

# NPCAP™-PXA Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte
- Rated voltage range : 2.5 to 25V<sub>dc</sub>, case size range : φ5×5.8L to φ10×12.2L
- 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



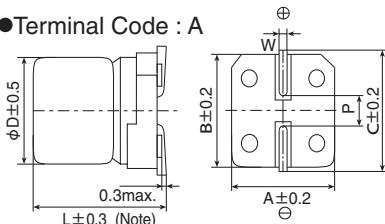
## ◆ SPECIFICATIONS

| Items   | Characteristics  |
|---|--|
| <b>Category Temperature Range</b>                             | -55 to +105°C  |
| <b>Rated Voltage Range</b>                                    | 2.5 to 25V <sub>dc</sub>   |
| <b>Capacitance Tolerance</b>                                  | ±20% (M) (at 20°C, 120Hz)  |
| <b>Leakage Current</b><br>*Note                               | Shall not exceed values shown in STANDARD RATINGS. (at 20°C after 2 minutes)   |
| <b>Dissipation Factor (tan δ)</b>                             | 0.12 max. (at 20°C, 120Hz)   |
| <b>Low Temperature Characteristics (Max. Impedance Ratio)</b> | Z(-25°C)/Z(+20°C) ≤ 1.15<br>Z(-55°C)/Z(+20°C) ≤ 1.25 (at 100kHz)   |
| <b>Endurance</b>  | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 15,000 hours (F46 : 3,000 hours) at 105°C.   |
| 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  |
| <b>Bias Humidity</b>  | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to the DC rated voltage at 60°C, 90 to 95% RH for 1,000 hours (F46 : 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  |
| <b>Surge Voltage</b>  | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105°C for 30 seconds through a protective resistor (R=1kΩ) and discharge for 5 minutes 30 seconds. |
| Rated voltage (V <sub>dc</sub> )                              | 2.5    4.0    6.3    10    16    20    23    25  |
| Surge voltage (V <sub>dc</sub> )                              | 2.9    4.6    7.2    12    18    23    23    29  |
| 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  |
| <b>Soldering Heat</b>   | The following specifications shall be satisfied when the solder temperature is reduced back to 20°C 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)  |

\*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<sup>+0.1</sup><sub>-0.2</sub> for F46  
L±0.5 for HC0 and JC0

| Size code | φD  | L    | A    | B    | C    | W          | P   |
|-----------|-----|------|------|------|------|------------|-----|
| E61       | 5   | 5.8  | 5.3  | 5.3  | 5.9  | 0.5 to 0.8 | 1.4 |
| F46       | 6.3 | 4.5  | 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 |
| H70       | 8   | 6.7  | 8.3  | 8.3  | 9.0  | 0.7 to 1.1 | 3.1 |
| HC0       | 8   | 12.0 | 8.3  | 8.3  | 9.0  | 0.7 to 1.1 | 3.1 |
| J80       | 10  | 7.7  | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |
| JC0       | 10  | 12.2 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆ MARKING

