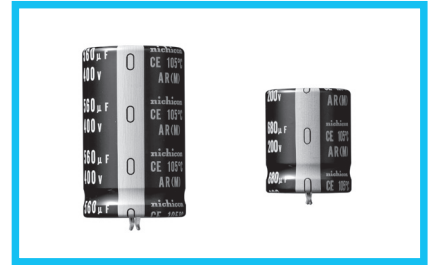


## LAR

Snap-in Terminal Type, 105°C Permissible Overvoltage

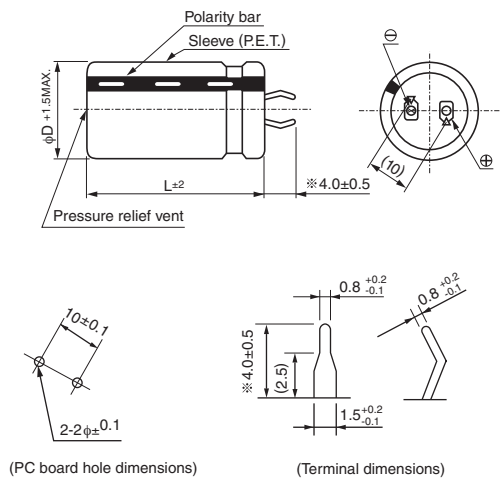
- Withstanding 2000 hours application of rated ripple current at 105°C.
- Reduction of short incidence when overvoltage (rated voltage x 1.5) is applied to a capacitor.
- Compliant to the RoHS directive (2011/65/EU).



### Specifications

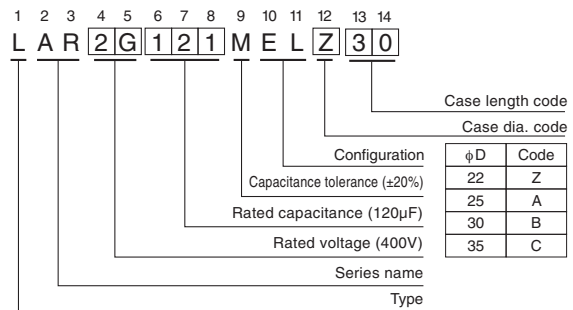
| Item                          | Performance Characteristics   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
|-------------------------------|---|--|--------------------|--|--------------|---|-------------------|---|---|--------------|----|---|-------------------------------|
| Category Temperature Range    | -40 to +105°C (200·250V), -25 to +105°C (400·450V)  |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Rated Voltage Range           | 200 to 450V   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Rated Capacitance Range       | 82 to 2200μF  |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Leakage Current               | $I \leq 3\sqrt{C}$ (μA) (After 5 minutes' application of rated voltage [C: Rated Capacitance(μF), V: Voltage (V)])  |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Tangent of loss angle (tan δ) | <table border="1"> <tr> <th>Rated voltage (V)</th> <th>200 to 400</th> <th>450</th> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.15</td> <td>0.20</td> </tr> </table>   | Rated voltage (V)  | 200 to 400         | 450  | tan δ (MAX.) | 0.15  | 0.20              | Measurement frequency : 120Hz at 20°C             |   |              |    |   |                               |
| Rated voltage (V)             | 200 to 400  | 450  |                    |  |              |   |                   |   |   |              |    |   |                               |
| tan δ (MAX.)                  | 0.15  | 0.20   |                    |  |              |   |                   |   |   |              |    |   |                               |
| Stability at Low Temperature  | <table border="1"> <tr> <th colspan="2">Rated voltage(V)</th> <th>200 · 250</th> <th>400 · 450</th> </tr> <tr> <td rowspan="2">Impedance ratio</td> <td>Z - 25°C / Z+20°C</td> <td>3</td> <td>8</td> </tr> <tr> <td>ZT/Z20(MAX.)</td> <td>12</td> <td>—</td> </tr> </table> | Rated voltage(V)   |                    | 200 · 250                                    | 400 · 450    | Impedance ratio                               | Z - 25°C / Z+20°C | 3   | 8 | ZT/Z20(MAX.) | 12 | — | Measurement frequency : 120Hz |
| Rated voltage(V)              |   | 200 · 250  | 400 · 450          |  |              |   |                   |   |   |              |    |   |                               |
| Impedance ratio               | Z - 25°C / Z+20°C   | 3  | 8                  |  |              |   |                   |   |   |              |    |   |                               |
|                               | ZT/Z20(MAX.)  | 12   | —                  |  |              |   |                   |   |   |              |    |   |                               |
| 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.   | <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table> | Capacitance change | Within ±20% of the initial capacitance value | tan δ        | 200% or less than the initial specified value | Leakage current   | Less than or equal to the initial specified value |   |              |    |   |                               |
| Capacitance change            | Within ±20% of the initial capacitance value  |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| tan δ                         | 200% or less than the initial specified value   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Leakage current               | Less than or equal to 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.  | <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±15% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>150% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table> | Capacitance change | Within ±15% of the initial capacitance value | tan δ        | 150% or less than the initial specified value | 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   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Leakage current               | Less than or equal to the initial specified value   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Safety Performance            | When overvoltage (rated voltage x 1.5, limited current = 1A) is applied to a capacitor, the pressure relief vent will operate normally more than 60% of the time without short and flame.   |  |                    |  |              |   |                   |   |   |              |    |   |                               |
| Marking                       | Printed with white color letter on black sleeve.  |  |                    |  |              |   |                   |   |   |              |    |   |                               |

