

# ROA Aluminum Electrolytic Capacitors For Audio

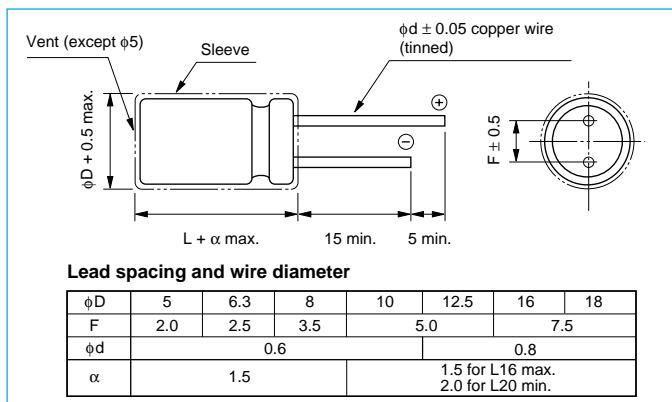
## ■ CERAFINE SERIES Fine ceramic adopted electrolytic capacitor for audio

- True audio reproduction by the suppression of electrical noise due to external vibration.
- As the charging and discharging speed between the oxidized film of anode and field surface of electrolyte and the variation of potential due to unevenness of fibers of separating paper sheets are improved by the electro-chemical action of super fine ceramic particles, this product realizes high grade audio tone with excellent sound resolution power, good rise in the low-pitched sound region and no distortion in the medium and high-pitched sound region.

## Series ROA Standard for Audio (Common name: Cerafine)

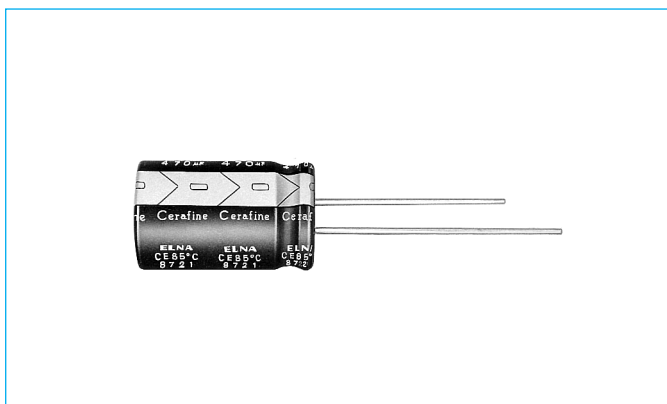
- All lead wires are oxygen-free copper for extremely low distortion. (Third high frequency distortion 10 kHz, 0.1 A, -120 dB or less)
- Vinyl sleeve is of wine red finish with gold "Cerafine" mark.

### Outline Drawing



Unit: mm

### Photo



### Specifications

No.	Item	Performance																		
1	Temperature range (°C)	−40 to +85																		
2	Leakage current (μA)	Less than 0.01 CV or 3 whichever is larger (after five minutes) C: Capacitance (μF), V Voltage (V)																		
3	Capacitance tolerance (%)	±20 (20°C, 120 Hz)																		
4	Tangent of loss angle (tan δ)	<table><tr><td>Rated voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>tan δ</td><td>0.23</td><td>0.20</td><td>0.16</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.12</td><td>0.12</td></tr></table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	tan δ	0.23	0.20	0.16	0.16	0.14	0.12	0.12	0.12
		Rated voltage (V)	6.3	10	16	25	35	50	63	100										
		tan δ	0.23	0.20	0.16	0.16	0.14	0.12	0.12	0.12										
0.02 is added to each 1000 μF increase over 1000 μF																				
5	Endurance (85°C) (Applied ripple current)	<table><tr><td>Test time</td><td>1000 hrs</td></tr><tr><td>Leakage current</td><td>Initial specified value or less</td></tr><tr><td>Change in capacitance</td><td>Within ±20% of initial value</td></tr><tr><td>tan δ</td><td>150% or less of initial specified value</td></tr></table>	Test time	1000 hrs	Leakage current	Initial specified value or less	Change in capacitance	Within ±20% of initial value	tan δ	150% or less of initial specified value										
		Test time	1000 hrs																	
		Leakage current	Initial specified value or less																	
		Change in capacitance	Within ±20% of initial value																	
tan δ	150% or less of initial specified value																			
6	Max. storage temp. (85°C)	Test time 500 hrs. Others have same as endurance in No. 5, Voltage application treatment.																		
7	Applicable Standards	JIS C 5101-1, 5101-4 1998 (IEC 60384-1 1992, 60384-4 1985)																		

