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# ALUMINUM ELECTROLYTIC CAPACITORS SPECIFICATION SHEET

## RoHS Compliance

CUSTOMER PART No.		
Rubycon PART No.	420 CXW 180 M EFR CE 18X40	
DRAWING No.	RER-217973	ISSUE No.1
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**Rubycon**

## Aluminum electrolytic capacitor Specification Sheet

Drawing No. : RER-217973

420 CXW 180 M EFR CE 18X40

Issue No. : 1

## 1.Scope

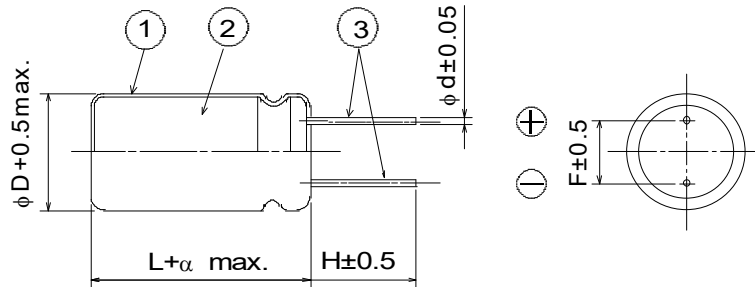
This specification covers polarized aluminum electrolytic capacitors with non-solid electrolyte for use in electronic equipments.

Style: CE 04 (Radial Leaded)

## 2.Numbering System

Rated Voltage	Series	Capacitance	Capacitance Tolerance	Option	Lead Forming	Size
<u>420</u>	<u>CXW</u>	<u>180</u>	<u>M</u>	<u>EFR</u>	<u>CE</u>	<u>18X40</u>

## 3.Diagram of dimensions Unit : mm



Dimensions					
φD	L	F	φd	α	H
18	40	7.5	0.8	2	3.5


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

A safety 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	<b>Rubycon</b>
(2)Rated Voltage	420V
(3)Nominal Capacitance	180μF
(4)Polarity	 (Negative Polarity)
(5)Series	CXW
(6)Lot Number	
(7)Maximum Operating Temperature	105°C
(8)PET sleeve mark	PET

## 5.Electrical Performance

Table-1

Operating Temperature Range		-40 ~ 105	(°C)
Nominal Capacitance	20°C, 120Hz	180	(μF)
Capacitance Tolerance		-20 ~ 20	(%)
Rated Voltage		420	(V.DC)
Surge Voltage		470	(V.DC)
Leakage Current	20°C, 5min.	824	(μA max.)
Dissipation Factor (tanδ)	20°C, 120Hz	0.20	(max.)
Rated Ripple Current	105°C, 120Hz	1040	(mAr.m.s.)
Impedance Ratio	120Hz Z-25°C/Z20°C	6	(max.)

## 6. PERFORMANCE

Table—2

1	Load Life Test	<p>&lt;Condition&gt;</p> <p>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.</p> <p>Temperature: 105 ±2°C</p> <p>Time: 5000 <sup>+72</sup><sub>0</sub> h</p> <p>&lt;Criteria&gt;</p> <table><tr><td>Leakage Current</td><td>Not more than the specified value</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of the initial value</td></tr><tr><td>Dissipation Factor</td><td>Not more than 200% of the specified value</td></tr><tr><td>Appearance</td><td>Notable changes shall not be found. (except sleeve condition)</td></tr></table>	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	Notable changes shall not be found. (except sleeve condition)																		
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2	Shelf Life Test	<p>&lt;Condition&gt;</p> <p>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.</p> <p>(If any doubt arises on the judgment, the capacitors shall be subjected to voltage treatment specified in JIS C 5141,5.2.)</p> <p>Temperature: 105 ±2°C</p> <p>Time: 500 <sup>+24</sup><sub>0</sub> h</p> <p>&lt;Criteria&gt;</p> <table><tr><td>Leakage Current</td><td>Not more than the specified value</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of the initial value</td></tr><tr><td>Dissipation Factor</td><td>Not more than 200% of the specified value</td></tr><tr><td>Appearance</td><td>Notable changes shall not be found</td></tr></table>	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	Notable changes shall not be found																		
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3	Rated ripple current	<p>(1) The rated ripple current is the maximum A.C. current at 120Hz and can be applied at maximum operating temperature.</p> <p>(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.</p> <p>&lt;Frequency Coefficient&gt;</p> <table><tr><td>Frequency (Hz)</td><td>60(50)</td><td>120</td><td>500</td><td>1k</td><td>10k≤</td></tr><tr><td>Capacitance (μF)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>180</td><td>0.8</td><td>1</td><td>1.25</td><td>1.4</td><td>1.5</td></tr></table> <p>&lt;Temperature Coefficient &gt;</p> <table><tr><td>Temperature(°C)</td><td>105</td><td>85</td><td>65≥</td></tr><tr><td>Coefficient</td><td>1.0</td><td>1.7</td><td>2.1</td></tr></table> <p>◇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 maximum operating temperature.</p> <p>◇Use of aluminum electrolytic capacitor under ripple voltage with wide amplitude is equivalent to quick charge-discharge operation.</p> <p>When ripple voltage with the amplitude over 70Vp-p is expected for the products with rated voltage over 100V, please contact us.</p>	Frequency (Hz)	60(50)	120	500	1k	10k≤	Capacitance (μF)						180	0.8	1	1.25	1.4	1.5	Temperature(°C)	105	85	65≥	Coefficient	1.0	1.7	2.1
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## 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)

- Do not keep Aluminum Electrolytic Capacitors in hot and/or humid atmosphere. Recommended storage condition is 5°C-35°C in temperature and not higher than 75% in relative humidity.
- Do not keep Aluminum Electrolytic Capacitors in a condition where spray of water, saltwater or oil is expected.
- Do not store Aluminum Electrolytic Capacitors in an environment full of hazardous gas (e.g. hydrogen sulfide, sulfurous acid gas, nitrous acid, chlorine gas, ammonia, bromine gas, methyl bromide).
- Do not keep Aluminum Electrolytic Capacitors under exposure to ozone, ultraviolet rays or radiation.
- Do not keep Aluminum Electrolytic Capacitors under exposure to acid or alkaline environment.

## (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.