CAPACITOR

ALUMINUM ELECTROLYTIC

MESSRS:

样式: H-1001-011

710-005

Operating Temperature Range

Capacitance Tolerance

Leakage Current

(at 20 ℃)

Dissipation Factor (ΤΑΝδ)

(20°C, 120Hz)

L+1.5max

RATINGS OF NHA SERIES

0.1

0.22

0.33

22

33

AL CASE

AL FOIL

AL FOIL ⊖

SEPARATOR

ensure longer life.

on of the capacitor element.

Please refer to the next page.

terminals.

Rated Voltage(V)

Rated Surge Voltage(V)

CLEANING CONDITIONS

Methyl Chloride

previous materials.

*Do not use AK225AES

PCB at 50°C~80°C after coating.

③ Penetration through the rubber

can be explained as follows:

****MANUFACTURING SITE**

to internal corrosion and potential failure.

12. Surge voltage.

Cleaning circuit boards after soldering.

Some solvents have adverse effects on capacitors.

11. Care should be used in selecting a storage area.

2.5

5

Common type of halogenated cleaning agents are listed below.

Cleaning method: One of immersion, ultrasonic or vapor cleaning.

Followings are the penetration path of the halogenated solvent.

Penetration between the rubber and the aluminum case

② Penetration between the rubber and the lead wire

Maximum cleaning time: 5 minutes(Chip type: 2 minutes)

ALUMINUM 99.0 % OVER

FORMED ALUMINUM 99.9 % OVER

ETCHED ALUMINUM 98.0 % OVER

INSULATION PAPER

ADHESIVE TAPE POLY PROPYLENE OR POLY IMIDE FILM

1. Electrolytic capacitors for DC application require polarization.

Do not apply a voltage exceeding the capacitor's voltage rating.

ed to stand for less than 2 or 3 years at normal temperature.)

8. Do not place a soldering iron on the body of the capacitor.

10.Do not apply excessive force to the lead wires or terminals.

6.3

8

10

13

25

32

16

20

Note 2 For methods of testing, refer to KS C IEC 60384-4, (JIS C 5101-1, JIS C 5101-4)

35

44

7. Be careful of temperature and time when soldering.

Specifications of NHA Series

APPROVAL SHEET

NHA SERIES CATALOG TYPE

USER PART NO.	
适 用 机 种	
特记事项	Halogen-Free
QINGDAO SAMYOL	JNG ELECTRONICS CO.,LTD
MANAGER OF DE	VELOPMENT DEPARTMENT
GONG J	

LISED DART NO

USER APPROVAL: APPROVAL NO.:

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

SamYoung Electronics Co., Ltd.

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

A4 (210×297)

- 25 ~ + 105 °C

After 5 minutes

160~250 350~500

0.20

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APPROVAL NO.

710-005

6.3X15

16 8X11.5

25 8X11.5 30 10X12.5

35 10X12.5

35 10X16

42 10X16

55 10X20

59 10X16

69 10X20

76 12.5X20 80 12.5X20

12.5X20

125 12.5X25

12.5X25

150

13 8X11.5

10X16

32 8X11.5

10X16

10X20

12.5X20

12.5X20

2 OF 5

(at 20°C, 120Hz)

CRVR>1000

0.24

DATE:

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2017.08.06

APPROVAL NO. PAGE: ALUMINUM ELECTROLYTIC CAPACITOR

Characteristics Item 6.3 ~ 100V_{DC} 160 ~ 400V_{DC} Rated Voltage Range 450 ~ 500VDC

- 55 ~ + 105 °C

6.3

0.34

10

0.24

16

0.20

Rated Voltage(VDC)

TANδ (Max)

After 1 minute:0.03CV(µA) or 4 µA, whichever is greater After 1 minute After 2 minutes:0.01CV(µA) or 3 µA, whichever is greater CRVR≤1000 C_RV_R>1000 C_RV_R≤1000 Where, $C = Nominal capacitance(\mu F)$ 0.1CRVR+40 0.04C_RV_R+100 0.03C_RV_R+15 0.02C_RV_R+25 V = Rated Voltage(V_{DC})

