

5) 电容器的绝缘

- 在以下情况，请将电容器与电路完全隔离。
 - ① 铝壳和阴极端子，阳极端子以及电路配线之间
 - ② 自立型的无连接端子（增强强度用）和其他的阳极端子，阴极端子以及电路配线之间
- 电容器的外装套管，不能保证绝缘性。请勿用于需要绝缘的地方。若需要套管具有绝缘功能时，请咨询我们。

6) 使用环境的限制

- 请不要在以下环境中使用电容器。
 - ① 直接溅水，盐水，油或处于结露状态的环境
 - ② 充满有害气体（硫化氢、亚硫酸、亚硝酸、氯气、氨气、溴等）的环境
 - ③ 有臭氧、紫外线及放射线照射的环境
 - ④ 振动或冲击条件超过商品目录或缴纳规格书规定范围的过激环境

7) 安装环境的设计

- 将电容器安装至印刷电路板时，需事先确认以下内容，再进行设计。
 - ① 请确认电容器的端子间隙与印刷电路板孔间隙一致。
 - ② 设计时不可将配线及电路板延伸到电容器压力阀上方。
 - ③ 请按商品目录或缴纳规格书的规定，在电容器的压力阀部位，空出一定的间隙。
 - ④ 铝电解电容器的压力阀接触到印刷电路板时，请在印刷电路板的正对位置上设置排气孔。
 - ⑤ 不要将螺栓端子型电容器的封口部向下。另外，横向放置时，请将阳极端子朝上。

8) 印刷电路板的设计

- 请不要在电容器的封口部下方进行电路配线。
- 请不要在电容器周围及印刷电路板的另一侧（电容器的下方）配置发热部件。
- 用于贴片电容器的印刷电路板，其焊盘设计请参照商品目录或缴纳规格书的规定进行。

5) INSULATION

- Aluminum Electrolytic Capacitors should be electrically isolated from among the following points.
 - ① Aluminum case, cathode lead wire, anode lead wire and circuit pattern.
 - ② Auxiliary terminals of snap-in type, anode terminal, outward terminal and circuit pattern.
- The sleeve of Aluminum Electrolytic Capacitors is not recognized as an insulator, and therefore, the standard capacitor should not be used in a place where insulation function is needed. Please consult with Rubycon should you require a higher grade of insulating sleeve.

6) CONDITIONS OF USE

- The following environment should be avoided when using Aluminum Electrolytic Capacitors.
 - ① Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
 - ② Hazardous gas/fumes such as hydrogen sulfide, sulfurous acid gas, nitrous acid, chlorine gas, ammonia or bromine gas.
 - ③ Exposure to ozone, ultraviolet rays or radiation.
 - ④ Severe vibration or shock which exceeds the condition specified in the catalog or specification sheets.

7) CONSIDERATION TO ASSEMBLY CONDITION

- In designing a circuit, the following matters should be ensured in advance to the capacitor's assembly on the printed wiring board (PW board).
 - ① Design the appropriate hole spacing to match the lead pitch of capacitors.
 - ② Do not locate any wiring and circuit patterns directly above the capacitor's vent.
 - ③ Ensure enough free space above the capacitor's vent. The recommended space is specified in the catalog or specification sheets.
 - ④ In case the capacitor's vent is facing the PW board, make a gas release hole on PW board.
 - ⑤ The sealing side of the screw terminal type should not face down in the application. When the capacitors are mounted horizontally, the anode screw terminals must be positioned at the upper side.

8) CONSIDERATION TO CIRCUIT DESIGN

- Any copper lines or circuit patterns should not be laid under the capacitor.
- Parts which radiate heat should not be placed close to or reverse side of the Aluminum Electrolytic Capacitors on the PW board.
- Land pattern of chip type capacitors should comply with the specification which is mentioned in the catalog or specification sheets.