### Drawing



※ The other terminal is also available upon request.  
Please refer page 327 for schematic of dimensions.

### Type numbering system (Example : 400V 120μF)



### Frequency coefficient of rated ripple current

| Frequency(Hz) | 50       | 60   | 120  | 300  | 1k   | 10k  | 50k or more |
|---------------|----------|------|------|------|------|------|-------------|
| coeff.        | 200.250V | 0.81 | 0.85 | 1.00 | 1.17 | 1.32 | 1.45        |
|               | 400.450V | 0.77 | 0.82 | 1.00 | 1.16 | 1.30 | 1.41        |

Minimum order quantity : 50pcs.

● Dimension table in next page.

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■ Dimensions

| 200V (2D) |                  |                      |                      |                |
|-----------|------------------|----------------------|----------------------|----------------|
| Cap. (μF) | Size φD × L (mm) | Rated ripple (mArms) | Leakage Current (mA) | Code           |
| 390       | 22 × 25          | 1310                 | 0.83                 | LAR2D391MELZ25 |
| 470       | 22 × 30          | 1480                 | 0.91                 | LAR2D471MELZ30 |
|           | 25 × 25          | 1480                 | 0.91                 | LAR2D471MELA25 |
| 560       | 22 × 35          | 1600                 | 1.00                 | LAR2D561MELZ35 |
| 680       | 22 × 40          | 1750                 | 1.10                 | LAR2D681MELZ40 |
|           | 25 × 30          | 1750                 | 1.10                 | LAR2D681MELA30 |
|           | 30 × 25          | 1750                 | 1.10                 | LAR2D681MELB25 |
| 820       | 22 × 45          | 2040                 | 1.21                 | LAR2D821MELZ45 |
|           | 25 × 35          | 2040                 | 1.21                 | LAR2D821MELA35 |
| 1000      | 22 × 50          | 2300                 | 1.34                 | LAR2D102MELZ50 |
|           | 25 × 45          | 2300                 | 1.34                 | LAR2D102MELA45 |
|           | 30 × 30          | 2300                 | 1.34                 | LAR2D102MELB30 |
|           | 35 × 25          | 2300                 | 1.34                 | LAR2D102MELC25 |
| 1200      | 25 × 50          | 2650                 | 1.46                 | LAR2D122MELA50 |
|           | 30 × 35          | 2650                 | 1.46                 | LAR2D122MELB35 |
|           | 35 × 30          | 2650                 | 1.46                 | LAR2D122MELC30 |
| 1500      | 30 × 40          | 2800                 | 1.64                 | LAR2D152MELB40 |
|           | 35 × 35          | 2800                 | 1.64                 | LAR2D152MELC35 |
| 1800      | 30 × 50          | 3080                 | 1.80                 | LAR2D182MELB50 |
|           | 35 × 40          | 3080                 | 1.80                 | LAR2D182MELC40 |
| 2200      | 35 × 45          | 3480                 | 1.98                 | LAR2D222MELC45 |

