

# 规格书 SPECIFICATION SHEET

Customer name:			
BERYL SERIES:	RC	TYPE:	RADIAL
DESCRIPTION:	330uF/100V	Ф13*25	
Apply date :	2022-04-11		

BERYL		CUSTOMER				
P/N:RC100M331LO13*25TH-2A	A1E	P/N:				
PREPARED	APPROVAL	PREPARED	CHECKED	APPROVAL		
董桂茹工程部。梅君	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.

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# Revise record

NO.	Date	Revise reason	Revise content	Prepared
01	2022.04.11	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.

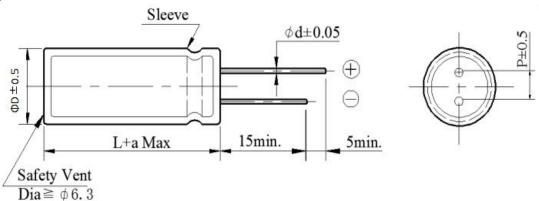
# 2. Table of specification and characteristics

Series	Cap(uF) 120Hz/20°C	WV(V) Size (		(mm) Temperat			Capacitance Tolerance	Life(hours) @105(°C)
	120112/20 C		D	L			Tolerance	(W103( C)
RC	330	100	13	25	-40~+105		±20%	3000
DF (%)(MAX) 120Hz/20°C		LC(μA)(1 2min/2	· · · · · · · · · · · · · · · · · · ·	•	)(MAX) Hz/25°C	1	C (mA rms) )105°C/100KHz	Surge voltage(V)
≤8		€33	0	<b>\leq</b> (	0.12		1240	115

Other: /

# 3, Product Dimensions

Type

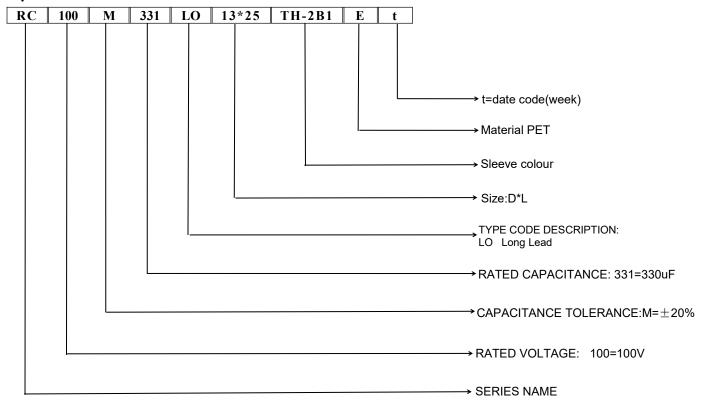


ФD	5	6.3	8	10	13	16	18	22
P	2	2.5	3.5	5	5	7.5	7.5	10
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8	0.8
a			(L< 20	) ± 1.5	(L≥20	$0) \pm 2.0$		

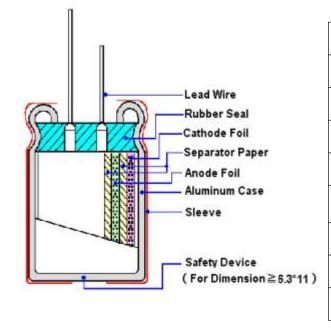
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### 4. Part Number



### 5, Construction



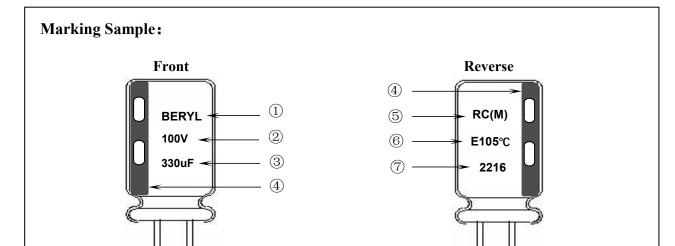
Material name	Composition	Supplier name		
Lead	Al and (Fe+Cu+Sn)	NM、JX		
Rubber	EPT / IIR	LHX、LA、TH、LM2		
Case	Aluminum	OX、YJ、HL、LY2		
Paper	Wood / Fibrous plant materials	KE、DF		
Anode foil	$Al + Al_2O_3$	HY1、HY2、HF、HY3、 LD、FQ		
Cathode foil	Aluminum	GY、LY1		
Electrolyte Glycol + Water +Ammonium salt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

