

OVK Series

Features

- 105°C, 5,000 hours assured
- Ultra low ESR, solid capacitors of SMD type
- RoHS Compliance
- AEC-Q200 Parts Available: Replace “S” Suffix with “KS” or “LS” Suffix



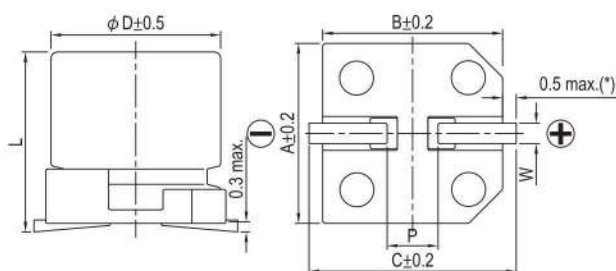
Marking color: Blue

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. See Standard Ratings										
Tanδ (at 120 Hz, 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>5,000 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	5,000 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	5,000 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 5,000 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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	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 ~ 95% RH for 1,000 hours. Leakage current should be tested after voltage treatment*.											
Resistance to Soldering Heat * (Please refer to page 26 for reflow 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 < 1k</th> <th>1k ≤ f < 10k</th> <th>10k ≤ f < 100k</th> <th>100k ≤ f < 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

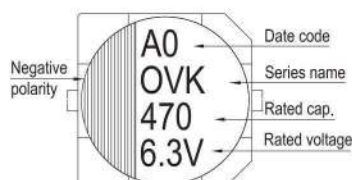
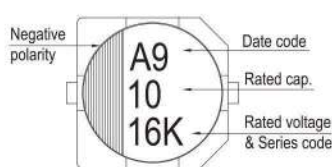
φ D	L	A	B	C	W	P ± 0.2
5	5.7 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5
6.3	4.4 ± 0.2	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	5.9 +0.1/-0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	9.5 ± 0.5	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	6.7 ± 0.3	8.3	8.3	9.0	0.7 ~ 1.1	3.1
8	12.0 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	7.7 ± 0.3	10.3	10.3	11.0	0.7 ~ 1.3	4.7
10	9.9 +0.1/-0.3	10.3	10.3	11.0	0.7 ~ 1.3	4.7
10	12.6 +0.1/-0.4	10.3	10.3	11.0	0.7 ~ 1.3	4.7

(*): For 5 ~ 6.3φ is 0.4 max.

Marking

φ D = 5 ~ 6.3

φ D = 8 ~ 10



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

Ripple Current: mA/rms at 100k Hz, 105°C

Standard Ratings

Rated Volt. (V)	Surge Voltage (V)	Capacitance (μ F)	Size $\phi D \times L$ (mm)	Tan δ (120 Hz, 20°C)	L C (μ A)	E S R (m Ω /at 100k ~ 300k Hz, 20°C max.)	Rated R. C. (mA/rms at 100k Hz, 105°C)
2.5V (0E)	2.9	120	6.3 × 4.4	0.12	120	40	1,670
		220	6.3 × 5.9		110	25	2,500
		560	8 × 6.7		280	23	3,100
		680	8 × 12	0.18	340	12	4,770
		1,000	10 × 7.7	0.12	500	19	4,240
		1,200	10 × 9.9	0.18	750	13	5,200
		1,500	10 × 12.6	0.18	750	10	5,500
4V (0G)	4.6	68	5 × 5.7	0.12	300	30	1,970
		100	6.3 × 4.4		160	40	1,670
		150	5 × 5.7		120	25	2,200
			6.3 × 5.9		120	22	2,570
		220	8 × 6.7		176	25	3,020
		270	8 × 6.7		216	22	3,220
		330	6.3 × 5.9		264	20	2,800
			8 × 6.7		264	22	3,220
		390	6.3 × 7.7		312	14	3,470
		470	10 × 7.7		375	20	4,130
		560	8 × 6.7	448	18	3,600	
			8 × 12	448	12	4,770	
		680	10 × 7.7	0.12	544	20	4,130
		820	10 × 9.9	0.18	656	13	5,200
		1,200	10 × 12.6	0.18	960	10	5,500
6.3V (0J)	7.2	47	5 × 5.7	0.12	300	30	1,970
		82	6.3 × 4.4		207	40	1,670
			6.3 × 5.9		103	27	2,400
		100	5 × 5.7		126	35	1,380
			6.3 × 5.9		126	22	2,800
		120	6.3 × 5.9		151	22	2,800
		150	8 × 6.7		189	25	3,020
		220	6.3 × 5.9		277	20	2,800
			8 × 6.7		277	22	3,220
		270	6.3 × 7.7		340	14	3,470
		330	6.3 × 7.7	416	14	3,470	
			10 × 7.7	416	20	4,130	
		390	8 × 6.7	491	22	3,220	
		470	8 × 12	0.15	592	12	4,770
			10 × 7.7	0.12	592	20	4,130
560	10 × 9.9	0.15	706	16	4,700		
820	10 × 12.6	0.15	1,033	10	5,500		
10V (1A)	12.0	33	5 × 5.7	0.12	100	40	1,300
		56	6.3 × 4.4		224	40	1,670
			6.3 × 5.9		112	27	2,300
		68	5 × 5.7		136	30	2,100
			6.3 × 5.9		136	27	2,300
		120	6.3 × 5.9		240	27	2,300
		150	6.3 × 7.7		300	21	2,880
			8 × 6.7			30	2,760
		10 × 7.7	30			3,020	

