

Alchip™-MZR Series

- Downsizing and Lower ESR, 2,000hours at 105°C
- Rated voltage range : 6.3 to 50V, Nominal capacitance range : 100 to 2,200μF
- Solvent resistant type(see PRECAUTIONS AND GUIDELINES)
- Vibration resistance structure
- RoHS Compliant
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.

MZR

↓
Downsized
MZJ P98



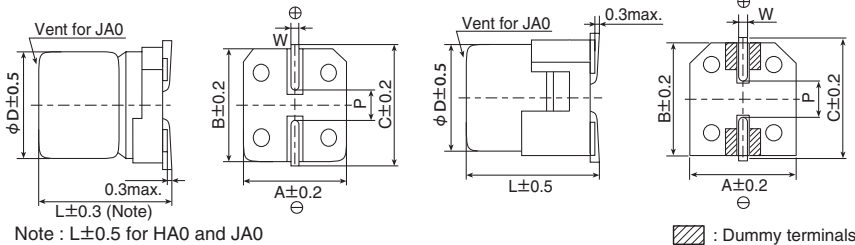
◆ SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|----------------------------------|-----------------------------|--------------|--------------------------------------|-----------------|------------------------------|-----|----------------------------------|------|------|------|------|------|------|-------------------|-----------------------|--------------------|-----------------------------|--------------|--------------------------------------|-----------------|------------------------------|---|---|---|---|---|---|
| Category | -55 to +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature Range | -55 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) | <table border="1"> <tr> <td>Rated voltage (V_{dc})</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> <td>50V</td> </tr> <tr> <td>tan δ (Max.)</td> <td>0.26</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> | Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V | tan δ (Max.) | 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | | | | | | |
| Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V | | | | | | | | | | | | | | | | | | | | | | | |
| tan δ (Max.) | 0.26 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | | | | | | | | | | | | | | | |
| Low Temperature Characteristics (Max. Impedance Ratio) | <table border="1"> <tr> <td>Rated voltage (V_{dc})</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> <td>50V</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td>Z(-55°C)/Z(+20°C)</td> <td>4</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> | Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V | Z(-25°C)/Z(+20°C) | 2 | 2 | 2 | 2 | 2 | 2 | Z(-40°C)/Z(+20°C) | 3 | 3 | 3 | 3 | 3 | 3 | Z(-55°C)/Z(+20°C) | 4 | 4 | 4 | 3 | 3 | 3 |
| Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-25°C)/Z(+20°C) | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-40°C)/Z(+20°C) | 3 | 3 | 3 | 3 | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-55°C)/Z(+20°C) | 4 | 4 | 4 | 3 | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C. <table border="1"> <tr> <td>Capacitance change</td> <td>≤ ±30% of the initial value</td> </tr> <tr> <td>D.F. (tan δ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table> | Capacitance change | ≤ ±30% of the initial value | D.F. (tan δ) | ≤200% of the initial specified value | Leakage current | ≤The initial specified value | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance change | ≤ ±30% of the initial value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D.F. (tan δ) | ≤200% 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. <table border="1"> <tr> <td>Capacitance change</td> <td>≤ ±30% of the initial value</td> </tr> <tr> <td>D.F. (tan δ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table> | Capacitance change | ≤ ±30% of the initial value | D.F. (tan δ) | ≤200% of the initial specified value | Leakage current | ≤The initial specified value | | | | | | | | | | | | | | | | | | | | | | |
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| D.F. (tan δ) | ≤200% of the initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage current | ≤The initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Surge Voltage Test | The capacitors shall be subjected to 1,000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (as required for RC=0.1±0.05sec) and open-circuiting for 5.5 minutes at a room temperature of 15 to 35°C. <table border="1"> <tr> <td>Rated voltage (V_{dc})</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> <td>50V</td> </tr> <tr> <td>Surge voltage (V_{dc})</td> <td>7.2V</td> <td>12V</td> <td>18V</td> <td>29V</td> <td>40V</td> <td>58V</td> </tr> </table> <table border="1"> <tr> <td>Appearance</td> <td>No significant damage</td> </tr> <tr> <td>Capacitance change</td> <td>≤ ±20% of the initial value</td> </tr> <tr> <td>D.F. (tan δ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table> <p>(Caution) Surge Voltage Test intends to evaluate capacitors in durability of an exceptional excessive voltage under specific conditions. It does not imply long-term use at all.</p> | Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V | Surge voltage (V _{dc}) | 7.2V | 12V | 18V | 29V | 40V | 58V | Appearance | No significant damage | Capacitance change | ≤ ±20% of the initial value | D.F. (tan δ) | ≤200% of the initial specified value | Leakage current | ≤The initial specified value | | | | | | |
| Rated voltage (V _{dc}) | 6.3V | 10V | 16V | 25V | 35V | 50V | | | | | | | | | | | | | | | | | | | | | | | |
| Surge voltage (V _{dc}) | 7.2V | 12V | 18V | 29V | 40V | 58V | | | | | | | | | | | | | | | | | | | | | | | |
| Appearance | No significant damage | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance change | ≤ ±20% of the initial value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D.F. (tan δ) | ≤200% of the initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage current | ≤The initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

