

CONDUCTIVE POLYMER ALUMINUM SOLID ELECTROLYTIC CAPACITORS

PCH Chip Type, Higher Capacitance
High Temperature Range



Expanded

- High reliability, High voltage (to 80V).
- Low ESR, High ripple current.
- Long life of 4000 hours at 135°C.
- SMD type : Lead free reflow soldering condition at 260°C peak complete correspondence.
- Compliant to the RoHS directive (2011/65/EU).
- ESR after Endurance at -40°C.
- AEC-Q200 compliant. Please contact us for details.

PCH ← High Temperature → **PCR**

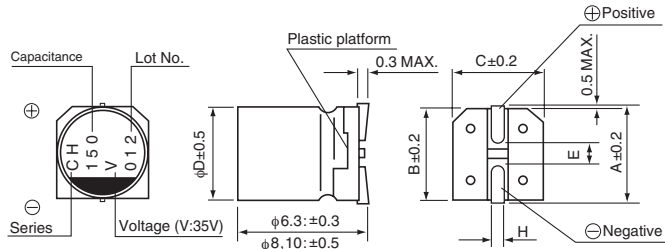


Specifications

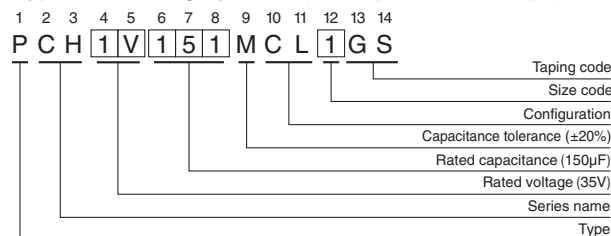
| Item | Performance Characteristics | | | | | | | | |
|---|--|--------------------|--|-------|---|----------|---|----------------------|---|
| Category Temperature Range | -55 to +135°C | | | | | | | | |
| Rated Voltage Range | 16 to 80V | | | | | | | | |
| Rated Capacitance Range | 12 to 1000μF | | | | | | | | |
| Capacitance Tolerance | ±20% at 120Hz, 20°C | | | | | | | | |
| Tangent of loss angle (tan δ) | Less than or equal to the specified value at 120Hz, 20°C | | | | | | | | |
| ESR (*1) | Less than or equal to the specified value at 100kHz, 20°C | | | | | | | | |
| Leakage Current (*2) | After 2 minutes' application of rated voltage, leakage current is not more than 0.03CV or 3(μA), whichever is greater. | | | | | | | | |
| Temperature Characteristics (Max.Impedance Ratio) | Z-55°C / Z+20°C ≤ 1.25 (100kHz) | | | | | | | | |
| Endurance | <p>The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 4000 hours (2000 hours for φD=6.3) at 135°C.</p> <table border="1"> <tr><td>Capacitance change</td><td>Within ± 20% of initial capacitance value (*3)</td></tr> <tr><td>tan δ</td><td>150% or less of the initial specified value</td></tr> <tr><td>ESR (*1)</td><td>200% or less of the initial specified value</td></tr> <tr><td>Leakage current (*2)</td><td>Less than or equal to the initial specified value</td></tr> </table> | Capacitance change | Within ± 20% of initial capacitance value (*3) | tan δ | 150% or less of the initial specified value | ESR (*1) | 200% or less of the initial specified value | Leakage current (*2) | Less than or equal to the initial specified value |
| Capacitance change | Within ± 20% of initial capacitance value (*3) | | | | | | | | |
| tan δ | 150% or less of the initial specified value | | | | | | | | |
| ESR (*1) | 200% or less of the initial specified value | | | | | | | | |
| Leakage current (*2) | Less than or equal to the initial specified value | | | | | | | | |
| Shelf Life | After storing the capacitors under no load at 135°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above. | | | | | | | | |
| ESR after Endurance (*1) | Less than or equal to the specified value at 100kHz, -40°C | | | | | | | | |
| Damp Heat (Steady State) | <p>The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C, 85% RH.</p> <table border="1"> <tr><td>Capacitance change</td><td>Within ± 20% of initial capacitance value (*3)</td></tr> <tr><td>tan δ</td><td>150% or less of the initial specified value</td></tr> <tr><td>ESR (*1)</td><td>200% or less of the initial specified value</td></tr> <tr><td>Leakage current (*2)</td><td>Less than or equal to the initial specified value</td></tr> </table> | Capacitance change | Within ± 20% of initial capacitance value (*3) | tan δ | 150% or less of the initial specified value | ESR (*1) | 200% or less of the initial specified value | Leakage current (*2) | Less than or equal to the initial specified value |
| Capacitance change | Within ± 20% of initial capacitance value (*3) | | | | | | | | |
| tan δ | 150% or less of the initial specified value | | | | | | | | |
| ESR (*1) | 200% or less of the initial specified value | | | | | | | | |
| Leakage current (*2) | Less than or equal to the initial specified value | | | | | | | | |
| Resistance to Soldering Heat | <p>After soldering the capacitor under the soldering conditions prescribed here, the capacitor shall meet the specifications listed at right.</p> <p>Pre-heating shall be done at 150 to 200°C and for 60 to 180 sec. The duration for over +230°C temperature at capacitor surface shall not exceed 60 seconds.</p> <p>In case peak temperature is 260°C or less, reflow soldering shall be two times maximum.</p> <p>Measurement for solder temperature profile shall be made at the capacitor top and the terminal.</p> <table border="1"> <tr><td>Capacitance change</td><td>Within ± 10% of the initial capacitance value (*3)</td></tr> <tr><td>tan δ</td><td>130% or less than the initial specified value</td></tr> <tr><td>ESR (*1)</td><td>130% or less than the initial specified value</td></tr> <tr><td>Leakage current (*2)</td><td>Less than or equal to the initial specified value</td></tr> </table> | Capacitance change | Within ± 10% of the initial capacitance value (*3) | tan δ | 130% or less than the initial specified value | ESR (*1) | 130% or less than the initial specified value | Leakage current (*2) | Less than or equal to the initial specified value |
| Capacitance change | Within ± 10% of the initial capacitance value (*3) | | | | | | | | |
| tan δ | 130% or less than the initial specified value | | | | | | | | |
| ESR (*1) | 130% or less than the initial specified value | | | | | | | | |
| Leakage current (*2) | Less than or equal to the initial specified value | | | | | | | | |
| Marking | Navy blue print on the case top | | | | | | | | |

