

# RA Anhydrous, Low impedance

## 无水系低阻抗品

- 105°C, 5000 hours assured.  
105°C, 5000 小时寿命品。
- Low Impedance, Anhydrous series.  
高频低阻抗, 无水系产品
- Suitable for high reliability power supplies  
适用于高可靠电源适配器

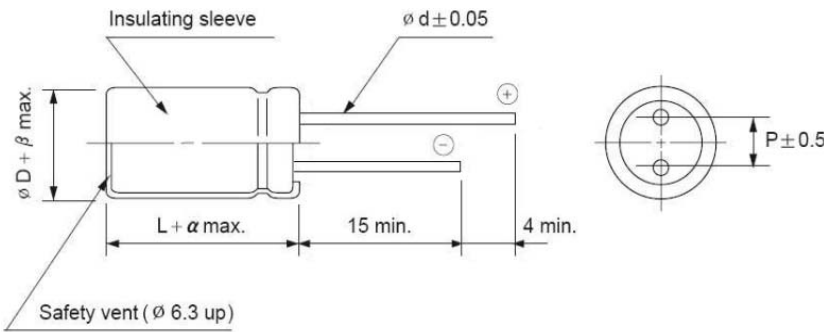


MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

### Specifications 特性表

Items 项目	Characteristics 主要特性																											
Rated Voltage Range 额定工作电压范围	6.3 ~ 50V <sub>dc</sub>																											
Category Temperature Range 使用温度范围	-40 ~ +105°C																											
Capacitance Tolerance 静电容量允许偏差	±20% (M), at 20°C, 120Hz																											
Leakage Current 漏电流, 20°C环境下施加工作电压 2 分钟后. (at 20°C, After 2 minutes)	I ≤ 0.01CV or 3µA, whichever is greater 漏电流 ≤ 0.01CV or 3µA, 取较大值 Where, I : Max. leakage current (漏电流, µA), C : Nominal capacitance (静电容量, µF), V : Rated voltage (额定电压 V)																											
Dissipation Factor (Tanδ, at 20°C, 120Hz) 损耗角正切值 (测试条件为 20°C, 120Hz)	<table border="1"> <tr> <td>Rated voltage (V) 额定工作电压</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>Tanδ (Max.) 最大损耗角正切</td> <td>0.22</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.10</td> </tr> </table> <p>When nominal capacitance exceeds 1,000µF, add 0.02 to the value above for each 1,000µF increase. 静电容量大于 1000µF, 每增加 1000µF, 损耗角正切增加 0.02</p>	Rated voltage (V) 额定工作电压	6.3	10	16	25	35	50	63	100	Tanδ (Max.) 最大损耗角正切	0.22	0.20	0.16	0.14	0.12	0.10	0.10	0.10									
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Low Temperature Characteristics (Max. Impedance Ratio, 120Hz) 低温特性最大阻抗比	<table border="1"> <tr> <td>Rated voltage (V) 额定工作电压</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>Z(-25°C)/Z(20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>5</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated voltage (V) 额定工作电压	6.3	10	16	25	35	50	63	100	Z(-25°C)/Z(20°C)	2	2	2	2	2	2	2	2	Z(-40°C)/Z(20°C)	5	5	4	3	3	3	3	3
Rated voltage (V) 额定工作电压	6.3	10	16	25	35	50	63	100																				
Z(-25°C)/Z(20°C)	2	2	2	2	2	2	2	2																				
Z(-40°C)/Z(20°C)	5	5	4	3	3	3	3	3																				
Endurance 耐久性	<p>The following specification shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the ripple current is applied for the specified period of time at 105°C. 在 105°C 环境中, 不超过额定电压的范围下叠加额定纹波电流, 连续加载规定时间的额定电压后, 待温度恢复到 20°C 进行测量时, 应满足以下要求。</p> <table border="1"> <tr> <td>Test Time 测试时间</td> <td>5,000Hrs (Φ5~Φ6.3: 3000Hrs, Φ8: 4000Hrs)</td> </tr> <tr> <td>Capacitance Change 静电容量变化率</td> <td>Within ±20% initial value 初始值的±20%以内</td> </tr> <tr> <td>Dissipation Factor 损耗角正切</td> <td>≤200% of specified value 不大于规范值的 200%</td> </tr> <tr> <td>Leakage Current 漏电流</td> <td>≤The initial specified value 不大于规范值</td> </tr> </table>	Test Time 测试时间	5,000Hrs (Φ5~Φ6.3: 3000Hrs, Φ8: 4000Hrs)	Capacitance Change 静电容量变化率	Within ±20% initial value 初始值的±20%以内	Dissipation Factor 损耗角正切	≤200% of specified value 不大于规范值的 200%	Leakage Current 漏电流	≤The initial specified value 不大于规范值																			
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Shelf Life 高温贮存	<p>The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of IEC 60384-4. 在 105°C 环境中, 无负荷放置 1,000 小时后待温度恢复到 20°C, 进行试验前处理(IEC 60384-4 4.1 项)后进行测量时, 应满足以下要求。</p> <table border="1"> <tr> <td>Capacitance Change 静电容量变化率</td> <td>Within ±20% initial value 初始值的±20%以内</td> </tr> <tr> <td>Dissipation Factor 损耗角正切值</td> <td>≤200% of specified value 不大于规范值的 200%</td> </tr> <tr> <td>Leakage Current 漏电流</td> <td>≤The initial specified value 不大于规范值</td> </tr> </table>	Capacitance Change 静电容量变化率	Within ±20% initial value 初始值的±20%以内	Dissipation Factor 损耗角正切值	≤200% of specified value 不大于规范值的 200%	Leakage Current 漏电流	≤The initial specified value 不大于规范值																					
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### Drawing(Unit: mm) 外形图



