

# 承 认 书 DATA SHEET

Customer name:					
BERYL SERIES:	RC		TYPE:	RADIAL	
DESCRIPTION:	1000uF/35V	Ф10*20			
Apply date :	2021-12-03				

]	BERYL		CUSTOMER				
P/N:RC035M102LO3	10*20TH-2 <i>A</i>	AlEt	P/N:				
PREPARED	HECKED	APPROVAL	PREPARED	CHECKED	APPROVAL		
董桂茹	成旭》	张业维					

After approved, please sign back 1 Approval Sheet before order. If not, we will treat it as tacitly acknowledged and accepted our relative standard and technical index

# Zhao Qing Beryl Electronic Technology Co., Ltd.

TEL: (0758) 2862871 FAX: (0758) 2862870

E-mail: master@zq-beryl.com <a href="http://www.zq-beryl.com">http://www.zq-beryl.com</a>

NO.8 DUANZHOU ROAD, ZHAOQING CITY. GUANGDONG. CHINA

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# Revise record

NO.	Date	Revise reason	Revise content	Prepared
01	2021.07.03	First issue	First issue	董桂茹

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### 1, Application

This specification applies to Aluminum electrolytic capacitor (foil type) used in electronic equipment. Designed capacitor's quality meets IEC 60384.

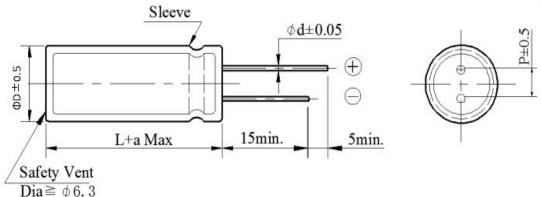
### 2. Table of specification and characteristics

Series	Cap(uF) 120Hz/20°C	WV(V)	Size (mm)		Temperature (°C)		- Temperatur		Capacitance Tolerance	Life(hours) @105(°C)
	120112/20 C		D	L			Toterance	(a) 103( b)		
RC	1000	35	10	20	-40~+1	05	±20%	3000		
` ′	0(MAX) z/20°C	LC(µA)(N 2min/20		,	2)(MAX) Hz/25°C	RC (mA rms) (MAX)105°C/100KHz		Surge voltage(V)		
<	12	≤350	)	≤0.05 1530		40				

Other: /

#### 3. Product Dimensions

Type

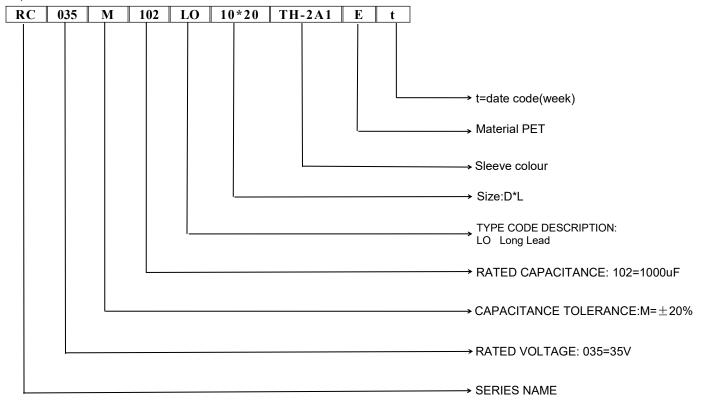


ФD	5	6.3	8	10	13	16	18	22
P	2	2.5	3.5	5	5	7.5	7.5	10
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8	0.8
a			(L< 20)	± 1.5	(L≥2	$0) \pm 2.0$		

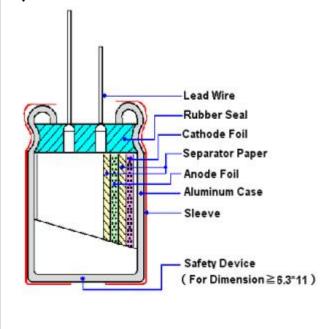
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### 4. Part Number



