# Super Capacitor Thin Type HP Series

## Features

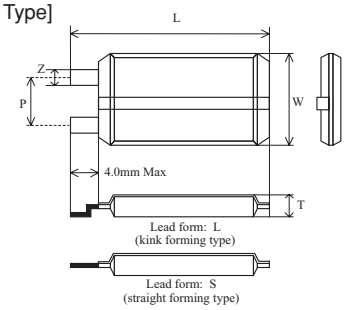
- More smaller square size than conventional ED/L series
- Low ESR
- Capable of current discharge in the order of amperes (A)
- Excellent low temperature features (can be used at -25˚C)
- Thin shape
- Environmentally safe

## Applications

- Assistance for peak current demand of mobile systems
- Smoothing voltage fluctuation as a smoothing capacitor in circuit with large current fluctuation

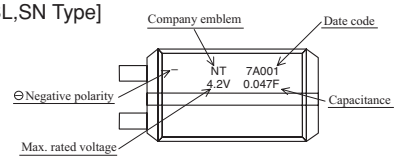
## Dimensions

[SL,SN Type]

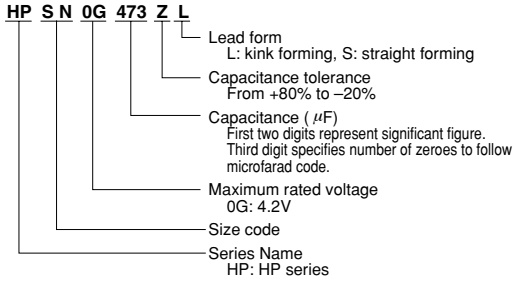



## Markings

[SL,SN Type]




## Part Number System




## Standard Rating

| Part Number | Max. Operating Voltage (Vdc) | Nominal Capacitance (F) | Max. ESR (at 1kHz) (mΩ) | Size code | L Max. (mm) | W Max. (mm) | T Max. (mm) | Z (mm) | P (mm) |
|---|---|---|---|---|---|---|---|---|---|
| HPSL0G223Z( ) | 4.2 | 0.022 | 300 | SL | 34 | 14 | 2.3 | 2.5 | 7.5±0.5 |
| HPSN0G473Z( ) | 4.2 | 0.047 | 200 | SN | 42.5 | 17 | 2.3 | 3.0 | 10±0.5 |

( ) : Lead form





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# Specifications: HP Series

| Item | | Specification | | Test Condition (Refer to EIAJ RC-2377) |
|---|---|---|---|---|
| Operating Temperature Range | | –25°C to +70˚C | | |
| Maximum Operating Voltage | | Refer to standard ratings | | |
| Capacitance | | Refer to standard ratings | | Refer to characteristics measuring method |
| Capacitance Allowance | | +80%, –20% | | |
| ESR | | Refer to standard ratings | | Impedance method (at 1kHz) |
| DC Leakage Current | | 5mA or less | | Maximum Rated Voltage, R=100Ω, 5minute |
| Lead Strength (Tensile) | | No loosening nor permanent damage of the leads | | Refer to "JIS C 5101-14.13" |
| Surge Voltage | | Capacitance | Initial requirement | Temp: 70±2˚C<br>Voltage: 4.7V<br>Charge: 30 sec.<br>Discharge: 330 sec. 1000 cycles. |
| | | ESR | Shall not exceed 120% of initial requirements | |
| | | LC | Initial requirement | |
| | | Visual | There shall be no evidence of mechanical damage | |
| Vibration Resistance | | Capacitance | Initial requirement | Frequency: 10 to 55 Hz<br>Amplitude of vibration: 0.75mm<br>2 hr each in three directions |
| | | ESR | | |
| | | LC | | |
| | | Visual | There shall be no evidence of mechanical damage | |
| Soldering Heat Resistance | | Capacitance | Initial requirement | Using soldering iron<br>Iron temperature 320˚C Max, Time 3 sec. Max.<br>Iron power 30 W Max.<br>(Attach at a point 2mm from the tip of the terminal) |
| | | ESR | | |
| | | LC | | |
| | | Visual | There shall be no evidence of mechanical damage | |
| Solderbility | | Over 75% of the terminal surface shall be covered by a continuous new solder coating after immersion | | Refer to JIS C 5101-14.15<br>Solder temp.: 230±5˚C<br>Immersion time: 5±0.5 sec.<br>Solder immersion: 1.5mm |
| Temperature Variation of Characteristics | Step 2 | Capacitance | Shall be exceed 50% of initial requirement | Measurements shall be made at each of the temperatures specified above after the capacitor has reached thermal stability<br>Step 1: +20±2˚C<br>Step 2: –25±2˚C<br>Step 3: +20±2˚C<br>Step 4: +70±2˚C<br>Step 5: +20±2˚C<br>*) Thermal stability<br>The condition of thermal stability is judged to be reached when two readings of ESR taken at an interval of not less than 5 min do not differ by an amount greater than which can be attributed to the measuring apparatus. |
| | | ESR | Shall not be exceed 500% of initial requirement | |
| | | LC | Initial requirement | |
| | Step 4 | Capacitance | Shall not be exceed 200% of initial requirement | |
| | | ESR | Initial requirement | |
| | | LC | | |
| | Step 5 | Capacitance | Initial requirement | |
| | | ESR | | |
| | | LC | | |
| Humidity Resistance | | Capacitance | Within ±30% of initial requirement | Refer to JIS C 5101-14.22<br>Temperature: 40±2˚C, Moisture: 90 to 95% R.H.<br>Duration: 500(–0 to +24)hr,<br>The specimen shall then remain under standard atmospheric condition for recovery for a period adequate for the attainment of temperature stability, with 12 to 24hr. |
| | | ESR | Shall not exceed 300% of initial requirement | |
| | | LC | Initial requirement | |
| | | Visual | There shall be no evidence of mechanical damage | |
| High Temperature Load | | Capacitance | Within ±30% of initial requirement | Refer to JIS C 5101-14.23<br>Temperature: 70±2˚C, Duration: 1000 (–0 to +48) hr,<br>Max. operating voltage applied<br>The specimen shall then remain under standard atmospheric condition for recovery for a period adequate for the attainment of temperature stability, with 12 to 24hr. |
| | | ESR | Shall not exceed 300% of initial requirements | |
| | | LC | Initial requirement | |
| | | Visual | There shall be no evidence of mechanical damage | |
| Temperature Cycle | | Capacitance | Initial requirement | Refer to JIS C 5101-14.16<br>Temperature: –25 to 70˚C |
| | | ESR | | |
| | | LC | | |
| | | Visual | There shall be no evidence of mechanical damage | |

| Step | Temp. | Time |
|---|---|---|
| 1 | –25˚C | 30±3 min. |
| 2 | Room Temp. | 3min. Max. |
| 3 | +70˚C | 30±3 min. |
| 4 | Room Temp. | 3min. Max. |





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