9) 其他

- 电容器的电特性会根据环境温度和使用频率的变化而变化。请在确认该变化量的基础之上进行电路设计。
- 在双面印刷电路板上安装电容器时，请不要在电容器下面设计多余的印刷电路板孔及正反面连接用贯通孔。
- 螺栓端子的紧固扭矩不可超出商品目录和缴纳规格书中的规定范围。
- 并联2个以上的电容器时，请考虑到电流的平衡。
- 串联2个以上的电容器时，请考虑到电压的平衡，并插入分压电阻。

9) OTHERS

- Performance of electrical characteristics of Aluminum Electrolytic Capacitors are affected by variation of operating temperature and frequency. Consider this variation when designing the circuit.
- Excessive holes and connection hole between both sides on the PW board should be avoided around or under the mounting area of the Aluminum Electrolytic Capacitors on double sided or multilayer PW board.
- Torque of tightening screw terminals should not exceed the specified maximum value which is described in the catalog or specification sheets.
- Consider current balance when 2 or more Aluminum Electrolytic Capacitors are connected in parallel.
- Use bleeder resistors when 2 or more Aluminum Electrolytic Capacitors are connected in series. In this case, the resistors should be connected parallel to the capacitors.

使用在有安全性要求的电子设备上时，需考虑电解电容器的故障模式，从设计上确保安全性。

- 利用保护电路、保护装置提高系统的安全性。
- 利用冗余电路，提高系统的安全性。

From the perspective of the importance of safety with electronic equipments and circuits, please observe safety measures in light of capacitor failure modes at the design stage.

- System to promote safety in circuit care and protective equipment.
- System to promote safety with redundant circuits, etc.

2. 安装注意事项

1) 安装前的预备知识

- 对组装到设备上，且已经通过电的电容器，请勿再次使用。除了在定期检修时，为检测电特性而取下的电容器外，均不可再次使用。
- 电容器可能会发生再起电压。这种情况，请使用约1kΩ的电阻进行放电。
- 长期保管的电容器漏电流有可能会增大。这种情况，请使用约1kΩ的电阻进行电压处理。

2) 安装时-1

- 请确认电容器的额定值 (静电容量及电压) 后，再进行安装。
- 请确认电容器的极性后，再进行安装。
- 请勿将电容器跌落到地上。跌落到地上的电容器，请不要再使用。
- 安装时请勿使电容器变形。

2. CAUTION FOR ASSEMBLING CAPACITORS

1) CAUTION BEFORE ASSEMBLY

- Aluminum Electrolytic Capacitors cannot be recycled after mounting and applying electricity in unit. The capacitors which are removed from PW board for the purpose of measuring electrical characteristics at the periodical inspection should only be recycled for the same position.
- Aluminum Electrolytic Capacitors may accumulate charge naturally during storage. In this case, discharge through a 1kΩ resistor before use.
- Leakage current of Aluminum Electrolytic Capacitors may be increased during long storage time. In this case, the capacitors should be subject to voltage treatment through a 1kΩ resistor before use.

2) IN THE ASSEMBLY PROCESS-1

- Ensure rated voltage and capacitance of the capacitors before mounting.
- Ensure the capacitor's polarity before mounting.
- Do not use a capacitor which has been dropped onto a hard surface.
- Do not use capacitors with damaged or dented cases or seals.

3) 安装时-2

- 请确认电容器的端子间隙与印刷电路板孔间隙一致后，再进行安装。
- 安装基板自立型 (SNAP-IN型) 电容器时，请将其推至和基板密合的程度 (非浮起状态)。
- 利用自动插入机对电容器的引线进行弯曲以固定在印刷电路板上时，力量不能过大。
- 请注意自动插入机及装配机的吸附器、产品检验器及位置对准操作所引起的冲击力。
- 若担心组装中有振动、冲击等，安装电容器至印刷电路板时，请使用辅助工具、粘合剂等增强其牢固性。

4) 电烙铁焊接

- 焊接条件 (温度、时间) 不可超过商品目录或缴纳规格书的规定范围。
- 端子间隙与印刷电路板孔穴间隙不一致，而在焊接前进行加工时，不能使电容器主体承受应力。
- 利用电烙铁进行手工修整时，如果需要将焊接好的电容器卸下，请将焊锡充分融化后再取下，以免使电容器的端子承受压力。
- 请勿用电烙铁的前端接触电容器的主体。

5) 波峰焊接

- 进行焊接时，请勿将电容器主体浸入熔融状态的焊锡中。插入印刷电路板作为阻隔，只对放电容器侧反面的电路板表面进行焊接。
- 焊接条件 (预热、焊接温度、端子浸渍时间) 不可超过商品目录或缴纳规格书规定的范围。
- 端子以外部分，不可附着助焊剂。
- 在焊接时，注意避免其他部件翻倒接触到电容器。

