

# NPCAP™-PSG Series

- Super low ESR, high ripple current capability
- Endurance: 15,000 to 20,000 hours at 105°C
- Rated voltage : 16 to 35V<sub>dc</sub>
- RoHS2 Compliant
- Halogen Free

PSG

Downsized

PSF



## SPECIFICATIONS

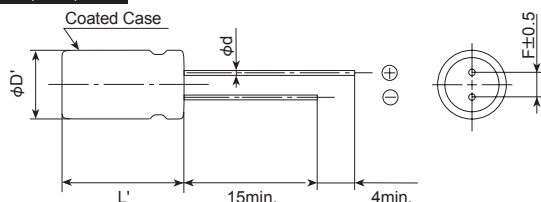
| Items                                                 | Characteristics                                                                                                                                                                                                  |  |                                       |    |    |    |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------|----|----|----|
| Category                                              | -55 to +105℃                                                                                                                                                                                                     |  |                                       |    |    |    |
| Temperature Range                                     |                                                                                                                                                                                                                  |  |                                       |    |    |    |
| Rated Voltage                                         | 16 to 35V <sub>dc</sub>                                                                                                                                                                                          |  |                                       |    |    |    |
| Capacitance Tolerance                                 | ± 20% (M) (at 20℃, 120Hz)                                                                                                                                                                                        |  |                                       |    |    |    |
| Leakage Current                                       | I=0.2CV or 500μA, whichever is greater                                                                                                                                                                           |  |                                       |    |    |    |
| *Note                                                 | Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (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 20,000 hours (20 to 35V : 15,000 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 Test                                    | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.                                                |  |                                       |    |    |    |
|                                                       | Appearance                                                                                                                                                                                                       |  | No significant damage                 |    |    |    |
|                                                       | Capacitance change                                                                                                                                                                                               |  | ≤ ±20% of the initial value           |    |    |    |
|                                                       | D.F. (tan δ )                                                                                                                                                                                                    |  | ≤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℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. |  |                                       |    |    |    |
|                                                       | Rated voltage (V <sub>dc</sub> )                                                                                                                                                                                 |  | 16                                    | 20 | 25 | 35 |
|                                                       | Surge voltage (V <sub>dc</sub> )                                                                                                                                                                                 |  | 18                                    | 23 | 29 | 40 |
|                                                       |                                                                                                                                                                                                                  |  |                                       |    |    |    |
|                                                       | Appearance                                                                                                                                                                                                       |  | No significant damage                 |    |    |    |
|                                                       | Capacitance change                                                                                                                                                                                               |  | ≤ ±20% of the initial value           |    |    |    |
|                                                       | D.F. (tan δ )                                                                                                                                                                                                    |  | ≤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℃)                                                                                                                                                      |  |                                       |    |    |    |

\*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.

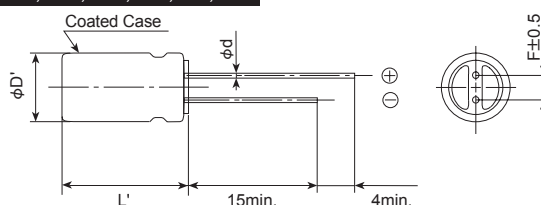
## DIMENSIONS [mm]

● Terminal Code : E

F05,F08,H08



HB5,H16,H20,JB5,J16,J20



| Size code | F05               | F08 | H08 | HB5       | H16 | H20 | JB5        | J16 | J20 |
|-----------|-------------------|-----|-----|-----------|-----|-----|------------|-----|-----|
| φD        | 6.3               |     |     | 8.0       |     |     | 10.0       |     |     |
| φd        | 0.45              |     |     | 0.6       |     |     |            |     |     |
| F         | 2.5               |     |     | 3.5       |     |     | 5.0        |     |     |
| φD'       |                   |     |     |           |     |     | φD+0.5max. |     |     |
| L'        | L+1.0max. (Note1) |     |     | L+1.5max. |     |     |            |     |     |

Note1 : L+1.2 max. for 16V270μF (Rated ripple current 5,080mArms).

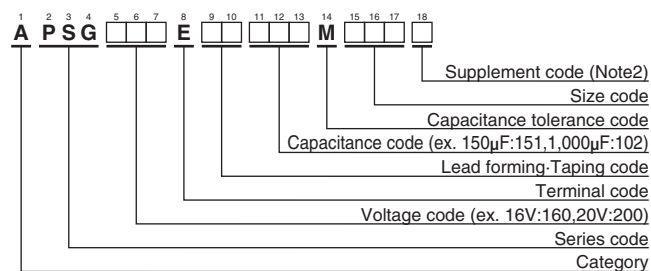
## MARKING

EX) 16V150μF



## NPCAP™-PSG Series

### ◆PART NUMBERING SYSTEM



(Note2) : PSG series, 16V270μF (Rated ripple current 5,080mArms) ,16V470μF (Rated ripple current 5,400mArms) ,16V560μF (Rated ripple current 6,100mArms) have supplement code "J". Terminal and terminal plating are the same as all other in PSG series.