### Coefficients of Frequency for Ripple Current

Rated Voltage (V)	Frequency (Hz)	50 • 60	120	1 k	10 k	100 k
	Rated Voltage (V)					
6.3 to 16	All CV value	0.8	1	1.1	1.2	1.2
25 to 35	≤1000	0.8	1	1.5	1.7	1.7
	1000 <	0.8	1	1.2	1.3	1.3
50 to 100	≤1000	0.8	1	1.6	1.9	1.9
	1000 <	0.8	1	1.2	1.3	1.3

### Coefficients of Temperature for Ripple Current

Temperature (°C)	+70 or less	+85
Coefficients	1.35	1

## ROA Aluminum Electrolytic Capacitors For Audio

Case size by working voltage & capacitance (in mm)

(mm)

WV(V) Cap.(μF)	6.3	10	16	25	35	50	63	100
0.47						5 x 11		5 x 11
1						5 x 11		5 x 11
2.2						5 x 11	5 x 11	6.3 x 11
3.3						5 x 11	5 x 11	8 x 11.5
4.7				5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11.5
10			5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11.5	10 x 12.5
22		5 x 11	6.3 x 11	6.3 x 11	8 x 11.5	10 x 12.5	10 x 12.5	10 x 20
33	5 x 11	6.3 x 11	6.3 x 11	8 x 11.5	10 x 12.5	10 x 12.5	10 x 16	12.5 x 20
47	6.3 x 11	6.3 x 11	8 x 11.5	8 x 11.5	10 x 12.5	10 x 16	10 x 20	12.5 x 25
100	8 x 11.5	8 x 11.5	10 x 12.5	10 x 16	10 x 20	12.5 x 20	12.5 x 20	16 x 25
220	10 x 12.5	10 x 12.5	10 x 16	10 x 20	12.5 x 25	16 x 25	16 x 31.5	18 x 40
330	10 x 12.5	10 x 16	10 x 20	12.5 x 20	16 x 25	16 x 31.5	16 x 35.5	
470	10 x 16	10 x 20	12.5 x 20	12.5 x 25	16 x 25	16 x 35.5	18 x 35.5	
1000	12.5 x 20	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5			
2200	16 x 25	16 x 31.5	18 x 35.5					
3300	16 x 31.5	18 x 35.5						
4700	16 x 35.5							
6800	18 x 40							

### Standard Ratings

ELNA PART NO. / WV (V)	CAP. (μF)	SIZE (φx L) (mm)	tan δ	Ripple Current (mArms)
<b>6.3 V</b>				
ROA-6V330MP9	33	5 x 11	0.23	55
ROA-6V470MP9	47	6.3 x 11	0.23	80
ROA-6V101MP9	100	8 x 11.5	0.23	135
ROA-6V221MP9	220	10 x 12.5	0.23	240
ROA-6V331MP9	330	10 x 12.5	0.23	290
ROA-6V471MP9	470	10 x 16	0.23	390
ROA-6V102MP9	1000	12.5 x 20	0.23	710
ROA-6V222MP9	2200	16 x 25	0.25	1280
ROA-6V332MP9	3300	16 x 31.5	0.27	1660
ROA-6V472MP9	4700	16 x 35.5	0.29	2000
ROA-6V682MP9	6800	18 x 40	0.33	2550
<b>10 V</b>				
ROA-10V220MP9	22	5 x 11	0.20	50
ROA-10V330MP9	33	6.3 x 11	0.20	70
ROA-10V470MP9	47	6.3 x 11	0.20	85
ROA-10V101MP9	100	8 x 11.5	0.20	145
ROA-10V221MP9	220	10 x 12.5	0.20	260
ROA-10V331MP9	330	10 x 16	0.20	350
ROA-10V471MP9	470	10 x 20	0.20	455
ROA-10V102MP9	1000	12.5 x 25	0.20	835
ROA-10V222MP9	2200	16 x 31.5	0.22	1500

