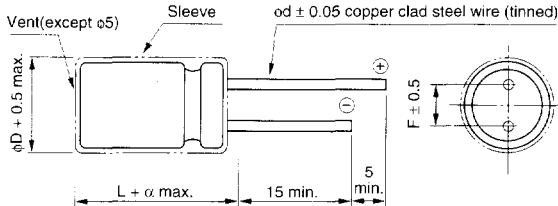


## RA3 Aluminum Electrolytic Capacitors For Audio

### Miniature Capacitor for Audio Series RA3

- With the same size as that for Series RE3 miniaturized standard capacitors, a high resolution sound quality grade has been realized.
- The newly developed audio use material makes clear sound a reality.
- All lead wires are copper clad steel.

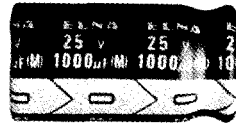
#### Outline Drawing



φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0		7.5	
od	0.5	0.5/0.6	0.6		0.8		
α	1.5		1.5 for L16 max. 2.0 for L20 min.				

Unit: mm

#### Photo



#### Specifications

No.	Item	Performance																		
1	Temperature range (°C)	-40 to +85																		
2	Leakage current (μA)	Less than 0.03 CV or 4 whichever is larger (after 1 minute), Less than 0.01CVC or 3 whichever is larger (after 2 minutes). C: Capacitance (μF), V: Rated Voltage (V) (20°C)																		
3	Capacitance tolerance (%)	±20 (20°C, 120 Hz)																		
4	Tangent of loss angle (tan δ)	<table border="1"> <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>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.11</td> <td>0.10</td> </tr> </table> <p>0.02 is added to every 1000μF increase over 1000μF (20°C, 120Hz)</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	tan δ	0.28	0.24	0.20	0.16	0.14	0.12	0.11	0.10
Rated voltage (V)	6.3	10	16	25	35	50	63	100												
tan δ	0.28	0.24	0.20	0.16	0.14	0.12	0.11	0.10												
5	Endurance (85°C) (Applied ripple current)	<table border="1"> <tr> <td>Test time</td> <td>2000 hours</td> </tr> <tr> <td>Leakage current</td> <td>The 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>200% or less of initial specified value</td> </tr> </table>	Test time	2000 hours	Leakage current	The initial specified value or less	Change in capacitance	Within ±20% of initial value	Tan δ	200% or less of initial specified value										
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6	Max. storage temp. (85°C)	Test time: 500 hrs. Others have same as endurance. Voltage application treatment.																		
7	Applicable Standards	JIS C 5101-1, 5101-4 1998 (IEC 60384-1 1992, 60384-4 1985)																		

#### Coefficients for the Allowable Ripple Current

Rated Voltage (V)	Frequency (Hz) CV (μF x WV)	Frequency (Hz)				
		50 • 60	120	1 k	10 k	100 k
6.3 to 16	All CV value	0.80	1	1.1	1.2	1.2
	≤1000	0.80	1	1.5	1.7	1.7
25 to 35	1000 <	0.80	1	1.2	1.3	1.3
	≤1000	0.80	1	1.6	1.9	1.9
50 to 100	≤1000	0.80	1	1.2	1.3	1.3
	1000 <	0.80	1	1.2	1.3	1.3

#### Coefficients of Temperature for Ripple Current

Ambient temperature (°C)	+70	+85
Correction Coefficients	1.35	1

RA3

### Case size by working voltage & capacitance (in mm)

(mm)

WV(V) Cap.(µF)	6.3	10	16	25	35	50	63	100
0.1						5 x 11		
0.22						5 x 11		
0.33						5 x 11		
0.47						5 x 11		5 x 11
1						5 x 11		5 x 11
2.2						5 x 11		5 x 11
3.3						5 x 11		5 x 11
4.7						5 x 11		5 x 11
10			5 x 11	5 x 11	5 x 11	5 x 11	5 x 11	5 x 11
22			5 x 11	5 x 11	5 x 11	5 x 11	5 x 11	6.3 x 11
33			5 x 11	5 x 11	5 x 11	5 x 11	6.3 x 11	8 x 11.5
47			5 x 11	5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11.5
100	5 x 11	5 x 11	5 x 11	6.3 x 11	6.3 x 11	8 x 11.5	8 x 11.5	10 x 16
220	5 x 11	6.3 x 11	6.3 x 11	8 x 11.5	8 x 11.5	10 x 12.5	10 x 16	12.5 x 20
330	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
470	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 20	16 x 25
1000	8 x 11.5	10 x 12.5	10 x 16	10 x 20	12.5 x 20	12.5 x 25	16 x 25	18 x 35.5
2200	10 x 16	10 x 20	12.5 x 20	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5	
3300	10 x 20	12.5 x 20	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5		
4700	12.5 x 20	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5			
6800	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5				
10000	16 x 25	16 x 31.5	18 x 35.5					
15000	16 x 31.5	18 x 35.5						
22000	18 x 35.5							

