

# CONDUCTIVE POLYMER ALUMINUM SOLID ELECTROLYTIC CAPACITORS

nichicon

**CG** series Chip Type, Higher Capacitance



For SMD



Low Impedance



For High Frequency



Anti-Solvent Feature

**NEW**

- Higher Capacitance, Low ESR, High ripple current.
- Load life of 2000 hours at 105°C.
- SMD type : Lead free reflow soldering condition at 260°C peak correspondence.
- Adapted to the RoHS directive (2002/95/EC).

**CG**

Higher Capacitance  
**CF**



## Specifications

| Item                                           | Performance Characteristics                                                                                                                                                                                                                                                                                                                                                                             |                      |                                             |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------|
| Category Temperature Range                     | -55 to +105°C                                                                                                                                                                                                                                                                                                                                                                                           |                      |                                             |
| Rated Voltage Range                            | 2.5 to 16V                                                                                                                                                                                                                                                                                                                                                                                              |                      |                                             |
| Rated Capacitance Range                        | 47 to 3300μF                                                                                                                                                                                                                                                                                                                                                                                            |                      |                                             |
| Capacitance Tolerance                          | ± 20% at 120Hz, 20°C                                                                                                                                                                                                                                                                                                                                                                                    |                      |                                             |
| tan δ                                          | Not more than value of Standard ratings at 120Hz, 20°C                                                                                                                                                                                                                                                                                                                                                  |                      |                                             |
| ESR (*1)                                       | Not more than value of Standard ratings at 100kHz, 20°C                                                                                                                                                                                                                                                                                                                                                 |                      |                                             |
| Leakage Current (*2)                           | Not more than value of Standard ratings. After 2 minute's application of rated voltage. 20°C                                                                                                                                                                                                                                                                                                            |                      |                                             |
| Characteristics of Temperature Impedance Ratio | $Z+105^{\circ}\text{C} / Z+20^{\circ}\text{C} \leq 1.25$ (100kHz)<br>$Z-55^{\circ}\text{C} / Z+20^{\circ}\text{C} \leq 1.25$                                                                                                                                                                                                                                                                            |                      |                                             |
| Endurance                                      | After 2000 hours' application of rated voltage at 105°C, capacitors meet the specified value for life characteristics listed at right.                                                                                                                                                                                                                                                                  | Capacitance change   | Within ± 20% of initial value (*3)          |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | tan δ                | 150% or less of the initial specified value |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | ESR (*1)             | 150% or less of the initial specified value |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | Leakage current (*2) | Initial specified value or less             |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                             |
| Damp Heat                                      | After 1000 hours' application of rated voltage at 60°C 90%RH, capacitors meet the specified value for life characteristics listed at right.                                                                                                                                                                                                                                                             | Capacitance change   | Within ± 20% of initial value (*3)          |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | tan δ                | 150% or less of the initial specified value |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | ESR (*1)             | 150% or less of the initial specified value |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | Leakage current (*2) | Initial specified value or less             |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                             |
| Resistance to Soldering Heat                   | To comply with recommended conditions for reflow soldering. Pre-heating shall be done at 150 to 200°C and for 60 to 180 sec.<br>In the case of peak temp, less than 250°C, reflow soldering shall be within two times.<br>In the case of peak temp, less than 260°C, reflow soldering shall be once.<br>Measurement for solder temperature profile shall be made at the capacitor top and the terminal. | Capacitance change   | Within ± 10% of initial value (*3)          |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | tan δ                | 130% or less of the initial specified value |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | ESR (*1)             | 130% or less of the initial specified value |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         | Leakage current (*2) | Initial specified value or less             |
|                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                             |
| Marking                                        | Navy blue print on the case top.                                                                                                                                                                                                                                                                                                                                                                        |                      |                                             |

\*1 ESR measurements should be made at a point on the terminal nearest where the terminals protrude through the plastic platform.

\*2 Conditioning : If there is doubt about the measured result, measurement should be made again after the rated voltage is applied for 120 minutes at the temperature of 105°C.