ΦD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5		0.6		0.8		
α	1.0			1.5			
β	0.5						

### Rated ripple current multipliers(Unit: mm) 额定纹波修正系数

Frequency 频率 (Hz)	60Hz	120Hz	300Hz	1KHz	10KHz	100KHz
Coefficient 系数	Under 10µF	0.35	0.42	0.50	0.60	1.00
	10 < C ≤ 39	0.45	0.55	0.62	0.75	1.00
	47 < C ≤ 390	0.60	0.70	0.76	0.85	1.00
	470 < C ≤ 1800	0.65	0.75	0.82	0.90	1.00
	2200 up above	0.75	0.80	0.86	0.95	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise.  
铝电解电容器由于在纹波电流叠加时自我发热、温度上升而老化, 每升温 5°C 寿命减少一半。

When long life performance is required in actual use, the rms ripple current has to be reduced.  
要想保持长寿命请在使用过程中降低纹波电流。

**Note:** All design and specifications are for reference only and is subject to change without prior notice. If any doubt about safety for your application, Please contact us immediately for technical assistance before purchase.

**注:** 以上所提供的设计及特性参数仅供参考, 任何修改不作预先通知, 如有使用上任何疑问, 请在采购前与我们联系, 以便提供技术上的协助。

# RA Series

■ Standard ratings 标准品一览表

WV μF	6.3			10			16		
	ΦD x L	Impedance	R.C.	ΦD x L	Impedance	R.C.	ΦD x L	Impedance	R.C.
33									
39									
47							5x11	0.75	180
56							5x11	0.75	180
68							6.3x11	0.45	263
82							6.3x11	0.45	263
100	5x11	0.75	180	5x11	0.75	180	6.3x11	0.35	290
120	5x11	0.75	180	6.3x11	0.45	263	6.3x11	0.35	290
150	6.3x11	0.35	290	6.3x11	0.35	290	6.3x11	0.35	290
180	6.3x11	0.35	290	6.3x11	0.35	290	8x11.5	0.20	410
220	6.3x11	0.35	290	6.3x11	0.35	290	8x11.5	0.18	450
270	6.3x11	0.35	290	8x11.5	0.21	410	8x11.5	0.18	450
330	6.3x11	0.35	290	8x11.5	0.18	450	8x11.5	0.18	450
390	8x11.5	0.21	410	8x11.5	0.18	450	10x12.5	0.13	607
470	8x11.5	0.18	450	8x11.5	0.18	450	10x12.5	0.12	660
560	8x11.5	0.18	450	10x12.5	0.14	607	10x16	0.086	802
680	10x12.5	0.12	660	10x12.5	0.12	680	10x16	0.080	850
820	10x12.5	0.12	660	10x16	0.086	802	10x20	0.060	1100
1000	10x12.5	0.12	660	10x16	0.080	850	10x20	0.060	1100
1200	10x16	0.080	850	10x20	0.060	1100	13x20	0.051	1325
1500	10x20	0.060	1000	10x20	0.060	1100	13x20	0.050	1400
1800	10x20	0.052	1100	13x20	0.051	1320	13x25	0.041	1625
2200	13x20	0.050	1400	13x20	0.050	1400	13x25	0.038	1700
2700	13x20	0.050	1400	13x25	0.038	1700	16x25	0.028	2000
3300	13x20	0.050	1400	13x25	0.038	1700	16x25	0.025	2100
3900	13x25	0.038	1700	16x25	0.028	2000	16x25	0.025	2100
4700	13x25	0.025	2100	16x25	0.025	2100	16x31.5	0.022	2600
5600	16x25	0.025	2100	16x25	0.025	2100	18x31.5	0.021	2800
6800	16x25	0.025	2100	16x31.5	0.022	2600	18x35.5	0.020	3000
8200	16x31.5	0.022	2600	18x31.5	0.021	2800	18x35.5	0.020	3000
10000	16x31.5	0.022	2600	18x35.5	0.020	3000	18x40	0.018	3600
12000	16x31.5	0.021	2800	18x35.5	0.020	3000			
15000	18x31.5	0.020	3000	18x40	0.018	3600			