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# **BERYL** 緑宝石

### **ALUMINUM ELECTROLYTIC CAPACITORS**

# 6. Product Marking



### Marking Details:

Capacitor shall be marked the following items:

- 1) Trademark (BERYL)
- 2) working voltage(100V)
- 3) Nominal capacitance(330uF)
- 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 (2216)

22: Manufactured year 2022

Code	20	21	22	23	24	25	26	27	
Year	2020	2021	2022	2023	2024	2025	2026	2027	•••••

16: Manufactured week (01, 02, 03, 04......52, 53)

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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)	<b>Condition&gt;</b> Measuring Frequency: 120Hz±12Hz Measuring Voltage: Not more than 0.5Vrms +1.5~2.0V.DC Measuring Temperature: 20±2°C <b>Criteria&gt;</b> Shall be within the specified capacitance tolerance.				
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			PERF	ORMANC	CE		
4	Impedance	<pre><condition>    Measuring frequency:10    Measuring point: 2mm if <criteria>    (20°C) Must be within to</criteria></condition></pre>	nax. from	the surf	ace of a sea		er on the lead	wire.
5	Load life test	Condition> 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: <criteria> The characteristic shall meet the following requirements. Leakage current Not more than 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.</criteria>					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)	Condition> The maximum permissible ripple current is the maximum A.C current at 100kHz and applied at maximum operating temperature Table-3 The combined value of D.C voltage and the peak A.C voltage shall not exceed the ravoltage and shall not reverse voltage.  Frequency Multipliers:  Freq (Hz)  120  1k  10k  50~100k  Cap. (μF)						

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	ITEM	PERFORMANCE												
		Condition> Tensile strength of terminals Fixed the capacitor, applied force to the terminal in lead out direction for30+5-0 seconds. Bending strength of terminals. Fixed the capacitor, applied force to bent the terminal (1~4 mm from the rubber) for 2~3 seconds, and then bent it for 90° to its original position within 2~3 seconds.									or 90° within			
8	Terminal strength	Diameter of lead wire			ire		Ter	sile : (kg	force l gf)	1	Bendi	ng force N (	(kgf)	
		0.:	5mm and	d less				5 (0	0.51)			2.5 (0.25)		
			0.6~0.8 1	nm			10	(1	.02)			5 (0.51)		
		<criteria> No noticea</criteria>	ble chan	ges sh	ıall be	e foui	nd, no	bre	akage	or loos	eness a	at the termin	al.	
		<condition></condition>												<b>-</b>
		STEP	Testi	ng ten		ture (	(°C)				Time			
		1 20±						_				al equilibriu		
		2 -40 -25±			:3		_				al equilibriu			
		3	20±2					T	ime to	reach	ch thermal equilibrium			
		4	105±2					Γ	ime to	reach	therma	al equilibriu	m	
		5						T	ime to	reach	h thermal equilibrium 20Hz.			
9	Temperature characteristics	Dissipati The leaks b. In step 5, Dissipati The leaks c. At- 40°C  Voltage (V)	C, capacon facto age current capacito age current Impeda	r shall ent me ance r r shall ent sha nce (Z	e mea be weasure neasure be wall no 2) rati	sured shared a rithin t more of share 25	l at + the l all no t +20 the l re tha	20°C mit t mo °C si mit n the exce	Shall of Iten re than hall be of Iten e specied the	be with 17.3 a 10 tire within 17.3 fied value	nin $\pm 25$ nes of in $\pm 10\%$ lue. of the	following ta	value nal val	
		Z-40°C/Z+20	℃ 8	6	4	4	4	4	4	4	4	7	8	
	Surge	<condition> Applies series for 30±5 1000 times. The before measure CR: Nominal</condition>	second en the c ement	s in ev apacit	ery 5 ors sl	$\pm 0.5$	minu	tes a	t 15~3	5°C.Pı	ocedur		epeate	
10	test	Leakage cur	rrent		1	Not n	ore t	nan 1	the spe	cified	value.			
		Capacitance		2						l value				1
		Dissipation								ecified		1 .		-
		Appearance			1	There	shal	be r	no leak	age of	electro	olyte.		J
		Attention: This test sin voltage as of			oltag	e at a	abnor	mal	situati	on onl	y. It is	not applica	ble to	such over