### 5, Construction



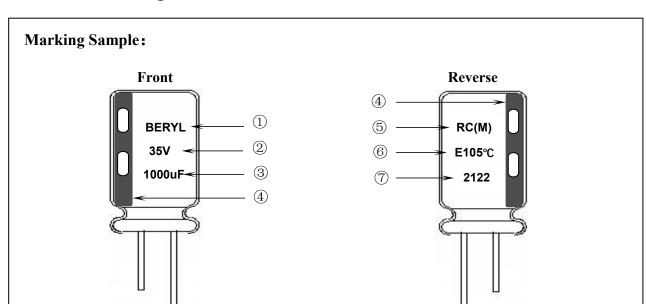
	Ι	1		
Material name	Composition	Supplier name		
Lead	Al and (Fe+Cu+Sn)	NM、JX		
Rubber	EPT / IIR	LHX、LA、TH、LM2		
Case	Aluminum	OX、YJ、HL、LY2		
Paper	Wood / Fibrous plant materials	KE、DF		
Anode foil	$Al + Al_2O_3$	HY1、HY2、HF、HY3、 LD、FQ		
Cathode foil	Aluminum	GY、LY1		
Electrolyte	Glycol + Water +Ammonium salt	XZB、LM1、JZ2、FS		
Sleeve	PET	YL、CY		

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# **BERYL** 绿宝石

### **ALUMINUM ELECTROLYTIC CAPACITORS**

# 6. Product Marking



#### **Marking Details:**

Capacitor shall be marked the following items:

- 1) Trademark (BERYL)
- 2) working voltage(35V)
- 3) Nominal capacitance(1000uF)
- 4) Cathode marked
- 5) Series symbol & Nominal capacitance tolerance (M: -20% ~ +20%)
- 6) Sleeve material(E: PET)

Maximum operating temperature(105°C)

7) Date code (2122)

21: Manufactured year 2021

Code	19	20	21	22	23	24	25	26	
Year	2019	2020	2021	2022	2023	2024	2025	2026	

22: Manufactured week (01, 02, 03, 04......51, 52)

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#### 7. Characteristics

#### **Standard atmospheric conditions**

Unless other specified, the standard range of atmospheric conditions for making measurements and tests is as follows:

Ambient temperature : 15°C to 35°C
Relative humidity : 45% to 85%
Air pressure : 86kPa to 106kPa

If there is any doubt about the results, measurement shall be made within the following conditions:

Ambient temperature :  $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Relative humidity : 60% to 70%Air pressure : 86kPa to 106kPa

#### **Operating temperature range**

The ambient temperature range at which the capacitor can be operated continuously at rated voltage is  $(6.3\sim450\mathrm{WV})$  -40°C to +105°C

#### **Table**

	ITEM	PERFORMANCE					
1	Nominal capacitance (Tolerance)	<condition> Measuring Frequency: 120Hz±12Hz Measuring Voltage: Not more than 0.5Vrms +1.5~2.0V.DC Measuring Temperature: 20±2°C <criteria> Shall be within the specified capacitance tolerance.</criteria></condition>					
2	Leakage current	Condition>     Connecting the capacitor with a protective resistor (1kΩ±10Ω) in series for 2 minutes, and then, measure leakage current. Criteria>     I: Leakage current (μA)     I (μA) ≤ 0.01CVor 3 (μA) whichever is greater, measurement circuit refer to right drawing. C: Capacitance (μF) V: Rated DC working voltage (V)					
3	Dissipation factor	<b>Condition&gt;</b> Nominal capacitance, for measuring frequency, voltage and temperature. <b>Criteria&gt;</b> Must be within the parameters (See page 3)					