| 250V (2E) |                  |                      |                      |                |
|-----------|------------------|----------------------|----------------------|----------------|
| Cap. (μF) | Size φD × L (mm) | Rated ripple (mArms) | Leakage Current (mA) | Code           |
| 270       | 22 × 25          | 1100                 | 0.77                 | LAR2E271MELZ25 |
| 330       | 22 × 30          | 1200                 | 0.86                 | LAR2E331MELZ30 |
|           | 25 × 25          | 1200                 | 0.86                 | LAR2E331MELA25 |
| 390       | 22 × 35          | 1300                 | 0.93                 | LAR2E391MELZ35 |
|           | 25 × 30          | 1300                 | 0.93                 | LAR2E391MELA30 |
| 470       | 22 × 40          | 1400                 | 1.02                 | LAR2E471MELZ40 |
|           | 25 × 35          | 1400                 | 1.02                 | LAR2E471MELA35 |
|           | 30 × 25          | 1400                 | 1.02                 | LAR2E471MELB25 |
| 560       | 22 × 45          | 1500                 | 1.12                 | LAR2E561MELZ45 |
|           | 25 × 35          | 1500                 | 1.12                 | LAR2E561MELA35 |
|           | 30 × 30          | 1500                 | 1.12                 | LAR2E561MELB30 |
| 680       | 22 × 50          | 1700                 | 1.23                 | LAR2E681MELZ50 |
|           | 25 × 40          | 1700                 | 1.23                 | LAR2E681MELA40 |
|           | 30 × 30          | 1700                 | 1.23                 | LAR2E681MELB30 |
| 820       | 35 × 25          | 1700                 | 1.23                 | LAR2E681MELC25 |
|           | 25 × 45          | 2000                 | 1.35                 | LAR2E821MELA45 |
|           | 30 × 35          | 2000                 | 1.35                 | LAR2E821MELB35 |
| 1000      | 35 × 30          | 2000                 | 1.35                 | LAR2E821MELC30 |
|           | 30 × 40          | 2200                 | 1.50                 | LAR2E102MELB40 |
|           | 35 × 35          | 2200                 | 1.50                 | LAR2E102MELC35 |
| 1200      | 30 × 45          | 2300                 | 1.64                 | LAR2E122MELB45 |
|           | 35 × 40          | 2300                 | 1.64                 | LAR2E122MELC40 |
| 1500      | 35 × 45          | 2500                 | 1.83                 | LAR2E152MELC45 |
| 1800      | 35 × 50          | 2700                 | 2.01                 | LAR2E182MELC50 |