25

0.16

±20% <M>

- 40 ~ + 105 °C

35

0.14

50

0.12

63

0.10

100

0.09

When the capacitance exceeds 1000µF,0.02 shall be added every 1000µF increase. Rated Voltage(VDC) 6.3 10 16 25 35 50 63~100 160 200~400 450~500 Temperature Characteristics 2 2 2 Z (-25°C) /Z (20°C) 5 4 3 3 3 6 6 (Impedance ratio at 120Hz) Z (-40°C) /Z (20°C) 10 The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 hours at 105°C.(where,1000 hours ≤8Φ) Load Life Capacitance change: ≤±20% of the initial value ≤200% of the initial specified value Tano 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 appled to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Shelf Life Capacitance change: ≤±20% of the initial value Tanō ≤200% of the initial specified value LC Satisfied characteristics KS C IEC 60384-4 Others A. DIMENSIONS OF NHA Series B. MARKING: <u>BROWN</u> SLEEVE, <u>WHITE</u> INK 15MIN 4MIN 0 00 <M>105°C ⊕ 16V 10000µF ≤10 SLEEVE Φd±0.05 SAFETY VENT (≥6.3 ф) FRONT VIEW OF CAPACITOR BACK VIEW OF CAPACITOR 5 6.3 8 10 12.5 16 18 22 ΦD 0.5 0.5 0.6 0.6 0.6 0.8 0.8 0.8 Φd 7.5 7.5 2.0 2.5 3.5 5.0 5.0 10 ΦD+0.5max ΦD'

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3.6 5X11

4.8 5X11

60 10X16

10X16

10X20

12.5X16

138 12.5X20

157 12.5X16

140 12.5X20 157 12.5X20

157 12.5X25

6.3X11

6.3X11 0.47 10 5X11 11 5X11 12 5X11 6.3X11 6.3X11 6.3X11 6.3X11 0.68 14 6.3X11 14 6.3X11 14 5X11 16 5X11 15 6.3X11 15 6.3X11 17 6.3X11 6.3X11 1 15 6.3X11 15 5X11 18 8X11.5 13 5X11 6.3X11 28 8X11.5 2.2 3.3 5X11 8X11.5 5X11 5X11 6.3X11 6.3X11 6.3X11 10X12.5 8X11.5 46 10X12.5 4.7 8X11.5 6.3X11 5X11 5X11 5X11 8X11.5 5X11 6.3X11 10X12.5 59 10X16 6.8 5X11 5X11 5X11 8X11.5 10X16 5X11 5X11 8X11.5 8X11.5 65 10X16 62 0X12.5 64 10X20 79 10X20 5X11 5X11 5X11 5X11 5X11 5X11 8X11.5 8X11.5 10X16 10 15 8X11.5 18