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	ITEM					PEF	RFORMA	NCE		
4	Impedance	Mea	suring frequency: suring point: 2mn	n max	. from th	ne su	irface of a	sealing rubb	er on the lead	wire.
5	Load life test	Max curre exce reco <criteri ap<="" caj="" dis="" lea="" th="" the=""><th colspan="6">According to IEC60384-4No. 4.13 methods, the capacitor is stored at a temperature of Maximum operating temperature ±2°C with DC bias voltage plus the rated ripple current for Rated life +48/0hours. (The sum of DC and ripple peak voltage shall not exceed the rated working voltage) Then the product should be tested after 16 hours recovering time at atmospheric conditions. The result should meet the following table:</th><th>ople nall not hours</th></criteri>	According to IEC60384-4No. 4.13 methods, the capacitor is stored at a temperature of Maximum operating temperature ±2°C with DC bias voltage plus the rated ripple current for Rated life +48/0hours. (The sum of DC and ripple peak voltage shall not exceed the rated working voltage) Then the product should be tested after 16 hours recovering time at atmospheric conditions. The result should meet the following table:						ople nall not hours	
6	Shelf life test	Condition> The capacitors are then stored with no voltage applied at a temperature of Maximum operating temperature±2°C for1000+48/0 hours. Following this period, the capacitors shall be removed from the test chamber and be allowed to stabilized at room temperature for16 hours. measure leakage current  Criteria> The characteristic shall meet the following requirements. Leakage current Not more than 200% of the specified value. Capacitance Change Within ±20% of initial value. Dissipation Factor Not more than 200% of the specified value. Appearance There shall be no leakage of electrolyte.								
7	Maximum permissible (ripple current, temperature coefficient)	applie Table The c	D.C verse	eripple current is the maximum A.C current at 100KHz and can be ating temperature  C voltage and the peak A.C voltage shall not exceed the rated rise voltage.  120						

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# **ALUMINUM ELECTROLYTIC CAPACITORS**

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	ITEM				PER	FORM	IANCE					
8	Terminal strength	seconds. Bending strengt Fixed the capacitor, appli 2~3 seconds, and then ber  Diameter of lead wir  0.5mm and less  0.6~0.8 mm			ed force to the terminal in lead out direction for 30+5-0 h of terminals.  ed force to bent the terminal (1~4 mm from the rubbent it for 90° to its original position within 2~3 seconds.						) for 90	)° within
9	Temperature characteristics	a. At +105°C Dissipation The leaka b. In step 5, Dissipation The leaka	Condition> STEP Testing temperature (°C) Time 1 20±2 Time to reach thermal equilibrium 2 -40 -25±3 Time to reach thermal equilibrium 3 20±2 Time to reach thermal equilibrium 4 105±2 Time to reach thermal equilibrium 5 20±2 Time to reach thermal equilibrium Capacitance, DF, and impedance shall be measured at 120Hz. Criteria> a. At +105°C, capacitance measured at +20°C shall be within ±25% of its original value. Dissipation factor shall be within the limit of Item 7.3 The leakage current measured shall not more than 10 times of its specified value. b. In step 5, capacitance measured at +20°C shall be within ±10% of its original value. Dissipation factor shall be within the limit of Item 7.3 The leakage current shall not more than the specified value. c. At-40°C, Impedance (Z) ratio shall not exceed the value of the following table.							÷.		
10	Surge test	<condition>     Applied a surge voltage to the capacitor connected with a (100 ±50)/CR (kΩ) resistor in series for 30±5 seconds in every 5±0.5 minutes at 15~35°C. Procedure shall be repeated 1000 times. Then the capacitors shall be left under normal humidity for 1-2 hours before measurement CR: Nominal Capacitance (μF) <criteria> Leakage current Not more than the specified value. Capacitance Change Within ±15% of initial value. Dissipation Factor Not more than the specified value. Appearance There shall be no leakage of electrolyte. Attention: This test simulates over voltage at abnormal situation only. It is not applicable to such over voltage as often applied.</criteria></condition>										



