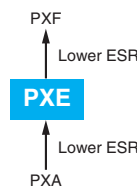


# NPCAP™-PXE Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.  
(ESR and rated ripple current values are improved from PXA series.)
- Rated voltage range : 2.5 to 16V<sub>dc</sub>, Capacitance range : 33 to 2,700μF
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- RoHS Compliant
- Halogen Free



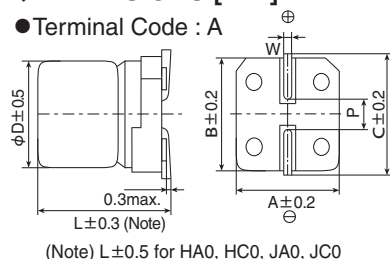
## SPECIFICATIONS

| Items                                                  | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------|--------------------|-----------------------------|-----------|---------------------------------------|-----|---------------------------------------|-----------------|-------------------------------|
| Category                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Temperature Range                                      | -55 to +105°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Rated Voltage Range                                    | 2.5 to 16V <sub>dc</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Capacitance Tolerance                                  | ±20% (M) (at 20°C, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Surge Voltage                                          | Rated voltage × 1.15 (at 105°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Leakage Current                                        | Shall not exceed values shown in STANDARD RATINGS. (at 20°C after 2 minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Dissipation Factor (tanδ)                              | 0.12 max. (at 20°C, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Low Temperature Characteristics (Max. Impedance Ratio) | Z(-25°C)/Z(+20°C) ≤ 1.15<br>Z(-55°C)/Z(+20°C) ≤ 1.25 (at 100kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Endurance                                              | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C. <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td>≤ ±20% of the initial value</td> </tr> <tr> <td>DF (tanδ)</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>ESR</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> </tr> </table>                                                              | Appearance | No significant damage | Capacitance change | ≤ ±20% of the initial value | DF (tanδ) | ≤ 150% of the initial specified value | ESR | ≤ 150% of the initial specified value | Leakage current | ≤ The initial specified value |
| Appearance                                             | No significant damage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Capacitance change                                     | ≤ ±20% of the initial value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| DF (tanδ)                                              | ≤ 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°C after subjecting them to the DC rated voltage at 60°C, 90 to 95% RH for 1,000 hours. <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td>≤ ±20% of the initial value</td> </tr> <tr> <td>DF (tanδ)</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>ESR</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> </tr> </table>                                      | Appearance | No significant damage | Capacitance change | ≤ ±20% of the initial value | DF (tanδ) | ≤ 150% of the initial specified value | ESR | ≤ 150% of the initial specified value | Leakage current | ≤ The initial specified value |
| Appearance                                             | No significant damage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Capacitance change                                     | ≤ ±20% of the initial value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| DF (tanδ)                                              | ≤ 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°C for 30 seconds through a protective resistor (R=1kΩ) and discharge for 5 minutes 30 seconds. <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td>≤ ±20% of the initial value</td> </tr> <tr> <td>DF (tanδ)</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>ESR</td> <td>≤ 150% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> </tr> </table> | Appearance | No significant damage | Capacitance change | ≤ ±20% of the initial value | DF (tanδ) | ≤ 150% of the initial specified value | ESR | ≤ 150% of the initial specified value | Leakage current | ≤ The initial specified value |
| Appearance                                             | No significant damage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Capacitance change                                     | ≤ ±20% of the initial value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| DF (tanδ)                                              | ≤ 150% of the initial specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| ESR                                                    | ≤ 150% of the initial specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Leakage current                                        | ≤ The initial specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |
| Failure Rate                                           | 0.5% per 1,000 hours maximum (Confidence level 60% at 105°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                       |                    |                             |           |                                       |     |                                       |                 |                               |

\*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



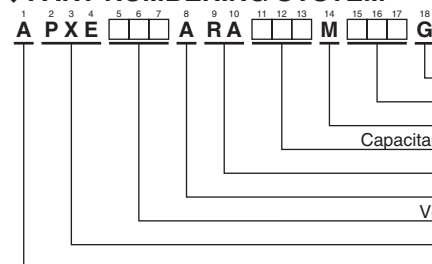
| Size Code | φD  | L    | A    | B    | C    | W          | P   |
|-----------|-----|------|------|------|------|------------|-----|
| E61       | 5   | 5.8  | 5.3  | 5.3  | 5.9  | 0.5 to 0.8 | 1.4 |
| F61       | 6.3 | 5.8  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| F80       | 6.3 | 7.7  | 6.6  | 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 |
| HA0       | 8   | 10.0 | 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 |
| JA0       | 10  | 10.0 | 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) 2.5V390μF