Note1: Case size ΦD x L(mm), ripple current (mA, rms) at 105°C, 100KHz. 尺寸 ΦD x L(mm), 纹波电流於 105°C, 100KHz  
 Note2: Produce custom product too, which are not found in these tables. 客户定制品不在标准品一览表内

# RA Series

■ Standard ratings 标准品一览表

WV μF	25			35			50		
	ΦD x L	Impedance	R.C.	ΦD x L	Impedance	R.C.	ΦD x L	Impedance	R.C.
1							5x11	4.0	130
1.5							5x11	3.6	130
2.2							5x11	3.0	130
3.3							5x11	2.8	130
4.7				5x11	0.90	150	5x11	2.5	130
6.8				5x11	0.90	150	5x11	2.3	160
10				5x11	0.90	150	5x11	2.0	160
12				5x11	0.90	150	5x11	1.7	160
15				5x11	0.90	150	5x11	1.6	200
18				5x11	0.90	150	5x11	1.5	200
22				5x11	0.90	150	5x11	1.4	200
27				5x11	0.90	150	6.3x11	0.70	300
33	5x11	0.90	150	5x11	0.90	150	6.3x11	0.60	300
39	5x11	0.90	150	6.3x11	0.45	263	6.3x11	0.60	300
47	5x11	0.75	180	6.3x11	0.35	290	6.3x11	0.60	300
56	6.3x11	0.45	263	6.3x11	0.35	290	8x11.5	0.38	305
68	6.3x11	0.45	263	8x11.5	0.20	410	8x11.5	0.38	305
82	6.3x11	0.35	290	8x11.5	0.20	410	8x11.5	0.35	340
100	6.3x11	0.35	290	8x11.5	0.18	450	8x11.5	0.33	340
120	8x11.5	0.20	410	8x11.5	0.18	450	10x12.5	0.25	490
150	8x11.5	0.18	450	8x11.5	0.18	450	10x12.5	0.25	490
180	8x11.5	0.18	450	10x12.5	0.13	607	10x16	0.19	650
220	8x11.5	0.18	450	10x12.5	0.12	660	10x16	0.19	650
270	10x12.5	0.13	607	10x16	0.086	802	10x20	0.16	730
330	10x12.5	0.12	660	10x16	0.080	850	10x20	0.14	810
390	10x16	0.086	802	10x20	0.060	1100	13x20	0.11	1250
470	10x16	0.080	850	10x20	0.060	1100	13x20	0.11	1250
560	10x20	0.060	1100	13x20	0.051	1325	13x20	0.082	1250
680	10x20	0.060	1100	13x20	0.050	1400	13x20	0.082	1950
820	13x20	0.051	1325	13x25	0.041	1625	16x25	0.059	1950
1000	13x20	0.050	1400	13x25	0.038	1700	16x25	0.054	2000
1200	13x25	0.038	1700	16x25	0.028	2000	16x31.5	0.048	2000
1500	16x25	0.025	2100	16x25	0.025	2100	16x31.5	0.048	2200
1800	16x25	0.025	2100	16x25	0.025	2100	18x31.5	0.045	2300
2200	16x25	0.025	2100	16x31.5	0.022	2600	18x31.5	0.043	2400
2700	16x25	0.025	2100	18x31.5	0.021	2800			
3300	16x31.5	0.022	2600	18x35.5	0.020	3000			
3900	16x31.5	0.021	2800	18x40	0.019	3450			
4700	18x35.5	0.020	3000	18x40	0.018	3600			
5600	18x40	0.019	3500						
6800	18x40	0.018	3600						

Note1: Case size ΦD x L(mm), ripple current (mA, rms) at 105°C, 100KHz. 尺寸 ΦD x L(mm), 纹波电流於 105°C, 100KHz

Note2: Produce custom product too, which are not found in these tables. 客户定制品不在标准品一览表内