

## 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. 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
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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 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
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	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		
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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



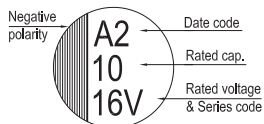
### Lead Spacing and Diameter

Unit: mm

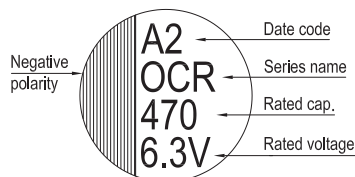
φD	6.3	6.3	6.3	8	10	10
L	5.5	6.5	11	11.5	10	12
P	2.5		3.5	5.0		
φd	0.45	0.5	0.6			
α	1.0					
β	0.5					

### 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.