## PART NUMBERING SYSTEM



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

## ◆STANDARD RATINGS

| WV<br>(Vdc) | Cap<br>(μF) | Size<br>code | Leakage current<br>(μAmax/after 2min.) | ESR<br>(mΩmax/20°C, 100k to 300kHz) | Rated ripple current<br>(mA <sub>rms</sub> /105°C, 100kHz) | Part No.           |
|-------------|-------------|--------------|----------------------------------------|-------------------------------------|------------------------------------------------------------|--------------------|
| 2.5         | 180         | E61          | 90.0                                   | 21                                  | 2,670                                                      | APXE2R5ARA181ME61G |
|             | 390         | F61          | 195                                    | 15                                  | 3,160                                                      | APXE2R5ARA391MF61G |
|             | 470         | F80          | 235                                    | 13                                  | 3,600                                                      | APXE2R5ARA471MF80G |
|             | 560         | F80          | 280                                    | 13                                  | 3,600                                                      | APXE2R5ARA561MF80G |
|             | 560         | H70          | 280                                    | 13                                  | 4,100                                                      | APXE2R5ARA561MH70G |
|             | 680         | H70          | 340                                    | 13                                  | 4,100                                                      | APXE2R5ARA681MH70G |
|             | 820         | H80          | 410                                    | 12                                  | 4,260                                                      | APXE2R5ARA821MH80G |
|             | 820         | HC0          | 410                                    | 9                                   | 5,400                                                      | APXE2R5ARA821MHC0G |
|             | 1,000       | H80          | 500                                    | 12                                  | 4,260                                                      | APXE2R5ARA102MH80G |
|             | 1,200       | J80          | 600                                    | 13                                  | 4,450                                                      | APXE2R5ARA122MJ80G |
|             | 1,500       | HA0          | 750                                    | 10                                  | 5,220                                                      | APXE2R5ARA152MHA0G |
|             | 1,500       | HC0          | 750                                    | 9                                   | 5,400                                                      | APXE2R5ARA152MHC0G |
| 4           | 2,200       | JA0          | 1,100                                  | 10                                  | 5,500                                                      | APXE2R5ARA222MJA0G |
|             | 2,700       | JC0          | 1,350                                  | 9                                   | 5,600                                                      | APXE2R5ARA272MJC0G |
|             | 100         | E61          | 80.0                                   | 22                                  | 2,610                                                      | APXE4R0ARA101ME61G |
|             | 150         | E61          | 120                                    | 22                                  | 2,610                                                      | APXE4R0ARA151ME61G |
|             | 270         | F61          | 216                                    | 15                                  | 3,160                                                      | APXE4R0ARA271MF61G |
|             | 330         | F61          | 264                                    | 15                                  | 3,160                                                      | APXE4R0ARA331MF61G |
|             | 390         | F80          | 312                                    | 14                                  | 3,470                                                      | APXE4R0ARA391MF80G |
|             | 470         | H70          | 376                                    | 14                                  | 3,950                                                      | APXE4R0ARA471MH70G |
|             | 560         | H70          | 448                                    | 14                                  | 3,950                                                      | APXE4R0ARA561MH70G |
|             | 680         | H80          | 544                                    | 13                                  | 3,950                                                      | APXE4R0ARA681MH80G |
|             | 1,000       | HA0          | 800                                    | 10                                  | 5,220                                                      | APXE4R0ARA102MHA0G |
|             | 1,000       | J80          | 800                                    | 14                                  | 4,300                                                      | APXE4R0ARA102MJ80G |
| 6.3         | 1,200       | HC0          | 960                                    | 9                                   | 5,400                                                      | APXE4R0ARA122MHC0G |
|             | 1,200       | JA0          | 960                                    | 10                                  | 5,500                                                      | APXE4R0ARA122MJA0G |
|             | 1,500       | JA0          | 1,200                                  | 10                                  | 5,500                                                      | APXE4R0ARA152MJA0G |
|             | 1,800       | JA0          | 1,440                                  | 10                                  | 5,500                                                      | APXE4R0ARA182MJA0G |
|             | 1,800       | JC0          | 1,440                                  | 9                                   | 5,600                                                      | APXE4R0ARA182MJC0G |
|             | 100         | E61          | 126                                    | 24                                  | 2,500                                                      | APXE6R3ARA101ME61G |
|             | 120         | E61          | 151                                    | 24                                  | 2,500                                                      | APXE6R3ARA121ME61G |
|             | 220         | F61          | 277                                    | 15                                  | 3,160                                                      | APXE6R3ARA221MF61G |
