

OCRZ Series

Features

- 105°C, 2000 hours assured
- Ultra low ESR with large permissible ripple current
- RoHS compliance



Marking color: Blue

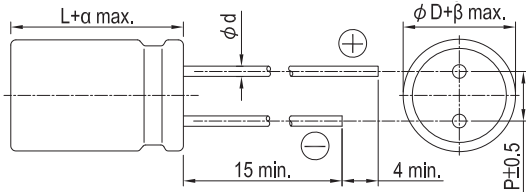
Specifications

| Items | Performance | | | | | | | | | | |
|---|---|-----------------------------------|------------------------------|--------------------|------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|------------------------|
| Category Temperature Range | -55°C ~ +105°C | | | | | | | | | | |
| Capacitance Tolerance | ±20% (at 120 Hz, 20°C) | | | | | | | | | | |
| Leakage Current (at 20°C)* | Rated voltage applied, after 2 minutes at 20°C. See Standard Ratings | | | | | | | | | | |
| Tanδ (at 120 Hz, 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 2000 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 ~ 95% RH for 1,000 hours. Leakage current should be tested after voltage treatment*. | | | | | | | | | | | |
| Resistance to Soldering Heat * (Please refer to page 11 for soldering 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 | | | | | | | | | | |
| * 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. | | | | | | | | | | | |
| 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> <td>Multiplier</td> <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

5φ, 6.3φ and 8φ×8L

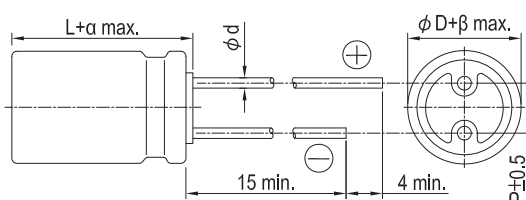


Lead Spacing and Diameter

Unit: mm

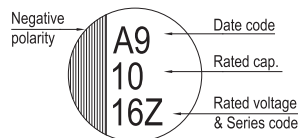
| φ D | 5 | 6.3 | 6.3 | 8 | 8 | 10 |
|-----|-----|------|-----|-----|----|-----|
| L | 8 | 6 | 8 | 8 | 12 | 12 |
| P | 2.0 | 2.5 | | 3.5 | | 5.0 |
| φ d | 0.5 | 0.45 | 0.6 | | | |
| α | 1.0 | | | | | |
| β | 0.5 | | | | | |

8φ×12L and 10φ×12L

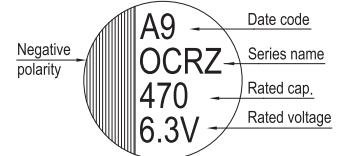


Marking

φ D = 5 ~ 6.3



φ D = 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 (120 Hz, 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 | 330 | 6.3 × 8 | 0.10 | 500 | 7 | 5,600 |
| | | 390 | 6.3 × 6* | 0.10 | 500 | 10 | 3,900 |
| | | 470 | 5 × 8 | 0.10 | 500 | 7 | 4,200 |
| | | | 8 × 8 | 0.10 | 235 | 7 | 5,000 |
| | | 560 | 5 × 8 | 0.10 | 500 | 7 | 4,200 |
| | | | 6.3 × 6* | 0.10 | 500 | 10 | 4,000 |
| | | | 6.3 × 8 | 0.10 | 500 | 7 | 5,600 |
| | | | 8 × 8 | 0.12 | 280 | 7 | 6,200 |
| | | 820 | 6.3 × 8 | 0.10 | 500 | 7 | 5,600 |
| | | | 8 × 8 | 0.10 | 410 | 7 | 6,200 |
| | | | 8 × 12 | 0.12 | 410 | 7 | 6,200 |
| | | 1,000 | 8 × 8 | 0.12 | 500 | 7 | 6,200 |
| | | | 8 × 12 | 0.12 | 500 | 7 | 6,200 |
| | | | 10 × 12 | 0.12 | 500 | 7 | 6,200 |
| 1,200 | 8 × 8 | 0.12 | 600 | 7 | 6,200 | | |
| 1,500 | 10 × 12 | 0.12 | 750 | 7 | 6,500 | | |
| 2,700 | 10 × 12 | 0.12 | 1,350 | 7 | 7,200 | | |
| 4V (0G) | 4.6 | 560 | 6.3 × 8 | 0.10 | 500 | 7 | 5,600 |
| | | | 8 × 8 | 0.10 | 448 | 7 | 6,200 |
| | | | 8 × 12 | 0.12 | 448 | 7 | 6,200 |
| | | 820 | 8 × 8 | 0.10 | 656 | 7 | 6,200 |
| | | 1,000 | 8 × 8 | 0.10 | 800 | 7 | 6,200 |
| | | 1,200 | 8 × 12 | 0.12 | 960 | 7 | 6,200 |
| | | | 10 × 12 | 0.12 | 960 | 7 | 6,200 |
| | | 1,500 | 10 × 12 | 0.12 | 1,200 | 7 | 6,500 |
| 2,200 | 10 × 12 | 0.12 | 1,760 | 8 | 7,200 | | |
| 6.3V (0J) | 7.2 | 270 | 5 × 8 | 0.10 | 680 | 8 | 3,900 |
| | | 470 | 6.3 × 8 | 0.10 | 592 | 7 | 5,600 |
| | | | 8 × 8 | 0.12 | 592 | 7 | 6,200 |
| | | | 8 × 12 | 0.12 | 592 | 7 | 6,200 |
| | | 560 | 6.3 × 8 | 0.10 | 706 | 7 | 5,600 |
| | | | 8 × 8 | 0.10 | 706 | 7 | 6,200 |
| | | | 8 × 12 | 0.12 | 706 | 7 | 6,200 |
| | | 820 | 8 × 8 | 0.10 | 1,033 | 7 | 6,200 |
| | | | 8 × 12 | 0.10 | 1,033 | 8 | 5,500 |
| | | | 10 × 12 | 0.12 | 1,033 | 7 | 6,200 |
| | | 1,000 | 8 × 8 | 0.10 | 1,260 | 7 | 6,200 |
| | | | 8 × 12 | 0.12 | 1,260 | 8 | 5,500 |
| 1,500 | 10 × 12 | 0.12 | 1,890 | 7 | 6,200 | | |