### Standard Ratings

ELNA PART NO. / WV (V)	CAP. (µF)	SIZE (φ x L) (mm)	tan δ	Ripple Current (mArms)
<b>6.3 V</b>				
RA3-6V101ME3	100	5 x 11	0.28	130
RA3-6V221ME3	220	5 x 11	0.28	240
RA3-6V331MF3	330	6.3 x 11	0.28	300
RA3-6V471MF3	470	6.3 x 11	0.28	380
RA3-6V102MG3	1000	8 x 11.5	0.28	580
RA3-6V222MH4	2200	10 x 16	0.30	939
RA3-6V332MH5	3300	10 x 20	0.32	1230
RA3-6V472MI5	4700	12.5 x 20	0.34	1710
RA3-6V682MI6	6800	12.5 x 25	0.38	1930
RA3-6V103MJ6	10000	16 x 25	0.44	2450
RA3-6V153MJ7	15000	16 x 31.5	0.54	2580
RA3-6V223MK8	22000	18 x 35.5	0.68	3150
<b>10 V</b>				
RA3-10V101ME3	100	5 x 11	0.24	150
RA3-10V221MF3	220	6.3 x 11	0.24	250
RA3-10V331MF3	330	6.3 x 11	0.24	330
RA3-10V471MG3	470	8 x 11.5	0.24	417
RA3-10V102MH3	1000	10 x 12.5	0.24	650

ELNA PART NO. / WV (V)	CAP. (µF)	SIZE (φ x L) (mm)	tan δ	Ripple Current (mArms)
RA3-10V222MH5	2200	10 x 20	0.26	1080
RA3-10V332MI5	3300	12.5 x 20	0.28	1430
RA3-10V472MI6	4700	12.5 x 25	0.30	1780
RA3-10V682MJ6	6800	16 x 25	0.34	2270
RA3-10V103MJ7	10000	16 x 31.5	0.40	2500
RA3-10V153MK8	15000	18 x 35.5	0.50	3100
<b>16 V</b>				
RA3-16V100ME3	10	5 x 11	0.20	50
RA3-16V220ME3	22	5 x 11	0.20	75
RA3-16V330ME3	33	5 x 11	0.20	110
RA3-16V470ME3	47	5 x 11	0.20	130
RA3-16V101ME3	100	5 x 11	0.20	180
RA3-16V221MF3	220	6.3 x 11	0.20	280
RA3-16V331MG3	330	8 x 11.5	0.20	383
RA3-16V471MG3	470	8 x 11.5	0.20	480
RA3-16V102MH4	1000	10 x 16	0.20	791
RA3-16V222MI5	2200	12.5 x 20	0.22	1350
RA3-16V332MI6	3300	12.5 x 25	0.24	1690
RA3-16V472MJ6	4700	16 x 25	0.26	2100

