



**THE DATASHEET OF
PCX1V101MCL1GS**

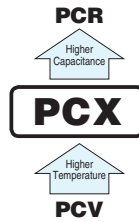


PCX

Chip Type, High Voltage / Long Life



- High reliability, High voltage (to 50V).
- Low ESR, High ripple current.
- Long life of 1500 to 3000 hours at 125°C.
- SMD type : Lead free reflow soldering condition at 260°C peak complete correspondence.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- AEC-Q200 Qualified. Please contact us for details.



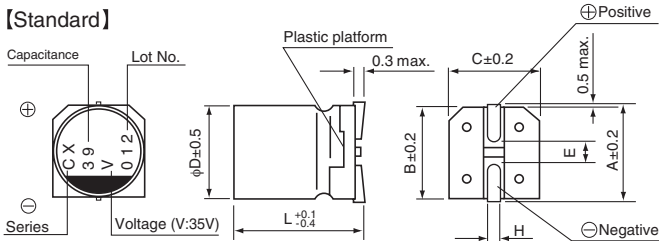
Specifications

| Item | Performance Characteristics | | | | | | | | | |
|---|--|---|--------------------|--|-------|---|-----------|---|-----------------------|---|
| Category Temperature Range | -55 to +125°C | | | | | | | | | |
| Rated Voltage Range | 16 to 50V | | | | | | | | | |
| Rated Capacitance Range | 5.6 to 390μF | | | | | | | | | |
| 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) | Less than or equal to the specified value . After 2 minutes' application of rated voltage at 20°C | | | | | | | | | |
| Temperature Characteristics (Max.Impedance Ratio) | $Z(+125^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.25$ (100kHz) $Z(-55^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.25$ | | | | | | | | | |
| Endurance | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 3000 hours (φD = 6.3:1500hours) at 125°C. | <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>150% 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) | 150% 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) | 150% or less of the initial specified value | | | | | | | | | |
| Leakage current (※ 2) | Less than or equal to the initial specified value | | | | | | | | | |
| Damp Heat (Steady State) | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 60°C, 90% RH. | <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>150% 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) | 150% 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) | 150% or less of the initial specified value | | | | | | | | | |
| Leakage current (※ 2) | Less than or equal to the initial specified value | | | | | | | | | |
| Resistance to Soldering Heat | After soldering the capacitor under the soldering conditions prescribed here, the capacitor shall meet the specifications listed at right. 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. In case peak temperature is 250°C or less, reflow soldering shall be two times maximum. In case peak temperature is 260°C or less, reflow soldering shall be once. Measurement for solder temperature profile shall be made at the capacitor top. | <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 | | | | | | | | | |

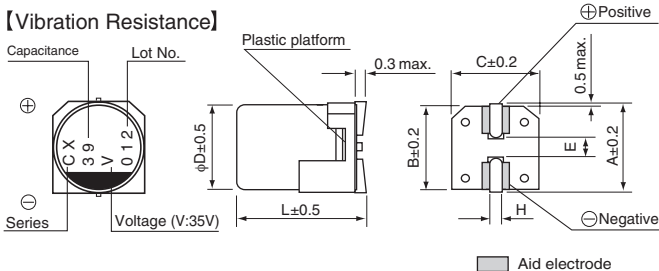
- ※ 1 ESR should be measured at both of the terminal ends closest where the terminals protrude through the plastic platform.
- ※ 2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at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

Dimensions

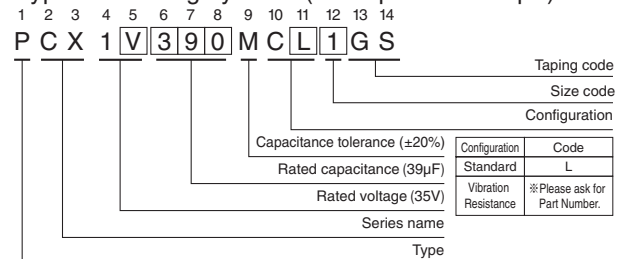
[Standard]



[Vibration Resistance]



Type numbering system (Example : 35V 39μF)



※ φ6.3×8L(φ6.3×8L),φ8×10L(φ8×10.5L),φ10×10L(φ10×10.5L),φ10×12.7L(φ10×13.2L) : The vibration structure-resistant product is also available upon request, please ask for details.
() : Size of the vibration structure-resistant product.