Remark: The case size with "*" of case length is 6.0 mm maximum.

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 (120 Hz, 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) |
|-----------------|-------------------|------------------------|-----------------------------|-----------------------------|----------------|--|--|
| 10V (1A) | 12.0 | 390 | 8 × 12 | 0.12 | 780 | 8 | 5,000 |
| | | 470 | 10 × 12 | 0.12 | 940 | 8 | 6,000 |
| | | 560 | 10 × 12 | 0.12 | 1,120 | 8 | 6,000 |
| | | 820 | 10 × 12 | 0.12 | 1,640 | 8 | 6,000 |
| 16V (1C) | 18.0 | 100 | 6.3 × 6* | 0.10 | 320 | 24 | 2,490 |
| | | | 6.3 × 8 | 0.10 | 500 | 10 | 4,680 |
| | | 180 | 6.3 × 8 | 0.10 | 576 | 10 | 4,680 |
| | | | 8 × 8 | 0.10 | 576 | 10 | 5,000 |
| | | 270 | 8 × 8 | 0.10 | 864 | 10 | 5,000 |
| | | | 8 × 12 | 0.12 | 864 | 8 | 5,000 |
| | | 330 | 8 × 8 | 0.10 | 1,056 | 10 | 5,000 |
| | | | 10 × 12 | 0.12 | 1,056 | 8 | 6,000 |
| | | 470 | 8 × 12 | 0.12 | 1,504 | 10 | 5,400 |
| | | | 10 × 12 | 0.12 | 1,504 | 8 | 6,000 |
| 820 | 10 × 12 | 0.10 | 2,624 | 10 | 6,100 | | |
| | 1,000 | 10 × 12 | 0.10 | 3,200 | 10 | 6,100 | |
| 20V (1D) | 23.0 | 330 | 8 × 8 | 0.12 | 1,320 | 17 | 3,880 |
| | | 390 | 8 × 12 | 0.12 | 1,560 | 14 | 4,970 |
| | | 680 | 10 × 12 | 0.12 | 2,720 | 12 | 5,400 |
| 25V (1E) | 29.0 | 180 | 8 × 8 | 0.12 | 900 | 18 | 3,770 |
| | | 220 | 8 × 12 | 0.12 | 1,100 | 16 | 4,650 |
| | | 390 | 10 × 12 | 0.12 | 1,950 | 14 | 5,000 |

Remark: The case size with "*" of case length is 6.0 mm maximum.

Part Numbering System

| | | | | | | | |
|-------------|-------------|-----------------------|---------------|--------------------------------|-------------|-----------------|------------------------------|
| OCRZ Series | 470 μ F | \pm 20% | 6.3V | Bulk Package | Gas Type | 6.3 ϕ × 8L | Pb-free and PET coating case |
| ORZ | 471 | M | 0J | BK | - | 0608 | |
| Series Name | Capacitance | Capacitance Tolerance | Rated Voltage | Lead Configuration and Package | Rubber Type | Case Size | Lead Wire and Coating Type |

Note: For more details, please refer to "Part Numbering System (Radial Type)" on page 13.