

Expanded

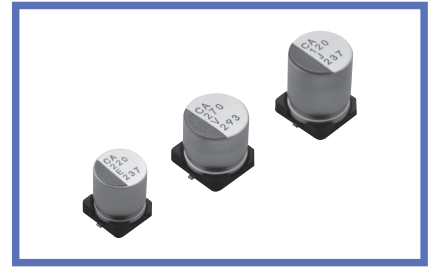
PCA

Chip Type, High Reliability



- High reliability, Ripple current superimposition guaranteed products.
- Low ESR, High ripple current.
- Long life of 4000 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).
- ESR after Endurance at -40°C.
- AEC-Q200 compliant. Please contact us for details.

PCA ← Compliant to high ripple current. **PCR**



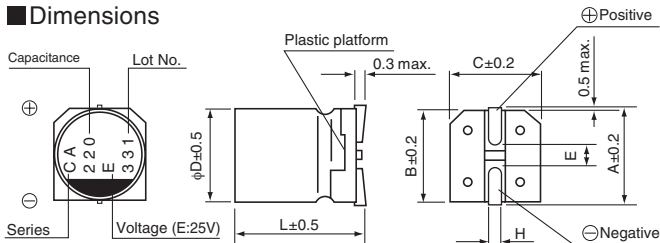
Specifications

| Item | Performance Characteristics | | |
|--|--|-----------------------|--|
| Category Temperature Range | -55 to +125°C | | |
| Rated Voltage Range | 25 to 80V | | |
| Rated Capacitance Range | 33 to 470μF | | |
| 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. ※ | | |
| 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 D.C. bias plus rated ripple current is applied for 4000 hours at 125°C, the peak voltage shall not exceed the rated voltage. | 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 125°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) | 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. | 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 | 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 260°C or less, reflow soldering shall be two times maximum. Measurement for solder temperature profile shall be made at the capacitor top. | 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.

※ I : Leakage Current (μA), C : Rated Capacitance (μF), V : Rated Voltage (V)

Dimensions



Standard (mm)

| Size | φ8 × 10L | φ8 × 12L | φ10 × 10L | φ10 × 12.7L |
|------|------------|------------|------------|-------------|
| φD | 8.0 | 8.0 | 10.0 | 10.0 |
| L | 9.9 | 11.9 | 9.9 | 12.6 |
| A | 9.0 | 9.0 | 11.0 | 11.0 |
| B | 8.3 | 8.3 | 10.3 | 10.3 |
| C | 8.3 | 8.3 | 10.3 | 10.3 |
| E | 3.2 | 3.2 | 4.6 | 4.6 |
| H | 0.8 to 1.1 | 0.8 to 1.1 | 0.8 to 1.1 | 0.8 to 1.1 |

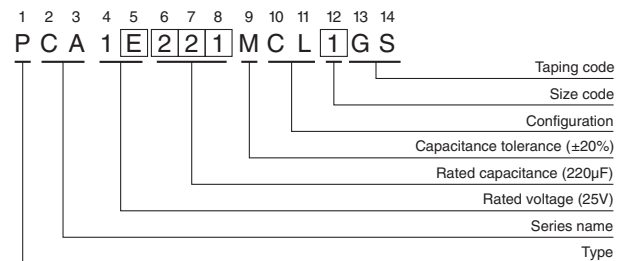
Voltage

| | | | | | |
|------|----|----|----|----|----|
| V | 25 | 35 | 50 | 63 | 80 |
| Code | 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 |

Type numbering system (Example : 25V 220μF)



● Dimension table in next page.

PCA

■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) | Initial ESR (mΩ) (20°C/100kHz) | Low temp. ESR after Endurance (mΩ) (-40°C /100kHz) | Rated Ripple (mArms) (125°C /100kHz) | Part Number |
|--------------------------|-------------------|------------------------|---------------------|-------|--|--------------------------------|--|--------------------------------------|----------------|
| 25 (1E) | 31 | 220 | 8×10 | 0.08 | 165 | 20 | 40 | 3900 | PCA1E221MCL1GS |
| | | 270 | 8×12 | 0.08 | 202 | 19 | 38 | 4000 | PCA1E271MCL1GS |
| | | 330 | 10×10 | 0.08 | 247 | 20 | 40 | 4600 | PCA1E331MCL1GS |
| | | 470 | 10×12.7 | 0.08 | 352 | 15 | 30 | 5100 | PCA1E471MCL1GS |
| 35 (1V) | 43 | 150 | 8×10 | 0.08 | 157 | 22 | 44 | 3900 | PCA1V151MCL1GS |
| | | 220 | 8×12 | 0.08 | 231 | 21 | 42 | 3900 | PCA1V221MCL1GS |
| | | 270 | 10×10 | 0.08 | 283 | 20 | 40 | 4500 | PCA1V271MCL1GS |
| | | 330 | 10×12.7 | 0.08 | 346 | 16 | 32 | 5000 | PCA1V331MCL1GS |
| 50 (1H) | 63 | 68 | 8×10 | 0.08 | 102 | 26 | 52 | 3600 | PCA1H680MCL1GS |
| | | 120 | △8×12 | 0.08 | 180 | 25 | 50 | 3700 | PCA1H121MCL2GS |
| | | 120 | 10×10 | 0.08 | 180 | 25 | 50 | 4300 | PCA1H121MCL1GS |
| | | 180 | 10×12.7 | 0.08 | 270 | 19 | 38 | 4600 | PCA1H181MCL1GS |
| 63 (1J) | 79 | 47 | 8×10 | 0.08 | 88 | 28 | 56 | 3600 | PCA1J470MCL1GS |
| | | 68 | 8×12 | 0.08 | 128 | 27 | 54 | 3700 | PCA1J680MCL1GS |
| | | 82 | 10×10 | 0.08 | 154 | 28 | 56 | 4300 | PCA1J820MCL1GS |
| | | 120 | 10×12.7 | 0.08 | 226 | 24 | 48 | 4600 | PCA1J121MCL1GS |
| 80 (1K) | 100 | 33 | 8×10 | 0.08 | 79 | 38 | 76 | 2300 | PCA1K330MCL1GS |
| | | 47 | 8×12 | 0.08 | 112 | 35 | 70 | 2700 | PCA1K470MCL1GS |
| | | 56 | 10×10 | 0.08 | 134 | 33 | 66 | 2500 | PCA1K560MCL1GS |
| | | 82 | 10×12.7 | 0.08 | 196 | 28 | 56 | 3100 | PCA1K820MCL1GS |

Blue : New product (as of October 2025)

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

△ : In this case, [2] 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.