

## OCR Series

### Features

- 105°C, 2,000 hours assured
- Ultra low ESR with large permissible ripple current
- RoHS Compliance



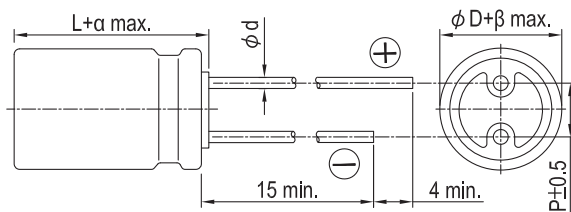
Marking color: Blue

### 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 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 *<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                |                              |                 |                                   |                 |                                   |                 |                        |

\* 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



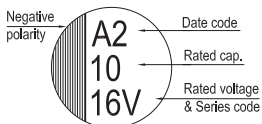
### Lead Spacing and Diameter

Unit: mm

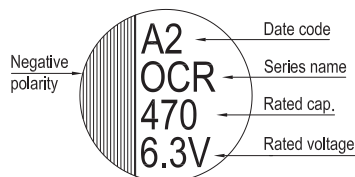
|    |      |     |     |      |    |    |
|----|------|-----|-----|------|----|----|
| φD | 6.3  | 6.3 | 6.3 | 8    | 10 | 10 |
| L  | 5.5  | 6.5 | 11  | 11.5 | 10 | 12 |
| P  | 2.5  |     | 3.5 | 5.0  |    |    |
| φd | 0.45 | 0.5 | 0.6 |      |    |    |
| α  | 1.0  |     |     |      |    |    |
| β  | 0.5  |     |     |      |    |    |

### Marking

φD = 6.3



φD = 8 ~ 10





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) | Tan $\delta$ (120Hz, 20°C) | L C (μA) | E S R (mΩ/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 × 5.5           | 0.12                       | 110      | 28                                      | 2,390                                  |
|                 |                   | 390              | 6.3 × 11            | 0.12                       | 195      | 18                                      | 3,160                                  |
|                 |                   | 680              | 8 × 11.5            | 0.18                       | 340      | 10                                      | 5,230                                  |
|                 |                   | 1,000            | 10 × 10             | 0.18                       | 500      | 14                                      | 4,700                                  |
|                 |                   | 1,500            | 10 × 12             | 0.18                       | 750      | 12                                      | 5,500                                  |
| 4V (0G)         | 4.6               | 150              | 6.3 × 5.5           | 0.12                       | 120      | 40                                      | 1,810                                  |
|                 |                   | 270              | 6.3 × 11            | 0.12                       | 216      | 15                                      | 3,200                                  |
|                 |                   | 560              | 8 × 11.5            | 0.18                       | 448      | 10                                      | 5,230                                  |
|                 |                   | 1,200            | 10 × 12             | 0.18                       | 960      | 12                                      | 5,500                                  |
| 6.3V (0J)       | 7.2               | 100              | 6.3 × 5.5           | 0.12                       | 126      | 40                                      | 1,810                                  |
|                 |                   | 220              | 6.3 × 11            | 0.12                       | 277      | 18                                      | 3,160                                  |
|                 |                   | 330              | 6.3 × 6.5           | 0.12                       | 416      | 28                                      | 2,390                                  |
|                 |                   | 390              | 8 × 11.5            | 0.15                       | 491      | 12                                      | 4,770                                  |
|                 |                   | 470              | 8 × 11.5            | 0.15                       | 592      | 12                                      | 4,770                                  |
|                 |                   | 820              | 10 × 12             | 0.15                       | 1,033    | 12                                      | 5,500                                  |
| 10V (1A)        | 12.0              | 100              | 6.3 × 6.5           | 0.12                       | 200      | 45                                      | 1,700                                  |
|                 |                   | 220              | 10 × 10             | 0.15                       | 440      | 17                                      | 3,950                                  |
|                 |                   | 330              | 8 × 11.5            | 0.12                       | 660      | 14                                      | 4,420                                  |
|                 |                   | 560              | 10 × 12             | 0.12                       | 1,360    | 12                                      | 5,300                                  |
| 16V (1C)        | 18.0              | 47               | 6.3 × 5.5           | 0.10                       | 150      | 50                                      | 1,650                                  |
|                 |                   | 100              | 6.3 × 11            | 0.10                       | 320      | 22                                      | 2,820                                  |
|                 |                   | 180              | 8 × 11.5            | 0.12                       | 576      | 16                                      | 4,360                                  |
|                 |                   | 330              | 10 × 10             | 0.12                       | 1,056    | 16                                      | 4,360                                  |
|                 |                   | 330              | 10 × 12             | 0.12                       | 1,056    | 14                                      | 5,050                                  |
| 20V (1D)        | 23.0              | 22               | 6.3 × 5.5           | 0.10                       | 88       | 60                                      | 1,450                                  |
|                 |                   | 56               | 6.3 × 11            | 0.10                       | 224      | 25                                      | 2,650                                  |
|                 |                   | 100              | 8 × 11.5            | 0.15                       | 400      | 24                                      | 3,320                                  |
|                 |                   | 100              | 10 × 10             | 0.15                       | 400      | 24                                      | 3,320                                  |
|                 |                   | 150              | 10 × 12             | 0.15                       | 600      | 20                                      | 4,320                                  |
|                 |                   | 330              | 10 × 12             | 0.12                       | 1,320    | 24                                      | 2,800                                  |
| 25V (1E)        | 29.0              | 6.8              | 6.3 × 5.5           | 0.10                       | 170      | 80                                      | 1,200                                  |
|                 |                   | 33               | 8 × 11.5            | 0.12                       | 165      | 24                                      | 3,320                                  |
|                 |                   | 56               | 8 × 11.5            | 0.12                       | 280      | 24                                      | 3,320                                  |
|                 |                   |                  | 10 × 12.5           | 0.12                       | 280      | 20                                      | 4,320                                  |
|                 |                   | 68               | 8 × 11.5            | 0.12                       | 340      | 24                                      | 3,320                                  |
|                 |                   | 100              | 10 × 12             | 0.12                       | 500      | 20                                      | 4,320                                  |
|                 |                   | 270              | 10 × 12             | 0.12                       | 1,350    | 25                                      | 2,800                                  |
| 35V (1V)        | 40.0              | 22               | 8 × 11.5            | 0.12                       | 154      | 31                                      | 2,300                                  |
|                 |                   | 39               | 8 × 11.5            | 0.12                       | 273      | 31                                      | 2,300                                  |
|                 |                   | 47               | 10 × 12             | 0.12                       | 329      | 30                                      | 3,650                                  |
|                 |                   | 68               | 10 × 12             | 0.12                       | 476      | 28                                      | 2,700                                  |
|                 |                   | 150              | 10 × 12             | 0.12                       | 1,050    | 26                                      | 2,700                                  |
| 50V (1H)        | 58.0              | 27               | 8 × 11.5            | 0.12                       | 390      | 29                                      | 2,200                                  |
|                 |                   | 47               | 10 × 12             | 0.12                       | 680      | 28                                      | 2,600                                  |
| 63V (1J)        | 73.0              | 27               | 8 × 11.5            | 0.12                       | 340      | 33                                      | 2,100                                  |
|                 |                   | 47               | 10 × 12             | 0.12                       | 592      | 29                                      | 2,600                                  |

OP-CAP

Part Numbering System

OCR Series    470μF    ±20%    6.3V    Bulk Package    Gas Type    8  $\phi$  × 11.5L    Pb-free and PET coating case

**OCR**    **471**    **M**    **0J**    **BK**    -    **0811**

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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