# CV2 *SMD Aluminum Electrolytic Capacitors*

Cal-Chip Electronics Inc.

Features

- 3 ~ 10 $\phi$, 85℃, 2,000 hours assured
- Chip type large capacitance capacitors
- Designed for surface mounting on high density PC board.
- RoHS Compliance


SPECIFICATIONS

| Items | Performance |
|---|---|
| Operating Temperature Range | -40℃ ~ +85℃ |
| Capacitance Tolerance | ±20% (at 120Hz, 20℃) |
| Leakage Current (at 20℃) | I = 0.01CV or 3 ( $\mu$A) whichever is greater (after 2 minutes)<br>Where, C= rated capacitance in $\mu$F. V = rated DC working voltage in V. |

Dissipation Factor (Tan $\delta$ at 120Hz, 20℃)

| Rated Voltage | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
|---|---|---|---|---|---|---|---|---|---|
| Tan $\delta$ (max) | 0.42 | 0.28 | 0.24 | 0.20 | 0.14 | 0.12 | 0.10 | 0.10 | 0.10 |

Low Temperature Characteristics (at 120Hz)

Impedance ratio shall not exceed the values given in the table below.

| Rated Voltage | | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|
| Impedance Ratio | Z(-25℃)/Z(+20℃) | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(-40℃)/Z(+20℃) | 15 | 8 | 5 | 4 | 3 | 3 | 3 | 3 | 3 |

Load Life Test

| Test Time | 2,000 Hrs |
|---|---|
| Capacitance Change | Within ±20% of initial value (4WV:±30%) |
| Dissipation Factor | Less than 200% of specified value (4WV:±300%) |
| Leakage Current | Within specified value |

* The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 hrs at 85℃.

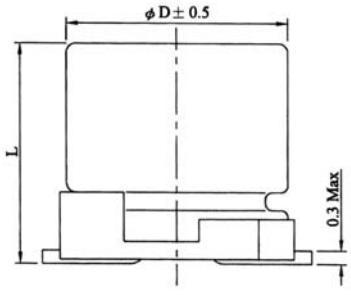
Shelf Life Test: Test time: 1,000 hrs; other items are the same as those for the load life test.

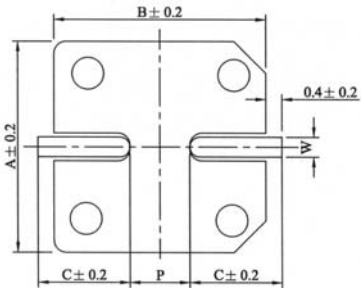
Ripple Current & Frequency Multipliers

| Freq.(Hz) / V.DC(V) | 50 | 120 | 1K | 10K up |
|---|---|---|---|---|
| Under 16 | 0.8 | 1.0 | 1.15 | 1.25 |
| 25 ~ 35 | 0.8 | 1.0 | 1.25 | 1.40 |
| 50 ~ 63 | 0.8 | 1.0 | 1.35 | 1.50 |
| 100 | 0.7 | 1.0 | 1.35 | 1.50 |

Other Standards: JIS C 5101-1, -18

DIAGRAM OF DIMENSIONS




LEAD SPACING AND DIAMETER Unit: mm

| φD | L | A | B | C | W | P±0.2 |
|---|---|---|---|---|---|---|
| 3 | 5.3±0.2 | 3.3 | 3.3 | 1.5 | 0.45 ~ 0.75 | 0.8 |
| 4 | 5.3±0.2 | 4.3 | 4.3 | 2.0 | 0.5 to 0.8 | 1.0 |
| 5 | 5.3±0.2 | 5.3 | 5.3 | 2.3 | 0.5 to 0.8 | 1.5 |
| 6.3 | 5.3±0.2 | 6.6 | 6.6 | 2.7 | 0.5 to 0.8 | 2.0 |
| 6.3 | 7.7±0.3 | 6.6 | 6.6 | 2.7 | 0.5 to 0.8 | 2.0 |
| 8 | 6.5±0.3 | 8.4 | 8.4 | 3.4 | 0.5 to 0.8 | 2.3 |
| 8 | 10±0.5 | 8.4 | 8.4 | 3.0 | 0.7 to 1.1 | 3.1 |
| 10 | 10±0.5 | 10.4 | 10.4 | 3.3 | 0.7 to 1.1 | 4.7 |
| 10 | 10.3±0.5 | 10.4 | 10.4 | 3.3 | 0.7 to 1.1 | 4.7 |