87 6.3X11

L+2.0max

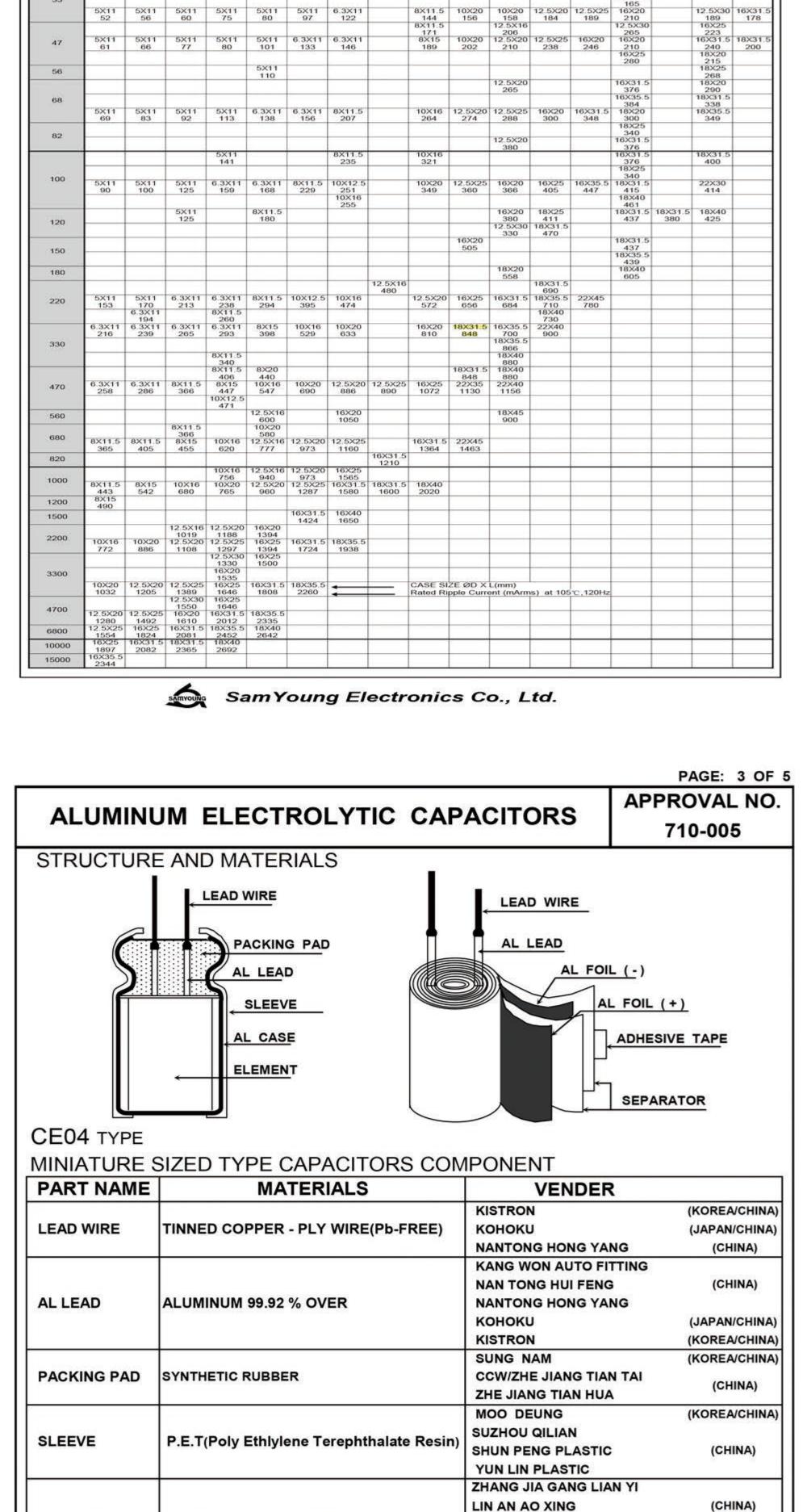
ALUMINUM ELECTROLYTIC CAPACITOR

5X11

3.2 5X11

5X11

4.3 5X11



NANTONG CHUANGJIA

K.D.K/JCC/MATSUSHITA

XINJIANG JOINWORLD

HUAFENG / NANTONG /RAOIO

AFT/INCULCU/SHENGHONG

ELECON/WU JIANG FEILO

D.N TECH/HA NAM

(KOREA/CHINA)

(JAPAN)

(KOREA)

(ITALY)

(FRANCE)

(CHINA)

(TAIWAN)

(KOREA)

(JAPAN)

(CHINA)

(CHINA)

(GERMANY)

(JAPAN) (JAPAN)

(KOREA)

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PAGE:

DONG NAM

SAM YOUNG

BECROMAL

LUXON/LITON

KAN/LUNAN

NITTO/NICHIBAN

DAEIL/SWECO

SATMA

K-JCC

K.D.K

SPO

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Confirm the polarity. If used in reversed polarity, the circuit life may be shortened or the capacitor may be damaged. For use on circuits whose polarity is occasionally reversed, or whose polarity is unknown, use bi-polarized capacitors (BP-

If a voltage execeeding the capacitor's voltage rating is applied, the capacitor may be damaged as leakage current increases. When using the capacitor with AC voltage superimposed on DC voltage, care must be exercised that the peak

If used in circuits in which charge and discharge are frequently repeated, the capacitance value may drop, or the capaci-

If the electrolytic capacitor is allowed to stand for a long time, its withstand voltage is liable to drop, resulting in increased leakage current. If the rated voltage is applied to such a product, a large leakage current occurs and this generates internal heat, which damaged the capacitor. If the electrolytic capacitor is allowed to stand for a long time, therefore, use it after giving voltage treatment (Note 1). (However, no voltage treatment is required if the electrolytic capacitor is allow-

When soldering a printed circuit board with various, components, care must be taken that the soldering temperature is not too high and that the dipping time is not too long. Otherwise, there will be adverse effects on the electrical characteristics and insulation sleeve of electrolytic capacitors in the case of small-sized electrolytic capacitors, nothing abno-