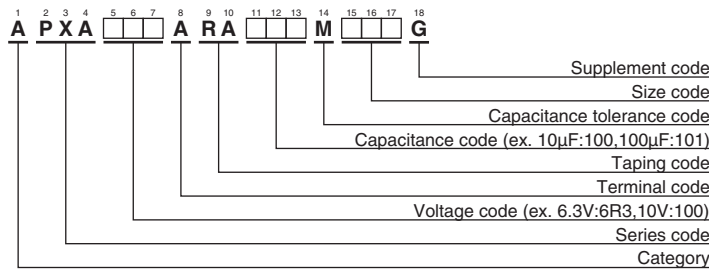
EX) 16V39μF





## NPCAP™-PXASeries

### ◆PART NUMBERING SYSTEM



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

### ◆STANDARD RATINGS

| WV (V <sub>dc</sub> ) | Cap (µF) | Size code | Leakage current (µA max./after 2 min.) | ESR (mΩ max./20°C, 100k to 300kHz) | Rated ripple current (mA rms/105°C, 100kHz) | Part No.           | WV (V <sub>dc</sub> ) | Cap (µF) | Size code | Leakage current (µA max./after 2 min.) | ESR (mΩ max./20°C, 100k to 300kHz) | Rated ripple current (mA rms/105°C, 100kHz) | Part No.           |
|-----------------------|----------|-----------|--|------------------------------------|---|--------------------|-----------------------|----------|-----------|--|------------------------------------|---|--------------------|
| 2.5                   | 220      | F61       | 110                                    | 25                                 | 2,500                                       | APXA2R5ARA221MF61G | 10                    | 33       | E61       | 66.0                                   | 40                                 | 1,270                                       | APXA100ARA330ME61G |
|                       | 560      | H70       | 280                                    | 23                                 | 3,100                                       | APXA2R5ARA561MH70G |                       | 47       | E61       | 94.0                                   | 40                                 | 1,270                                       | APXA100ARA470ME61G |
|                       | 680      | HCO       | 340                                    | 12                                 | 4,770                                       | APXA2R5ARA681MHC0G |                       | 47       | F46       | 235                                    | 41                                 | 1,560                                       | APXA100ARA470MF46G |
|                       | 1,000    | J80       | 500                                    | 19                                 | 4,240                                       | APXA2R5ARA102MJ80G |                       | 47       | F61       | 94.0                                   | 31                                 | 2,250                                       | APXA100ARA470MF61G |
|                       | 1,500    | JCO       | 750                                    | 10                                 | 5,500                                       | APXA2R5ARA152MJCOG |                       | 56       | F61       | 112                                    | 31                                 | 2,250                                       | APXA100ARA560MF61G |
| 4                     | 100      | F61       | 80.0                                   | 26                                 | 2,450                                       | APXA4R0ARA101MF61G |                       | 120      | H70       | 240                                    | 27                                 | 2,800                                       | APXA100ARA121MH70G |
|                       | 120      | F46       | 240                                    | 38                                 | 1,710                                       | APXA4R0ARA121MF46G |                       | 150      | H70       | 300                                    | 27                                 | 2,800                                       | APXA100ARA151MH70G |
|                       | 150      | E61       | 120                                    | 30                                 | 1,490                                       | APXA4R0ARA151ME61G |                       | 270      | HCO       | 540                                    | 14                                 | 4,420                                       | APXA100ARA271MHC0G |
|                       | 150      | F61       | 120                                    | 26                                 | 2,450                                       | APXA4R0ARA151MF61G |                       | 270      | J80       | 540                                    | 24                                 | 3,770                                       | APXA100ARA271MJ80G |
|                       | 220      | H70       | 176                                    | 25                                 | 3,020                                       | APXA4R0ARA221MH70G |                       | 330      | HCO       | 660                                    | 14                                 | 4,420                                       | APXA100ARA331MHC0G |
|                       | 330      | H70       | 264                                    | 25                                 | 3,020                                       | APXA4R0ARA331MH70G | 330                   | J80      | 660       | 24                                     | 3,770                              | APXA100ARA331MJ80G                          |                    |
|                       | 470      | J80       | 376                                    | 20                                 | 4,130                                       | APXA4R0ARA471MJ80G | 470                   | JCO      | 940       | 12                                     | 5,300                              | APXA100ARA471MJCOG                          |                    |
|                       | 560      | HCO       | 448                                    | 12                                 | 4,770                                       | APXA4R0ARA561MHC0G | 560                   | JCO      | 1,120     | 12                                     | 5,300                              | APXA100ARA561MJCOG                          |                    |
|                       | 680      | J80       | 544                                    | 20                                 | 4,130                                       | APXA4R0ARA681MJ80G | 16                    | 22       | E61       | 70.4                                   | 45                                 | 1,210                                       | APXA160ARA220ME61G |
|                       | 820      | JCO       | 656                                    | 10                                 | 5,500                                       | APXA4R0ARA821MJCOG |                       | 22       | F46       | 176                                    | 45                                 | 1,490                                       | APXA160ARA220MF46G |
| 1,200                 | JCO      | 960       | 10                                     | 5,500                              | APXA4R0ARA122MJCOG                          | 33                 |                       | F61      | 105       | 37                                     | 2,050                              | APXA160ARA330MF61G                          |                    |
