

OCV Series

Features

- 105°C, 2,000 hours assured
- Ultra low ESR, solid capacitors of SMD type
- RoHS Compliance



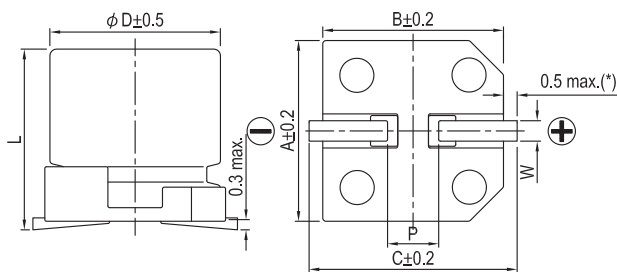
Marking color: Blue

Specifications

| Items | Performance | | | | | | | | | | |
|--|---|-----------------------------------|------------------------------|--------------------|------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|------------------------|
| Category Temperature Range | -55°C ~ +105°C | | | | | | | | | | |
| Capacitance Tolerance | ±20% (at 120Hz, 20°C) | | | | | | | | | | |
| Leakage Current (at 20°C)* | Rated voltage applied, after 2 minutes at 20°C. See Standard Ratings | | | | | | | | | | |
| Tanδ (at 120Hz, 20°C) | See Standard Ratings | | | | | | | | | | |
| ESR (at 100k ~ 300k Hz, 20°C) | See Standard Ratings | | | | | | | | | | |
| Endurance | <table border="1"> <tr><td>Test Time</td><td>2,000 Hrs</td></tr> <tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr> <tr><td>Tanδ</td><td>Less than 150% of specified value</td></tr> <tr><td>ESR</td><td>Less than 150% of specified value</td></tr> <tr><td>Leakage Current</td><td>Within specified value</td></tr> </table> | Test Time | 2,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ | Less than 150% of specified value | ESR | Less than 150% of specified value | Leakage Current | Within specified value |
| | Test Time | 2,000 Hrs | | | | | | | | | |
| | Capacitance Change | Within ±20% of initial value | | | | | | | | | |
| | Tanδ | Less than 150% of specified value | | | | | | | | | |
| | ESR | Less than 150% of specified value | | | | | | | | | |
| Leakage Current | Within specified value | | | | | | | | | | |
| * The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hours at 105°C. | | | | | | | | | | | |
| Moisture Resistance | <table border="1"> <tr><td>Test Time</td><td>1,000 Hrs</td></tr> <tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr> <tr><td>Tanδ</td><td>Less than 150% of specified value</td></tr> <tr><td>ESR</td><td>Less than 150% of specified value</td></tr> <tr><td>Leakage Current</td><td>Within specified value</td></tr> </table> | Test Time | 1,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ | Less than 150% of specified value | ESR | Less than 150% of specified value | Leakage Current | Within specified value |
| | Test Time | 1,000 Hrs | | | | | | | | | |
| | Capacitance Change | Within ±20% of initial value | | | | | | | | | |
| | Tanδ | Less than 150% of specified value | | | | | | | | | |
| | ESR | Less than 150% of specified value | | | | | | | | | |
| Leakage Current | Within specified value | | | | | | | | | | |
| * The above specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them at 60°C, 90 to 95% RH for 1,000 hours. Leakage current should be tested after voltage treatment*. | | | | | | | | | | | |
| Resistance to Soldering Heat * (Please refer to page 25 for reflowsoldering conditions) | <table border="1"> <tr><td>Capacitance Change</td><td>Within ±10% of initial value</td></tr> <tr><td>Tanδ</td><td>Within specified value</td></tr> <tr><td>ESR</td><td>Within specified value</td></tr> <tr><td>Leakage Current</td><td>Within specified value</td></tr> </table> | Capacitance Change | Within ±10% of initial value | Tanδ | Within specified value | ESR | Within specified value | Leakage Current | Within specified value | | |
| | Capacitance Change | Within ±10% of initial value | | | | | | | | | |
| | Tanδ | Within specified value | | | | | | | | | |
| | ESR | Within specified value | | | | | | | | | |
| Leakage Current | Within specified value | | | | | | | | | | |
| | | | | | | | | | | | |
| Ripple Current and Frequency Multipliers | <table border="1"> <tr> <th>Frequency (Hz)</th> <th>120 ≤ f < 1k</th> <th>1k ≤ f < 10k</th> <th>10k ≤ f < 100k</th> <th>100k ≤ f < 500k</th> </tr> <tr> <th>Multiplier</th> <td>0.05</td> <td>0.3</td> <td>0.7</td> <td>1.0</td> </tr> </table> | Frequency (Hz) | 120 ≤ f < 1k | 1k ≤ f < 10k | 10k ≤ f < 100k | 100k ≤ f < 500k | Multiplier | 0.05 | 0.3 | 0.7 | 1.0 |
| | Frequency (Hz) | 120 ≤ f < 1k | 1k ≤ f < 10k | 10k ≤ f < 100k | 100k ≤ f < 500k | | | | | | |
| Multiplier | 0.05 | 0.3 | 0.7 | 1.0 | | | | | | | |
| | | | | | | | | | | | |

* For any doubt about measured values, measure the leakage current again after the following voltage treatment.
Voltage treatment: DC rated voltage is applied to the capacitors for 2 hours at 105 °C.