The electrolytic capacitor is covered with a vinyl sleeve. If the soldering iron comes in contact with the electrolytic capacitor body during wiring, damage to the vinyl sleeve and/or case may result in defective insulation, or improper protecti-

If excessive force is applied to the lead wires and terminals, they may be broken or their connections with the internal

If electrolytic capacitors are exposed to high temperatures caused by such things as direct sunlight, the life of the capacitor may be adversely affected. Storage in a high humidity atmosphere may affect the solderability of lead wires and

The surge voltage rating is the maximum DC over-voltage to which the capacitor may be subjected for short periods n-

50

63

ting gradually while lowering the leakage current. In this case, the impressed voltage shall be in the range where the leakage current of the electrolytic capacitor is less than specified value. Meanwhile, the voltage treatment time may be effectively shortened if the ambient temperature is increased (within the operating temperature range).

Note 1 Voltage treatment ... Voltage treatment shall be performed by increasing voltage up to the capacitor's voltage ra-

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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

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elements may be affected. (For strength of terminals, refer to KS C IEC 60384-4(JIS C5101-1, JIS C5101-4)

tor may be damaged. Please consult our engineering department for assistance in these applications.

6. Apply voltage treatment to the electrolytic capacitor which has been allowed to stand for a long time.

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

N.K.K

HEC

value of AC voltage does not exceed the rated voltage. Do not allow excessive ripple current to pass. Use the electrolytic capacitor at current values within the permissible ripple range. If the ripple current exceeds the specified value, request capacitors for high ripple current applications. 4. Ascertain the operating temperature range. Use the electrolytic capacitors according to the specified operating temperature range. Usage at room temperature will 5. The electrolytic capacitor is not suitable for circuits in which charge and discharge are frequently repeated.

rmal will occur if dipping is performed at less than 260°C for less than 10 seconds.

series). Also, note that the electrolytic capacitor cannot be used for AC application.

ot exceeding approximately 30 seconds at infrequent intervals of not more than six minutes. According to KS C IEC 60384 -4, the test shall be conducted 1000 cycles at room temperature for the capacitors of characteristic KS C IEC 60384-4 or at the maximum operating temperature for the capacitors of characteristics B and C of KS C IEC 60384-4 with voltage applied through a series resistance of 1000 ohms without discharge. The electrical characteristics of the capacitor after the test are specified in KS C IEC 60384-4. Unless otherwise specified, the rated surge voltage are as follows:

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80 | 100 | 160 | 200 | 250 | 315 | 350 | 400 | 450 | 500

79 | 100 | 125 | 200 | 250 | 300 | 365 | 400 | 450 | 500 | 550

Structural Representatice Brand **Chemical Name** Formula Name Trichlorotrifluoroethane C₂CI₃F₃ Freon TF, Daiflon S-3 Fluorotrichloromethane CCI₃F Freon-11, Daiflon S-1 1,1,1-Trichloroethane F2H3Cl3 Chloroethane C2HCl3 Trichiene Trichloroethylene

MC

We would like to recommend you the below cleaning materials for your stable cleaning condition taking the place of

CH₃CI

Aluminum electrolytic capacitors are easily affected by halogen ions, particularly by chloride ions.

electrolytes and seal-materials. Therefore, the prevention of halogen ion contamination is the most

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

improtant check point for quality control in our procuction lines. At present, halogenated hydrocarboncontained organic solvents such as Trichloroethylene, 1,1,1-Trichloroethane, and Freon are used to remove flux from circuit boards. If electroytic capacitors are cleaned with such solvents, they may gradually penetrate the seal portion and cause the eosion. 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. Select an adhesive 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

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: $RX + H_2O \rightarrow ROH + H^{\dagger} + X^{\dagger}$ The halogen ions (X^-) react with the dielectric substance(Al_2O_3) of aluminum electrolytic capacitors:

 $Al_2O_3 + 6H^+ + 6X^- \rightarrow 2ALX_3 + 3H_2O$

Downloaded From Oneyac.com

The inside of the capacitors, the mechanism of corrosion of aluminum electrolytic capacitors by halogen ions

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AIX₃ is dissociated with water: $ALX_3 + 3H_2O \rightarrow AL (OH)_3 + 3H^+ + 3X^-$

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