

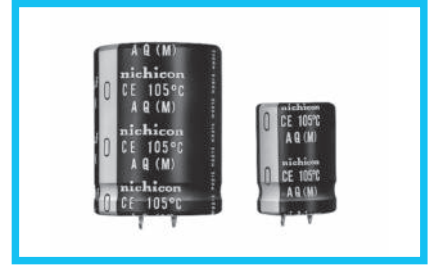
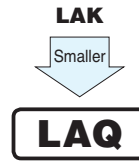
# ALUMINUM ELECTROLYTIC CAPACITORS

# LAQ

Snap-in Terminal Type, 105°C Permissible Abnormal Voltage, Smaller-sized



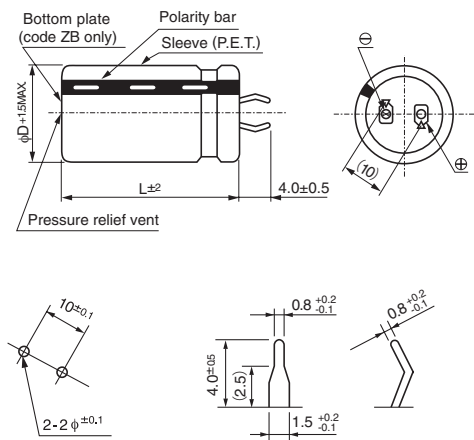
- Withstanding 2000 hours application of rated ripple current of 105°C.
- Extended voltage range at 200V, 220V and 400V.
- Smaller case sizes and higher ripple current than LAK.
- Improved safety features for abnormally excessive voltage.
- Ideally suited for the equipment used at voltage fluctuating area.
- Compliant to the RoHS directive (2011/65/EU, (EU)2015/863).



## Specifications

| Item                          | Performance Characteristics   |                        |                    |                               |   |
|-------------------------------|---|------------------------|--------------------|-------------------------------|---|
| Category Temperature Range    | -25 to +105°C   |                        |                    |                               |   |
| Rated Voltage Range           | 200 • 220 • 400V  |                        |                    |                               |   |
| Rated Capacitance Range       | 33 to 1500μF  |                        |                    |                               |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C   |                        |                    |                               |   |
| Leakage Current               | $I \leq 3 \cdot \sqrt{CV}$ (μA) (After 5 minutes' application of rated voltage) [C : Rated Capacitance (μF) V : Voltage (V)]  |                        |                    |                               |   |
| Tangent of loss angle (tan δ) | 0.20MAX. 120Hz at 20°C  |                        |                    |                               |   |
| Stability at Low Temperature  | Rated voltage(V)  |                        | 200 • 220          | 400                           |   |
|                               | Impedance ratio (MAX)   | Z - 25°C/Z+20°C        | 8                  | 8                             |   |
| 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 2000 hours at 105°C, the peak voltage shall not exceed the rated voltage. |                        |                    | Measurement frequency : 120Hz |   |
|                               |   |                        |                    | Capacitance change            | Within ±20% of the initial capacitance value      |
|                               |   |                        |                    | tan δ                         | 200% or less than the initial specified value     |
| Shelf Life                    | After storing the capacitors under no load at 105°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 requirements listed at right.                        |                        |                    | Leakage current               | Less than or equal to the initial specified value |
|                               |   |                        |                    | Capacitance change            | Within ±15% of the initial capacitance value      |
|                               |   |                        |                    | tan δ                         | 150% or less than the initial specified value     |
| Safety Performance            | The pressure relief vent will operate in normal conditions, with no dangerous conditions such as flames, ignitions or dispersion of pieces of the capacitor and / or case.  |                        |                    |                               |   |
|                               | Rating  |                        | Test conditions    |                               |   |
|                               | Voltage (V)   | Rated Capacitance (μF) | Limited DC current | Test voltage                  |   |
|                               | 200   | C < 330                | 4 A                | 300VDC and 375VDC             |   |
|                               |   | 330 ≤ C < 470          | 5 A                |                               |   |
|                               |   | 470 ≤ C                | 7 A                |                               |   |
| 220                           | C < 330   | 4 A                    | 320VDC and 405VDC  |                               |   |
|                               | 330 ≤ C < 470   | 5 A                    |                    |                               |   |
|                               | 470 ≤ C   | 7 A                    |                    |                               |   |
| 400                           | C < 100   | 2 A                    | 500VDC and 600VDC  |                               |   |
|                               | 100 ≤ C < 220   | 4 A                    |                    |                               |   |
|                               | 220 ≤ C   | 7 A                    |                    |                               |   |
| Marking                       | Printed with white color letter on black sleeve   |                        |                    |                               |   |

