RoHS

MESSRS:	APPROVAL NO	710-538
	DATE	2019.04.25

ALUMINUM ELECTROLYTIC

CAPACITOR

APPROVAL SHEET

CATALOG TYPE	NXA 63 V 2200UF <M> (18.0 * 40.0)
	LO
USER PART NO.	
适 用 机 种	
特 记 事 项	Halogen-Free

QINGDAO SAMYOUNG ELECTRONICS CO.,LTD.

MANAGER OF DEVELOPMENT DEPARTMENT

GONG JANG SUG 长孔硕

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

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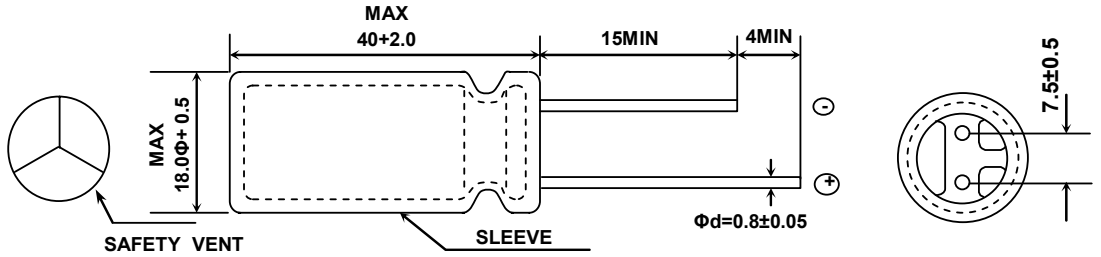
NXA 63 VB 2200 <M>	SERIES	NXA
	RATING	63 WV 2200 μF
	CASE SIZE	Φ 18.0 × 40.0 L

A. DIAGRAM OF DIMENSION

UNIT:mm



B. MARKING: WITH DARK BROWN SLEEVE & SILVER INK



SAMYOUNG

NXA

63V 2200 μ F

<M> 105℃

LOT NO.

FRONT VIEW OF CAPACITOR BACK VIEW OF CAPACITOR

C. ELECTRICAL CHARACTERISTICS

A. OPERATING TEMPERATURE RANGE : **-40 ~ +105** ℃

B. RATED VOLTAGE : **63** VDC

C. SURGE VOLTAGE : **79** VDC

D. CAPACITANCE TOLERANCE : **± 20%** (at 20℃, 120Hz)

E. LEAKAGE CURRENT : LOWER **1386** μA, AFTER **2** MIN. at 20℃

F. DISSIPATION FACTOR (TAN δ) : LOWER **0.12** at 20℃, 120Hz

G. MAX. RIPPLE CURRENT (mArms) : **3500** at 105℃, 100KHz

H. TEMPERATURE CHARACTERISTIC :

* IMPEDANCE RATIO Z` / Z ≤ **2**

Z`` / Z ≤ **3** at 120Hz

Z: IMP. AT 20℃, Z`: IMP. AT -25℃, Z``: IMP. AT -40℃

I. LOAD LIFE : THE FOLLOWING SPECIFICATIONS SHALL BE SATISFIED WHEN THE CAPACITORS ARE RESTORED TO 20℃ AFTER THE RATED VOLTAGE WITH THE RATED RIPPLE CURRENT IS APPLIED (THE PEAK VOLTAGE SHALL NOT EXCEED THE RATED VOLTAGE) AT 105℃ FOR 10,000 HOURS.

