

## OCRZ Series

### Features

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



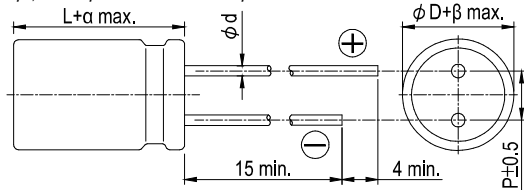
Marking color: Blue

### Specifications

| Items                                                                                                                                                                                                          | Performance                                                                                                                                                                                                                                                                                                                                                          |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------|--------------------|------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|------------------------|
| Category Temperature Range                                                                                                                                                                                     | -55°C ~ +105°C                                                                                                                                                                                                                                                                                                                                                       |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Capacitance Tolerance                                                                                                                                                                                          | ±20% (at 120Hz, 20°C)                                                                                                                                                                                                                                                                                                                                                |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Leakage Current (at 20°C)*                                                                                                                                                                                     | Rated voltage applied, after 2 minutes at 20°C.<br>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 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 to 95% RH for 1,000 hours. Leakage current should be tested after voltage treatment*. |                                                                                                                                                                                                                                                                                                                                                                      |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Resistance to Soldering Heat*<br>(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.<br>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 &lt; 1k</th> <th>1k ≤ f &lt; 10k</th> <th>10k ≤ f &lt; 100k</th> <th>100k ≤ f &lt; 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                |                              |                 |                                   |                 |                                   |                 |                        |

### Diagram of Dimensions

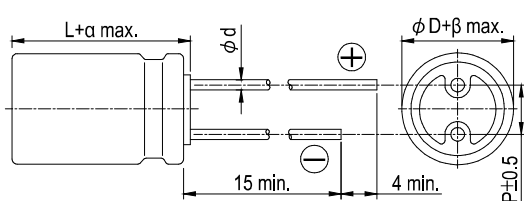
5 φ, 6.3 φ × 6 ~ 8L and 8 φ × 8L



Lead Spacing and Diameter Unit: mm

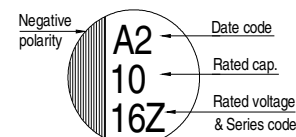
| φ D | 5   | 6.3  | 6.3 | 8   | 8  | 10  |
|-----|-----|------|-----|-----|----|-----|
| L   | 8   | 6    | 8   | 8   | 12 | 12  |
| P   | 2.0 | 2.5  |     | 3.5 |    | 5.0 |
| φ d | 0.5 | 0.45 | 0.6 |     |    |     |
| α   | 1.0 |      |     |     |    |     |
| β   | 0.5 |      |     |     |    |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

