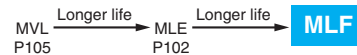


# Alchip™-MLF Series

- Endurance : 10,000 hours at 105°C
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 1.0 to 1,000μF
- Suitable for high reliability products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS Compliant

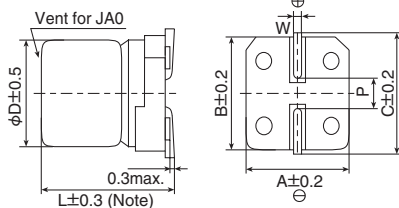


## SPECIFICATIONS

| Items                                                  | Characteristics                                                                                                                                                                                                                                                                       |                                      |      |      |      |      |      |                |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|------|------|------|------|----------------|
| Category                                               |                                                                                                                                                                                                                                                                                       |                                      |      |      |      |      |      |                |
| Temperature Range                                      | -25 to +105℃                                                                                                                                                                                                                                                                          |                                      |      |      |      |      |      |                |
| Rated Voltage Range                                    | 6.3 to 50V <sub>dc</sub>                                                                                                                                                                                                                                                              |                                      |      |      |      |      |      |                |
| Capacitance Tolerance                                  | ±20%(M) (at 20℃,120Hz)                                                                                                                                                                                                                                                                |                                      |      |      |      |      |      |                |
| Leakage Current                                        | I=0.03CV or 4μA, whichever is greater<br>Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, after 2 minutes)                                                                                                                          |                                      |      |      |      |      |      |                |
| Dissipation Factor (tan δ)                             | Rated voltage (V <sub>dc</sub> )                                                                                                                                                                                                                                                      | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  | (at 20℃,120Hz) |
|                                                        | tan δ (Max.)                                                                                                                                                                                                                                                                          | 0.32                                 | 0.28 | 0.26 | 0.16 | 0.14 | 0.14 |                |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage(V <sub>dc</sub> )                                                                                                                                                                                                                                                       | 6.3V                                 | 10V  | 16V  | 25V  | 35V  | 50V  | (at 120Hz)     |
|                                                        | Z(-10℃)/Z(+20℃)                                                                                                                                                                                                                                                                       | 4                                    | 3    | 2    | 2    | 2    | 2    |                |
| Endurance                                              | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 10,000 hours at 105℃.                                                                                                                                  |                                      |      |      |      |      |      |                |
|                                                        | Capacitance change                                                                                                                                                                                                                                                                    | ≤ ±30% of the initial value          |      |      |      |      |      |                |
|                                                        | D.F. (tan δ)                                                                                                                                                                                                                                                                          | ≤300% of the initial specified value |      |      |      |      |      |                |
|                                                        | Leakage current                                                                                                                                                                                                                                                                       | ≤ The initial specified value        |      |      |      |      |      |                |
| Shelf Life                                             | The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ 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        |      |      |      |      |      |                |

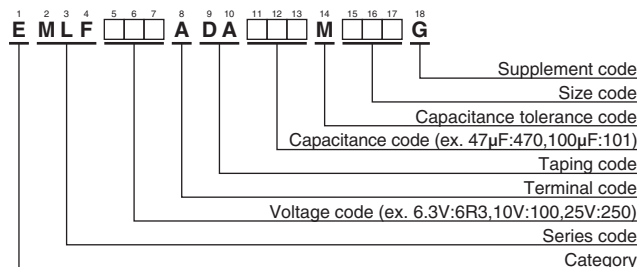
## DIMENSIONS [mm]

### Terminal Code : A



| Size code | D   | L    | A    | B    | C    | W          | P   |
|-----------|-----|------|------|------|------|------------|-----|
| D73       | 4   | 7.0  | 4.3  | 4.3  | 5.1  | 0.5 to 0.8 | 1.0 |
| E73       | 5   | 7.0  | 5.3  | 5.3  | 5.9  | 0.5 to 0.8 | 1.4 |
| F73       | 6.3 | 7.0  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| F90       | 6.3 | 8.7  | 6.6  | 6.6  | 7.2  | 0.5 to 0.8 | 1.9 |
| HA0       | 8   | 10.0 | 8.3  | 8.3  | 9.0  | 0.7 to 1.1 | 3.1 |
| JA0       | 10  | 10.0 | 10.3 | 10.3 | 11.0 | 0.7 to 1.1 | 4.5 |