6) 回流焊接

- 焊接条件 (预热、焊接温度、时间、回流焊接次数)，不可超过商品目录或缴纳规格书所规定的范围。
※) 需要进行超过规定范围的回流焊接时，务必请联系我们。
- 使用红外线加热器时，对红外线的吸收率因电容器的颜色和材质不同而异，请注意加热的程度。

3) IN THE ASSEMBLY PROCESS-2

- Capacitors should be mounted after confirmation that hole spacing on PW board matches the lead pitch of the capacitors.
- The snap-in type of capacitors should be mounted firmly on the PW board without a gap between the capacitor body and the surface of PW board.
- Avoid excessive force when clinching lead wire during auto-insertion process.
- Avoid excessive shock to capacitors by automatic insertion machine, during mounting, parts inspection or centering operations.
- Please utilize supporting material such as strap or adhesive to mount capacitors to PC board when it is anticipated that vibration or shock is applied.

4) SOLDERING

- Soldering conditions (temperatures, times) should be within the specified conditions which are described in the catalog or specification sheets.
- In case lead wire reforming is needed due to inappropriate pitch between capacitor and holes on PW board, stress to the capacitor should be avoided.
- In case soldered capacitor has to be withdrawn from the PW board by soldering irons, the capacitor should be removed after solder has melted sufficiently in order to avoid stress to the capacitor or lead wires.
- Soldering iron should never touch the capacitor's body.

5) FLOW SOLDERING

- Do not dip capacitor's body into melted solder.
- Soldering condition (preheat, soldering temperature, dipping time) should be within the specified standard which is described in the catalog or specification sheets.
- Flux should not be adhered to capacitor's body but only to its terminals.
- Other devices which are mounted near capacitors should not touch the capacitors.

6) REFLOW SOLDERING

- Reflow soldering conditions (preheat, soldering temperature, reflow time, reflow cycle) should follow the specified standard which are described in the catalog or specification sheets. (※) Consult with Rubycon when use beyond the specified standard are need.
- Heating standard should depend on surface of the capacitor color or materials when infrared rays is used because the capacitor's heat absorption depends on the surface color or materials. Check heat condition.

7) 焊接后的处理

- 将电容器焊接在印刷电路板上之后，请不要将电容器的主体倾倒或扭曲。
- 不可抓住电容器的主体搬运电路板。
- 将电容器焊接在印刷电路板上之后，避免其与其他物体发生碰撞。
此外，重叠放置印刷电路板时，不可以让印刷电路板或其他部件碰到电容器。

8) 印刷电路板的清洗

- 不可使用含卤溶剂清洗电容器。但是必须清洗时，请使用耐清洗的电容器，并在商品目录或缴纳规格书的规定范围内使用。
- 清洗耐清洗的电容器时，请充分做好清洗剂的污染管理工作（电导率、pH值、比重、含水量等）。
- 清洗耐清洗的电容器后，请勿将其保管在有清洗液的环境中或密闭容器内。
此外，在清洗后，请用热风对印刷电路板和电容器进行充分干燥。热风温度请控制在工作上限温度以下。

9) 固定剂、涂层剂

- 请不要使用含有含卤溶剂等的固定剂、涂层剂。
- 在使用固定剂和涂层剂之前，请将基板和电容器的封口部位之间清扫干净，不可留有助焊剂残渣及污垢。
- 在使用固定剂和涂层剂之前，请对电容器上附着的清洗剂等进行干燥。
- 在使用固定剂和涂层剂时，请不要将电容器封口部全部堵塞。

3. 配套使用中的注意事项

- 请勿直接接触电容器的端子。
- 请勿使用导体导致电容器的端子间短路。此外，不可以使电容器接触酸性或碱性等导电性溶液。
- 请确认使用环境及安装环境在商品目录或缴纳规格书所规定的额定性能范围。

4. 保养检修

- 对于工业中使用的电容器，请定期进行检修。
检修项目包括如下内容。
 - ① 外观：开阀、液体泄漏等明显异常。
 - ② 电特性：漏电流、静电容量、损失角正切值以及商品目录或缴纳规格书中规定的项目。

7) HANDLING AFTER SOLDERING

- Do not bend or twist the capacitor's body after soldering on PW board.
- Do not pick-up or move PW board by holding the soldered capacitors.
- Do not hit the capacitors and isolate capacitors from the PW board or other device when stacking PW boards in store.