| V.DC / μF | Contents | 4V(0G) | | 6.3V (0J) | | 10V (1A) | | 16V (1C) | | 25V (1E) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA |
| 4.7 | 47 | | | | | | | | | 4×5.3 | 19 |
| 10 | 100 | | | | | 4×5.3 | 23 | 4(3)×5.3 | 26(14) | 5×5.3 | 32 |
| 22 | 220 | 3×5.3 | 14 | 4×5.3 | 23 | 5×5.3 | 39 | 4×5.3 | 30 | 6.3×5.3 | 55 |
| | | | | | | | | 5×5.3 | 44 | | |
| 33 | 330 | 4×5.3 | 31 | 4×5.3 | 31 | 4×5.3 | 33 | 6.3×5.3 | 63 | 5×5.3 | 54 |
| | | | | | | 5×5.3 | 48 | | | 6.3×5.3 | 67 |
| 47 | 470 | 4×5.3 | 34 | 4×5.3 | 37 | 6.3×5.3 | 67 | 5×5.3 | 52 | 6.3×5.3 | 75 |
| | | | | 5×5.3 | 50 | | | 6.3×5.3 | 75 | *8×6.5 | 155(98) |
| 68 | 680 | 5×5.3 | 54 | 6.3×5.3 | 89 | 5×5.3 | 63 | 6.3×5.3 | 98 | 6.3×5.3 | 103 |
| | | | | | | 6.3×5.3 | 98 | | | *8×6.5 | 155(109) |
| 100 | 101 | 5×5.3 | 58 | 5×5.3 | 63 | 5×5.3 | 65 | 6.3×5.3 | 110 | 6.3x7.7 | 124 |
| | | 6.3×5.3 | 89 | 6.3×5.3 | 98 | 6.3×5.3 | 110 | *8×6.5 | 155(108) | *8×6.5 | 155(124) |
| | | | | | | *8×6.5 | 155(108) | | | | |
| 220 | 221 | 6.3×5.3 | 110 | 6.3×5.3 | 110 | 6.3×7.7 | 124 | *8×10 | 252(124) | 8×10 | 252 |
| | | | | *8×6.5 | 155(123) | *8×6.5 | 155(130) | | | | |
| 330 | 331 | | | *8×6.5 | 155(139) | 8×10 | 252 | 8×10 | 252 | 10×10 | 458 |
| 470 | 471 | | | 8×10 | 252 | 10×10 | 458 | 10×10 | 458 | | |
| 1,000 | 102 | | | 10×10 | 458 | 10×10 | 458 | | | | |
| 1,500 | 152 | | | 10×10.3 | 458 | | | | | | |

| V.DC / μF | Contents | 35V (1V) | | 50V (1H) | | 63V (1J) | | 100V (2A) | |
|---|---|---|---|---|---|---|---|---|---|
| | | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA |
| 0.1 | 0R1 | | | 4×5.3 | 3 | | | | |
| 0.22 | R22 | | | 4×5.3 | 5 | | | | |
| 0.33 | R33 | | | 4×5.3 | 6 | | | | |
| 0.47 | R47 | | | 4×5.3 | 7 | | | | |
| 1 | 010 | | | 4×5.3 | 10 | | | | |
| 2.2 | 2R2 | | | 4×5.3 | 15 | | | | |
| 3.3 | 3R3 | 3×5.3 | 8 | 4×5.3 | 19 | | | | |
| 4.7 | 4R7 | 4×5.3 | 20 | 4×5.3 | 20 | | | | |
| | | | | 5×5.3 | 26 | | | | |
| 10 | 100 | 4×5.3 | 27 | 5×5.3 | 34 | 8×6.5 | 75 | 8×10 | 94 |
| | | 5×5.3 | 34 | 6.3×5.3 | 44 | | | | |
| 22 | 220 | 5×5.3 | 47 | 6.3×5.3 | 59 | 8×10 | 139 | 10×10 | 189 |
| | | 6.3×5.3 | 59 | *8×6.5 | 155(65) | | | | |
| 33 | 330 | 6.3×5.3 | 67 | 6.3×7.7 | 82 | 8×10 | 139 | 10×10 | 189 |
| | | *8×6.5 | 155(85) | *8×6.5 | 155(82) | | | | |
| 47 | 470 | *8×6.5 | 155(98) | 6.3×7.7 | 98 | 10×10 | 226 | | |
| | | | | *8×10 | 252(98) | | | | |
| 68 | 680 | 6.3x7.7 | 109 | 8×10 | 252 | 10×10 | 226 | | |
| | | *8×6.5 | 155(109) | | | | | | |
| 100 | 101 | *8×10 | 252 | 8×10 | 252 | 10×10 | 226 | | |
| | | | | 10x10 | 458 | | | | |
| 220 | 221 | 10×10 | 458 | 10×10.3 | 458 | | | | |

*6.3×7.7 is available and ( ) is its ripple current.