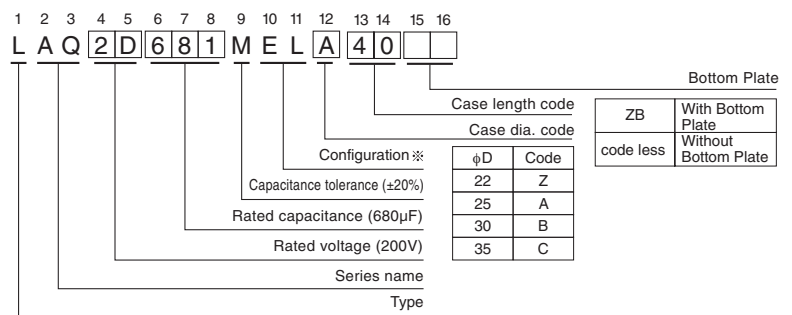
## Drawing



(PC board hole dimensions)

(Terminal dimensions)

## Type numbering system (Example : 200V 680μF)



※ Please contact to us if other configurations are required.

Minimum order quantity : 50pcs.

● Dimension table in next page.

## LAQ

### ■ Dimensions

| 200V (2D) |                 |                |                      |                |
|-----------|-----------------|----------------|----------------------|----------------|
| Cap. (μF) | Size φD × L(mm) | Ripple (mArms) | Leakage Current (mA) | Code           |
| 180       | 22 × 25         | 700            | 0.56                 | LAQ2D181MELZ25 |
|           | 25 × 20         | 700            | 0.56                 | LAQ2D181MELA20 |
| 220       | 22 × 25         | 900            | 0.62                 | LAQ2D221MELZ25 |
| 270       | 22 × 25         | 1000           | 0.69                 | LAQ2D271MELZ25 |
| 330       | 22 × 30         | 1200           | 0.77                 | LAQ2D331MELZ30 |
|           | 25 × 25         | 1200           | 0.77                 | LAQ2D331MELA25 |
| 390       | 22 × 35         | 1350           | 0.83                 | LAQ2D391MELZ35 |
|           | 25 × 30         | 1350           | 0.83                 | LAQ2D391MELA30 |
| 470       | 22 × 40         | 1450           | 0.91                 | LAQ2D471MELZ40 |
|           | 25 × 30         | 1450           | 0.91                 | LAQ2D471MELA30 |
|           | 30 × 25         | 1450           | 0.91                 | LAQ2D471MELB25 |
| 560       | 22 × 45         | 1600           | 1.00                 | LAQ2D561MELZ45 |
|           | 25 × 35         | 1600           | 1.00                 | LAQ2D561MELA35 |
|           | 30 × 30         | 1600           | 1.00                 | LAQ2D561MELB30 |
| 680       | 22 × 50         | 1750           | 1.10                 | LAQ2D681MELZ50 |
|           | 25 × 40         | 1750           | 1.10                 | LAQ2D681MELA40 |
|           | 30 × 30         | 1750           | 1.10                 | LAQ2D681MELB30 |
|           | 35 × 25         | 1750           | 1.10                 | LAQ2D681MELC25 |
| 820       | 25 × 50         | 2110           | 1.21                 | LAQ2D821MELA50 |
|           | 30 × 35         | 2110           | 1.21                 | LAQ2D821MELB35 |
|           | 35 × 30         | 2110           | 1.21                 | LAQ2D821MELC30 |
| 1000      | 30 × 45         | 2400           | 1.34                 | LAQ2D102MELB45 |
|           | 35 × 35         | 2400           | 1.34                 | LAQ2D102MELC35 |
| 1200      | 30 × 50         | 2650           | 1.46                 | LAQ2D122MELB50 |
|           | 35 × 40         | 2650           | 1.46                 | LAQ2D122MELC40 |
| 1500      | 35 × 45         | 3080           | 1.64                 | LAQ2D152MELC45 |

