



## ORC Series

## Features

- 105°C, 15,000 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 120 Hz, 20°C)                                                  |
| Leakage Current (at 20°C)*               | Rated voltage applied, after 2 minutes at 20°C.<br>See Standard Ratings |
| Tanδ (at 120 Hz, 20°C)                   | See Standard Ratings                                                    |
| ESR (at 100k ~ 300k Hz, 20°C)            | See Standard Ratings                                                    |
| Endurance                                | Test Time                                                               |
|                                          | 15,000 Hrs                                                              |
|                                          | Capacitance Change                                                      |
|                                          | Within ±20% of initial value                                            |
|                                          | Tanδ                                                                    |
| Moisture Resistance                      | Less than 150% of specified value                                       |
|                                          | ESR                                                                     |
|                                          | Less than 150% of specified value                                       |
|                                          | Leakage Current                                                         |
|                                          | Within specified value                                                  |
| Resistance to Soldering Heat *           | Test Time                                                               |
|                                          | 1,000 Hrs                                                               |
|                                          | Capacitance Change                                                      |
|                                          | Within ±20% of initial value                                            |
|                                          | Tanδ                                                                    |
| Ripple Current and Frequency Multipliers | 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 15,000 hours at 105°C.

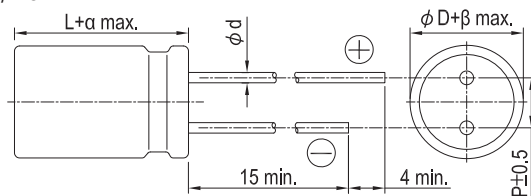
\* The above specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them at 60°C, 90 ~ 95% RH for 1,000 hours. Leakage current should be tested after voltage treatment\*.

\* 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.

|                |              |              |                |                 |
|----------------|--------------|--------------|----------------|-----------------|
| 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

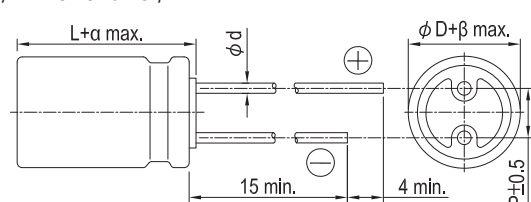
8φ×8L



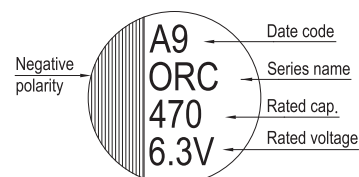
Lead Spacing and Diameter Unit: mm

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

8φ×11.5L and 10φ×12L



## 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>(120 Hz, 20°C) | L C<br>( $\mu$ A) | E S R<br>(m $\Omega$ /at 100k ~ 300k Hz, 20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|----------------------|---------------------------|--------------------------------|--------------------------------|-------------------|-----------------------------------------------------|-------------------------------------------|
| 2.5V (0E)          | 2.9                  | 560                       | 8 $\times$ 8                   | 0.10                           | 500               | 7                                                   | 6,100                                     |
|                    |                      | 820                       | 8 $\times$ 8                   | 0.10                           | 500               | 7                                                   | 6,100                                     |
|                    |                      | 1,000                     | 8 $\times$ 8                   | 0.10                           | 500               | 7                                                   | 6,100                                     |
|                    |                      |                           | 8 $\times$ 11.5                | 0.10                           | 500               | 7                                                   | 6,100                                     |
|                    |                      | 1,500                     | 8 $\times$ 11.5                | 0.10                           | 750               | 7                                                   | 6,100                                     |
|                    |                      | 2,700                     | 10 $\times$ 12                 | 0.10                           | 1,350             | 8                                                   | 5,560                                     |
| 4V (0G)            | 4.6                  | 560                       | 8 $\times$ 8                   | 0.10                           | 448               | 7                                                   | 6,100                                     |
|                    |                      | 680                       | 8 $\times$ 11.5                | 0.10                           | 544               | 7                                                   | 6,100                                     |
|                    |                      | 1,000                     | 10 $\times$ 12                 | 0.10                           | 800               | 6                                                   | 6,640                                     |
| 6.3V(0J)           | 7.2                  | 470                       | 8 $\times$ 8                   | 0.10                           | 592               | 8                                                   | 5,700                                     |
|                    |                      | 560                       | 8 $\times$ 8                   | 0.10                           | 706               | 8                                                   | 5,700                                     |
|                    |                      | 820                       | 10 $\times$ 12                 | 0.10                           | 1,033             | 7                                                   | 6,640                                     |
|                    |                      | 1,500                     | 10 $\times$ 12                 | 0.10                           | 1,890             | 10                                                  | 5,560                                     |
| 10V (1A)           | 12.0                 | 390                       | 8 $\times$ 11.5                | 0.10                           | 780               | 9                                                   | 5,650                                     |
|                    |                      | 680                       | 10 $\times$ 12                 | 0.10                           | 1,360             | 7                                                   | 6,100                                     |
| 16V (1C)           | 18.0                 | 270                       | 8 $\times$ 11.5                | 0.10                           | 864               | 11                                                  | 5,080                                     |
|                    |                      | 330                       | 10 $\times$ 12                 | 0.10                           | 1,056             | 10                                                  | 6,100                                     |
|                    |                      | 470                       | 10 $\times$ 12                 | 0.10                           | 1,504             | 10                                                  | 6,100                                     |

## Part Numbering System

|             |             |                       |               |                                |             |                       |                              |
|-------------|-------------|-----------------------|---------------|--------------------------------|-------------|-----------------------|------------------------------|
| ORC Series  | 470 $\mu$ F | $\pm 20\%$            | 6.3V          | Bulk Package                   | Gas Type    | 8 $\phi \times 11.5L$ | Pb-free and PET coating case |
| <b>ORC</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 and Package | Rubber Type | Case size             | Lead Wire and Coating Type   |

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

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