| 400V (2G) |                  |                      |                      |                |
|-----------|------------------|----------------------|----------------------|----------------|
| Cap. (μF) | Size φD × L (mm) | Rated ripple (mArms) | Leakage Current (mA) | Code           |
| 100       | 22 × 25          | 680                  | 0.60                 | LAR2G101MELZ25 |
| 120       | 22 × 30          | 730                  | 0.65                 | LAR2G121MELZ30 |
| 180       | 22 × 35          | 950                  | 0.80                 | LAR2G181MELZ35 |
|           | 25 × 30          | 950                  | 0.80                 | LAR2G181MELA30 |
| 220       | 30 × 25          | 950                  | 0.80                 | LAR2G181MELB25 |
|           | 22 × 45          | 1100                 | 0.88                 | LAR2G221MELZ45 |
| 270       | 25 × 35          | 1100                 | 0.88                 | LAR2G221MELA35 |
|           | 30 × 25          | 1100                 | 0.88                 | LAR2G221MELB25 |
| 330       | 22 × 50          | 1220                 | 0.98                 | LAR2G271MELZ50 |
|           | 25 × 40          | 1220                 | 0.98                 | LAR2G271MELA40 |
|           | 30 × 30          | 1220                 | 0.98                 | LAR2G271MELB30 |
|           | 35 × 25          | 1220                 | 0.98                 | LAR2G271MELC25 |
| 390       | 25 × 45          | 1440                 | 1.08                 | LAR2G331MELA45 |
|           | 30 × 35          | 1440                 | 1.08                 | LAR2G331MELB35 |
| 470       | 25 × 50          | 1550                 | 1.18                 | LAR2G391MELA50 |
|           | 30 × 40          | 1550                 | 1.18                 | LAR2G391MELB40 |
| 560       | 35 × 30          | 1550                 | 1.18                 | LAR2G391MELC30 |
|           | 30 × 45          | 1680                 | 1.30                 | LAR2G471MELB45 |
| 680       | 35 × 35          | 1680                 | 1.30                 | LAR2G471MELC35 |
|           | 30 × 50          | 1900                 | 1.41                 | LAR2G561MELB50 |
|           | 35 × 40          | 1900                 | 1.41                 | LAR2G561MELC40 |
|           | 35 × 45          | 2120                 | 1.56                 | LAR2G681MELC45 |

| 450V (2W) |                  |                      |                      |                |
|-----------|------------------|----------------------|----------------------|----------------|
| Cap. (μF) | Size φD × L (mm) | Rated ripple (mArms) | Leakage Current (mA) | Code           |
| 82        | 22 × 25          | 340                  | 0.57                 | LAR2W820MELZ25 |
| 100       | 22 × 30          | 690                  | 0.63                 | LAR2W101MELZ30 |
|           | 25 × 25          | 690                  | 0.63                 | LAR2W101MELA25 |
| 120       | 22 × 35          | 720                  | 0.69                 | LAR2W121MELZ35 |
|           | 25 × 30          | 720                  | 0.69                 | LAR2W121MELA30 |
| 150       | 22 × 40          | 790                  | 0.77                 | LAR2W151MELZ40 |
|           | 25 × 30          | 790                  | 0.77                 | LAR2W151MELA30 |
|           | 30 × 25          | 790                  | 0.77                 | LAR2W151MELB25 |
| 180       | 22 × 45          | 870                  | 0.85                 | LAR2W181MELZ45 |
|           | 25 × 35          | 870                  | 0.85                 | LAR2W181MELA35 |
|           | 30 × 30          | 870                  | 0.85                 | LAR2W181MELB30 |
| 220       | 25 × 40          | 1050                 | 0.94                 | LAR2W221MELA40 |
|           | 30 × 30          | 1050                 | 0.94                 | LAR2W221MELB30 |
|           | 35 × 25          | 1050                 | 0.94                 | LAR2W221MELC25 |
| 270       | 25 × 50          | 1230                 | 1.04                 | LAR2W271MELA50 |
|           | 30 × 35          | 1230                 | 1.04                 | LAR2W271MELB35 |
|           | 35 × 30          | 1230                 | 1.04                 | LAR2W271MELC30 |
| 330       | 30 × 40          | 1380                 | 1.15                 | LAR2W331MELB40 |
|           | 35 × 35          | 1380                 | 1.15                 | LAR2W331MELC35 |
| 390       | 30 × 50          | 1610                 | 1.25                 | LAR2W391MELB50 |
|           | 35 × 40          | 1610                 | 1.25                 | LAR2W391MELC40 |
| 470       | 35 × 45          | 1780                 | 1.37                 | LAR2W471MELC45 |
| 560       | 35 × 50          | 1990                 | 1.50                 | LAR2W561MELC50 |

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