Diagram of Dimensions



Lead Spacing and Diameter

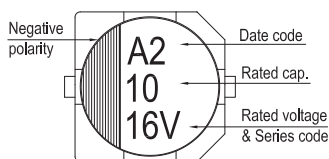
Unit: mm

| φD | L | A | B | C | W | P ± 0.2 |
|-----|----------------|------|------|------|-----------|---------|
| 5 | 5.7 ± 0.3 | 5.3 | 5.3 | 5.9 | 0.5 ~ 0.8 | 1.5 |
| 6.3 | 5.9 +0.1/-0.3 | 6.6 | 6.6 | 7.2 | 0.5 ~ 0.8 | 2.0 |
| 6.3 | 7.0 ± 0.2 | 6.6 | 6.6 | 7.2 | 0.5 ~ 0.8 | 2.0 |
| 8 | 6.7 ± 0.3 | 8.3 | 8.3 | 9.0 | 0.7 ~ 1.1 | 3.1 |
| 8 | 12.0 ± 0.5 | 8.3 | 8.3 | 9.0 | 0.7 ~ 1.1 | 3.1 |
| 10 | 7.7 ± 0.3 | 10.3 | 10.3 | 11.0 | 0.7 ~ 1.3 | 4.7 |
| 10 | 9.9 +0.1/-0.3 | 10.3 | 10.3 | 11.0 | 0.7 ~ 1.3 | 4.7 |
| 10 | 12.6 +0.1/-0.4 | 10.3 | 10.3 | 11.0 | 0.7 ~ 1.3 | 4.7 |

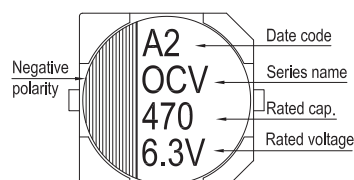
(*): For 5 ~ 6.3φ is 0.4 max.

Marking

φD = 5 ~ 6.3



φD = 8 ~ 10





Dimension: $\phi D \times L$ (mm)
Ripple Current: mA/rms at 100k Hz, 105°C

Standard Ratings

| Rated Volt. (V) | Surge Voltage (V) | Capacitance (μ F) | Size $\phi D \times L$ (mm) | Tan δ (120Hz, 20°C) | L C (μ A) | E S R (m Ω /at 100k ~ 300k Hz, 20°C max.) | Rated R. C. (mA/rms at 100k Hz, 105°C) |
|-----------------|-------------------|------------------------|-----------------------------|----------------------------|----------------|--|--|
| 2.5V (0E) | 2.9 | 220 | 6.3 × 5.9 | 0.12 | 110 | 25 | 2,500 |
| | | 560 | 8 × 6.7 | 0.12 | 280 | 23 | 3,100 |
| | | 680 | 8 × 12 | 0.18 | 340 | 12 | 4,770 |
| | | 1,000 | 10 × 7.7 | 0.12 | 500 | 19 | 4,240 |
| | | 1,200 | 10 × 9.9 | 0.18 | 750 | 13 | 5,200 |
| | | 1,500 | 10 × 12.6 | 0.18 | 750 | 10 | 5,500 |
| 4V (0G) | 4.6 | 150 | 5 × 5.7 | 0.12 | 120 | 30 | 1,490 |
| | | | 6.3 × 5.9 | 0.12 | 120 | 26 | 2,450 |
| | | 220 | 8 × 6.7 | 0.12 | 176 | 25 | 3,020 |
| | | 330 | 8 × 6.7 | 0.12 | 264 | 25 | 3,020 |
| | | 470 | 10 × 7.7 | 0.12 | 376 | 20 | 4,130 |
| | | 560 | 8 × 12 | 0.18 | 448 | 12 | 4,770 |
| | | 680 | 10 × 7.7 | 0.12 | 544 | 20 | 4,130 |
| | | 1,200 | 10 × 9.9 | 0.18 | 656 | 13 | 5,200 |
| 6.3V (0J) | 7.2 | 82 | 6.3 × 5.9 | 0.12 | 103 | 27 | 2,400 |
| | | | 5 × 5.7 | 0.12 | 126 | 35 | 1,380 |
| | | 100 | 6.3 × 5.9 | 0.12 | 126 | 27 | 2,400 |
| | | | 6.3 × 7 | 0.12 | 151 | 30 | 2,010 |
| | | 150 | 6.3 × 7 | 0.12 | 189 | 30 | 2,250 |
| | | | 8 × 6.7 | 0.12 | 189 | 25 | 3,020 |
| | | 220 | 6.3 × 7 | 0.12 | 277 | 30 | 2,250 |
| | | | 8 × 6.7 | 0.12 | 277 | 25 | 3,020 |
| | | 330 | 10 × 7.7 | 0.12 | 416 | 20 | 4,130 |
| | | 470 | 8 × 12 | 0.15 | 592 | 12 | 4,770 |
| 560 | 10 × 9.9 | 0.15 | 706 | 16 | 4,700 | | |
| 820 | 10 × 12.6 | 0.15 | 1,033 | 10 | 5,500 | | |
| 10V (1A) | 12.0 | 47 | 5 × 5.7 | 0.12 | 94 | 40 | 1,270 |
| | | 56 | 6.3 × 5.9 | 0.10 | 112 | 31 | 2,250 |
| | | 150 | 8 × 6.7 | 0.10 | 300 | 27 | 2,800 |
| | | 330 | 8 × 12 | 0.15 | 660 | 14 | 4,420 |
| | | | 10 × 7.7 | 0.10 | 660 | 24 | 3,770 |
| | | 470 | 10 × 9.9 | 0.15 | 940 | 18 | 4,400 |
| | | 560 | 10 × 12.6 | 0.15 | 1,120 | 12 | 5,300 |
| 16V (1C) | 18.0 | 22 | 5 × 5.7 | 0.12 | 70 | 45 | 1,210 |
| | | 47 | 6.3 × 5.9 | 0.10 | 150 | 50 | 1,650 |
| | | 82 | 8 × 6.7 | 0.10 | 262 | 30 | 2,700 |
| | | 180 | 8 × 12 | 0.15 | 576 | 16 | 4,360 |
| | | | 10 × 7.7 | 0.10 | 576 | 26 | 3,430 |
| | | 220 | 10 × 9.9 | 0.15 | 704 | 20 | 4,200 |
| | | 330 | 10 × 12.6 | 0.15 | 792 | 14 | 5,050 |
| | | 820 | 10 × 12.6 | 0.12 | 2,624 | 18 | 4,200 |