8 φ × 12L and 10 φ × 12L

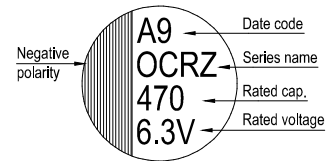


### Marking

φ D = 5 ~ 6.3



φ D = 8 ~ 10





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

Standard Ratings

| Rated Volt. (V) | Surge Voltage (V) | Capacitance ( $\mu$ F) | Size $\phi$ DxL(mm) | Tan $\delta$ (120Hz, 20°C) | LC ( $\mu$ A) | E S R (m $\Omega$ /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 x 8             | 0.10                       | 500           | 7                                                | 5,600                                  |
|                 |                   | 390                    | 6.3 x 6*            | 0.10                       | 500           | 10                                               | 3,900                                  |
|                 |                   | 470                    | 5 x 8               | 0.10                       | 500           | 7                                                | 4,200                                  |
|                 |                   |                        | 8 x 8               | 0.10                       | 235           | 7                                                | 5,000                                  |
|                 |                   | 560                    | 5 x 8               | 0.10                       | 500           | 7                                                | 4,200                                  |
|                 |                   |                        | 6.3 x 6*            | 0.10                       | 500           | 10                                               | 4,000                                  |
|                 |                   |                        | 6.3 x 8             | 0.10                       | 500           | 7                                                | 5,600                                  |
|                 |                   | 820                    | 8 x 8               | 0.12                       | 280           | 7                                                | 6,200                                  |
|                 |                   |                        | 6.3 x 8             | 0.10                       | 500           | 7                                                | 5,600                                  |
|                 |                   |                        | 8 x 8               | 0.10                       | 410           | 7                                                | 6,200                                  |
|                 |                   | 1,000                  | 8 x 12              | 0.12                       | 410           | 7                                                | 6,200                                  |
|                 |                   |                        | 8 x 8               | 0.12                       | 500           | 7                                                | 6,200                                  |
| 8 x 12          | 0.12              |                        | 500                 | 7                          | 6,200         |                                                  |                                        |
| 1,200           | 8 x 8             | 0.12                   | 600                 | 7                          | 6,200         |                                                  |                                        |
| 1,500           | 10 x 12           | 0.12                   | 750                 | 7                          | 6,500         |                                                  |                                        |
| 2,700           | 10 x 12           | 0.12                   | 1,350               | 7                          | 7,200         |                                                  |                                        |
| 4V (0G)         | 4.6               | 560                    | 6.3 x 8             | 0.10                       | 500           | 7                                                | 5,600                                  |
|                 |                   |                        | 8 x 8               | 0.10                       | 448           | 7                                                | 6,200                                  |
|                 |                   |                        | 8 x 12              | 0.12                       | 448           | 7                                                | 6,200                                  |
|                 |                   | 820                    | 8 x 8               | 0.10                       | 656           | 7                                                | 6,200                                  |
|                 |                   | 1,000                  | 8 x 8               | 0.10                       | 800           | 7                                                | 6,200                                  |
|                 |                   |                        | 8 x 12              | 0.12                       | 960           | 7                                                | 6,200                                  |
|                 |                   | 1,200                  | 10 x 12             | 0.12                       | 960           | 7                                                | 6,200                                  |
|                 |                   |                        | 1,500               | 10 x 12                    | 0.12          | 1,200                                            | 7                                      |
| 2,200           | 10 x 12           | 0.12                   | 1,760               | 8                          | 7,200         |                                                  |                                        |
| 6.3V (0J)       | 7.2               | 270                    | 5 x 8               | 0.10                       | 680           | 8                                                | 3,900                                  |
|                 |                   | 470                    | 6.3 x 8             | 0.10                       | 592           | 7                                                | 5,600                                  |
|                 |                   |                        | 8 x 8               | 0.12                       | 592           | 7                                                | 6,200                                  |
|                 |                   |                        | 8 x 12              | 0.12                       | 592           | 7                                                | 6,200                                  |
|                 |                   | 560                    | 6.3 x 8             | 0.10                       | 706           | 7                                                | 5,600                                  |
|                 |                   |                        | 8 x 8               | 0.10                       | 706           | 7                                                | 6,200                                  |
|                 |                   |                        | 8 x 12              | 0.12                       | 706           | 7                                                | 6,200                                  |
|                 |                   | 820                    | 8 x 8               | 0.10                       | 1,033         | 7                                                | 6,200                                  |
|                 |                   |                        | 8 x 12              | 0.10                       | 1,033         | 8                                                | 5,500                                  |
|                 |                   |                        | 10 x 12             | 0.12                       | 1,033         | 7                                                | 6,200                                  |
|                 |                   | 1,000                  | 8 x 8               | 0.10                       | 1,260         | 7                                                | 6,200                                  |
| 8 x 12          | 0.12              |                        | 1,260               | 8                          | 5,500         |                                                  |                                        |
| 1,500           | 10 x 12           | 0.12                   | 1,890               | 7                          | 6,200         |                                                  |                                        |

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



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

Standard Ratings

| Rated Volt. (V) | Surge Voltage (V) | Capacitance (μF) | Size $\phi$ D×L(mm) | Tanδ (120Hz, 20°C) | LC (μA) | E S R (mΩ/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                                     |
| 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    470μF    ±20%    6.3V    Bulk Package    Gas Type    6.3φ x8L    Pb-free and PET coating case

**ORZ**    **471**    **M**    **OJ**    **BK**    -    **0608**

Series Name    Capacitance    Capacitance Tolerance    Rated Voltage    Lead Configuration & 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.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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