



## OCRU Series

## Features

- 125°C, 1000 ~ 2,000 hours assured
- Ultra low ESR with large permissible ripple current
- RoHS Compliance



Marking color: Blue

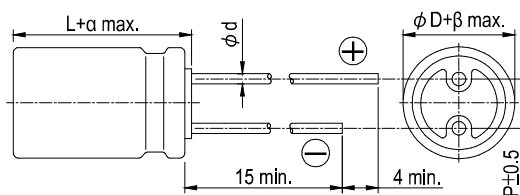
## Specifications

|                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------|----------------|-----------------|--------------------|---------------------------------------------------|--------------|----------------|-----------------|--------------------|------------------------------|-----|-----|-----|------|-----------------------------------|--|--|--|-----------------|-----------------------------------|--|--|--|-----------------|------------------------|--|--|--|
| Items                                                                                                                                                                                                  | Performance                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Category Temperature Range                                                                                                                                                                             | -55℃ ~ +125℃                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Capacitance Tolerance                                                                                                                                                                                  | ±20% (at 120Hz, 20℃)                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Leakage Current (at 20℃)*                                                                                                                                                                              | Rated voltage applied, after 2 minutes at 20℃ .<br>See Standard Ratings                                                                                                                                                                                                                                                                                                                                                                   |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Tanδ (at 120Hz, 20℃)                                                                                                                                                                                   | See Standard Ratings                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| ESR (at 100k ~ 300k Hz, 20℃)                                                                                                                                                                           | See Standard Ratings                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Endurance                                                                                                                                                                                              | <table><tr><td>Test Time</td><td colspan="4">1,000 Hrs for 2.5 ~ 4V;<br/>2,000 Hrs for 6.3~ 20V</td></tr><tr><td>Capacitance Change</td><td colspan="4">Within ±20% of initial value</td></tr><tr><td>Tanδ</td><td colspan="4">Less than 200% of specified value</td></tr><tr><td>ESR</td><td colspan="4">Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="4">Within specified value</td></tr></table> |                                                   |              |                |                 | Test Time          | 1,000 Hrs for 2.5 ~ 4V;<br>2,000 Hrs for 6.3~ 20V |              |                |                 | Capacitance Change | Within ±20% of initial value |     |     |     | Tanδ | Less than 200% of specified value |  |  |  | ESR             | Less than 200% of specified value |  |  |  | Leakage Current | Within specified value |  |  |  |
|                                                                                                                                                                                                        | Test Time                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1,000 Hrs for 2.5 ~ 4V;<br>2,000 Hrs for 6.3~ 20V |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                        | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                                                        | Within ±20% of initial value                      |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                        | Tanδ                                                                                                                                                                                                                                                                                                                                                                                                                                      | Less than 200% of specified value                 |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                        | ESR                                                                                                                                                                                                                                                                                                                                                                                                                                       | Less than 200% of specified value                 |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                        | Leakage Current                                                                                                                                                                                                                                                                                                                                                                                                                           | Within specified value                            |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for specified hours at 125℃.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Moisture Resistance                                                                                                                                                                                    | <table><tr><td>Test Time</td><td colspan="4">1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="4">Within ±20% of initial value</td></tr><tr><td>Tanδ</td><td colspan="4">Less than 150% of specified value</td></tr><tr><td>ESR</td><td colspan="4">Less than 150% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="4">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℃ after subjecting them at 60℃, 90 to 95% RH for 1,000 hours. Leakage current should be tested voltage treatment*. |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |              |                |                 |                    |                                                   |              |                |                 |                    |                              |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Resistance to Soldering Heat *<br>(Please refer to page 11 for soldering conditions)                                                                                                                   | <table><tr><td>Capacitance Change</td><td colspan="4">Within ±10% of initial value</td></tr><tr><td>Tanδ</td><td colspan="4">Within specified value</td></tr><tr><td>ESR</td><td colspan="4">Within specified value</td></tr><tr><td>Leakage Current</td><td colspan="4">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><tr><td>Frequency (Hz)</td><td>120 ≤ f &lt; 1k</td><td>1k ≤ f &lt; 10k</td><td>10k ≤ f &lt; 100k</td><td>100k ≤ f &lt; 500k</td></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

