                                        | Appearance                                                                                                                                                                                                       | No significant damage                                                                                                                                                                                       |     |     |     |    |
|                                                        | Capacitance change                                                                                                                                                                                               | ≤ ±20% of the initial value                                                                                                                                                                                 |     |     |     |    |
|                                                        | D.F. (tan δ )                                                                                                                                                                                                    | ≤150% of the initial specified value                                                                                                                                                                        |     |     |     |    |
|                                                        | ESR                                                                                                                                                                                                              | ≤150% of the initial specified value                                                                                                                                                                        |     |     |     |    |
|                                                        | Leakage current                                                                                                                                                                                                  | ≤The initial specified value                                                                                                                                                                                |     |     |     |    |
| Surge Voltage                                          | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |                                                                                                                                                                                                             |     |     |     |    |
|                                                        | Rated voltage (V <sub>dc</sub> )                                                                                                                                                                                 | 2.0                                                                                                                                                                                                         | 2.5 | 4.0 | 6.3 | 10 |
|                                                        | Surge voltage (V <sub>dc</sub> )                                                                                                                                                                                 | 2.3                                                                                                                                                                                                         | 2.9 | 4.6 | 7.2 | 12 |
|                                                        |                                                                                                                                                                                                                  |                                                                                                                                                                                                             |     |     |     |    |
|                                                        | Appearance                                                                                                                                                                                                       | No significant damage                                                                                                                                                                                       |     |     |     |    |
|                                                        | Capacitance change                                                                                                                                                                                               | ≤ ±20% of the initial value                                                                                                                                                                                 |     |     |     |    |
|                                                        | D.F. (tan δ )                                                                                                                                                                                                    | ≤150% of the initial specified value                                                                                                                                                                        |     |     |     |    |
|                                                        | ESR                                                                                                                                                                                                              | ≤150% of the initial specified value                                                                                                                                                                        |     |     |     |    |
|                                                        | Leakage current                                                                                                                                                                                                  | ≤The initial specified value                                                                                                                                                                                |     |     |     |    |
|                                                        | Soldering Heat                                                                                                                                                                                                   | The following specifications shall be satisfied when the solder temperature is reduced back to 20℃ to measure dip resistance after soldering has been performed under the recommended soldering conditions. |     |     |     |    |
| Appearance                                             |                                                                                                                                                                                                                  | No significant damage                                                                                                                                                                                       |     |     |     |    |
| Capacitance value                                      |                                                                                                                                                                                                                  | Within the specified tolerance range                                                                                                                                                                        |     |     |     |    |
| D.F. (tan δ )                                          |                                                                                                                                                                                                                  | ≤The initial specified value                                                                                                                                                                                |     |     |     |    |
| ESR                                                    |                                                                                                                                                                                                                  | ≤The initial specified value                                                                                                                                                                                |     |     |     |    |
| Leakage current                                        |                                                                                                                                                                                                                  | ≤The initial specified value (Voltage treatment)                                                                                                                                                            |     |     |     |    |
| Failure Rate                                           | 0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)                                                                                                                                                      |                                                                                                                                                                                                             |     |     |     |    |

\*Note : If any doubt arises, measure the leakage current after the following voltage treatment.  
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105°C.

### ◆DIMENSIONS [mm]

- Terminal Code : A

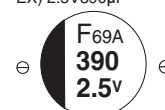


Note : L+0.1/-0.2 for E40, E46 and F45

| Size Code | φD  | L   | A   | B   | C   | W          | P   |
|-----------|-----|-----|-----|-----|-----|------------|-----|
| E40       | 5   | 3.9 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| E46       | 5   | 4.5 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| E61       | 5   | 5.8 | 5.3 | 5.3 | 5.9 | 0.5 to 0.8 | 1.4 |
| F45       | 6.3 | 4.4 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F61       | 6.3 | 5.8 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| F80       | 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5 to 0.8 | 1.9 |
| H70       | 8   | 6.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |
| H80       | 8   | 7.7 | 8.3 | 8.3 | 9.0 | 0.7 to 1.1 | 3.1 |