Standard

| Size | φ6.3×6L | φ6.3×8L | φ8×7L | φ8×10L | φ8×12L | φ10×8L | φ10×10L | φ10×12.7L | Vibration Resistance (mm) |
|------|------------|------------|------------|------------|------------|------------|------------|------------|---|
| φD | 6.3 | 6.3 | 8.0 | 8.0 | 8.0 | 10.0 | 10.0 | 10.0 | φD 6.3 8.0 10.0 10.0 |
| L | 5.9 | 7.9 | 6.9 | 9.9 | 11.9 | 7.9 | 9.9 | 12.6 | L 7.5 10.0 10.0 12.7 |
| A | 7.3 | 7.3 | 9.0 | 9.0 | 9.0 | 11.0 | 11.0 | 11.0 | A 7.3 9.0 11.0 11.0 |
| B | 6.6 | 6.6 | 8.3 | 8.3 | 8.3 | 10.3 | 10.3 | 10.3 | B 6.6 8.3 10.3 10.3 |
| C | 6.6 | 6.6 | 8.3 | 8.3 | 8.3 | 10.3 | 10.3 | 10.3 | C 6.6 8.3 10.3 10.3 |
| E | 2.1 | 2.1 | 3.2 | 3.2 | 3.2 | 4.6 | 4.6 | 4.6 | E 2.5 3.1 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 | H 0.5 to 0.8 1.1 to 1.5 1.1 to 1.5 1.1 to 1.5 |

Voltage

| | | | | | |
|------|----|----|----|----|----|
| V | 16 | 20 | 25 | 35 | 50 |
| Code | C | D | E | V | H |

Frequency coefficient of rated ripple current

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

●Dimension table in next page.