- *1 ESR should be measured at both of the terminal ends closest where the terminals protrude through the plastic platform.
- *2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.
- *3 Initial value : The value before test of examination of resistance to soldering.

Dimensions



Type numbering system (Example : 35V 150μF)



| | (mm) | | | | | | | |
|------|------------|------------|------------|------------|------------|------------|------------|-------------|
| Size | φ6.3 × 6L | φ6.3 × 8L | φ8 × 7L | φ8 × 10L | φ8 × 12L | φ10 × 8L | φ10 × 10L | φ10 × 12.7L |
| φD | 6.3 | 6.3 | 8.0 | 8.0 | 8.0 | 10.0 | 10.0 | 10.0 |
| L | 5.9 | 7.9 | 6.9 | 9.9 | 11.9 | 7.9 | 9.9 | 12.6 |
| A | 7.3 | 7.3 | 9.0 | 9.0 | 9.0 | 11.0 | 11.0 | 11.0 |
| B | 6.6 | 6.6 | 8.3 | 8.3 | 8.3 | 10.3 | 10.3 | 10.3 |
| C | 6.6 | 6.6 | 8.3 | 8.3 | 8.3 | 10.3 | 10.3 | 10.3 |
| E | 2.1 | 2.1 | 3.2 | 3.2 | 3.2 | 4.6 | 4.6 | 4.6 |
| H | 0.5 to 0.8 | 0.5 to 0.8 | 0.8 to 1.1 | 0.8 to 1.1 | 0.8 to 1.1 | 0.8 to 1.1 | 0.8 to 1.1 | 0.8 to 1.1 |

Voltage

| | | | | | | | |
|------|----|----|----|----|----|----|----|
| V | 16 | 20 | 25 | 35 | 50 | 63 | 80 |
| Code | C | D | E | V | H | J | K |

Frequency coefficient of rated ripple current

| | | | | |
|-------------|-------|------|-------|----------------|
| Frequency | 120Hz | 1kHz | 10kHz | 100kHz or more |
| Coefficient | 0.05 | 0.30 | 0.70 | 1.00 |

Design, Specifications are subject to change without notice.

