

## OCRZ Series

### Features

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



Marking color: Blue

### Specifications

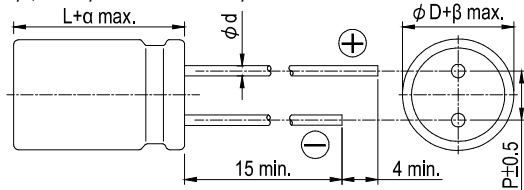
Items	Performance										
Category Temperature Range	-55°C ~ +105°C										
Capacitance Tolerance	±20% (at 120Hz, 20°C)										
Leakage Current (at 20°C)*	Rated voltage applied, after 2 minutes at 20°C. See Standard Ratings										
Tanδ (at 120Hz, 20°C)	See Standard Ratings										
ESR (at 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
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	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* (Please refer to page 11 for soldering conditions)	<table border="1"> <tr> <td>Capacitance Change</td> <td>Within ±10% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Within specified value</td> </tr> <tr> <td>ESR</td> <td>Within specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table>	Capacitance Change	Within ±10% of initial value	Tanδ	Within specified value	ESR	Within specified value	Leakage Current	Within specified value		
	Capacitance Change	Within ±10% of initial value									
	Tanδ	Within specified value									
	ESR	Within specified value									
Leakage Current	Within specified value										
* For any doubt about measured values, measure the leakage current again after the following voltage treatment. Voltage treatment: DC rated voltage is applied to the capacitors for 2 hours at 105 °C.											
Ripple Current and Frequency Multipliers	<table border="1"> <tr> <th>Frequency (Hz)</th> <th>120 ≤ f &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

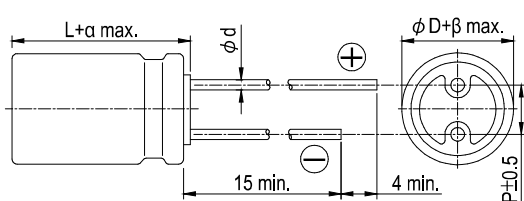
5 φ, 6.3 φ × 6 ~ 8L and 8 φ × 8L



Lead Spacing and Diameter Unit: mm

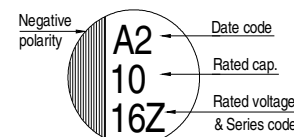
φ D	5	6.3	6.3	8	8	10
L	8	6	8	8	12	12
P	2.0	2.5		3.5		5.0
φ d	0.5	0.45	0.6			
α	1.0					
β	0.5					

8 φ × 12L and 10 φ × 12L

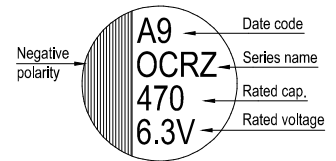


### Marking

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 x L (mm)  
Ripple Current: mA/rms at 100k Hz, 105°C

Standard Ratings

Rated Volt. (V)	Surge Voltage (V)	Capacitance ( $\mu$ F)	Size $\phi$ D x L (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)
10V (1A)	12.0	390	8 x 12	0.12	780	8	5,000
		470	10 x 12	0.12	940	8	6,000
		560	10 x 12	0.12	1,120	8	6,000
		820	10 x 12	0.12	1,640	8	6,000
16V (1C)	18.0	100	6.3 x 6*	0.10	320	24	2,490
			6.3 x 8	0.10	500	10	4,680
		180	6.3 x 8	0.10	576	10	4,680
			8 x 8	0.10	576	10	5,000
		270	8 x 8	0.10	864	10	5,000
			8 x 12	0.12	864	8	5,000
		330	8 x 8	0.10	1,056	10	5,000
			10 x 12	0.12	1,056	8	6,000
		470	8 x 12	0.12	1,504	10	5,400
			10 x 12	0.12	1,504	8	6,000
		820	10 x 12	0.10	2,624	10	6,100
			1,000	10 x 12	0.10	3,200	10
20V (1D)	23.0	330	8 x 8	0.12	1,320	17	3,880
		390	8 x 12	0.12	1,560	14	4,970
		680	10 x 12	0.12	2,720	12	5,400
25V (1E)	29.0	180	8 x 8	0.12	900	18	3,770
		220	8 x 12	0.12	1,100	16	4,650
		390	10 x 12	0.12	1,950	14	5,000

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

Part Numbering System

OCRZ Series    470 $\mu$ F     $\pm$ 20%    6.3V    Bulk Package    Gas Type    6.3 $\phi$  x 8L    Pb-free and PET coating case

**ORZ**    **471**    **M**    **0J**    **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.