

MESSRS: APPROVAL NO 710-005 DATE 2017.08.06

ALUMINUM ELECTROLYTIC CAPACITOR APPROVAL SHEET

CATALOG TYPE NHA SERIES USER PART NO. 适用機種 特记事項 Halogen-Free

QINGDAO SAMYOUNG ELECTRONICS CO.,LTD. MANAGER OF DEVELOPMENT DEPARTMENT

GONG JANG SUG



USER APPROVAL:

APPROVAL NO.:

SamYoung(Korea) : 47,SAGIMAKGOL-RO,JUNGWON-GU,SEONGNAM-SI,GYEONGGI-DO,KOREA

SamYoung(China) : No.5 CHANGJIANG ROAD,PINGDU-CITY,SHANDONG-PROVINCE,CHINA

样式: H-1001-011

A4 (210x297)

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Specifications of NHA Series

Item Characteristics Rated Voltage Range 6.3 ~ 100VDC 160 ~ 400VDC 450 ~ 500VDC Operating Temperature Range -55 ~ +105 °C -40 ~ +105 °C -25 ~ +105 °C Capactance Tolerance ±20% <M> (at 20 °C, 120Hz)

Leakage Current (at 20 °C) After 1 minute: 0.03CV(µA) or 4 µA, whichever is greater After 2 minutes: 0.01CV(µA) or 3 µA, whichever is greater Where, C = Nominal capacitance(µF) V = Rated Voltage(VDC)

Dissipation Factor (TANδ) (20 °C, 120Hz) Rated Voltage(VDC) 6.3 10 16 25 35 50 63 100 160-250 350-500 TANδ (Max) 0.34 0.24 0.20 0.16 0.14 0.12 0.10 0.09 0.20 0.24

Temperature Characteristics Rated Voltage(VDC) 6.3 10 16 25 35 50 63-100 160 200-400 450-500 Z (-25°C) / Z (20°C) 5 4 3 2 2 3 3 3 6 6 Z (-40°C) / Z (20°C) 12 10 8 5 4 3 4 5 6 -

The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hours at 105°C. (where, 1000 hours ≤ 8φ) Capacitance change: ≤±20% of the initial value Tanδ ≤200% of the initial specified value LC ≤The initial specified value

The following 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. (where , 500 hours ≤8φ) The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Capacitance change: ≤±20% of the initial value Tanδ ≤200% of the initial specified value LC ≤The initial specified value (Where, 200% for ≥ WV 160Vdc)

Satisfied characteristics KS C IEC 60384-4

A. DIMENSIONS OF NHA Series

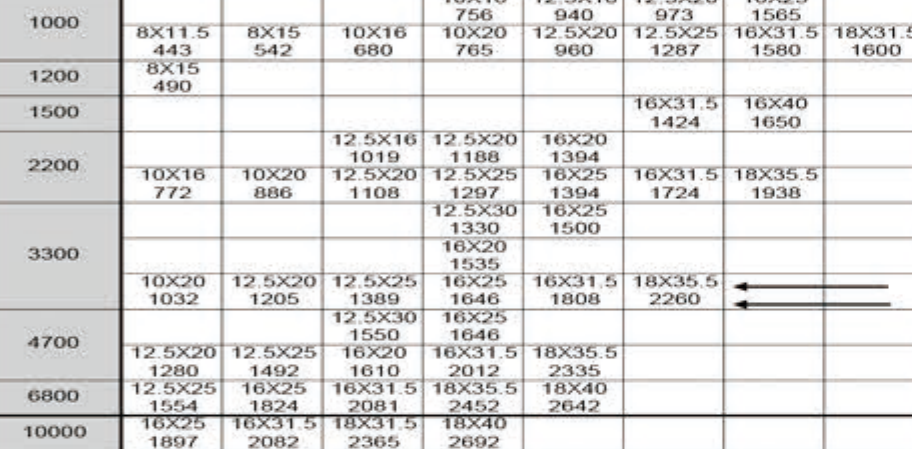


Table with dimensions ΦD, Φd, F, ΦD', L' for various capacitor sizes.