CAPACITANCE CHANGE : ≤ **± 25 %** OF THE INITIAL VALUE

TAN δ : ≤ **200 %** OF THE INITIAL SPECIFIED VALUE

LEAKAGE CURRENT : ≤ THE INITIAL SPECIFIED VALUE

J. SHELF LIFE : THE FOLLOWING SPECIFICATIONS SHALL BE SATISFIED WHEN THE CAPACITORS ARE RESTORED TO 20℃ AFTER EXPOSING THEM FOR 500 HOURS AT 105℃ WITHOUT VOLTAGE APPLIED.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 : ≤ **± 25 %** OF THE INITIAL VALUE

TAN δ : ≤ **200 %** OF THE INITIAL SPECIFIED VALUE

LEAKAGE CURRENT : ≤ THE INITIAL SPECIFIED VALUE

K. OTHERS : SATISFIED CHARACTERISTIC **KS C IEC 60384-4**

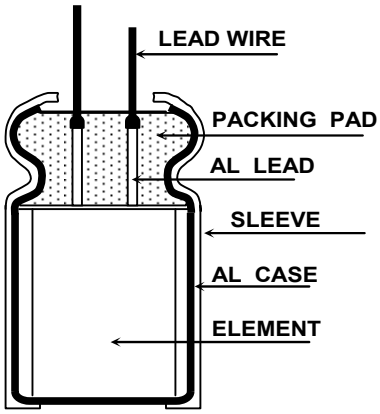
*** Impedance: 0.017Ω ↓ /at 20℃, 100KHz.**

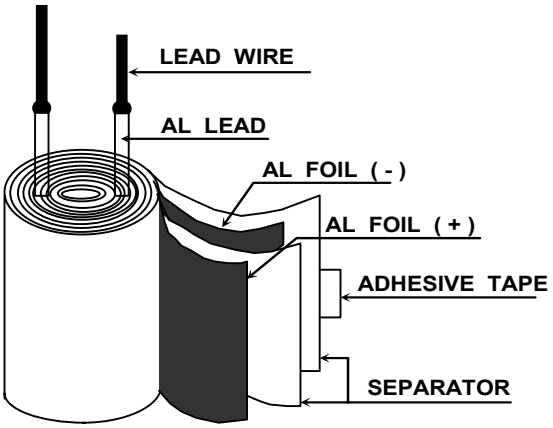
← 李波 ← 立范波 ← 阿呂勇

ALUMINUM ELECTROLYTIC CAPACITORS

APPROVAL NO. 710-538

STRUCTURE AND MATERIALS





CE04 TYPE

MINIATURE SIZED TYPE CAPACITORS COMPONENT

PART NAME	MATERIALS	VENDER	
LEAD WIRE	TINNED COPPER - PLY WIRE(Pb-FREE)	KISTRON KOHOKU NANTONG HONG YANG	(KOREA/CHINA) (JAPAN/CHINA) (CHINA)
AL LEAD	ALUMINUM 99.92 % OVER	KANG WON AUTO FITTING NAN TONG HUI FENG NANTONG HONG YANG KOHOKU KISTRON	 (CHINA) (JAPAN/CHINA) (KOREA/CHINA)
PACKING PAD	SYNTHETIC RUBBER	SUNG NAM CCW/ZHE JIANG TIAN TAI ZHE JIANG TIAN HUA	(KOREA/CHINA) (CHINA)
SLEEVE	P.E.T(Poly Ethlylene Terephthalate Resin)	MOO DEUNG SUZHOU QILIAN SHUN PENG PLASTIC YUN LIN PLASTIC	(KOREA/CHINA) (CHINA)
AL CASE	ALUMINUM 99.0 % OVER	ZHANG JIA GANG LIAN YI LIN AN AO XING NANTONG CHUANGJIA DONG NAM D.N TECH/HA NAM	 (CHINA) (KOREA/CHINA)
AL FOIL ⊕	FORMED ALUMINUM 99.9 % OVER	K.D.K/JCC/MATSUSHITA SAM YOUNG BECROMAL SATMA HEC XINJIANG JOINWORLD HUAFENG / NANTONG /RAOIO LUXON/LITON	(JAPAN) (KOREA) (ITALY) (FRANCE) (CHINA) (TAIWAN)
AL FOIL ⊖	ETCHED ALUMINUM 98.0 % OVER	K-JCC K.D.K AFT/INCULCU/SHENGHONG ELECON/WU JIANG FEILO	(KOREA) (JAPAN) (CHINA)
SEPARATOR	INSULATION PAPER	KAN/LUNAN SPO N.K.K	(CHINA) (GERMANY) (JAPAN)
ADHESIVE TAPE	POLY PROPYLENE OR POLY IMIDE FILM	NITTO/NICHIBAN DAEIL/SWECO	(JAPAN) (KOREA)