	ITEM		PERFORMA	PERFORMANCE							
		<condition> Temperature cycle: According to IEC60384-4 Naccording as below:</condition>	Jo.4.7 methods, capacito	r shall be placed in an oven, the condi	ition						
		Te	emperature	Time							
		(1) +20°C		3 Minutes							
	Change of	(2) Rated low tempera	ture (- 40°C) (-25°C)	30±2 Minutes							
11	temperature test	(3) Rated high temper	ature (+105°C)	30±2 Minutes							
		(1) to $(3) = 1$ cycle, tot	al 5 cycle								
		Criteria> The characteristic shall mee Leakage current	t the following requirem  Not more than the s								
		Dissipation Factor	Not more than the s	specified value.							
		Appearance	There shall be no le	eakage of electrolyte.							
12	Damp heat test	Humidity test: According to IEC60384-4 N be exposed for 500±8 hours 40±2°C, the characteristic cl <criteria>  Leakage current  Capacitance Change  Dissipation Factor  Appearance</criteria>	in an atmosphere of 90- hange shall meet the foll Not more than the spe Within ±10% of initia	295%R H .at owing requirement. ecified value. al value. of the specified value.							
13	Solderability test	Condition> The capacitor shall be tested under the following conditions: Soldering temperature : 245 ±5°C Dipping depth : 2mm Dipping speed : 25±2.5mm/s Dipping time : 3±0.5s  Criteria> Soldering wetting time   Less than 3s Coating quality   A minimum of 95% of the surface being immersed									

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	ITEM	PERFORMANCE						
14	Vibration test	Condition> The following conditions shall be applied for 2 hours in each 3 mutually perpendicular directions. Vibration frequency range: 10Hz ~ 55Hz each to peak amplitude: 1.5mm Sweep rate: 10Hz ~ 55Hz ~ 10Hz in about 1 minute Mounting method: The capacitor with diameter greater than 12.5mm or longer than 25mm must be fixed in place with a bracket. Within 30° After the test, the following items shall be tested: Inner construction No intermittent contacts, open or short circuiting. No degrees of tab targetical or electrodes.						
		No damage of tab terminals or electrodes.  No mechanical damage in terminal. No leakage of electrolyte or swelling of the case. The markings shall be legible.						
		<condition> Terminals of the capacitor shall be immersed into solder bath at 260±5°Cfor10±1seconds or400±10°Cfor3 -0 seconds to 1.5~2.0 mm from the body of capacitor. Then the capacitor shall be left under the normal temperature and normal humidity for 1~2 hours before measurement.  <criteria></criteria></condition>						
15	Resistance to solder heat test	Leakage current Not more than the specified value.						
		Capacitance Change Within ±5% of initial value.						
		Dissipation Factor Not more than the specified value.						
		Appearance There shall be no leakage of electrolyte.						
16	Vent	<b>Condition&gt;</b> The following test only apply to those products with vent products at diameter ≥∅6.3 with vent. D.C. test The capacitor is connected with its polarity reversed to a DC power source. Then a current selected from Table 2 is applied. <b>Table 2&gt;</b>						
	test	Diameter (mm) DC Current (A)						
		22.4 or less 1 <criteria>  The vent shall operate with no dangerous conditions such as flames or dispersion of pieces of the capacitor and/or case.</criteria>						

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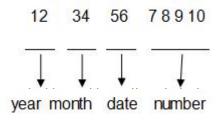


### 8. Packing Information

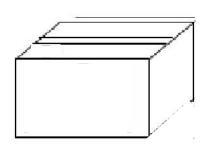
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(1)Clint order number (2)Client part number (3)Beryl part number (4)Capacitance (5)Voltage (6)Dimension (7)Packaging quantity (8)Capacitance tolerance (9) QC Marking (10) Lot number (11) Series

#### LOT Number:



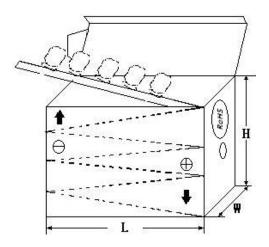
#### 1) Bulk Packing:



