

# Alchip™-MLA Series

- Low impedance, long life
- Rated voltage 6.3 to 50V, Capacitance 10 to 1,000μF
- Case size φ5×5.8L to φ10×10L
- Suitable for applications requiring long life and low impedance such as equipment in continuous operation, industrial applications, etc.
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant

MVY → Longer life → **MLA**

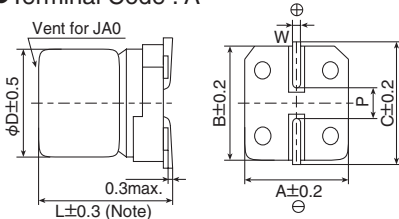


## ◆ SPECIFICATIONS

| Items   | Characteristics   |                                      |      |      |      |      |      |      |
|---|---|--------------------------------------|------|------|------|------|------|------|
| <b>Category</b>   | -40 to +105°C   |                                      |      |      |      |      |      |      |
| <b>Temperature Range</b>                                      | -40 to +105°C   |                                      |      |      |      |      |      |      |
| <b>Rated Voltage Range</b>                                    | 6.3 to 50V <sub>dc</sub>  |                                      |      |      |      |      |      |      |
| <b>Capacitance Tolerance</b>                                  | ±20%(M) (at 20°C, 120Hz)  |                                      |      |      |      |      |      |      |
| <b>Leakage Current</b>  | I=0.01CV or 3μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 2 minutes)  |                                      |      |      |      |      |      |      |
| <b>Dissipation Factor (tan δ)</b>                             | Rated voltage(V <sub>dc</sub> )   | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  |      |
|   | tan δ (Max.)  | E61 to F61                           | 0.28 | 0.24 | 0.22 | 0.16 | 0.13 | 0.12 |
|   |   | F80                                  | 0.32 | 0.27 | 0.24 | 0.16 | 0.13 | 0.12 |
|   |   | HA0 to JA0                           | 0.28 | 0.24 | 0.22 | 0.16 | 0.13 | 0.12 |
| <b>Low Temperature Characteristics (Max. impedance Ratio)</b> | Rated voltage(V <sub>dc</sub> )   | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  |      |
|   | Z(-25°C)/Z(+20°C)   | 4                                    | 3    | 2    | 2    | 2    | 2    |      |
|   | Z(-40°C)/Z(+20°C)   | 10                                   | 7    | 5    | 3    | 3    | 3    |      |
| <b>Endurance</b>  | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 3,000 hours at 105°C.   |                                      |      |      |      |      |      |      |
|   | Capacitance change  | ≤ ±30% of the initial value          |      |      |      |      |      |      |
|   | D.F. (tan δ)  | ≤300% of the initial specified value |      |      |      |      |      |      |
|   | Leakage current   | ≤The initial specified value         |      |      |      |      |      |      |
| <b>Shelf life</b>   | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. |                                      |      |      |      |      |      |      |
|   | Capacitance change  | ≤ ±30% of the initial value          |      |      |      |      |      |      |
|   | D.F. (tan δ)  | ≤300% of the initial specified value |      |      |      |      |      |      |
|   | Leakage current   | ≤The initial specified value         |      |      |      |      |      |      |

## ◆ DIMENSIONS [mm]

● Terminal Code : A



Note : L±0.5 for HA0 and JA0

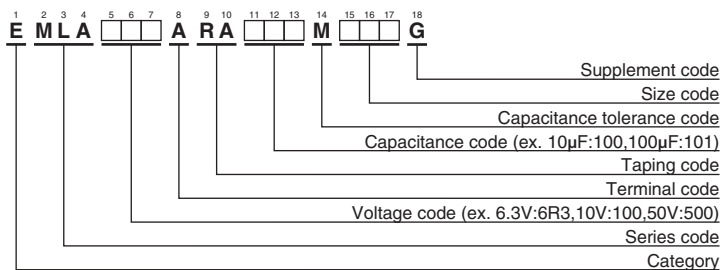
| Size code  | D   | L    | A    | B    | C    | W          | P   |
|------------|-----|------|------|------|------|------------|-----|
| <b>E61</b> | 5   | 5.8  | 5.3  | 5.3  | 5.9  | 0.5 to 0.8 | 1.4 |
| <b>F61</b> | 6.3 | 5.8  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| <b>F80</b> | 6.3 | 7.7  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| <b>HA0</b> | 8   | 10.0 | 8.3  | 8.3  | 9.0  | 0.7 to 1.1 | 3.1 |
| <b>JA0</b> | 10  | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

