

Alchip™-MZF Series

- Endurance : 10,000 hours at 105°C
- Low impedance
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 10 to 470μF
- Suitable for long life and low profile products
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant

MLA $\xrightarrow{\text{Longer life}}$ MZE $\xrightarrow{\text{Longer life}}$ **MZF**

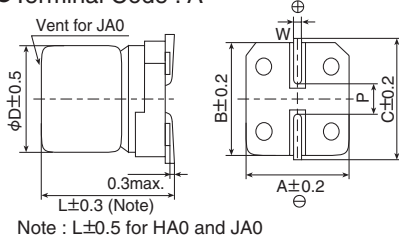


◆ SPECIFICATIONS

| Items | Characteristics | | | | | | |
|---|---|---------------------------------------|------|------|------|------|------|
| Category | -25 to +105°C | | | | | | |
| Temperature Range | -25 to +105°C | | | | | | |
| Rated Voltage Range | 6.3 to 50V _{dc} | | | | | | |
| Capacitance Tolerance | ±20%(M) (at 20°C, 120Hz) | | | | | | |
| Leakage Current | I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C, after 2 minutes) | | | | | | |
| Dissipation Factor (tan δ) | Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | tan δ (Max.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | 0.14 |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage(V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V |
| | Z(-10°C)/Z(+20°C) | 4 | 3 | 2 | 2 | 2 | 2 |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 10,000 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 | | | | | |
| Shelf Life | 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 | | | | | |

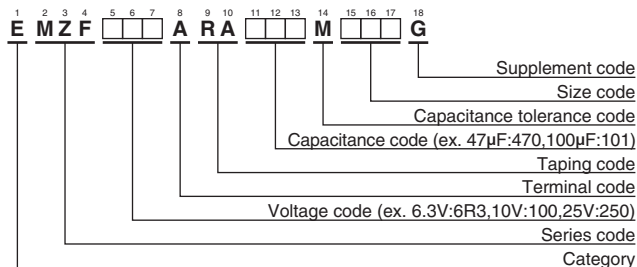
◆ DIMENSIONS [mm]

- Terminal Code : A



| Size code | D | L | A | B | C | W | P |
|-----------|-----|------|------|------|------|------------|-----|
| 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 _{dc}) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|----------------------------------|-----|----|----|----|----|----|
| Symbol | j | A | C | E | V | H |

Alchip™-MZF Series

◆STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size code | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) | Part No. | WV (V _{dc}) | Cap (μF) | Size code | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) | Part No. |
|-----------------------|----------|-----------|---------------------------------|---|--------------------|-----------------------|----------|-----------|---------------------------------|---|--------------------|
| 6.3 | 47 | E73 | 2.2 | 95 | EMZF6R3ARA470ME73G | 25 | 33 | F73 | 1.1 | 140 | EMZF250ARA330MF73G |
| | 100 | F73 | 1.1 | 140 | EMZF6R3ARA101MF73G | | 47 | F73 | 1.1 | 140 | EMZF250ARA470MF73G |
| | 220 | F90 | 1.0 | 230 | EMZF6R3ARA221MF90G | | 100 | F90 | 1.0 | 230 | EMZF250ARA101MF90G |
| | 330 | F90 | 1.0 | 230 | EMZF6R3ARA331MF90G | | 220 | HA0 | 0.22 | 600 | EMZF250ARA221MHA0G |
| | 470 | HA0 | 0.22 | 600 | EMZF6R3ARA471MHA0G | | 330 | JA0 | 0.16 | 850 | EMZF250ARA331MJA0G |
| 10 | 33 | E73 | 2.2 | 95 | EMZF100ARA330ME73G | 35 | 10 | E73 | 2.2 | 95 | EMZF350ARA100ME73G |
| | 150 | F73 | 1.1 | 140 | EMZF100ARA151MF73G | | 10 | F73 | 1.1 | 140 | EMZF350ARA100MF73G |
| 16 | 22 | E73 | 2.2 | 95 | EMZF160ARA220ME73G | | 22 | E73 | 2.2 | 95 | EMZF350ARA220ME73G |
| | 47 | F73 | 1.1 | 140 | EMZF160ARA470MF73G | | 22 | F73 | 1.1 | 140 | EMZF350ARA220MF73G |
| | 100 | F73 | 1.1 | 140 | EMZF160ARA101MF73G | | 33 | F90 | 1.0 | 230 | EMZF350ARA330MF90G |
| | 150 | F90 | 1.0 | 230 | EMZF160ARA151MF90G | | 47 | F90 | 1.0 | 230 | EMZF350ARA470MF90G |
| | 220 | F90 | 1.0 | 230 | EMZF160ARA221MF90G | | 100 | HA0 | 0.22 | 600 | EMZF350ARA101MHA0G |
| | 330 | HA0 | 0.22 | 600 | EMZF160ARA331MHA0G | | 220 | JA0 | 0.16 | 850 | EMZF350ARA221MJA0G |
| 25 | 470 | JA0 | 0.16 | 850 | EMZF160ARA471MJA0G | 50 | 47 | HA0 | 0.53 | 350 | EMZF500ARA470MHA0G |
| | 22 | E73 | 2.2 | 95 | EMZF250ARA220ME73G | | 100 | JA0 | 0.35 | 670 | EMZF500ARA101MJA0G |

◆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 |

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.