8) HANDLING AFTER SOLDERING

- Standard Aluminum Electrolytic Capacitors should be free from halogenated solvents during PW board cleaning after soldering. Use solvent proof capacitors and follow the specified cleaning condition when halogenated solvents are used.
- Solvents should have well controlled conductivity, pH, specific gravity and water contents during the cleaning of solvent proof capacitors.
- Cleaned PW board with capacitors should not be kept in solvent environment or nonventilated places. Let PW board containing capacitors after cleaning dry with hot blast fully. The temperature of such breeze should be under the upper category temperature of capacitors.

9) ADHESIVES AND COATING MATERIALS

- Do not use halogenated adhesives and coating materials to fix Aluminum Electrolytic Capacitors.
- Flux between the surface of the PW board and sealing of capacitors should be cleaned before using adhesives or coating materials.
- Solvents should be dried up before using adhesives or coating materials.
- Do not cover up all the sealing area of capacitors with adhesives or coating materials, make coverage only partial.

3. CAUTION DURING USE OF CAPACITORS IN SETS

- Do not touch the terminals of capacitors.
- Do not connect electrical terminals of the capacitor. Keep the capacitors free from conductive solution, such as acid, alkali and so on.
- Ensure the operational environment of the equipment in which the capacitor has been built is within the specified condition mentioned in the catalog or specification sheets.

4. MAINTENANCE

- Periodical inspection should be carried out for the capacitors, which are used with industrial equipment. Check the following points at the inspection.
 - ① Visual inspection to check pressure relief open or leakage of electrolyte.
 - ② Electrical characteristics: leakage current, capacitance, dissipation factor and the other points which are mentioned in the catalog or specification sheets.

5. 紧急情况

- 在配套设备使用过程中，电容器开阀，并喷出气体时，请切断设备的主电源或者将电源线的插头从插座中拔出。
- 电容器的压力阀开启时，将喷出超过+100°C的高温气体，此时不可以将脸部靠近。
若喷出的气体进入眼睛或被吸入时，应立即用水洗净眼部或漱口。
不可以舔食电容器的电解液，如果电解液溅到皮肤，请用肥皂进行冲洗。

6. 保管条件

- 请不要在高温高湿的环境中保管电容器。请保管在温度5°C ~ 35°C，相对湿度在75%以下的室内。
- 不要在能够直接接触到水、盐水以及油的环境中保管电容器。
- 请不要在充满有害气体(硫化氢、亚硫酸、亚硝酸、氯气、氨气、溴等)的环境中保管电容器。
- 请不要在有臭氧、紫外线及放射线照射的环境中保管电容器。

7. 废弃处理

- 在废弃电容器时，请采用以下任意一种方式。
 - ① 在电容器上开孔或充分粉碎后高温(800°C以上)焚烧。
 - ② 在不进行焚烧处理时，应交给专业的工业废弃物处理工厂，由其代为处理。

5. EMERGENCY ACTION

- When the pressure relief vent is open and some gas blows out from the capacitor, please turn the main switch of the equipment off or pull out the plug from the power outlet immediately.
- During pressure relief vent operation, extremely hot gas (over 100°C) may blow out from the capacitors. Do not stand close to the capacitors. In case of eye contact, flush the open eye(s) with large amount of clean water immediately. In case of ingestion, gargle with water immediately, do not swallow. Do not touch electrolyte but wash skin with soap and water in case of skin contact.

6. STORAGE CONDITION

- Aluminum Electrolytic Capacitors should not be stored in high temperatures or where there is a high level of humidity. The suitable storage condition is 5°C–35°C and less than 75% in relative humidity.
- Aluminum Electrolytic Capacitors should not be stored in damp conditions such as water, saltwater spray or oil spray.
- Do not store Aluminum Electrolytic Capacitors in an environment full of hazardous gas (hydrogen sulfide, sulfurous acid gas, nitrous acid, chlorine gas, ammonia or bromine gas).
- Aluminum Electrolytic Capacitors should not be stored under exposure to ozone, ultraviolet rays or radiation.

7. DISPOSAL

- Please take either of the following actions in case of disposal.
 - ① Incineration (high temperature of more than 800°C) after crushing the capacitor's body
 - ② Consignment to specialists of industrial waste.