## ◆ MARKING

EX) 16V100μF



## ◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

## ● Rated voltage symbol

| Rated voltage (V <sub>dc</sub> ) | Symbol |
|----------------------------------|--------|
| 6.3                              | j      |
| 10                               | A      |
| 16                               | C      |
| 25                               | E      |
| 35                               | V      |
| 50                               | H      |



◆ **STANDARD RATINGS**

| WV (V <sub>dc</sub> ) | Cap (μF) | Size code | tan δ | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz) | Part No.           | WV (V <sub>dc</sub> ) | Cap (μF) | Size code | tan δ | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz) | Part No.           |
|-----------------------|----------|-----------|-------|---------------------------------|---|--------------------|-----------------------|----------|-----------|-------|---------------------------------|---|--------------------|
| 6.3                   | 47       | E61       | 0.28  | 1.30                            | 95  | EMLA6R3ARA470ME61G | 25                    | 33       | F61       | 0.16  | 0.70                            | 140   | EMLA250ARA330MF61G |
|                       | 100      | F61       | 0.28  | 0.70                            | 140   | EMLA6R3ARA101MF61G |                       | 47       | F61       | 0.16  | 0.70                            | 140   | EMLA250ARA470MF61G |
|                       | 150      | F61       | 0.28  | 0.70                            | 140   | EMLA6R3ARA151MF61G |                       | 47       | F80       | 0.16  | 0.70                            | 230   | EMLA250ARA470MF80G |
|                       | 220      | F80       | 0.32  | 0.70                            | 230   | EMLA6R3ARA221MF80G |                       | 100      | F80       | 0.16  | 0.70                            | 230   | EMLA250ARA101MF80G |
|                       | 330      | F80       | 0.32  | 0.70                            | 230   | EMLA6R3ARA331MF80G |                       | 100      | HA0       | 0.16  | 0.16                            | 600   | EMLA250ARA101MHA0G |
|                       | 330      | HA0       | 0.28  | 0.16                            | 600   | EMLA6R3ARA331MHA0G |                       | 150      | HA0       | 0.16  | 0.16                            | 600   | EMLA250ARA151MHA0G |
|                       | 470      | HA0       | 0.28  | 0.16                            | 600   | EMLA6R3ARA471MHA0G |                       | 220      | HA0       | 0.16  | 0.16                            | 600   | EMLA250ARA221MHA0G |
| 1,000                 | JA0      | 0.28      | 0.08  | 850                             | EMLA6R3ARA102MJA0G                                      | 330                | HA0                   | 0.16     | 0.16      | 600   | EMLA250ARA331MHA0G              |   |                    |
| 10                    | 33       | E61       | 0.24  | 1.30                            | 95  | EMLA100ARA330ME61G | 330                   | JA0      | 0.16      | 0.08  | 850                             | EMLA250ARA331MJA0G                                      |                    |
|                       | 47       | F61       | 0.24  | 0.70                            | 140   | EMLA100ARA470MF61G | 470                   | JA0      | 0.16      | 0.08  | 850                             | EMLA250ARA471MJA0G                                      |                    |
|                       | 100      | F61       | 0.24  | 0.70                            | 140   | EMLA100ARA101MF61G | 35                    | 10       | E61       | 0.13  | 1.30                            | 95  | EMLA350ARA100ME61G |
|                       | 150      | F61       | 0.24  | 0.70                            | 140   | EMLA100ARA151MF61G |                       | 22       | F61       | 0.13  | 0.70                            | 140   | EMLA350ARA220MF61G |
|                       | 220      | F80       | 0.27  | 0.70                            | 230   | EMLA100ARA221MF80G |                       | 33       | F61       | 0.13  | 0.70                            | 140   | EMLA350ARA330MF61G |
|                       | 220      | HA0       | 0.24  | 0.16                            | 600   | EMLA100ARA221MHA0G |                       | 33       | F80       | 0.13  | 0.70                            | 230   | EMLA350ARA330MF80G |
|                       | 330      | HA0       | 0.24  | 0.16                            | 600   | EMLA100ARA331MHA0G |                       | 47       | F80       | 0.13  | 0.70                            | 230   | EMLA350ARA470MF80G |
| 470                   | HA0      | 0.24      | 0.16  | 600                             | EMLA100ARA471MHA0G                                      | 100                |                       | F80      | 0.13      | 0.70  | 230                             | EMLA350ARA101MF80G                                      |                    |