■ Dimensions

| Rated Voltage (V) (code) | Surge Voltage (V) | Rated Capacitance (μF) | Case Size φD×L (mm) | tan δ | Leakage Current (μA) (at 20°C after 2 minutes) | ESR (mΩ) (20°C/100kHz) | Rated Ripple (mArms/100kHz) | | Part Number |
|--------------------------|-------------------|------------------------|---------------------|-------|--|------------------------|-----------------------------|--------------------|----------------|
| | | | | | | | ≤105°C (*3) | 105°C< ≤125°C (*3) | |
| 16 (1C) | 18.4 | 47 | 6.3×6 | 0.12 | 150 | 55 | 1000 | 390 | PCX1C470MCL1GS |
| | | 82 | 8×7 | 0.12 | 262 | 45 | 1300 | 530 | PCX1C820MCL1GS |
| | | 100 | 6.3×8 | 0.12 | 320 | 33 | 1500 | 460 | PCX1C101MCL1GS |
| | | 150 | ▲8×10 | 0.12 | 480 | 28 | 2000 | 780 | PCX1C151MCL6GS |
| | | 150 | 10×8 | 0.12 | 480 | 33 | 1900 | 830 | PCX1C151MCL1GS |
| | | 220 | 8×12 | 0.12 | 704 | 27 | 2300 | 870 | PCX1C221MCL1GS |
| | | 270 | 10×10 | 0.12 | 864 | 27 | 2300 | 830 | PCX1C271MCL1GS |
| | | 390 | 10×12.7 | 0.12 | 1248 | 26 | 2700 | 1040 | PCX1C391MCL1GS |
| 20 (1D) | 23.0 | 33 | 6.3×6 | 0.12 | 132 | 60 | 900 | 380 | PCX1D330MCL1GS |
| | | 56 | 8×7 | 0.12 | 224 | 50 | 1300 | 500 | PCX1D560MCL1GS |
| | | 68 | 6.3×8 | 0.12 | 272 | 34 | 1450 | 470 | PCX1D680MCL1GS |
| | | 120 | ▲8×10 | 0.12 | 480 | 29 | 1900 | 770 | PCX1D121MCL6GS |
| | | 120 | 10×8 | 0.12 | 480 | 35 | 1800 | 810 | PCX1D121MCL1GS |
| | | 150 | 8×12 | 0.12 | 600 | 28 | 2200 | 860 | PCX1D151MCL1GS |
| | | 180 | 10×10 | 0.12 | 720 | 28 | 2300 | 800 | PCX1D181MCL1GS |
| | | 270 | 10×12.7 | 0.12 | 1080 | 27 | 2700 | 1020 | PCX1D271MCL1GS |
| 25 (1E) | 28.7 | 22 | 6.3×6 | 0.12 | 110 | 65 | 900 | 360 | PCX1E220MCL1GS |
| | | 39 | 8×7 | 0.12 | 195 | 55 | 1200 | 480 | PCX1E390MCL1GS |
| | | 56 | 6.3×8 | 0.12 | 280 | 35 | 1400 | 450 | PCX1E560MCL1GS |
| | | 82 | ▲8×10 | 0.12 | 410 | 30 | 1900 | 760 | PCX1E820MCL6GS |
| | | 82 | 10×8 | 0.12 | 410 | 36 | 1800 | 800 | PCX1E820MCL1GS |
| | | 120 | ▲8×12 | 0.12 | 600 | 29 | 2200 | 850 | PCX1E121MCL6GS |
| | | 120 | 10×10 | 0.12 | 600 | 29 | 2200 | 790 | PCX1E121MCL1GS |
| | | 180 | 10×12.7 | 0.12 | 900 | 28 | 2600 | 1010 | PCX1E181MCL1GS |
| 35 (1V) | 40.2 | 10 | 6.3×6 | 0.12 | 70 | 85 | 800 | 310 | PCX1V100MCL1GS |
| | | 18 | 8×7 | 0.12 | 126 | 60 | 1100 | 450 | PCX1V180MCL1GS |
| | | 27 | 6.3×8 | 0.12 | 189 | 45 | 1300 | 450 | PCX1V270MCL1GS |
| | | 39 | ▲8×10 | 0.12 | 273 | 35 | 1800 | 700 | PCX1V390MCL6GS |
| | | 39 | 10×8 | 0.12 | 273 | 41 | 1700 | 750 | PCX1V390MCL1GS |
| | | 56 | 8×12 | 0.12 | 392 | 33 | 2000 | 780 | PCX1V560MCL1GS |
| | | 68 | 10×10 | 0.12 | 476 | 30 | 2200 | 740 | PCX1V680MCL1GS |
| | | 100 | 10×12.7 | 0.12 | 700 | 29 | 2600 | 990 | PCX1V101MCL1GS |
| 50 (1H) | 57.5 | 5.6 | 6.3×6 | 0.12 | 56 | 105 | 700 | 280 | PCX1H5R6MCL1GS |
| | | 10 | 8×7 | 0.12 | 100 | 75 | 1000 | 410 | PCX1H100MCL1GS |
| | | 12 | 6.3×8 | 0.12 | 120 | 65 | 1100 | 380 | PCX1H120MCL1GS |
| | | 22 | ▲8×10 | 0.12 | 220 | 37 | 1700 | 680 | PCX1H220MCL6GS |
| | | 22 | 10×8 | 0.12 | 220 | 56 | 1400 | 730 | PCX1H220MCL1GS |
| | | 27 | 8×12 | 0.12 | 270 | 35 | 2000 | 760 | PCX1H270MCL1GS |
| | | 33 | 10×10 | 0.12 | 330 | 31 | 2200 | 630 | PCX1H330MCL1GS |
| | | 47 | 10×12.7 | 0.12 | 470 | 30 | 2500 | 970 | PCX1H470MCL1GS |

(*3) Ambient temperature of a capacitor

No marked, [1] will be put at 12th digit of type numbering system.

▲ : In this case, [6] will be put at 12th digit of type numbering system.

• For taping specifications, recommended land size/soldering by reflow and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.

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