B. MARKING: BROWN SLEEVE, WHITE INK

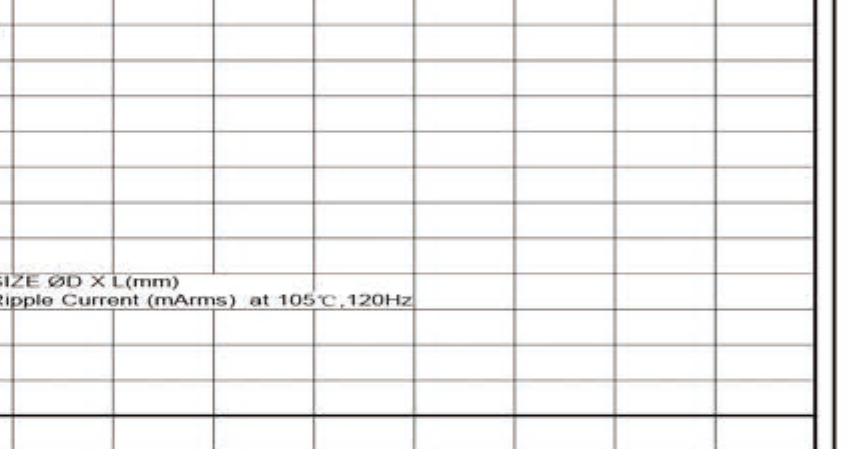


Table with markings for capacitor sizes: 16V 10000µF.