※详细内容请参阅JEITA RCR-2367B。

JEITA RCR-2367B

《电子机器用固定铝电解电容器使用注意事项指南》

[社团法人 电子技术信息产业协会，1995年3月制定，
2002年3月改订]

For further details

Please refer to: JEITA RCR-2367C (Safety Application Guide for fixed aluminum electrolytic capacitors for use in electronic equipment). [Technical Report of Japan Electronics and Information Technology Industries Association (established in March 1995, Revised in March 2006)].

铝电解电容器使用注意事项 II

1.关于直流用电解电容器的极性表示

使用时请确认不要将其接入反向电压或交流电压。极性的表示方法有以下4种。

- (1) 在主体侧面，有带状或箭头状标记的为阴(负)极。
- (2) 引线端子同方向型铝电解电容器，在引线未加工时，引线端子短的一方为阴(负)极。
- (3) 基板自立型 (SNAP-IN型) 或接头端子型 (Lug Terminal型) 铝电解电容器铆钉上刻有[⊗]印记的为阴(负)极。
- (4) 外壳上面有盖印的铝电解电容器，印有[◀]形状的为阴(负)极。

2.关于带有压力阀的电容器

带有压力阀的铝电解电容器被设计为，在施加反向电压、过电压或者流过的纹波电流超过额定值时，压力阀开启，放出含有电解液的高温气体。

- 设计时不可将配线及电路板靠近电容器的压力阀部分。
- 外壳的压力阀在工作时压力阀部分会膨胀。安装基板时不要接触到装置的上盖，参照下表空出一定的间隙。若不空出间隙，则压力阀不会工作。

外壳直径 Body Dia.	φ 6.3~16mm	φ 18~35mm	φ 40mm~
间隙 Space	2mm MIN.	3mm MIN.	5mm MIN.

3.关于电压处理

对于长时间放置的产品，请按照下述方法进行电压处理。

- 电压处理
将约1kΩ的保护电阻与电容器串联连接，并施加与额定电压相同的直流电压1小时。然后接通1Ω/V的电阻进行放电。

4.关于纹波电流

- (1) 直流电压与纹波电压峰值之和不超过额定电压，且不成为反向电压。
- (2) 在铝电解电容器端子间的纹波电压变动幅度较大时，按急速充放电处理。当纹波电压的变动幅度超过70Vp-p时，请联系我们。

CAUTION FOR PROPER USE OF ALUMINUM ELECTROLYTIC CAPACITORS II

1.Polarity Marking of Electrolytic Capacitors

Please confirm the polarity to avoid applying any reverse voltage or AC voltage to the capacitors. Polarity is indicated as below:

- (1) Negative polarity is indicated on the side of body by means of a stripe or an arrow.
- (2) On radial leaded Aluminum Electrolytic Capacitors, the shorter lead is the negative terminal on long lead version.
- (3) On Snap-In and Lug Terminal type capacitors, the knurled rivet [⊗] indicates the negative terminal.
- (4) Capacitors with markings on top of case, the mark [◀] indicates the direction of Negative Polarity.

2.Mounting Capacitors with Pressure relief Vent

Aluminum Electrolytic Capacitors are designed to open the pressure relief vent and release hot gas including electrolyte through it, in abnormal cases such as when reverse voltage or excess voltage was applied, or when ripple current exceeding the permissible value has flown into capacitors.

- Do not design to locate any wiring or circuit pattern around the capacitor's pressure relief vent.
- The pressure relief vent bulges right before the vent operation. Ensure enough free space directly above the capacitor's vent as shown in the below table so that bulged vent never touches to an object such as the case on cover of the set. The pressure relief vent will not open without the appropriate free space.

3.Voltage Treatment

The following voltage treatment should be done on the capacitors that have been stored for a long time.

- Voltage Treatment
The capacitors shall be applied with a DC voltage which is equal to the Rated Voltage of the capacitor through a resistor of about 1kΩ in series for 1 hour, and then discharged through a resistor of about 1Ω/Volt.

4.Ripple Current

- (1) The combined value of D.C. voltage and the peak A.C. voltage shall not exceed the rated voltage and shall not be reverse voltage.
- (2) Use of aluminum electrolytic capacitor under ripple voltage with wide amplitude is equivalent to quick charge-discharge operation.
If ripple voltage with the amplitude over 70Vp-p is expected, please contact us.

