Messrs. Shenzhen Onstone Technology Co.Ltd.

ALUMINUM ELECTROLYTIC CAPACITORS REFERENCE SHEET

RoHS Compliance

CUSTOMER PART No.		
Rubycon PART No.	420 HXW 110 M LT5 12.5X50	
DRAWING No.	RER-210444	ISSUE No.1
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RUBYCON CORPORATION
ENGINEERING DIVISION

1938-1, NISHIMINOWA, INA-SHI, NAGANO-KEN, JAPAN
TEL No. 0265-72-7116
FAX No. 0265-73-3380

DESIGN	YOSHIHIRO KITAHARA
CHECK	KAZUHIRO YONEYAMA
APPROVAL	YOSHINORI SASAKI

Rubycon

Aluminum electrolytic capacitor Reference Sheet

420 HXW 110 M LT5 12.5X50

Drawing No. : RER-210444

Issue No. : 1

1.Scope

This specification covers polarized aluminum electrolytic capacitors with non-solid electrolyte for use in electronic equipments.

Style : CE 04 (Radial Leaded)

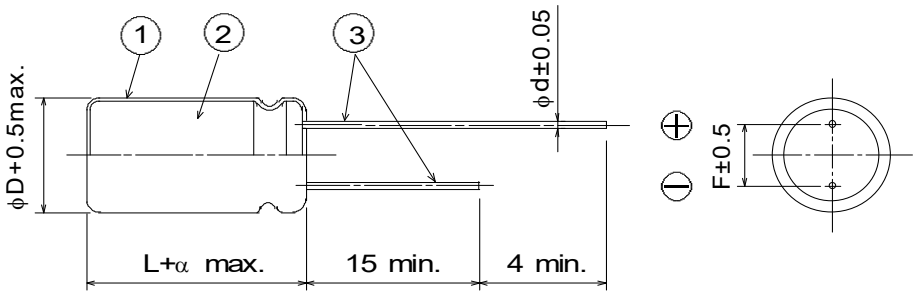
Reference Standard : JIS C 5101-1 Fixed capacitors for use in electronic equipment – Part 1 : Generic specification

Reference Standard : JIS C 5101-4 Fixed capacitors for use in electronic equipment - Part 4 : Sectional specification: Aluminum electrolytic capacitors with solid (MnO2) and non-solid electrolyte

2.Numbering System

Rated Voltage	Series	Capacitance	Capacitance Tolerance	Option	Lead Forming	Size
420	HXW	110	M	LT5	□□	12.5X50

3.Diagram of dimensions Unit : mm



Dimensions				
ϕD	L	F	ϕd	α
12.5	50	5	0.6	2

①	Sleeve	P.E.T.	
②	Case	Aluminum	
③	Lead Wire	Copper clad steel wire	Tin plated

Pressure relief vent shall be provided.

4.Marking

Unless otherwise specified, capacitor shall be clearly marked the following items on its body.

Sleeve color: Black, Lettering color: White

(1)Trade mark	Rubycon
(2)Rated Voltage	420V
(3)Nominal Capacitance	110μF
(4)Polarity	▬ ▭ (Negative Polarity)
(5)Series	HXW
(6)Lot Number	
(7)Upper Category Temperature	105°C
(8)PET sleeve mark	PET

5.Electrical Performance

Table-1

Category Temperature Range		-40 ~105	(°C)
Nominal Capacitance	20°C, 120Hz	110	(μF)
Capacitance Tolerance		-20 ~ 20	(%)
Rated Voltage		420	(V.DC)
Surge Voltage		470	(V.DC)
Leakage Current	20°C, 5min.	644	(μA max.)
Dissipation Factor (tanδ)	20°C, 120Hz	0.25	(max.)
Rated Ripple Current	105°C, 120Hz	860	(mAr.m.s.)
Impedance Ratio 120Hz	Z-25°C/Z20°C	6	(max.)
	Z-40°C/Z20°C	10	(max.)