OP-CAP



Dimension: $\phi D \times L$ (mm)
Ripple Current: mA/rms at 100k Hz, 105°C

Standard Ratings

| Rated Volt. (V) | Surge Voltage (V) | Capacitance (μ F) | Size $\phi D \times L$ (mm) | Tan δ (120Hz, 20°C) | L C (μ A) | E S R (m Ω /at 100k ~ 300k Hz, 20°C max.) | Rated R. C. (mA/rms at 100k Hz, 105°C) |
|-----------------|-------------------|------------------------|-----------------------------|----------------------------|----------------|--|--|
| 20V (1D) | 23.0 | 22 | 6.3 × 5.9 | 0.10 | 88 | 50 | 1,650 |
| | | 47 | 8 × 6.7 | 0.10 | 188 | 45 | 2,000 |
| | | 82 | 10 × 7.7 | 0.10 | 328 | 40 | 2,500 |
| | | 100 | 8 × 12 | 0.15 | 400 | 24 | 3,320 |
| | | | 10 × 9.9 | 0.15 | 400 | 25 | 3,700 |
| | | 150 | 10 × 12.6 | 0.15 | 600 | 20 | 4,320 |
| 330 | 10 × 12.6 | 0.12 | 1,320 | 26 | 2,700 | | |
| 25V (1E) | 29.0 | 6.8 | 6.3 × 5.9 | 0.10 | 170 | 80 | 1,200 |
| | | 10 | 8 × 6.7 | 0.10 | 125 | 60 | 1,500 |
| | | 22 | 10 × 7.7 | 0.10 | 275 | 50 | 2,000 |
| | | 33 | 8 × 12 | 0.12 | 413 | 30 | 2,980 |
| | | 56 | 10 × 12.6 | 0.12 | 700 | 28 | 3,800 |
| | | 270 | 10 × 12.6 | 0.12 | 1,350 | 27 | 2,700 |
| 35V (1V) | 40.0 | 39 | 8 × 12 | 0.12 | 273 | 31 | 2,100 |
| | | 68 | 10 × 12.6 | 0.12 | 476 | 28 | 2,700 |
| 50V (1H) | 58.0 | 39 | 8 × 12 | 0.12 | 390 | 34 | 2,000 |
| | | 68 | 10 × 12.6 | 0.12 | 680 | 29 | 2,600 |
| 63V (1J) | 73.0 | 27 | 8 × 12 | 0.12 | 340 | 35 | 2,000 |
| | | 47 | 10 × 12.6 | 0.12 | 592 | 30 | 2,500 |

OP-CAP

Part Numbering System

OCV Series 470 μ F \pm 20% 6.3V Carrier Tape 8 ϕ × 12L Pb-free and PET coating case

OCV **471** **M** **OJ** **TR** - **0812**

Series Name Capacitance Capacitance Tolerance Rated Voltage Package Type Terminal Type Case size Lead Wire and Coating Type

Note: For more details, please refer to "Part Numbering System (SMD Type)" on page 15.

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