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	ITEM	PERFORMANCE							
		<condition> Temperature cycle: According to IEC60384-4 No according as below:</condition>	o.4.7 methods, capacitor	shall be placed in an oven	, the condition				
		Ten	nperature	Time					
		(1) +20°C		3 Minutes					
	Change of	(2) Rated low temperatu	ure (-40°C)(-25°C)	30±2 Minutes					
11	temperature test	(3) Rated high temperat	ture (+105°C)	30±2 Minutes					
		(1) to (3) =1 cycle, total	5 cycle						
		Criteria> The characteristic shall meet to the characterist							
		Leakage current	Not more than the sp						
		Dissipation Factor	Not more than the sp						
		Appearance	There shall be no lea	akage of electrolyte.					
12	Damp heat test	be exposed for 500±8 hours in	According to IEC60384-4 No.4.12 methods, capacitor shall be exposed for 500±8 hours in an atmosphere of 90~95%R H .at 40±2°C, the characteristic change shall meet the following requirement criteria>						
		Capacitance Change	Within ±10% of initial	l value.					
		Dissipation Factor	Not more than 120% of	of the specified value.					
		Appearance	There shall be no leak	age of electrolyte.					
13	Solderability test	Dipping depth : 2m Dipping speed : 25	5 ±5°C	ditions:					
		Coating quality	A minimum of 95%	of the surface being					

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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°					
		Critaria> To be soldered					
		Criteria> To be soldered After the test, the following items shall be tested:					
		Inner construction  No intermittent contacts, open or short circuiting. No damage of tab terminals or electrodes.					
		Appearance No mechanical damage in terminal. No leakage of electrolyte or swelling of the case. The markings shall be legible.					
	Resistance	<b>Condition&gt;</b> Terminals of the capacitor shall be immersed into solder bath at 260±5°Cfor10±1seconds or400±10°Cfor3 <sup>-0</sup> 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. <b>Criteria&gt;</b>					
15	to solder heat	Leakage current Not more than the specified value.					
	test	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 ≥Ø6.3 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>					
10	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.					

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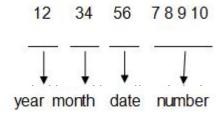


# 8. Packing Information

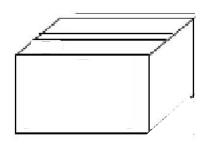
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(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:



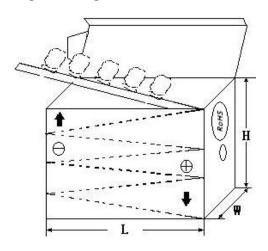
#### 1) Bulk Packing:



#### 3) Outer box



#### 2) Taped Packing:



#### 4) Outer box label:

BEKYL	Znao Qin	g Beryi Ele Ltd.	ctronic	Technology Co.,
C.S.R:				- 110 115
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>

	Cadmium and cadmium compounds		
	1		
Accord with	Lead and lead compounds		
heavy metal	Mercury and mercury compounds		
	Hexavalent chromium compounds		
Organic chlorin compounds	Polychlorinated biphenyls (PCB)		
	Polychlorinated naphthalenes (PCN)		
	Polychlorinated terphenyls (PCT)		
	Chlorinated paraffins (CP)		
	Other chlorinated organic compounds		
Organic	Polybrominated biphenyls (PBB)		
bromine	J 1 J ( )		
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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NEV4700M50HB NEV.47M100AA NEVH1.0M250AB NEVH3.3M250BB NEVH3.3M450CC KM4700/16 KME50VB100M-8X11.5

SG220M1CSA-0407 ES5107M016AE1DA ESMG160ETD102MJ16S ESX472M16B 227RZS050M 476CKH100MSA 477RZS050M

UVX1V101KPA1FA UVX1V222MHA1CA KME25VB100M-6.3X11 VTL100S10 VTL470S10 VTL470S16A 511D336M250EK5D

052687X ECE-A1CF471 NRE-S560M16V6.3X7TBSTF RGA221M1CTA-0611G ERZA630VHN182UP54N UPL1A331MPH

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NEV2.2M50AA NEV330M63EF NEV4700M35HI NEV4.7M100BA