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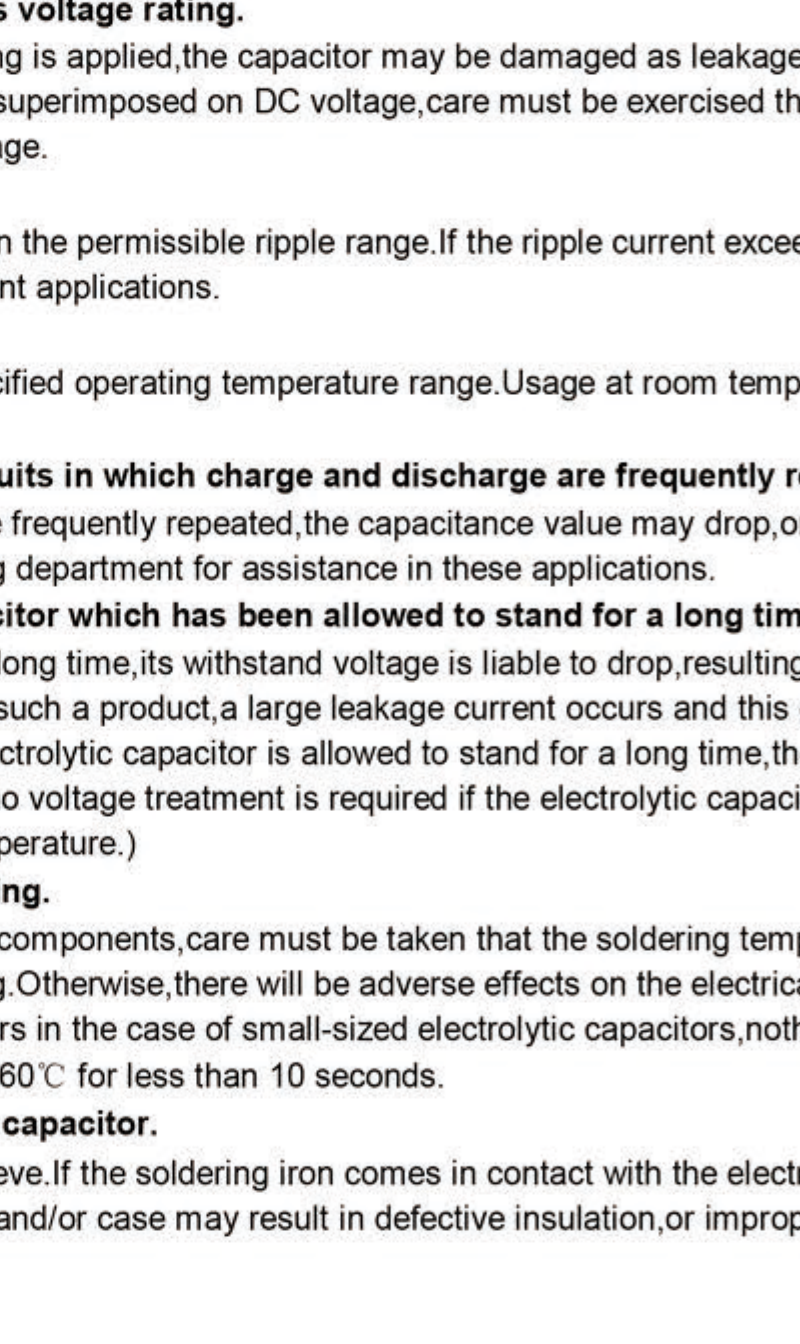
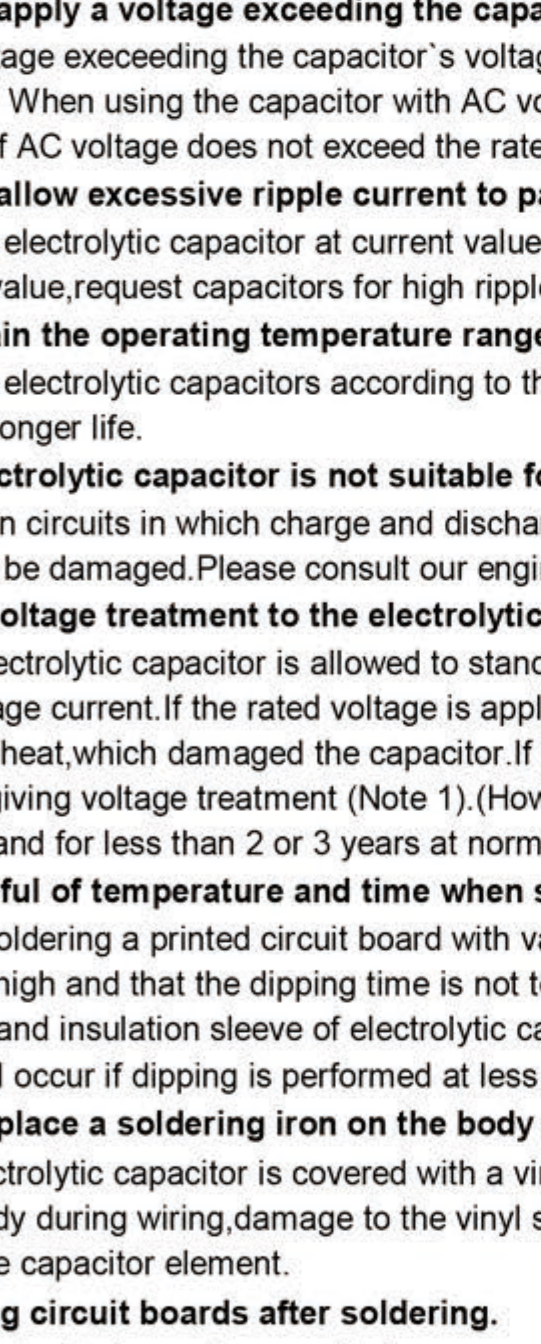
RATINGS OF NHA SERIES

Large table showing ratings for various capacitor values from 0.1 to 15000 µF across different voltage ranges.

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ALUMINUM ELECTROLYTIC CAPACITORS APPROVAL NO. 710-005

STRUCTURE AND MATERIALS



CE04 TYPE MINIATURE SIZED TYPE CAPACITORS COMPONENT

Table with 3 columns: PART NAME, MATERIALS, and VENDOR. Lists components like lead wire, al lead, packing pad, sleeve, al foil, separator, and adhesive tape with their respective suppliers.