| 400V (2G) |                 |                |                      |                |
|-----------|-----------------|----------------|----------------------|----------------|
| Cap. (μF) | Size φD × L(mm) | Ripple (mArms) | Leakage Current (mA) | Code           |
| 33        | 22 × 25         | 250            | 0.34                 | LAQ2G330MELZ25 |
| 39        | 22 × 25         | 300            | 0.37                 | LAQ2G390MELZ25 |
| 47        | 22 × 25         | 350            | 0.41                 | LAQ2G470MELZ25 |
| 56        | 22 × 25         | 450            | 0.44                 | LAQ2G560MELZ25 |
| 68        | 22 × 25         | 510            | 0.49                 | LAQ2G680MELZ25 |
| 82        | 22 × 30         | 580            | 0.54                 | LAQ2G820MELZ30 |
|           | 25 × 25         | 580            | 0.54                 | LAQ2G820MELA25 |
| 100       | 22 × 30         | 660            | 0.60                 | LAQ2G101MELZ30 |
|           | 25 × 25         | 660            | 0.60                 | LAQ2G101MELA25 |
| 120       | 22 × 35         | 760            | 0.65                 | LAQ2G121MELZ35 |
|           | 25 × 30         | 760            | 0.65                 | LAQ2G121MELA30 |
|           | 30 × 25         | 760            | 0.65                 | LAQ2G121MELB25 |
| 150       | 22 × 40         | 850            | 0.73                 | LAQ2G151MELZ40 |
|           | 25 × 35         | 850            | 0.73                 | LAQ2G151MELA35 |
|           | 30 × 25         | 850            | 0.73                 | LAQ2G151MELB25 |
| 180       | 25 × 40         | 950            | 0.80                 | LAQ2G181MELA40 |
|           | 30 × 30         | 950            | 0.80                 | LAQ2G181MELB30 |
|           | 35 × 25         | 950            | 0.80                 | LAQ2G181MELC25 |
| 220       | 25 × 45         | 1240           | 0.88                 | LAQ2G221MELA45 |
|           | 30 × 35         | 1240           | 0.88                 | LAQ2G221MELB35 |
|           | 35 × 30         | 1240           | 0.88                 | LAQ2G221MELC30 |
| 270       | 30 × 40         | 1300           | 0.98                 | LAQ2G271MELB40 |
|           | 35 × 35         | 1300           | 0.98                 | LAQ2G271MELC35 |
| 330       | 30 × 45         | 1470           | 1.08                 | LAQ2G331MELB45 |
|           | 35 × 35         | 1470           | 1.08                 | LAQ2G331MELC35 |
| 390       | 35 × 40         | 1590           | 1.18                 | LAQ2G391MELC40 |
| 470       | 35 × 45         | 1870           | 1.30                 | LAQ2G471MELC45 |

Rated ripple current (mArms) at 105°C 120Hz

| 220V (2P) |                 |                |                      |                |
|-----------|-----------------|----------------|----------------------|----------------|
| Cap. (μF) | Size φD × L(mm) | Ripple (mArms) | Leakage Current (mA) | Code           |
| 100       | 22 × 20         | 500            | 0.44                 | LAQ2P101MELZ20 |
| 120       | 22 × 25         | 600            | 0.48                 | LAQ2P121MELZ25 |
| 150       | 22 × 25         | 650            | 0.54                 | LAQ2P151MELZ25 |
|           | 25 × 20         | 650            | 0.54                 | LAQ2P151MELA20 |
| 180       | 22 × 25         | 700            | 0.59                 | LAQ2P181MELZ25 |
|           | 25 × 25         | 700            | 0.59                 | LAQ2P181MELA25 |
| 220       | 22 × 30         | 900            | 0.66                 | LAQ2P221MELZ30 |
|           | 25 × 25         | 900            | 0.66                 | LAQ2P221MELA25 |
|           | 30 × 20         | 900            | 0.66                 | LAQ2P221MELB20 |
| 270       | 22 × 35         | 1000           | 0.73                 | LAQ2P271MELZ35 |
|           | 25 × 30         | 1000           | 0.73                 | LAQ2P271MELA30 |
|           | 30 × 25         | 1000           | 0.73                 | LAQ2P271MELB25 |
| 330       | 22 × 40         | 1200           | 0.80                 | LAQ2P331MELZ40 |
|           | 25 × 30         | 1200           | 0.80                 | LAQ2P331MELA30 |
|           | 30 × 25         | 1200           | 0.80                 | LAQ2P331MELB25 |
| 390       | 22 × 45         | 1350           | 0.87                 | LAQ2P391MELZ45 |
|           | 25 × 35         | 1350           | 0.87                 | LAQ2P391MELA35 |
|           | 30 × 30         | 1350           | 0.87                 | LAQ2P391MELB30 |
| 470       | 25 × 40         | 1450           | 0.96                 | LAQ2P471MELA40 |
|           | 30 × 30         | 1450           | 0.96                 | LAQ2P471MELB30 |
|           | 35 × 25         | 1450           | 0.96                 | LAQ2P471MELC25 |
| 560       | 25 × 45         | 1600           | 1.05                 | LAQ2P561MELA45 |
|           | 30 × 35         | 1600           | 1.05                 | LAQ2P561MELB35 |
|           | 35 × 30         | 1600           | 1.05                 | LAQ2P561MELC30 |
| 680       | 30 × 40         | 1750           | 1.16                 | LAQ2P681MELB40 |
|           | 35 × 35         | 1750           | 1.16                 | LAQ2P681MELC35 |
| 820       | 30 × 45         | 2110           | 1.27                 | LAQ2P821MELB45 |
|           | 35 × 40         | 2110           | 1.27                 | LAQ2P821MELC40 |
| 1000      | 35 × 45         | 2400           | 1.40                 | LAQ2P102MELC45 |

### ● Frequency coefficient of rated ripple current

| Frequency (Hz) |          | 50   | 60   | 120  | 1k   | 10k or more |
|----------------|----------|------|------|------|------|-------------|
| Coefficient    | 200-220V | 0.85 | 0.88 | 1.00 | 1.15 | 1.20        |
|                | 400V     | 0.88 | 0.90 | 1.00 | 1.10 | 1.15        |