| 6.3                   | 47       | E61       | 59.2                                   | 35                                 | 1,380                                       | APXA6R3ARA470ME61G |                       | 39       | F61       | 124                                    | 37                                 | 2,050                                       | APXA160ARA390MF61G |
|                       | 68       | F61       | 85.6                                   | 27                                 | 2,400                                       | APXA6R3ARA680MF61G |                       | 82       | H70       | 262                                    | 30                                 | 2,700                                       | APXA160ARA820MH70G |
|                       | 82       | F46       | 258                                    | 40                                 | 1,670                                       | APXA6R3ARA820MF46G |                       | 150      | J80       | 480                                    | 26                                 | 3,430                                       | APXA160ARA151MJ80G |
|                       | 82       | F61       | 103                                    | 27                                 | 2,400                                       | APXA6R3ARA820MF61G |                       | 180      | HCO       | 576                                    | 16                                 | 4,360                                       | APXA160ARA181MHC0G |
|                       | 100      | E61       | 126                                    | 35                                 | 1,380                                       | APXA6R3ARA101ME61G |                       | 180      | J80       | 576                                    | 26                                 | 3,430                                       | APXA160ARA181MJ80G |
|                       | 100      | F46       | 315                                    | 40                                 | 1,670                                       | APXA6R3ARA101MF46G |                       | 220      | JCO       | 704                                    | 14                                 | 5,050                                       | APXA160ARA221MJCOG |
|                       | 100      | F61       | 126                                    | 27                                 | 2,400                                       | APXA6R3ARA101MF61G |                       | 330      | JCO       | 1,050                                  | 14                                 | 5,050                                       | APXA160ARA331MJCOG |
|                       | 120      | F61       | 151                                    | 27                                 | 2,400                                       | APXA6R3ARA121MF61G | 20                    | 15       | F46       | 150                                    | 57                                 | 1,300                                       | APXA200ARA150MF46G |
|                       | 150      | H70       | 189                                    | 25                                 | 3,020                                       | APXA6R3ARA151MH70G |                       | 22       | F61       | 88.0                                   | 50                                 | 1,650                                       | APXA200ARA220MF61G |
|                       | 220      | H70       | 277                                    | 25                                 | 3,020                                       | APXA6R3ARA221MH70G |                       | 39       | H70       | 156                                    | 45                                 | 2,000                                       | APXA200ARA390MH70G |
| 330                   | J80      | 415       | 20                                     | 4,130                              | APXA6R3ARA331MJ80G                          | 47                 |                       | H70      | 188       | 45                                     | 2,000                              | APXA200ARA470MH70G                          |                    |
| 390                   | HCO      | 491       | 12                                     | 4,770                              | APXA6R3ARA391MHC0G                          | 82                 |                       | J80      | 328       | 40                                     | 2,500                              | APXA200ARA820MJ80G                          |                    |
| 470                   | HCO      | 592       | 12                                     | 4,770                              | APXA6R3ARA471MHC0G                          | 150                |                       | JCO      | 600       | 20                                     | 4,320                              | APXA200ARA151MJCOG                          |                    |
| 470                   | J80      | 592       | 20                                     | 4,130                              | APXA6R3ARA471MJ80G                          | 23                 |                       | 15       | F46       | 172                                    | 57                                 | 1,300                                       | APXA230ARA150MF46G |
| 680                   | JCO      | 856       | 10                                     | 5,500                              | APXA6R3ARA681MJCOG                          |                    |                       | 10       | F61       | 125                                    | 65                                 | 1,500                                       | APXA250ARA100MF61G |
| 820                   | JCO      | 1,030     | 10                                     | 5,500                              | APXA6R3ARA821MJCOG                          |                    |                       | 22       | H70       | 275                                    | 50                                 | 1,800                                       | APXA250ARA220MH70G |
| 25                    | 820      | JCO       | 1,030                                  | 10                                 | 5,500                                       | APXA6R3ARA821MJCOG |                       | 39       | J80       | 487                                    | 45                                 | 2,100                                       | APXA250ARA390MJ80G |

### ◆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         |



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
- Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.
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The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products
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In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.

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[Part Numbering System \(Appendix\)](#)

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