Note: Allowable Ripple Current 120 Hz at 85°C

RA3

### Standard Ratings

ELNA PART NO. / WV (V)	CAP. (μF)	SIZE (φ x L) (mm)	tan δ	Ripple Current (mArms)
RA3-16V682MJ7	6800	16 x 31.5	0.30	2480
RA3-16V103MK8	10000	18 x 35.5	0.36	3130
<b>25 V</b>				
RA3-25V100ME3	10	5 x 11	0.16	55
RA3-25V220ME3	22	5 x 11	0.16	90
RA3-25V330ME3	33	5 x 11	0.16	110
RA3-25V470ME3	47	5 x 11	0.16	130
RA3-25V101MF3	100	6.3 x 11	0.16	199
RA3-25V221MG3	220	8 x 11.5	0.16	349
RA3-25V331MG3	330	8 x 11.5	0.16	383
RA3-25V471MH3	470	10 x 12.5	0.16	545
RA3-25V102MH5	1000	10 x 20	0.16	996
RA3-25V222MI6	2200	12.5 x 25	0.18	1660
RA3-25V332MJ6	3300	16 x 25	0.20	2030
RA3-25V472MJ7	4700	16 x 31.5	0.22	2650
RA3-25V682MK8	6800	18 x 35.5	0.26	3290
<b>35 V</b>				
RA3-35V100ME3	10	5 x 11	0.14	60
RA3-35V220ME3	22	5 x 11	0.14	95
RA3-35V330ME3	33	5 x 11	0.14	110
RA3-35V470ME3	47	5 x 11	0.14	130
RA3-35V101MF3	100	6.3 x 11	0.14	214
RA3-35V221MG3	220	8 x 11.5	0.14	350
RA3-35V331MH3	330	10 x 12.5	0.14	542
RA3-35V471MH4	470	10 x 16	0.14	664
RA3-35V102MI5	1000	12.5 x 20	0.14	1210
RA3-35V222MJ6	2200	16 x 25	0.16	1950
RA3-35V332MJ7	3300	16 x 31.5	0.18	2320
RA3-35V472MK8	4700	18 x 35.5	0.20	2990
<b>50 V</b>				
RA3-50VR10ME3	0.1	5 x 11	0.12	3
RA3-50VR22ME3	0.22	5 x 11	0.12	6
RA3-50VR33ME3	0.33	5 x 11	0.12	9
RA3-50VR47ME3	0.47	5 x 11	0.12	13
RA3-50V010ME3	1	5 x 11	0.12	21
RA3-50V2R2ME3	2.2	5 x 11	0.12	31
RA3-50V3R3ME3	3.3	5 x 11	0.12	38
RA3-50V4R7ME3	4.7	5 x 11	0.12	45

ELNA PART NO. / WV (V)	CAP. (μF)	SIZE (φ x L) (mm)	tan δ	Ripple Current (mArms)
RA3-50V100ME3	10	5 x 11	0.12	66
RA3-50V220ME3	22	5 x 11	0.12	100
RA3-50V330ME3	33	5 x 11	0.12	110
RA3-50V470MF3	47	6.3 x 11	0.12	155
RA3-50V101MG3	100	8 x 11.5	0.12	250
RA3-50V221MH3	220	10 x 12.5	0.12	429
RA3-50V331MH4	330	10 x 16	0.12	595
RA3-50V471MH5	470	10 x 20	0.12	887
RA3-50V102MI6	1000	12.5 x 25	0.12	1400
RA3-50V222MJ7	2200	16 x 31.5	0.14	2340
RA3-50V332MK8	3300	18 x 35.5	0.16	2810
<b>63 V</b>				
RA3-63V100ME3	10	5 x 11	0.11	70
RA3-63V220ME3	22	5 x 11	0.11	105
RA3-63V330MF3	33	6.3 x 11	0.11	130
RA3-63V470MF3	47	6.3 x 11	0.11	160
RA3-63V101MG3	100	8 x 11.5	0.11	270
RA3-63V221MH4	220	10 x 16	0.11	505
RA3-63V331MH5	330	10 x 20	0.11	676
RA3-63V471MI5	470	12.5 x 20	0.11	924
RA3-63V102MJ6	1000	16 x 25	0.11	1710
RA3-63V222MK8	2200	18 x 35.5	0.13	2870
<b>100 V</b>				
RA3-100VR47ME3	0.47	5 x 11	0.10	13
RA3-100V010ME3	1	5 x 11	0.10	21
RA3-100V2R2ME3	2.2	5 x 11	0.10	31
RA3-100V3R3ME3	3.3	5 x 11	0.10	40
RA3-100V4R7ME3	4.7	5 x 11	0.10	50
RA3-100V100ME3	10	5 x 11	0.10	70
RA3-100V220MF3	22	6.3 x 11	0.10	115
RA3-100V330MG3	33	8 x 11.5	0.10	158
RA3-100V470MG3	47	8 x 11.5	0.10	188
RA3-100V101MH4	100	10 x 16	0.10	358
RA3-100V221MI5	220	12.5 x 20	0.10	663
RA3-100V331MI6	330	12.5 x 25	0.10	886
RA3-100V471MJ6	470	16 x 25	0.10	1230
RA3-100V102MK8	1000	18 x 35.5	0.10	2210

Note: Allowable Ripple Current 120 Hz at 85°C

RA3