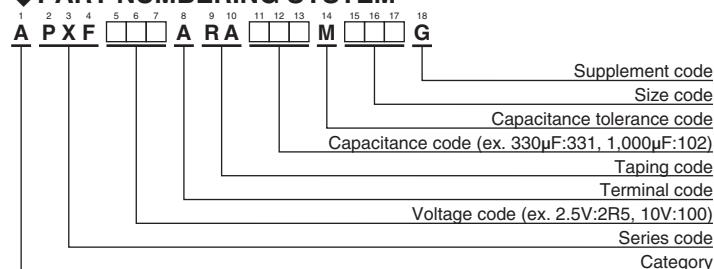
### ◆MARKING

EX) 2.5V390μF



## NPCAP™-PXF Series

### ◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

### ◆STANDARD RATINGS

| WV<br>(V <sub>ac</sub> ) | Cap<br>(μF) | Size<br>code | Leakage current<br>(μA max./after 2min.) | ESR<br>(mΩ max./20°C, 100k to 300kHz) | Rated ripple current<br>(mA rms/105°C, 100kHz) | Part No.           |
|--------------------------|-------------|--------------|------------------------------------------|---------------------------------------|------------------------------------------------|--------------------|
| 2                        | 680         | F61          | 700                                      | 12                                    | 3,500                                          | APXF2R0ARA681MF61G |
| 2.5                      | 220         | E40          | 700                                      | 12                                    | 3,300                                          | APXF2R5ARA221ME40G |
|                          | 220         | E46          | 700                                      | 25                                    | 2,100                                          | APXF2R5ARA221ME46G |
|                          | 330         | E61          | 700                                      | 10                                    | 3,900                                          | APXF2R5ARA331ME61G |
|                          | 330         | F45          | 700                                      | 12                                    | 3,500                                          | APXF2R5ARA331MF45G |
|                          | 390         | E61          | 700                                      | 10                                    | 3,900                                          | APXF2R5ARA391ME61G |
|                          | 390         | F61          | 292                                      | 10                                    | 3,900                                          | APXF2R5ARA391MF61G |
|                          | 470         | F80          | 352                                      | 9                                     | 4,200                                          | APXF2R5ARA471MF80G |
|                          | 560         | F61          | 700                                      | 10                                    | 3,900                                          | APXF2R5ARA561MF61G |
|                          | 560         | F80          | 420                                      | 9                                     | 4,200                                          | APXF2R5ARA561MF80G |
|                          | 560         | H70          | 420                                      | 10                                    | 4,500                                          | APXF2R5ARA561MH70G |
| 4                        | 680         | H70          | 510                                      | 10                                    | 4,500                                          | APXF2R5ARA681MH70G |
|                          | 1,000       | H80          | 750                                      | 9                                     | 4,500                                          | APXF2R5ARA102MH80G |
|                          | 330         | F61          | 396                                      | 10                                    | 3,900                                          | APXF4R0ARA331MF61G |
|                          | 390         | F80          | 468                                      | 9                                     | 4,200                                          | APXF4R0ARA391MF80G |
|                          | 470         | H70          | 564                                      | 10                                    | 4,500                                          | APXF4R0ARA471MH70G |
| 6.3                      | 560         | H70          | 672                                      | 10                                    | 4,500                                          | APXF4R0ARA561MH70G |
|                          | 680         | H80          | 816                                      | 9                                     | 4,500                                          | APXF4R0ARA681MH80G |
|                          | 150         | E40          | 700                                      | 20                                    | 2,700                                          | APXF6R3ARA151ME40G |
|                          | 150         | E46          | 700                                      | 25                                    | 2,100                                          | APXF6R3ARA151ME46G |
|                          | 150         | E61          | 700                                      | 12                                    | 3,500                                          | APXF6R3ARA151ME61G |
|                          | 220         | E61          | 700                                      | 12                                    | 3,500                                          | APXF6R3ARA221ME61G |
|                          | 220         | F61          | 415                                      | 10                                    | 3,900                                          | APXF6R3ARA221MF61G |
|                          | 270         | F80          | 510                                      | 9                                     | 4,200                                          | APXF6R3ARA271MF80G |
|                          | 330         | F61          | 700                                      | 10                                    | 3,900                                          | APXF6R3ARA331MF61G |
|                          | 330         | F80          | 623                                      | 9                                     | 4,200                                          | APXF6R3ARA331MF80G |
|                          | 330         | H70          | 623                                      | 10                                    | 4,500                                          | APXF6R3ARA331MH70G |
|                          | 390         | H70          | 737                                      | 10                                    | 4,500                                          | APXF6R3ARA391MH70G |
| 10                       | 470         | H80          | 888                                      | 9                                     | 4,500                                          | APXF6R3ARA471MH80G |
|                          | 560         | H80          | 1,050                                    | 9                                     | 4,500                                          | APXF6R3ARA561MH80G |
|                          | 120         | E61          | 240                                      | 22                                    | 2,600                                          | APXF100ARA121ME61G |
|                          | 270         | F61          | 540                                      | 20                                    | 2,800                                          | APXF100ARA271MF61G |

### ◆RATED RIPPLE CURRENT MULTIPLIERS

#### ●Frequency Multipliers

| Frequency (Hz) | 120  | 1k   | 10k  | 50k  | 100k to 500k |
|----------------|------|------|------|------|--------------|
| SMD type       | 0.05 | 0.30 | 0.55 | 0.70 | 1.00         |

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