5.关于清洗电路板

(1) 小型电解电容器的清洗100WV以下产品时，请在60°C以下的清洗液中浸渍(也可是超声波)。浸渍时间控制在5分钟以内(5L, 7L品为3分钟)。且清洗和干燥要充分。

〈溶剂〉

Pine Alpha ST-100S

Clean Through 750H

IPA (异丙醇)

- 基于地球环境保护，请避免使用破坏臭氧层的物质作为清洗剂。
- 某些产品不能够进行清洗，请参照缴纳规格书的清洗耐受性项目。此外，若使用上述以外的清洗剂，请务必在使用时通报我们。

清洗剂 Cleaning Solvents	清洗条件 Cleaning Condition
Pine Alpha ST-100S Pine alpha ST-100S Clean Through 750H Clean-thru 750H IPA (异丙醇) IPA (isopropyl alcohol)	对于100WV以下产品，使用60°C清洗液浸渍、蒸汽、超声波以及使用三种方法的组合，可以耐受5分钟以内的时间(5L、7L品为3分钟以内) Is less than 5 minutes by dipping, steam, ultrasonically cleaned and these combinations. (5L and 7L is less than 3 minutes)

(2) 注明可以清洗的电容器，请按规格书中规定的清洗剂、清洗条件(温度、时间等)进行清洗。并且，请不要使用下述溶剂清洗电容器。

- 含卤溶剂：腐蚀电容器内部
清洗剂会渗入(扩散)电容器内部，并发生分解反应生成卤素离子，它与铝发生反应，有可能造成电容器的腐蚀。
特别注意要绝对避免使用1-1-1三氯乙烷。在使用ASAHIKLIN AK-225AES时，请咨询我们。
- 碱性溶剂：腐蚀铝壳(溶解)
- 石油类溶剂：使封口处的橡胶劣化
- 二甲苯：使封口处的橡胶劣化
- 丙酮：使标示消失

(3) 基板清洗后，请注意不要将清洗剂残留在电容器封口部位和印刷电路板间，并进行强制性干燥。(不高于工作温度上限)

(4) 请充分做好清洗剂的污染管理工作(电导率、pH值、比重、含水量等)。

若发生清洗剂污染，卤素浓度升高，电容器内部可能发生腐蚀情况。

清洗剂中的助焊剂浓度，请控制在2%wt以下。

6.关于闪光灯用铝电解电容器

闪光灯用铝电解电容器只用于照相摄影闪光灯(电子闪光灯)，不能用作其它用途。

5.PW BOARD CLEANING

(1) PW board can be immersed or ultrasonically cleaned using suitable cleaning solvents for up to 5 minutes (5L and 7L is up to 3 minutes) and up to 60°C maximum temperatures about Miniature Aluminum Electrolytic Capacitors 100 wv or less.

The board should be thoroughly rinsed and dried. Recommended cleaning solvent include Pine Alpha ST-100S, Clean-thru 750H, IPA (isopropyl alcohol)

- The use of ozone depleting cleaning agents are not recommended in the interest of protecting the environment.
- Certain products may not be cleaned. Please refer to the Specification notes. Also, please consult us when using cleaning solvents other than those above listed.

(2) For solvent resistant capacitors, carefully follow the temperature and time requirements of the specification. Avoid using the following solvent groups.

- Halogenated cleaning solvents: except for solvent resistant capacitor types, halogenated solvents can permeate the seal and cause internal capacitor corrosion and failure. 1-1-1 trichloroethane should never be used on any aluminum electrolytic capacitor. Please consult us when using ASAHIKLIN AK-225AES solvent.
- Alkali solvents : could attack and dissolve the aluminum case.
- Petroleum based solvents : deterioration of the rubber seal could result.
- Xylene : deterioration of the rubber seal could result.
- Acetone : removal of the ink markings on the vinyl sleeve could result.

(3) A thorough drying after cleaning is required to remove residual cleaning solvents which may be trapped between the capacitor and the circuit board. Avoid drying temperatures which exceed the upper category temperature of the capacitor.

(4) Monitor the contamination levels of the cleaning solvents during use by electrical conductivity, pH, specific gravity, or water content. Chlorine levels can rise with contamination and adversely affect the performance of the capacitor.

6.Photo Flash Aluminum Electrolytic Capacitors

These Rubycon Photo Flash Capacitors are designed, manufactured and intended solely for use in photo flash and other photographic equipment. They are not intended for use in medical equipment. Rubycon Corporation, Rubycon America Inc., and Shin-Ei Capacitor Foil Company, Ltd. expressly disclaim any warranties or representations as to the suitability or fitness of these capacitors for use in medical equipment.