#### 3) Outer box



#### 2) Taped Packing:



#### 4) Outer box label:

DEKIL	ZI Ido QIN	g Beryi Ele Ltd.	CHOING	Technology Co.,	
C.S.R:			B UA HE		
C.S.R P/O:				ROHS HE	
C.S.R P/N	100				
S.P.R P/N:			QC		
SPEC:					
QTY:	PCS	TOL:	%		
L/N:		S.P.R:			

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#### 9. Prohibition to Use Environment- related Substances

We are hereby to certify the followings:

Our company hereby warrants and guarantees that all or part of products, including, but not limited to, the peripherals, accessories or package, delivered to your company (including your subsidiaries and affiliated companies) directly or indirectly by our company are free from any of the substances listed below.

The latest version of <Substances Prohibited as per RoHS or <Sony-SS-00259>

Accord with Lead and lead compounds  heavy metal Margury and margury compounds			
~			
heavy metal Margury and margury compands	Lead and lead compounds		
heavy metal Mercury and mercury compounds	Mercury and mercury compounds		
Hexavalent chromium compounds			
Polychlorinated biphenyls (PCB)			
Polychlorinated naphthalenes (PCN)	Polychlorinated naphthalenes (PCN)		
Organic chlorin Polychlorinated terphenyls (PCT)	Polychlorinated terphenyls (PCT)		
compounds Chlorinated paraffins (CP)	Chlorinated paraffins (CP)		
Other chlorinated organic compounds			
Organic Polybrominated biphenyls (PBB)			
bromine Polybrominated diphenylethers (PBDE)			
compounds Other brominated organic compounds			
Tributyltin compounds			
Triphenyltin compounds			
Asbestos			
Specific azo compounds			
Formaldehyde			
Polyvinyl chloride (PVC) and PVC blends			
F、Cl、Br、I			
REACH			

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# Test Report

Series	RC	Spec.	1000uF/35V	Size(mm)	10*20
Cap tolerance	±20%	Work temperature	105℃	Color of Tube	Dark green
Test date	2021-12-02	Test humidity	21%	Test temperature	24.5°C

Items	Cap (μF)	D.F (%)	L.C (μA)	ESR (Ω)	Appearance
SPEC NO.	800~1200 (120Hz)	≤12 (120Hz)	≤350 (2min)	≤0.05 (100KHz)	No abnormalities
1	855.9	5.99	46	0.0350	OK
2	853.7	5.99	45	0.0374	ОК
3	859.0	5.92	48	0.0351	OK
4	855.1	5.95	46	0.0360	ОК
5	857.8	5.99	48	0.0361	ОК
6	853.0	5.91	48	0.0366	OK
7	851.7	5.93	42	0.0357	ОК
8	856.0	5.94	40	0.0367	OK
9	856.9	5.93	41	0.0361	OK
10	855.8	5.96	40	0.0371	ОК
Opinion	After 2 minutes	application of rat	ed voltage	1	1

Approve: 成旭 Audit: 董桂茹 Test: 赵凯群

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NEVH1.0M250AB NEVH3.3M250BB NEVH3.3M450CC KME50VB100M-8X11.5 SG220M1CSA-0407 ES5107M016AE1DA

ESMG160ETD102MJ16S ESX472M16B 227RZS050M 476CKH100MSA 477RZS050M B41793A9108Q1 UVX1V101KPA1FA

UVX1V222MHA1CA KME25VB100M-6.3X11 VTL100S10 VTL470S10 VTL470S16A 511D336M250EK5D 052687X ECE-A1CF471

NRE-S560M16V6.3X7TBSTF RGA221M1CTA-0611G ERZA630VHN182UP54N UPL1A331MPH NEV1000M6.3DE NEV100M16CB

NEV100M50DD-BULK NEV2200M16FF NEV220M50EE NEV2.2M50AA NEV330M63EF NEV4700M35HI NEV4.7M100BA

NEV47M16BA NEV47M50CB-BULK NEVH1.0M350AB