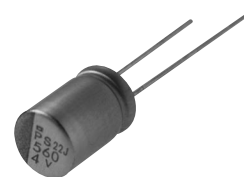
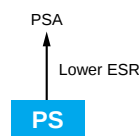


# NPCAP™-PS Series

- Super low ESR, high temperature resistance
- Large capacitance & Improved high ripple current capability
- Rated voltage range : 2.5 to 35V<sub>dc</sub>
- Endurance : 2,000 hours at 105°C
- Suitable for DC-DC converters, voltage regulators and decoupling applications  
For computer motherboards
- RoHS Compliant



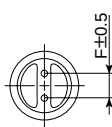
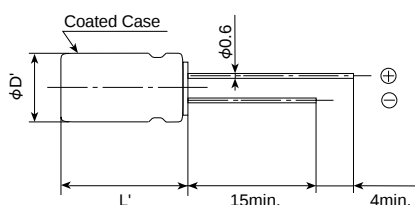
## ◆SPECIFICATIONS

| Items                                                  | Characteristics                                                                                                                                                                                                                                                                                                                                                               |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------|--------------------|----------------------------|-------------|--------------------------------------|-----|--------------------------------------|-----------------|------------------------------|
| Category                                               |                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Temperature Range                                      | -55 to +105°C                                                                                                                                                                                                                                                                                                                                                                 |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Rated Voltage Range                                    | 2.5 to 35V <sub>dc</sub>                                                                                                                                                                                                                                                                                                                                                      |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Capacitance Tolerance                                  | ±20% (M) (at 20°C, 120Hz)                                                                                                                                                                                                                                                                                                                                                     |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Surge Voltage                                          | Rated voltage×1.15 (at 105°C)                                                                                                                                                                                                                                                                                                                                                 |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Leakage Current                                        | I=0.2CV (Rated voltage 2.5 to 25V <sub>dc</sub> ) / I=0.5CV (Rated voltage 35V <sub>dc</sub> )                                                                                                                                                                                                                                                                                |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| *Note                                                  | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V <sub>dc</sub> ) (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> <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>D.F. (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 | D.F. (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                                                                                                                                                                                                                                                                                                                                                    |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| D.F. (tanδ)                                            | ≤150% of the initial specified value                                                                                                                                                                                                                                                                                                                                          |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| ESR                                                    | ≤150% of the initial specified value                                                                                                                                                                                                                                                                                                                                          |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Leakage current                                        | ≤The initial specified value                                                                                                                                                                                                                                                                                                                                                  |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Bias Humidity Test                                     | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to DC voltage at 60°C, 90 to 95% RH for 1,000 hours.                                                                                                                                                                                                           |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
|                                                        | <table> <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>D.F. (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 | D.F. (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                                                                                                                                                                                                                                                                                                                                                    |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| D.F. (tanδ)                                            | ≤150% of the initial specified value                                                                                                                                                                                                                                                                                                                                          |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| ESR                                                    | ≤150% of the initial specified value                                                                                                                                                                                                                                                                                                                                          |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Leakage current                                        | ≤The initial specified value                                                                                                                                                                                                                                                                                                                                                  |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| Surge Voltage Test                                     | 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> <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>D.F. (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 | D.F. (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                                                                                                                                                                                                                                                                                                                                                    |            |                       |                    |                            |             |                                      |     |                                      |                 |                              |
| D.F. (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 : E



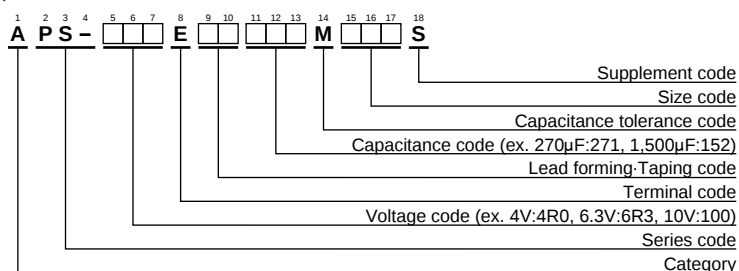
| Size code | HB5        | JC5 |
|-----------|------------|-----|
| φD        | 8          | 10  |
| φd        | 0.6        |     |
| F         | 3.5        | 5.0 |
| φD'       | φD+0.5max. |     |
| L'        | L+1.5max.  |     |