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

1. Electrolytic capacitors for DC application require polarization.

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

2. Do not apply a voltage exceeding the capacitor`s voltage rating.

If a voltage exeeceding 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 value of AC voltage does not exceed the rated voltage.

3. 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 ensure longer life.

5. The electrolytic capacitor is not suitable for circuits in which charge and discharge are frequently repeated.

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

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

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 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 abnormal will occur if dipping is performed at less than 260℃ for less than 10 seconds.

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

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 protection of the capacitor element.

9. Cleaning circuit boards after soldering.

Some solvents have adverse effects on capacitors.

Please refer to the next page.

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

If excessive force is applied to the lead wires and terminals,they may be broken or their connections with the internal elements may be affectde.(For strength of terminals,refer to KS C IEC 60384-4(JIS C5101-1,JIS C5101-4)

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

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 terminals.

12.Surge voltage.

The surge voltage rating is the maximum DC over-voltage to which the capacitor may be subjected for short periods not 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:

Rated Voltage(V)	2	4	6.3	10	16	25	35	50	63	80	100	160	200	250	315	350	400	450	500
Rated Surge Voltage(V)	2.5	5	8	13	20	32	44	63	79	100	125	200	250	300	365	400	450	500	550

Note 1 Voltage treatment … Voltage treatment shall be performed by increasing voltage up to the capacitor`s voltage rating 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 2 For methods of testing, refer to KS C IEC 60384-4， (JIS C 5101-1，JIS C 5101-4)

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.

Chemical Name	Structural Formula	Representatice Brand Name
Trichlorotrifluoroethane	$C_2Cl_3F_3$	Freon TF,Daiflon S-3
Fluorotrichloromethane	CCl_3F	Freon-11,Daiflon S-1
1,1,1-Trichloroethane	$F_2H_3Cl_3$	Chloroethane
Trichloroethylene	C_2HCl_3	Trichiene
Methyl Chloride	CH_3Cl	MC

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: One of immersion, ultrasonic or vapor cleaning.

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

※Do not use AK225AES

Aluminum electrolytic capacitors are easily affeceted 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 improtant check point for quality control in our procuction 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 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 PCB at 50℃~80℃ after coating.

Followings are the penetration path of the halogenated solvent.

① Penetration between the rubber and the aluminum 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 explainedas 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:

$$RX + H_2O \rightarrow ROH + H^+ + X^-$$

The halogen ions (X^-) react with the dielectric substance(Al_2O_3) of aluminum electrolytic capacitors:

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

AlX_3 is dissociated with water:

$$ALX_3 + 3H_2O \rightarrow AL(OH)_3 + 3H^+ + 3X^-$$

※MANUFACTURING SITE

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

附：）

■STANDARD TEMPERATURE & FREQUENCY MULTIPLYING FACTOR

1.Standard Temperature Multiplying Factor

Assurance Load Life Time	65℃	75℃	85℃	105℃	Remarks
105℃ 4000~10000Hrs	1.5	1.5	1.5	1	

2.Rated Ripple Current Multipliers

Frequency Multipliers

Freq.(Hz) / Cap.(μF)	120	1K	10K	50K	100K
1 ~ 180	0.40	0.75	0.90	0.95	1.00
220 ~ 560	0.50	0.85	0.94	0.96	1.00
680 ~ 1800	0.60	0.87	0.95	0.97	1.00
2200 ~ 3900	0.75	0.90	0.95	0.97	1.00
4700 ~ 18000	0.85	0.95	0.98	0.99	1.00