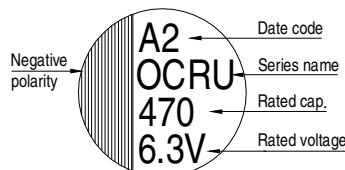


## Lead Spacing and Diameter

Unit: mm

|     |      |     |
|-----|------|-----|
| φ D | 8    | 10  |
| L   | 11.5 | 12  |
| P   | 3.5  | 5.0 |
| φ d | 0.6  |     |
| α   | 1.0  |     |
| β   | 0.5  |     |

## Marking



Dimension:  $\phi D \times L$ (mm)

Ripple Current: mA/rms at 100k Hz

## Standard Ratings

| Rated Volt.<br>(V) | Surge Voltage<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | Tan $\delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | E S R<br>(m $\Omega$ /at 100k ~ 300k Hz, 20°C max.) | Rated R. C.(mA/rms at 100k Hz) |                        |
|--------------------|----------------------|---------------------------|--------------------------------|-------------------------------|-------------------|-----------------------------------------------------|--------------------------------|------------------------|
|                    |                      |                           |                                |                               |                   |                                                     | T $\leq$ 105°C                 | 105°C < T $\leq$ 125°C |
| 2.5V (0E)          | 2.9                  | 680                       | 8 $\times$ 11.5                | 0.18                          | 340               | 13                                                  | 4,520                          | 1,430                  |
|                    |                      | 1,200                     | 10 $\times$ 12                 | 0.18                          | 600               | 13                                                  | 5,440                          | 1,721                  |
| 4V (0G)            | 4.6                  | 560                       | 8 $\times$ 11.5                | 0.18                          | 448               | 13                                                  | 4,520                          | 1,430                  |
|                    |                      | 1,200                     | 10 $\times$ 12                 | 0.18                          | 960               | 12                                                  | 5,440                          | 1,721                  |
| 6.3V (0J)          | 7.2                  | 470                       | 8 $\times$ 11.5                | 0.15                          | 592               | 15                                                  | 4,210                          | 1,332                  |
|                    |                      | 820                       | 10 $\times$ 12                 | 0.15                          | 1,033             | 12                                                  | 5,440                          | 1,721                  |
| 10V (1A)           | 12.0                 | 330                       | 8 $\times$ 11.5                | 0.12                          | 660               | 16                                                  | 3,950                          | 1,250                  |
|                    |                      | 560                       | 10 $\times$ 12                 | 0.12                          | 1,120             | 13                                                  | 5,230                          | 1,655                  |
| 16V (1C)           | 18.0                 | 180                       | 8 $\times$ 11.5                | 0.12                          | 576               | 18                                                  | 3,640                          | 1,151                  |
|                    |                      | 330                       | 10 $\times$ 12                 | 0.12                          | 1,056             | 16                                                  | 4,720                          | 1,493                  |
| 20V (1D)           | 23.0                 | 100                       | 8 $\times$ 11.5                | 0.15                          | 400               | 24                                                  | 3,320                          | 1,050                  |
|                    |                      | 150                       | 10 $\times$ 12                 | 0.15                          | 600               | 20                                                  | 4,320                          | 1,367                  |

## Part Numbering System

|             |             |                       |               |                              |             |                       |                              |
|-------------|-------------|-----------------------|---------------|------------------------------|-------------|-----------------------|------------------------------|
| OCRU Series | 470 $\mu$ F | $\pm 20\%$            | 6.3V          | Bulk Package                 | Gas Type    | 8 $\phi \times 11.5L$ | Pb-free and PET coating case |
| <b>ORU</b>  | <b>471</b>  | <b>M</b>              | <b>0J</b>     | <b>BK</b>                    | -           | <b>0811</b>           |                              |
| 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 «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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