6. PERFORMANCE

Table－2

1	Endurance	<Condition> Capacitor under the test shall be applied the rated voltage continuously through 1000Ω series protective resistor (with rated ripple current) at following temperature and time. After the test and returned in standard condition for 1 to 2 hours, and the capacitor shall meet following requirements. Temperature: 105 ±2°C Time: 2000 $^{+72}_{0}$ h <Criteria> Leakage Current: Not more than the specified value Capacitance Change: Within ±20% of the initial value Dissipation Factor: Not more than 200% of the specified value Appearance: No visible damage and no leakage of electrolyte.
2	Shelf Life Test	<Condition> Capacitor shall be stored at following temperature and time with no voltage applied . After the test and returned in standard condition for 1 to 2 hours and the capacitor shall meet following requirements. (If any doubt arises on the judgment, the capacitors shall be pre-conditioning.) Temperature: 105 ±2°C Time: 500 $^{+24}_{0}$ h <Criteria> Leakage Current: Not more than the specified value Capacitance Change: Within ±20% of the initial value Dissipation Factor: Not more than 200% of the specified value Appearance: No visible damage and no leakage of electrolyte.
3	Rated Ripple Current	(1) The rated ripple current is the maximum A.C. current at 120Hz and can be applied at upper category temperature. (2) 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. <Frequency Coefficient>

Frequency (Hz) / Capacitance (μF)	60(50)	120	500	1k	10k≤
110	0.8	1	1.25	1.4	1.5

<Temperature Coefficient >

Temperature(°C)	105	85	65≥
Coefficient	1.0	1.7	2.1

◇Temperature coefficient shows a limit of ripple current exceeding the rated ripple current that can be passed through a capacitor at each temperature when the life expectancy of a capacitor becomes to be nearly equal with the lifetime at the rated upper category temperature.

◇Use of aluminum electrolytic capacitor under ripple voltage with wide amplitude is equivalent to quick charge-discharge operation.
When ripple voltage with the amplitude over 70Vp-p is expected for the products with rated voltage over 100V, please contact us.

Notes on use of aluminum electrolytic capacitors

(1) Charge and discharge

Do not use for the circuit that repeats quick charge or discharge.

(2) External stress

Do not apply excessive force of pushing, pulling bending, and/or twisting to the main body, lead wire and terminals.

(3) Heat resistance at soldering process

In the soldering process of PC board with Capacitors mounted, secondary shrinkage or crack of sleeve may be observed when soldering temperature is too high and /or soldering time is too long.
If lead wire of other components or pattern of double sided PC board touches the capacitor, the similar failure may be also originated at pre-heating, heating at hardening process of adhesive and soldering process.

(4) Insulation and PC board mounting

Sleeve is for marking purpose only.
It is not recognized as insulation materials.
When double sided PC board is employed, note that it could cause a short circuit if lead wire of other components or pattern of double sided PC board touches capacitor. Please avoid circuit pattern runs underneath capacitor.
In addition, case and cathode terminal are not insulated.

(5) Adhesives and coating materials

Do not use the adhesives and coating materials that contain halogenated organic solvents or chloroprene as polymer.

(6) Storage

Keep at a normal temperature and humidity. During a long storage time, leakage current will be increased. To prevent heat rise or any trouble that high leakage current possibly causes, voltage treatment is recommended for the capacitors that have been stored for a long time.

(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) Fumigation and halogenated flame retardant

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

*Fumigation of wooden pallets before shipment to disinfect vermin.

*Existence of components or parts that contain halogenated flame retardant agent (bromine etc.) together with capacitors.

*When halogenated detergents of antiseptics for preventing infection of epidemic diseases contact directly to capacitors.

(8) PC board cleaning after soldering

Please consult us when cleaning is subjected.

*Guide to application except the above are described in our catalog and JEITA RCR-2367D (including any amendments).

JEITA RCR-2367D : "Safety application guide for fixed aluminum electrolytic capacitors for use in electronic equipment."
Published by Japan Electronics and Information Technology Industries Association.

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