

Messrs. DIGIKEY

# ALUMINUM ELECTROLYTIC CAPACITORS SPECIFICATION SHEET

## RoHS Compliance

CUSTOMER PART No.		
Rubycon PART No.	50 ZLJ 560 M 12.5X20	
DRAWING No.	RER-215026	ISSUE No.1
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RUBYCON CORPORATION  
ENGINEERING DIVISION

1938-1, NISHIMINOWA, INA-SHI, NAGANO-KEN, JAPAN  
<https://www.rubycon.co.jp/>

DESIGN	Hiroki Komatsu
	<i>H. Komatsu</i>
CHECK	Hideyuki Sumida
	<i>H. Sumida</i>
APPROVAL	Toshihiro Koike
	<i>T. Koike</i>

## 1.Scope

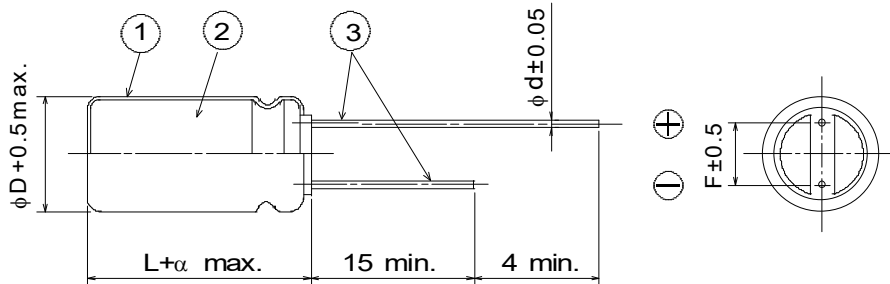
This specification covers polarized aluminum electrolytic capacitors with non-solid electrolyte for use in electronic equipments.

Style: CE 04 (Radial Leaded)

## 2.Numbering System

Rated Voltage	Series	Capacitance	Capacitance Tolerance	Option	Lead Forming	Size
<u>50</u>	<u>ZLJ</u>	<u>560</u>	<u>M</u>	=	<u>□□</u>	<u>12.5X20</u>

## 3.Diagram of dimensions Unit : mm



Dimensions				
φD	L	F	φd	α
12.5	20	5	0.6	2


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	50V
(3)Nominal Capacitance	560μF
(4)Polarity	 (Negative Polarity)
(5)Series	ZLJ
(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	560	(μF)
Capacitance Tolerance		-20 ~ 20	(%)
Rated Voltage		50	(V.DC)
Surge Voltage		63	(V.DC)
Leakage Current	20°C, 2min.	280	(μA max.)
Dissipation Factor (tanδ)	20°C, 120Hz	0.10	(max.)
Rated Ripple Current	105°C, 100kHz	2300	(mAr.m.s.)
Impedance Ratio	120Hz	Z-25°C/Z20°C	2
		Z-40°C/Z20°C	3
Impedance	20°C, 100kHz	0.032	(Ωmax.)
	-10°C, 100kHz	0.1	(Ωmax.)

## 6. PERFORMANCE

Table-2

1	Load Life Test	<p>&lt;Condition&gt; 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 style="text-align: center;">Temperature:            105 ±2°C Time:                    10000 <math>\begin{matrix} +72 \\ 0 \end{matrix}</math> h</p> <p>&lt;Criteria&gt;</p> <table border="1" data-bbox="560 607 1469 752"> <tbody> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±25% 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> </tbody> </table>	Leakage Current	Not more than the specified value	Capacitance Change	Within ±25% 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; 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 style="text-align: center;">Temperature:            105 ±2°C Time:                    1000 <math>\begin{matrix} +48 \\ 0 \end{matrix}</math> h</p> <p>&lt;Criteria&gt;</p> <table border="1" data-bbox="560 1093 1469 1238"> <tbody> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±25% 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> </tbody> </table>	Leakage Current	Not more than the specified value	Capacitance Change	Within ±25% 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 100kHz 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 border="1" data-bbox="459 1473 1139 1648"> <thead> <tr> <th>Frequency (Hz)</th> <th>120</th> <th>1k</th> <th>10k</th> <th>100k≤</th> </tr> </thead> <tbody> <tr> <th>Capacitance (μF)</th> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>560</td> <td>0.55</td> <td>0.77</td> <td>0.94</td> <td>1</td> </tr> </tbody> </table> <p>&lt;Temperature Coefficient &gt;</p> <table border="1" data-bbox="459 1715 1027 1794"> <tbody> <tr> <td>Temperature(°C)</td> <td>105</td> <td>85</td> <td>70≥</td> </tr> <tr> <td>Coefficient</td> <td>1.0</td> <td>1.5</td> <td>1.7</td> </tr> </tbody> </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>	Frequency (Hz)	120	1k	10k	100k≤	Capacitance (μF)					560	0.55	0.77	0.94	1	Temperature(°C)	105	85	70≥	Coefficient	1.0	1.5	1.7
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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, sulfuric 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."

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