OP-CAP

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

Ripple Current: mA/rms at 100k Hz, 105°C

Standard Ratings

Rated Volt. (V)	Surge Voltage (V)	Capacitance (μ F)	Size $\phi D \times L$ (mm)	Tan δ (120 Hz, 20°C)	L C (μ A)	E S R (m Ω /at 100k ~ 300k Hz, 20°C max.)	Rated R. C. (mA/rms at 100k Hz, 105°C)		
10V (1A)	12.0	270	8 × 6.7	0.12	540	22	3,200		
		330	8 × 12	0.15	660	14	4,420		
			10 × 7.7	0.12	660	24	3,770		
		470	10 × 9.9	0.12	940	18	4,400		
		560	10 × 12.6		1,120	12	5,300		
16V (1C)	18.0	22	5 × 5.7	0.12	100	45	1,100		
		33	6.3 × 4.4		211	40	1,670		
		39	5 × 5.7		125	35	2,000		
			68		6.3 × 5.9	125	30	2,200	
		218							
		82	6.3 × 7.7		0.12	262	24	2,700	
							8 × 6.7	28	2,800
			100		6.3 × 5.9	0.12	320	30	2,200
					6.3 × 7.7			24	2,700
		100	10 × 7.7		0.12	320	35	2,670	
			120				8 × 6.7	384	28
		180	10 × 7.7		576	29	3,430		
		270	6.3 × 9.5		864	11	5,000		
		330	10 × 12.6		0.12	3,200	1,056	12	5,300
		470					1,504		5,300
		820					2,624		5,400
1,000	3,200	5,400							
20V(1D)	23.0	15	6.3 × 4.4	0.12	120	45	2,000		
		22	6.3 × 4.4		88	35	2,000		
		22	6.3 × 5.9		88	48	1,300		
		47	8 × 6.7		188	45	1,890		
		56	6.3 × 5.9		0.12	224	48	1,300	
									272
		82	328		400				
		100	400						
		120	480						
		270	8 × 12		1,080	21	4,000		
		390	8 × 12		1,560	14	4,950		
470	10 × 12.6	1,880	20	4,300					
25V(1E)	29.0	10	8 × 6.7	0.10	125	60	1,500		
		47	6.3 × 5.9	0.12	235	49	1,300		
		150	8 × 12	750	28	2,200			
		270	10 × 12.6	1,350	27	2,700			
35V(1V)	40.0	18	6.3 × 5.9	0.12	126	64	900		
		82	8 × 12		574	29	2,200		
		150	10 × 12.6		1,050	28	2,600		

Note: The surface temperature of aluminum case top must not exceed 105°C. A rise in temperature due to self-heating by ripple current should be factored in.

Part Numbering System

OVK Series	470 μ F	$\pm 20\%$	6.3V	Carrier Tape	10 $\phi \times 7.7L$
OVK	471	M	OJ	TR	-
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type
					Case size
					Regional Code

Note: For more details, please refer to "Part Numbering System (SMD Type)" on page 15.