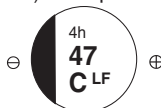
## PART NUMBERING SYSTEM



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

## MARKING

EX) 16V47μF



### Rated voltage symbol

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

Alchip™-**MLF** Series

◆STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size code | Rated ripple current<br>(mA <sub>rms</sub> /105°C, 120Hz) | Part No.           | WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size code | Rated ripple current<br>(mA <sub>rms</sub> /105°C, 120Hz) | Part No.           |
|--------------------------|-------------|-----------|-----------------------------------------------------------|--------------------|--------------------------|-------------|-----------|-----------------------------------------------------------|--------------------|
| 6.3                      | 22          | D73       | 22                                                        | EMLF6R3ADA220MD73G | 35                       | 1.0         | D73       | 6.2                                                       | EMLF350ADA1R0MD73G |
|                          | 47          | E73       | 36                                                        | EMLF6R3ADA470ME73G |                          | 2.2         | D73       | 11                                                        | EMLF350ADA2R2MD73G |
|                          | 100         | F73       | 60                                                        | EMLF6R3ADA101MF73G |                          | 3.3         | D73       | 14                                                        | EMLF350ADA3R3MD73G |
|                          | 220         | F90       | 101                                                       | EMLF6R3ADA221MF90G |                          | 4.7         | D73       | 15                                                        | EMLF350ADA4R7MD73G |
|                          | 330         | HA0       | 160                                                       | EMLF6R3ADA331MHA0G |                          | 4.7         | E73       | 19                                                        | EMLF350ADA4R7ME73G |
|                          | 1,000       | JA0       | 313                                                       | EMLF6R3ADA102MJA0G |                          | 10          | E73       | 25                                                        | EMLF350ADA100ME73G |
| 10                       | 33          | E73       | 35                                                        | EMLF100ADA330ME73G |                          | 10          | F73       | 30                                                        | EMLF350ADA100MF73G |
|                          | 220         | HA0       | 141                                                       | EMLF100ADA221MHA0G |                          | 22          | F73       | 42                                                        | EMLF350ADA220MF73G |
| 16                       | 10          | D73       | 18                                                        | EMLF160ADA100MD73G |                          | 22          | F90       | 49                                                        | EMLF350ADA220MF90G |
|                          | 22          | E73       | 30                                                        | EMLF160ADA220ME73G |                          | 33          | F90       | 57                                                        | EMLF350ADA330MF90G |
|                          | 47          | F73       | 50                                                        | EMLF160ADA470MF73G |                          | 220         | JA0       | 216                                                       | EMLF350ADA221MJA0G |
|                          | 100         | F90       | 81                                                        | EMLF160ADA101MF90G | 50                       | 33          | HA0       | 77                                                        | EMLF500ADA330MHA0G |
|                          | 470         | JA0       | 254                                                       | EMLF160ADA471MJA0G |                          | 47          | HA0       | 92                                                        | EMLF500ADA470MHA0G |
| 25                       | 33          | F73       | 48                                                        | EMLF250ADA330MF73G |                          | 100         | JA0       | 151                                                       | EMLF500ADA101MJA0G |
|                          | 47          | F90       | 63                                                        | EMLF250ADA470MF90G |                          |             |           |                                                           |                    |
|                          | 100         | HA0       | 116                                                       | EMLF250ADA101MHA0G |                          |             |           |                                                           |                    |

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) | Frequency(Hz) | 120  | 1k   | 10k  | 100k |
|-----------------|---------------|------|------|------|------|
| 1.0             |               | 1.00 | 1.50 | 1.75 | 1.80 |
| 2.2 to 10       |               | 1.00 | 1.30 | 1.40 | 1.50 |
| 22 to 1,000     |               | 1.00 | 1.05 | 1.08 | 1.08 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.