CONDUCTIVE POLYMER ALUMINUM SOLID ELECTROLYTIC CAPACITORS



■ Dimensions

| Rated Voltage (V)(code) | Surge Voltage (V) | Rated Capacitance (μF) | Case Size φD × L (mm) | tan δ | Initial ESR (mΩ) (20°C / 100kHz) | Low temp. ESR after Endurance (mΩ) (-40°C / 100kHz) | Rated Ripple (mArms) (135°C / 100kHz) | Part Number |
|-------------------------|-------------------|------------------------|-----------------------|-------|----------------------------------|---|---------------------------------------|----------------|
| 16 (1C) | 20 | 120 | 6.3 × 6 | 0.08 | 36 | 72 | 900 | PCH1C121MCL1GS |
| | | 220 | ■ 6.3 × 8 | 0.08 | 23 | 46 | 1500 | PCH1C221MCL4GS |
| | | 220 | 8 × 7 | 0.08 | 30 | 60 | 1100 | PCH1C221MCL1GS |
| | | 470 | ▲ 8 × 10 | 0.08 | 17 | 34 | 2400 | PCH1C471MCL6GS |
| | | 470 | 10 × 8 | 0.08 | 22 | 44 | 1900 | PCH1C471MCL1GS |
| | | 560 | 8 × 12 | 0.08 | 16 | 32 | 2700 | PCH1C561MCL1GS |
| | | 680 | 10 × 10 | 0.08 | 19 | 38 | 2300 | PCH1C681MCL1GS |
| 20 (1D) | 25 | 100 | 6.3 × 6 | 0.08 | 41 | 82 | 900 | PCH1D101MCL1GS |
| | | 150 | ■ 6.3 × 8 | 0.08 | 25 | 50 | 1200 | PCH1D151MCL4GS |
| | | 150 | 8 × 7 | 0.08 | 39 | 78 | 800 | PCH1D151MCL1GS |
| | | 330 | ▲ 8 × 10 | 0.08 | 19 | 38 | 2300 | PCH1D331MCL6GS |
| | | 330 | 10 × 8 | 0.08 | 23 | 46 | 1800 | PCH1D331MCL1GS |
| | | 470 | 8 × 12 | 0.08 | 18 | 36 | 2500 | PCH1D471MCL1GS |
| | | 560 | 10 × 10 | 0.08 | 20 | 40 | 2200 | PCH1D561MCL1GS |
| 25 (1E) | 31 | 680 | 10 × 12.7 | 0.08 | 14 | 28 | 3000 | PCH1D681MCL1GS |
| | | 56 | 6.3 × 6 | 0.08 | 43 | 86 | 900 | PCH1E560MCL1GS |
| | | 100 | ■ 6.3 × 8 | 0.08 | 27 | 54 | 1100 | PCH1E101MCL4GS |
| | | 100 | 8 × 7 | 0.08 | 41 | 82 | 800 | PCH1E101MCL1GS |
| | | 220 | ▲ 8 × 10 | 0.08 | 20 | 40 | 2300 | PCH1E221MCL6GS |
| | | 220 | 10 × 8 | 0.08 | 24 | 48 | 1800 | PCH1E221MCL1GS |
| | | 270 | 8 × 12 | 0.08 | 19 | 38 | 2300 | PCH1E271MCL1GS |
| 35 (1V) | 43 | 330 | 10 × 10 | 0.08 | 20 | 40 | 2200 | PCH1E331MCL1GS |
| | | 470 | 10 × 12.7 | 0.08 | 15 | 30 | 2900 | PCH1E471MCL1GS |
| | | 47 | 6.3 × 6 | 0.08 | 48 | 96 | 800 | PCH1V470MCL1GS |
| | | 68 | ■ 6.3 × 8 | 0.08 | 31 | 62 | 1100 | PCH1V680MCL4GS |