|             | 270         | F80          | 340                                    | 14                                  | 3,470                                                      | APXE6R3ARA271MF80G |
|             | 330         | F80          | 415                                    | 14                                  | 3,470                                                      | APXE6R3ARA331MF80G |
|             | 330         | H70          | 415                                    | 14                                  | 3,950                                                      | APXE6R3ARA331MH70G |
|             | 390         | H70          | 491                                    | 14                                  | 3,950                                                      | APXE6R3ARA391MH70G |
| 10          | 470         | H80          | 592                                    | 13                                  | 3,950                                                      | APXE6R3ARA471MH80G |
|             | 820         | HA0          | 1,030                                  | 12                                  | 4,770                                                      | APXE6R3ARA821MHA0G |
|             | 820         | HC0          | 1,030                                  | 10                                  | 5,150                                                      | APXE6R3ARA821MHC0G |
|             | 820         | J80          | 1,030                                  | 14                                  | 4,300                                                      | APXE6R3ARA821MJ80G |
|             | 1,200       | JA0          | 1,510                                  | 12                                  | 5,025                                                      | APXE6R3ARA122MJA0G |
|             | 1,500       | JA0          | 1,890                                  | 12                                  | 5,025                                                      | APXE6R3ARA152MJA0G |
|             | 1,500       | JC0          | 1,890                                  | 10                                  | 5,500                                                      | APXE6R3ARA152MJC0G |
|             | 47          | E61          | 94.0                                   | 28                                  | 2,310                                                      | APXE100ARA470ME61G |
|             | 56          | E61          | 112                                    | 28                                  | 2,310                                                      | APXE100ARA560ME61G |
|             | 68          | E61          | 136                                    | 28                                  | 2,310                                                      | APXE100ARA680ME61G |
|             | 120         | F61          | 240                                    | 25                                  | 2,530                                                      | APXE100ARA121MF61G |
|             | 150         | F80          | 300                                    | 21                                  | 2,880                                                      | APXE100ARA151MF80G |
| 16          | 220         | H70          | 440                                    | 21                                  | 3,220                                                      | APXE100ARA221MH70G |
|             | 270         | H70          | 540                                    | 21                                  | 3,220                                                      | APXE100ARA271MH70G |
|             | 330         | H80          | 660                                    | 19                                  | 3,390                                                      | APXE100ARA331MH80G |
|             | 390         | HA0          | 780                                    | 17                                  | 4,000                                                      | APXE100ARA391MHA0G |
|             | 470         | J80          | 940                                    | 19                                  | 3,800                                                      | APXE100ARA471MJ80G |
|             | 680         | JA0          | 1,360                                  | 13                                  | 4,820                                                      | APXE100ARA681MJA0G |
|             | 33          | E61          | 105                                    | 35                                  | 2,070                                                      | APXE160ARA330ME61G |
|             | 39          | E61          | 124                                    | 35                                  | 2,070                                                      | APXE160ARA390ME61G |
|             | 68          | F61          | 217                                    | 28                                  | 2,390                                                      | APXE160ARA680MF61G |
|             | 82          | F80          | 262                                    | 24                                  | 2,700                                                      | APXE160ARA820MF80G |
|             | 100         | F80          | 320                                    | 24                                  | 2,700                                                      | APXE160ARA101MF80G |
|             | 100         | H70          | 320                                    | 24                                  | 3,010                                                      | APXE160ARA101MH70G |
| 16          | 120         | H70          | 384                                    | 24                                  | 3,010                                                      | APXE160ARA121MH70G |
|             | 150         | H80          | 480                                    | 22                                  | 3,150                                                      | APXE160ARA151MH80G |
|             | 180         | HA0          | 576                                    | 18                                  | 3,890                                                      | APXE160ARA181MHA0G |
|             | 220         | HA0          | 704                                    | 18                                  | 3,890                                                      | APXE160ARA221MHA0G |
|             | 220         | J80          | 704                                    | 22                                  | 3,450                                                      | APXE160ARA221MJ80G |
|             | 330         | JA0          | 1,050                                  | 16                                  | 4,350                                                      | APXE160ARA331MJA0G |