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When using aluminum electrolytic capacitors, pay strict attention to the following:

- 1. Electrolytic capacitors for DC application require polarization. Confirm the polarity... 2. Do not apply a voltage exceeding the capacitor's voltage rating. If a voltage exceeding the capacitor's voltage rating is applied... 3. Do not allow excessive ripple current to pass. Use the electrolytic capacitor at current values within the permissible ripple range... 4. Ascertain the operating temperature range. Use aluminum electrolytic capacitors according to the specified operating temperature range... 5. The electrolytic capacitor is not suitable for circuits in which charge and discharge are frequently repeated... 6. Apply voltage treatment to the electrolytic capacitor which has been allowed to stand for a long time... 7. Be careful of temperature and time when soldering. When soldering a printed circuit board with various components, care must be taken that the soldering temperature is not too high... 8. Do not place a soldering iron on the body of the capacitor. The electrolytic capacitor is covered with a vinyl sleeve... 9. Assemble circuit boards after soldering. Some solvents have adverse effects on capacitors... 10. Do not apply excessive force to the lead wires or terminals. If excessive force is applied to the lead wires and terminals... 11. Care should be used in selecting a storage area. If electrolytic capacitors are exposed to high temperatures... 12. Surge voltage. The surge voltage rating is the maximum DC over-voltage to which the capacitor may be subjected...

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CLEANING CONDITIONS

Aluminum electrolytic capacitors that have been exposed to halogenated hydrocarbon cleaning and defluxing solvents are susceptible to attack by these solvents. This exposure can result in solvent penetration into the capacitors, leading to internal corrosion and potential failure. Common type of halogenated cleaning agents are listed below.

Table with 3 columns: Chemical Name, Structural Formula, and Representative Brand Name. Lists Trichlorotrifluoroethane, Fluorotrichloromethane, 1,1,1-Trichloroethane, Trichloroethylene, and Methyl Chloride.

We would like to recommend you the below cleaning materials for your stable cleaning condition taking the place of previous materials. Isopropyl Alcohol(IPA) or Water Cleaning method: Of immersion, ultrasonic or vapor cleaning. Maximum cleaning time: 5 minutes(Chip type: 2 minutes) Do not use AK225AES

Aluminum electrolytic capacitors are easily affected by halogen ions, particularly by chloride ions. Excessive amounts of halogen ions, if happened to enter the inside of the capacitors, will give corrosion accidents-rapid capacitance drop and vent open. The extent of corrosion accidents varies with kinds of electrolytes and seal-materials. Therefore, the prevention of halogen ion contamination is the most important check point for quality control in our production lines. At present, halogenated hydrocarbon-contained organic solvents such as Trichloroethylene, 1,1,1-Trichloroethane, and Freon are used to remove flux from circuit boards.

If electrolytic capacitors are cleaned with such solvents, they may gradually penetrate the seal portion and cause the eesion. When using latex-based adhesive on the capacitors rubber end seal for adhesion to a PCB, corrosion may occur depending on the kind of solvent in the adhesive. Selected as an organic solvent with dissolved polymer that is not halogenated hydrocarbon. Hot air drying is required for eliminating the solvent between the product and the PCB at 50°C~80°C after coating.

- Followings are the penetration path of the halogenated solvent. 1 Penetration between the rubber and the capacitor case 2 Penetration between the rubber and the lead wire 3 Penetration through the rubber

The inside of the capacitors, the mechanism of corrosion of aluminum electrolytic capacitors by halogen ions can be explained as follows: Halides(RX) are absorbed and diffused into the seal portion. The halides then enter the inside of the capacitors and contact with the electrolyte of the capacitors. Where by halogen ions are made free by a hydrolysis with water in the electrolyte:

The halogen ions (X-) react with the dielectric substance(Al2O3) of aluminum electrolytic capacitors:

ALX3 is dissociated with water:

MANUFACTURING SITE - SamYoung Electronics Co., Ltd.(Korea/China)

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