◆ DIMENSIONS [mm]

- Terminal Code : A
- Size code : F80 to JA0

- Terminal Code : G(Vibration resistant structure)
- Size code : HA0 and JA0



| Size code | D | L | A | B | C | W | P |
|-----------|-----|------|------|------|------|------------|-----|
| F80 | 6.3 | 7.7 | 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 |

◆ MARKING

EX) 35V330μF



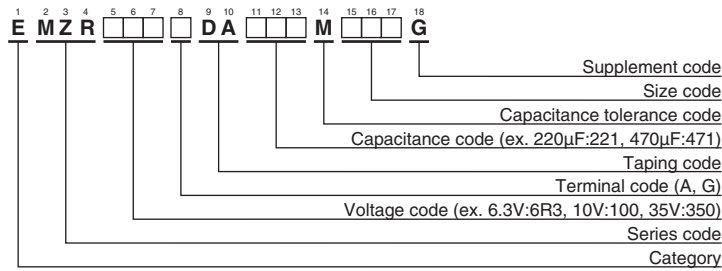
- Rated voltage symbol

| Rated voltage (V _{dc}) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|----------------------------------|-----|----|----|----|----|----|
| Symbol | j | A | C | E | V | H |

Applying voltage over the rated voltages causes the capacitors to have short lifetime.
Besides, applying voltage over the specified surge voltages may cause to have short circuit failure. A protection circuit should be used if applied voltage will exceed the rated voltages.

Alchip™-MZR Series

◆PART NUMBERING SYSTEM



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

◆STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size code | tan δ | ESR (Ω max./20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) | Part No. |
|-----------------------|----------|-----------|-------|---------------------------|---|--------------------|
| 6.3 | 680 | F80 | 0.26 | 0.16 | 600 | EMZR6R3ADA681MF80G |
| | 1,500 | HA0 | 0.26 | 0.08 | 850 | EMZR6R3□DA152MHA0G |
| | 2,200 | JA0 | 0.26 | 0.06 | 1,190 | EMZR6R3□DA222MJA0G |
| 10 | 470 | F80 | 0.19 | 0.16 | 600 | EMZR100ADA471MF80G |
| | 1,000 | HA0 | 0.19 | 0.08 | 850 | EMZR100□DA102MHA0G |
| | 1,500 | JA0 | 0.19 | 0.06 | 1,190 | EMZR100□DA152MJA0G |
| 16 | 330 | F80 | 0.16 | 0.16 | 600 | EMZR160ADA331MF80G |
| | 680 | HA0 | 0.16 | 0.08 | 850 | EMZR160□DA681MHA0G |
| | 1,000 | JA0 | 0.16 | 0.06 | 1,190 | EMZR160□DA102MJA0G |
| 25 | 220 | F80 | 0.14 | 0.16 | 600 | EMZR250ADA221MF80G |
| | 470 | HA0 | 0.14 | 0.08 | 850 | EMZR250□DA471MHA0G |
| | 820 | JA0 | 0.14 | 0.06 | 1,190 | EMZR250□DA821MJA0G |
| 35 | 150 | F80 | 0.12 | 0.16 | 600 | EMZR350ADA151MF80G |
| | 330 | HA0 | 0.12 | 0.08 | 850 | EMZR350□DA331MHA0G |
| | 560 | JA0 | 0.12 | 0.06 | 1,190 | EMZR350□DA561MJA0G |
| 50 | 100 | F80 | 0.10 | 0.34 | 350 | EMZR500ADA101MF80G |
| | 220 | HA0 | 0.10 | 0.18 | 670 | EMZR500□DA221MHA0G |
| | 330 | JA0 | 0.10 | 0.12 | 900 | EMZR500□DA331MJA0G |

□ : Enter the appropriate terminal code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) | Frequency(Hz) | | | |
|-----------------|---------------|------|------|------|
| | 120 | 1k | 10k | 100k |
| 100 to 150 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 560 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 to 2,200 | 0.60 | 0.87 | 0.95 | 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.