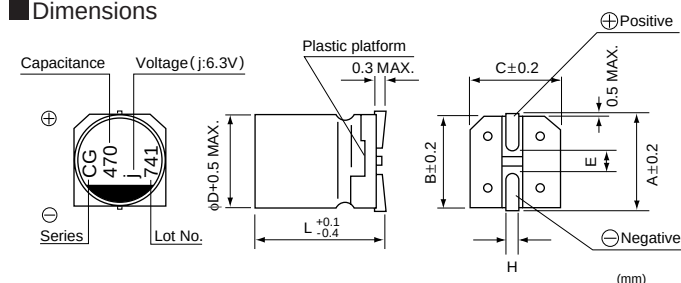
\*3 Initial value : The value before test of examination of resistance to soldering.

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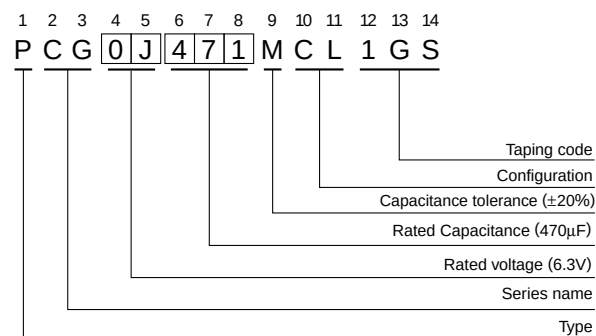
**CG** series

## ■ Dimensions



| Size     | $\phi 5 \times 6L$ | $\phi 6.3 \times 6L$ | $\phi 8 \times 7L$ | $\phi 10 \times 8L$ | $\phi 10 \times 10L$ | $\phi 10 \times 12.7L$ |
|----------|--------------------|----------------------|--------------------|---------------------|----------------------|------------------------|
| $\phi D$ | 5.0                | 6.3                  | 8.0                | 10.0                | 10.0                 | 10.0                   |
| L        | 5.9                | 5.9                  | 6.9                | 7.9                 | 9.9                  | 12.6                   |
| A        | 6.0                | 7.3                  | 9.0                | 11.0                | 11.0                 | 11.0                   |
| B        | 5.3                | 6.6                  | 8.3                | 10.3                | 10.3                 | 10.3                   |
| C        | 5.3                | 6.6                  | 8.3                | 10.3                | 10.3                 | 10.3                   |
| E        | 1.2                | 2.1                  | 3.2                | 4.6                 | 4.6                  | 4.6                    |
| H        | 0.5 ~ 0.8          | 0.5 ~ 0.8            | 0.8 ~ 1.1          | 0.8 ~ 1.1           | 0.8 ~ 1.1            | 0.8 ~ 1.1              |

Type numbering system (Example : 6.3V 470 $\mu$ F)



## Voltage

| V    | 2.5 | 4 | 6.3 | 10 | 16 |
|------|-----|---|-----|----|----|
| Code | e   | g | j   | A  | C  |