| 22                    | E61      | 0.22      | 1.30  | 95                              | EMLA160ARA220ME61G                                      | 100                |                       | HA0      | 0.13      | 0.16  | 600                             | EMLA350ARA101MHA0G                                      |                    |
| 33                    | F61      | 0.22      | 0.70  | 140                             | EMLA160ARA330MF61G                                      | 150                | HA0                   | 0.13     | 0.16      | 600   | EMLA350ARA151MHA0G              |   |                    |
| 47                    | F61      | 0.22      | 0.70  | 140                             | EMLA160ARA470MF61G                                      | 220                | HA0                   | 0.13     | 0.16      | 600   | EMLA350ARA221MHA0G              |   |                    |
| 100                   | F61      | 0.22      | 0.70  | 140                             | EMLA160ARA101MF61G                                      | 220                | JA0                   | 0.13     | 0.08      | 850   | EMLA350ARA221MJA0G              |   |                    |
| 100                   | F80      | 0.24      | 0.70  | 230                             | EMLA160ARA101MF80G                                      | 330                | JA0                   | 0.13     | 0.08      | 850   | EMLA350ARA331MJA0G              |   |                    |
| 150                   | F80      | 0.24      | 0.70  | 230                             | EMLA160ARA151MF80G                                      | 50                 | 10                    | F61      | 0.12      | 2.00  | 70                              | EMLA500ARA100MF61G                                      |                    |
| 220                   | F80      | 0.24      | 0.70  | 230                             | EMLA160ARA221MF80G                                      |                    | 22                    | F61      | 0.12      | 2.00  | 70                              | EMLA500ARA220MF61G                                      |                    |
| 220                   | HA0      | 0.22      | 0.16  | 600                             | EMLA160ARA221MHA0G                                      |                    | 33                    | F80      | 0.12      | 1.60  | 100                             | EMLA500ARA330MF80G                                      |                    |
| 330                   | HA0      | 0.22      | 0.16  | 600                             | EMLA160ARA331MHA0G                                      |                    | 47                    | F80      | 0.12      | 1.60  | 100                             | EMLA500ARA470MF80G                                      |                    |
| 470                   | HA0      | 0.22      | 0.16  | 600                             | EMLA160ARA471MHA0G                                      |                    | 47                    | HA0      | 0.12      | 0.34  | 350                             | EMLA500ARA470MHA0G                                      |                    |
| 470                   | JA0      | 0.22      | 0.08  | 850                             | EMLA160ARA471MJA0G                                      |                    | 100                   | HA0      | 0.12      | 0.34  | 350                             | EMLA500ARA101MHA0G                                      |                    |
| 10                    | E61      | 0.16      | 1.30  | 95                              | EMLA250ARA100ME61G                                      |                    | 100                   | JA0      | 0.12      | 0.18  | 670                             | EMLA500ARA101MJA0G                                      |                    |
| 22                    | E61      | 0.16      | 1.30  | 95                              | EMLA250ARA220ME61G                                      | 150                | JA0                   | 0.12     | 0.18      | 670   | EMLA500ARA151MJA0G              |   |                    |
| 22                    | F61      | 0.16      | 0.70  | 140                             | EMLA250ARA220MF61G                                      | 220                | JA0                   | 0.12     | 0.18      | 670   | EMLA500ARA221MJA0G              |   |                    |

◆ **RATED RIPPLE CURRENT MULTIPLIERS**

⊙ Frequency Multipliers

| Capacitance(μF) | Frequency(Hz) | 120  | 1k   | 10k  | 100k |
|-----------------|---------------|------|------|------|------|
| 10 to 150       |               | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 470      |               | 0.50 | 0.85 | 0.94 | 1.00 |
| 1,000           |               | 0.60 | 0.87 | 0.95 | 1.00 |

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
- Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.
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[Part Numbering System](#)

[Part Numbering System \(Appendix\)](#)

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