ELNA PART NO. / WV (V)	CAP. (μF)	SIZE (φx L) (mm)	tan δ	Ripple Current (mArms)
ROA-10V332MP9	3300	18 x 35.5	0.24	1980
<b>16 V</b>				
ROA-16V100MP9	10	5 x 11	0.16	35
ROA-16V220MP9	22	6.3 x 11	0.16	65
ROA-16V330MP9	33	6.3 x 11	0.16	80
ROA-16V470MP9	47	8 x 11.5	0.16	110
ROA-16V101MP9	100	10 x 12.5	0.16	195
ROA-16V221MP9	220	10 x 16	0.16	320
ROA-16V331MP9	330	10 x 20	0.16	425
ROA-16V471MP9	470	12.5 x 20	0.16	585
ROA-16V102MP9	1000	16 x 25	0.16	1080
ROA-16V222MP9	2200	18 x 35.5	0.18	1870
<b>25 V</b>				
ROA-25V4R7MP9	4.7	5 x 11	0.16	25
ROA-25V100MP9	10	5 x 11	0.16	35
ROA-25V220MP9	22	6.3 x 11	0.16	65
ROA-25V330MP9	33	8 x 11.5	0.16	95
ROA-25V470MP9	47	8 x 11.5	0.16	110
ROA-25V101MP9	100	10 x 16	0.16	215
ROA-25V221MP9	220	10 x 20	0.16	350
ROA-25V331MP9	330	12.5 x 20	0.16	490
ROA-25V471MP9	470	12.5 x 25	0.16	640

Note: Allowable Ripple Current 120 Hz at 85°C

## ROA Aluminum Electrolytic Capacitors For Audio

### Standard Ratings

ELNA PART NO. / WV (V)	CAP. (μF)	SIZE (φx L) (mm)	tan δ	Ripple Current (mA <sub>rms</sub> )
ROA-25V102MP9	1000	16 x 31.5	0.16	1180
<b>35 V</b>				
ROA-35V4R7MP9	4.7	5 x 11	0.14	25
ROA-35V100MP9	10	6.3 x 11	0.14	45
ROA-35V220MP9	22	8 x 11.5	0.14	80
ROA-35V330MP9	33	10 x 12.5	0.14	120
ROA-35V470MP9	47	10 x 12.5	0.14	140
ROA-35V101MP9	100	10 x 20	0.14	250
ROA-35V221MP9	220	12.5 x 25	0.14	465
ROA-35V331MP9	330	16 x 25	0.14	665
ROA-35V471MP9	470	16 x 25	0.14	795
ROA-35V102MP9	1000	18 x 35.5	0.14	1430
<b>50 V</b>				
ROA-50V4R7MP9	0.47	5 x 11	0.12	9
ROA-50V010MP9	1	5 x 11	0.12	14
ROA-50V2R2MP9	2.2	5 x 11	0.12	20
ROA-50V3R3MP9	3.3	5 x 11	0.12	25
ROA-50V4R7MP9	4.7	6.3 x 11	0.12	35
ROA-50V100MP9	10	6.3 x 11	0.12	50
ROA-50V220MP9	22	10 x 12.5	0.12	105
ROA-50V330MP9	33	10 x 12.5	0.12	130
ROA-50V470MP9	47	10 x 16	0.12	170
ROA-50V101MP9	100	12.5 x 20	0.12	310
ROA-50V221MP9	220	16 x 25	0.12	585
ROA-50V331MP9	330	16 x 31.5	0.12	785
ROA-50V471MP9	470	16 x 35.5	0.12	985
<b>63 V</b>				
ROA-63V2R2MP9	2.2	5 x 11	0.12	20
ROA-63V3R3MP9	3.3	5 x 11	0.12	25
ROA-63V4R7MP9	4.7	6.3 x 11	0.12	35
ROA-63V100MP9	10	8 x 11.5	0.12	60
ROA-63V220MP9	22	10 x 12.5	0.12	105
ROA-63V330MP9	33	10 x 16	0.12	140
ROA-63V470MP9	47	10 x 20	0.12	185
ROA-63V101MP9	100	12.5 x 20	0.12	310
ROA-63V221MP9	220	16 x 31.5	0.12	640
ROA-63V331MP9	330	16 x 35.5	0.12	825

ELNA PART NO. / WV (V)	CAP. (μF)	SIZE (φx L) (mm)	tan δ	Ripple Current (mA <sub>rms</sub> )
ROA-63V471MP9	470	18 x 35.5	0.12	1050
<b>100 V</b>				
ROA-100V4R7MP9	0.47	5 x 11	0.12	9
ROA-100V010MP9	1	5 x 11	0.12	14
ROA-100V2R2MP9	2.2	6.3 x 11	0.12	20
ROA-100V3R3MP9	3.3	8 x 11.5	0.12	30
ROA-100V4R7MP9	4.7	8 x 11.5	0.12	40
ROA-100V100MP9	10	10 x 12.5	0.12	70
ROA-100V220MP9	22	10 x 20	0.12	125
ROA-100V330MP9	33	12.5 x 20	0.12	175
ROA-100V470MP9	47	12.5 x 25	0.12	230
ROA-100V101MP9	100	16 x 25	0.12	395
ROA-100V221MP9	220	18 x 40	0.12	760

Note: Allowable Ripple Current 120 Hz at 85°C

Radial Type

ROA