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

### ◆STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Case size<br>φD×L (mm) | ESR<br>(mΩ max./20°C, 100k to 300kHz) | Rated ripple current<br>(mArms/105°C, 100kHz) | Part No.           |
|--------------------------|-------------|------------------------|---------------------------------------|-----------------------------------------------|--------------------|
| 16                       | 150         | 6.3×5                  | 20                                    | 3,200                                         | APSG160E□□151MF05S |
|                          | 270         | 6.3×8                  | 10                                    | 5,080                                         | APSG160E□□271MF08J |
|                          | 270         | 6.3×8                  | 15                                    | 3,800                                         | APSG160E□□271MF08S |
|                          | 470         | 8×8                    | 8                                     | 5,400                                         | APSG160E□□471MH08J |
|                          | 470         | 8×8                    | 16                                    | 4,000                                         | APSG160E□□471MH08S |
|                          | 560         | 8×11.5                 | 8                                     | 6,100                                         | APSG160E□□561MHB5J |
|                          | 560         | 8×11.5                 | 14                                    | 4,970                                         | APSG160E□□561MHB5S |
|                          | 820         | 8×16                   | 8                                     | 7,000                                         | APSG160E□□821MH16S |
|                          | 820         | 10×11.5                | 12                                    | 5,400                                         | APSG160E□□821MJB5S |
|                          | 1,000       | 8×20                   | 8                                     | 7,500                                         | APSG160E□□102MH20S |
|                          | 1,000       | 10×11.5                | 12                                    | 5,400                                         | APSG160E□□102MJB5S |
|                          | 1,200       | 8×20                   | 8                                     | 7,500                                         | APSG160E□□122MH20S |
|                          | 1,500       | 10×16                  | 8                                     | 7,700                                         | APSG160E□□152MJ16S |
|                          | 1,800       | 10×20                  | 8                                     | 8,100                                         | APSG160E□□182MJ20S |
| 20                       | 2,200       | 10×20                  | 8                                     | 8,100                                         | APSG160E□□222MJ20S |
|                          | 120         | 6.3×5                  | 20                                    | 3,200                                         | APSG200E□□121MF05S |
|                          | 180         | 6.3×8                  | 18                                    | 3,460                                         | APSG200E□□181MF08S |
|                          | 330         | 8×8                    | 17                                    | 3,880                                         | APSG200E□□331MH08S |
|                          | 390         | 8×11.5                 | 14                                    | 4,970                                         | APSG200E□□391MHB5S |
| 25                       | 680         | 10×11.5                | 12                                    | 5,400                                         | APSG200E□□681MJB5S |
|                          | 56          | 6.3×5                  | 30                                    | 2,600                                         | APSG250E□□560MF05S |
|                          | 82          | 6.3×8                  | 28                                    | 2,780                                         | APSG250E□□820MF08S |
|                          | 100         | 6.3×8                  | 28                                    | 2,780                                         | APSG250E□□101MF08S |
|                          | 120         | 6.3×8                  | 28                                    | 2,780                                         | APSG250E□□121MF08S |
|                          | 180         | 8×8                    | 18                                    | 3,770                                         | APSG250E□□181MH08S |
|                          | 180         | 8×11.5                 | 16                                    | 4,650                                         | APSG250E□□181MHB5S |
|                          | 220         | 8×8                    | 18                                    | 3,770                                         | APSG250E□□221MH08S |
|                          | 220         | 8×11.5                 | 16                                    | 4,650                                         | APSG250E□□221MHB5S |
|                          | 270         | 8×11.5                 | 16                                    | 4,650                                         | APSG250E□□271MHB5S |
|                          | 330         | 8×11.5                 | 16                                    | 4,650                                         | APSG250E□□331MHB5S |
|                          | 330         | 10×11.5                | 14                                    | 5,000                                         | APSG250E□□331MJB5S |
|                          | 390         | 10×11.5                | 14                                    | 5,000                                         | APSG250E□□391MJB5S |
|                          | 470         | 10×11.5                | 14                                    | 5,000                                         | APSG250E□□471MJB5S |
| 35                       | 560         | 10×11.5                | 14                                    | 5,000                                         | APSG250E□□561MJB5S |
|                          | 68          | 8×11.5                 | 18                                    | 4,380                                         | APSG350E□□680MHB5S |
|                          | 120         | 10×11.5                | 16                                    | 4,670                                         | APSG350E□□121MJB5S |

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

### ◆RATED RIPPLE CURRENT MULTIPLIERS

#### ● Frequency Multipliers

| Frequency (Hz)   | 120  | 1k   | 10k  | 50k  | 100k to 500k |
|------------------|------|------|------|------|--------------|
| Radial lead type | 0.10 | 0.35 | 0.60 | 0.80 | 1.00         |

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105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

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