| | | 68 | 8 × 7 | 0.08 | 44 | 88 | 800 | PCH1V680MCL1GS |
| | | 150 | ▲ 8 × 10 | 0.08 | 22 | 44 | 2200 | PCH1V151MCL6GS |
| | | 150 | 10 × 8 | 0.08 | 25 | 50 | 1800 | PCH1V151MCL1GS |
| 50 (1H) | 63 | 220 | 8 × 12 | 0.08 | 21 | 42 | 2300 | PCH1V221MCL1GS |
| | | 270 | 10 × 10 | 0.08 | 20 | 40 | 2200 | PCH1V271MCL1GS |
| | | 330 | 10 × 12.7 | 0.08 | 16 | 32 | 2800 | PCH1V331MCL1GS |
| | | 22 | 6.3 × 6 | 0.08 | 50 | 100 | 700 | PCH1H220MCL1GS |
| | | 39 | ■ 6.3 × 8 | 0.08 | 36 | 72 | 900 | PCH1H390MCL4GS |
| | | 39 | 8 × 7 | 0.08 | 45 | 90 | 900 | PCH1H390MCL1GS |
| | | 82 | ▲ 8 × 10 | 0.08 | 26 | 52 | 2100 | PCH1H820MCL6GS |
| 63 (1J) | 79 | 82 | 10 × 8 | 0.08 | 34 | 68 | 1600 | PCH1H820MCL1GS |
| | | 120 | △ 8 × 12 | 0.08 | 25 | 50 | 2100 | PCH1H121MCL2GS |
| | | 120 | 10 × 10 | 0.08 | 25 | 50 | 2100 | PCH1H121MCL1GS |
| | | 180 | 10 × 12.7 | 0.08 | 19 | 38 | 2500 | PCH1H181MCL1GS |
| | | 12 | 6.3 × 6 | 0.08 | 51 | 102 | 700 | PCH1J120MCL1GS |
| | | 22 | ■ 6.3 × 8 | 0.08 | 45 | 90 | 800 | PCH1J220MCL4GS |
| | | 22 | 8 × 7 | 0.08 | 48 | 96 | 800 | PCH1J220MCL1GS |
| 80 (1K) | 100 | 39 | 8 × 10 | 0.08 | 28 | 56 | 1900 | PCH1J390MCL1GS |
| | | 47 | 10 × 8 | 0.08 | 35 | 70 | 1500 | PCH1J470MCL1GS |
| | | 56 | 8 × 12 | 0.08 | 27 | 54 | 2100 | PCH1J560MCL1GS |
| | | 68 | 10 × 10 | 0.08 | 28 | 56 | 2000 | PCH1J680MCL1GS |
| | | 100 | 10 × 12.7 | 0.08 | 24 | 48 | 2100 | PCH1J101MCL1GS |
| 120 (1L) | 150 | 12 | 6.3 × 8 | 0.08 | 50 | 100 | 800 | PCH1K120MCL1GS |
| | | 27 | 8 × 10 | 0.08 | 38 | 76 | 1000 | PCH1K270MCL1GS |
| | | 39 | 8 × 12 | 0.08 | 35 | 70 | 1100 | PCH1K390MCL1GS |
| | | 47 | 10 × 10 | 0.08 | 33 | 66 | 1200 | PCH1K470MCL1GS |
| 150 (1M) | 200 | 68 | 10 × 12.7 | 0.08 | 28 | 56 | 1500 | PCH1K680MCL1GS |

No marked, [1] will be put at 12th digit of type numbering system. ■: In this case, [4] will be put at 12th digit of type numbering system.
 △: In this case, [2] will be put at 12th digit of type numbering system. ▲: In this case, [6] will be put at 12th digit of type numbering system.

Design, Specifications are subject to change without notice.

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