7.关于电解液、电解纸

铝电解电容器所使用的电解液、电解纸为可燃物质。并且电解液带有导电性，若附着于印刷电路板上，有可能会腐蚀电路板或配线板，造成电路板配线间的短路。甚至导致冒烟起火。

8.关于熏蒸、消毒作业、含卤阻燃剂

下述条件会造成电容器内部电极、外壳以及端子表面的腐蚀，敬请注意。

- (1) 为驱除害虫，而对木质托盘的熏蒸处理。
- (2) 与含有含卤阻燃剂(溴水等)的元件一同使用。
- (3) 预防传染病的含卤类清洗剂、消毒剂直接附着于电容器的情况。

7.Electrolyte and Separator paper

Electrolyte and separator paper used in Aluminum Electrolytic Capacitors are flammable. Also, Electrolyte is electrically conductive. Therefore, in case Electrolyte gets contact with PC board, it may cause corrosion of circuit pattern, or tracking or short circuit between patterns, and may lead to smoke generation or ignition at the worst cases.

Please make considerations to the above risk in designing circuit patterns and determining the mounting method and mounting location of capacitors.

8.Fumigation, Disinfection and halogenated flame retardant

It may cause corrosion of internal electrodes, aluminum cases and terminal surface when the following conditions exist.

- (1) Fumigation of wooden pallets before shipment to disinfect vermin.
- (2) Existence of components or parts that contain halogenated flame retardant agent (bromine etc.) together with capacitors.
- (3) When halogenated detergents or antiseptics for preventing infection of epidemic diseases contact directly to capacitors.

旧系列的撤并

Proposal on Deletion of Old Series from Catalog

本公司正在实施终止生产旧系列产品的计划。
关于探讨替代系列时所必需的技术资料、样品等，敬请联系我们。

在最终订货期限之后，如有供货需求，敬请联系我们。

给大家带来不便，深表歉意。请大家对我们给予理解与支持。

Production discontinuation of old series at Rubycon is implemented as planned. Technical documents and samples are available upon the request to study alternative products.

Please consult us if continuous supply of products is necessary after the announced discontinuation date of the series.

It is greatly appreciated that you would understand and accept the proposal stated in above.

旧系列替代一览表 LIST OF SUBSTITUTE FOR PREVIOUS SERIES

◆小型铝电解电容器 /

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

产品特长 FEATURES	旧系列 PREVIOUS SERIES	最终订货期限 FINAL ACCEPTED ORDER DATE	替代系列 SUBSTITUTE SERIES
贴片型 SMD	ZAV	2006.09	TZV
	SSV	2010.11	SGV TZV
	SXV	2012.09	TXV
通用型 GENERAL PURPOSE	YK	2012.09	PK
	YXA	2012.09	PX
低阻抗品 LOW IMPEDANCE	JXA	2006.09	YXJ
	JXB	2004.09	YXG
	ZA	2008.09	ZL ZLJ
长寿命品 LONG LIFE	BXA	2013.09	BXC
开关电源用 POWER SWITCHING POWER SUPPLY	MXW(VSL)	2002.09	KXW
	AXW	2010.09	
	VXW	2010.09	TXW

◆大型铝电解电容器 /

LARGE CAN TYPE ALUMINUM ELECTROLYTIC CAPACITORS

产品特长 FEATURES	旧系列 PREVIOUS SERIES	最终订货期限 FINAL ACCEPTED ORDER DATE	替代系列 SUBSTITUTE SERIES
85°C 标准品 85°C STANDARD	USP	1999.09	USC
	USR	2007.09	USG
105°C 标准品 105°C STANDARD	MXP	1998.09	MXC
	MXR	2007.09	MXG
105°C 高20mm品 20mm HEIGHT	MXF	2003.09	KXF
	AXF	2012.09	
105°C 高纹波电流品 105°C HIGH RIPPLE CURRENT	HXC	2013.09	请通过其他渠道商谈。 Please contact our sales office.
105°C 长寿命品 105°C LONG LIFE	VXP	2008.09	VXG
过电压对策规定设定品 OVER-VOLTAGE VENTING SPECIFICATION	SXR	2012.09	SXC SXG

◆典型故障模式及其主要原因 / Typical failure modes and their factors