## ■ Standard ratings

| Rated Voltage (V)<br>Code | Surge Voltage (V) | Rated Capacitance ( $\mu$ F) | Case Size<br>$\phi D \times L$<br>(mm) | $\tan \delta$ | Leakage Current ( $\mu$ A) | ESR (m $\Omega$ )<br>(20°C / 100kHz) | Rated ripple (mA <sub>rms</sub> )<br>(105°C / 100kHz) | Code           |
|---------------------------|-------------------|------------------------------|----------------------------------------|---------------|----------------------------|--------------------------------------|-------------------------------------------------------|----------------|
| 2.5<br>(0E)               | 2.8               | 220                          | 5 × 6                                  | 0.12          | 110                        | 30                                   | 2100                                                  | PCG0E221MCL1GS |
|                           |                   | 470                          | 6.3 × 6                                | 0.12          | 235                        | 20                                   | 2900                                                  | PCG0E471MCL1GS |
|                           |                   | 560                          | 6.3 × 6                                | 0.12          | 280                        | 20                                   | 3000                                                  | PCG0E561MCL1GS |
|                           |                   | 820                          | 8 × 7                                  | 0.12          | 410                        | 20                                   | 3300                                                  | PCG0E821MCL1GS |
|                           |                   | 1500                         | 10 × 8                                 | 0.12          | 750                        | 17                                   | 4100                                                  | PCG0E152MCL1GS |
|                           |                   | 2700                         | 10 × 10                                | 0.12          | 1350                       | 12                                   | 4700                                                  | PCG0E272MCL1GS |
| 4<br>(0G)                 | 4.6               | 3300                         | 10 × 12.7                              | 0.12          | 1650                       | 10                                   | 5500                                                  | PCG0E332MCL1GS |
|                           |                   | 180                          | 5 × 6                                  | 0.12          | 144                        | 32                                   | 1900                                                  | PCG0G181MCL1GS |
|                           |                   | 390                          | 6.3 × 6                                | 0.12          | 312                        | 22                                   | 2700                                                  | PCG0G391MCL1GS |
|                           |                   | 680                          | 8 × 7                                  | 0.12          | 544                        | 21                                   | 3200                                                  | PCG0G681MCL1GS |
|                           |                   | 1200                         | 10 × 8                                 | 0.12          | 960                        | 17                                   | 4000                                                  | PCG0G122MCL1GS |
|                           |                   | 2200                         | 10 × 10                                | 0.12          | 1760                       | 13                                   | 4600                                                  | PCG0G222MCL1GS |
| 6.3<br>(0J)               | 7.2               | 2700                         | 10 × 12.7                              | 0.12          | 2160                       | 11                                   | 5300                                                  | PCG0G272MCL1GS |
|                           |                   | 150                          | 5 × 6                                  | 0.12          | 189                        | 33                                   | 1800                                                  | PCG0J151MCL1GS |
|                           |                   | 270                          | 6.3 × 6                                | 0.12          | 340                        | 23                                   | 2600                                                  | PCG0J271MCL1GS |
|                           |                   | 330                          | 6.3 × 6                                | 0.12          | 416                        | 23                                   | 2700                                                  | PCG0J331MCL1GS |
|                           |                   | 470                          | 8 × 7                                  | 0.12          | 592                        | 22                                   | 3100                                                  | PCG0J471MCL1GS |
|                           |                   | 1000                         | 10 × 8                                 | 0.12          | 1260                       | 18                                   | 3800                                                  | PCG0J102MCL1GS |
| 10<br>(1A)                | 11.5              | 1800                         | 10 × 10                                | 0.12          | 2268                       | 14                                   | 4400                                                  | PCG0J182MCL1GS |
|                           |                   | 2200                         | 10 × 12.7                              | 0.12          | 2772                       | 12                                   | 5000                                                  | PCG0J222MCL1GS |
|                           |                   | 82                           | 5 × 6                                  | 0.12          | 164                        | 35                                   | 1700                                                  | PCG1A820MCL1GS |
|                           |                   | 150                          | 6.3 × 6                                | 0.12          | 300                        | 25                                   | 2500                                                  | PCG1A151MCL1GS |
|                           |                   | 330                          | 8 × 7                                  | 0.12          | 660                        | 23                                   | 3100                                                  | PCG1A331MCL1GS |
|                           |                   | 560                          | 10 × 8                                 | 0.12          | 1120                       | 20                                   | 3600                                                  | PCG1A561MCL1GS |
| 16<br>(1C)                | 18.4              | 820                          | 10 × 10                                | 0.12          | 1640                       | 15                                   | 4300                                                  | PCG1A821MCL1GS |
|                           |                   | 1000                         | 10 × 12.7                              | 0.12          | 2000                       | 13                                   | 4800                                                  | PCG1A102MCL1GS |
|                           |                   | 47                           | 5 × 6                                  | 0.12          | 150                        | 40                                   | 1500                                                  | PCG1C470MCL1GS |
|                           |                   | 82                           | 6.3 × 6                                | 0.12          | 262                        | 30                                   | 2300                                                  | PCG1C820MCL1GS |
|                           |                   | 150                          | 8 × 7                                  | 0.12          | 480                        | 28                                   | 2800                                                  | PCG1C151MCL1GS |
|                           |                   | 270                          | 10 × 8                                 | 0.12          | 864                        | 25                                   | 3300                                                  | PCG1C271MCL1GS |
|                           |                   | 470                          | 10 × 10                                | 0.12          | 1504                       | 20                                   | 3700                                                  | PCG1C471MCL1GS |
|                           |                   | 680                          | 10 × 12.7                              | 0.12          | 2176                       | 18                                   | 4100                                                  | PCG1C681MCL1GS |

Design, Specifications are subject to change without notice.

**NICHICON CORPORATION**

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