## ◆MARKING

EX) 4V820μF



# ◆PART NUMBERING SYSTEM



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

# ◆STANDARD RATINGS

| WV(Vdc) | Cap(μF) | Case size<br>φD×L(mm) | ESR<br>(mΩmax/20°C, 100k to 300kHz) | Rated ripple current<br>(mArms/105°C, 100kHz) | Part No.           |
|---------|---------|-----------------------|-------------------------------------|-----------------------------------------------|--------------------|
| 2.5     | 680     | 8 ×11.5               | 10                                  | 5,230                                         | APS-2R5E□□681MHB5S |
|         | 820     | 8 ×11.5               | 10                                  | 5,230                                         | APS-2R5E□□821MHB5S |
|         | 1500    | 10 ×12.5              | 8                                   | 5,500                                         | APS-2R5E□□152MJC5S |
| 4       | 560     | 8 ×11.5               | 10                                  | 5,230                                         | APS-4R0E□□561MHB5S |
|         | 820     | 10 ×12.5              | 8                                   | 5,500                                         | APS-4R0E□□821MJC5S |
|         | 1000    | 10 ×12.5              | 8                                   | 5,500                                         | APS-4R0E□□102MJC5S |
|         | 1200    | 10 ×12.5              | 8                                   | 5,500                                         | APS-4R0E□□122MJC5S |
| 6.3     | 390     | 8 ×11.5               | 12                                  | 4,770                                         | APS-6R3E□□391MHB5S |
|         | 470     | 8 ×11.5               | 12                                  | 4,770                                         | APS-6R3E□□471MHB5S |
|         | 680     | 10 ×12.5              | 10                                  | 5,500                                         | APS-6R3E□□681MJC5S |
|         | 820     | 10 ×12.5              | 10                                  | 5,500                                         | APS-6R3E□□821MJC5S |
|         | 1000    | 10 ×12.5              | 10                                  | 5,500                                         | APS-6R3E□□102MJC5S |
| 10      | 270     | 8 ×11.5               | 14                                  | 4,420                                         | APS-100E□□271MHB5S |
|         | 330     | 8 ×11.5               | 14                                  | 4,420                                         | APS-100E□□331MHB5S |
|         | 470     | 10 ×12.5              | 12                                  | 5,300                                         | APS-100E□□471MJC5S |
|         | 560     | 10 ×12.5              | 12                                  | 5,300                                         | APS-100E□□561MJC5S |
| 16      | 100     | 8 ×11.5               | 16                                  | 4,360                                         | APS-160E□□101MHB5S |
|         | 180     | 8 ×11.5               | 16                                  | 4,360                                         | APS-160E□□181MHB5S |
|         | 270     | 10 ×12.5              | 14                                  | 5,050                                         | APS-160E□□271MJC5S |
|         | 330     | 10 ×12.5              | 14                                  | 5,050                                         | APS-160E□□331MJC5S |
| 20      | 100     | 8 ×11.5               | 24                                  | 3,320                                         | APS-200E□□101MHB5S |
|         | 150     | 10 ×12.5              | 20                                  | 4,320                                         | APS-200E□□151MJC5S |
| 25      | 68      | 8 ×11.5               | 24                                  | 3,320                                         | APS-250E□□680MHB5S |
|         | 100     | 10 ×12.5              | 20                                  | 4,320                                         | APS-250E□□101MJC5S |
| 35      | 18      | 8 ×11.5               | 34                                  | 2,830                                         | APS-350E□□180MHB5S |
|         | 33      | 10 ×12.5              | 30                                  | 3,270                                         | APS-350E□□330MJC5S |

□□ : Enter the appropriate lead forming or taping code.

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