

# 规格书 SPECIFICATION SHEET

Customer na	me:				
BERYL SERIE	ES:	RC	TYPE:	RADIAL	
DESCRIPTIO	N:	100uF/400V	Ф18*30		
Apply date	:	2022-04-13			

BERYL		CUSTOMER						
P/N:RC400M101LO18*30TH-2A	<b>A1E</b> t	P/N:						
PREPARED	APPROVAL	PREPARED	CHECKED	APPROVAL				
董桂茹	张业维							
202001958								

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) 13428556686 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	2022.04.13	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

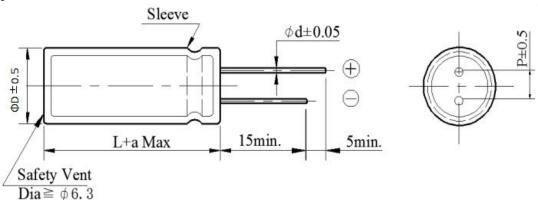
Series	Cap(uF)	WV(V)	Size	(mm)	Temperature	Capacitance	Life(hours)	
	120Hz/20°C	` '	D	L	(°C)	Tolerance	<b>@105(℃)</b>	
RC	100	400	18	30	<b>-40</b> ~ +105	±20%	5000	

DF (%)(MAX) 120Hz/20°C	LC(μA)(MAX) 2min/20°C	ESR(Ω)(MAX) 100KHz/25°C	RC (mA rms) (MAX)105°C/100KHz	Surge voltage(V)	
≤20	≤810	-	1949	440	

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) ± 2.0			

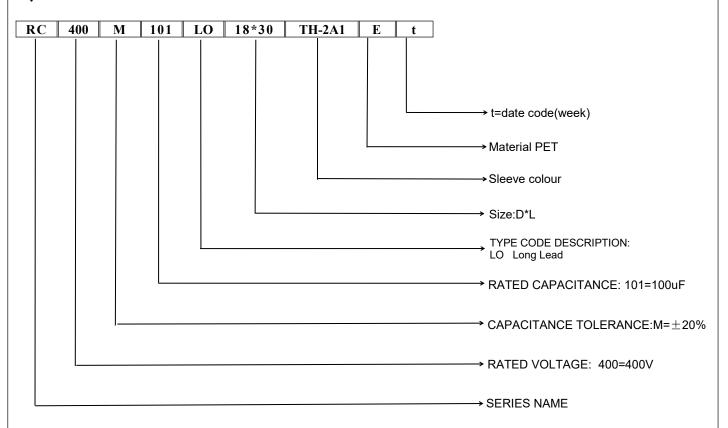
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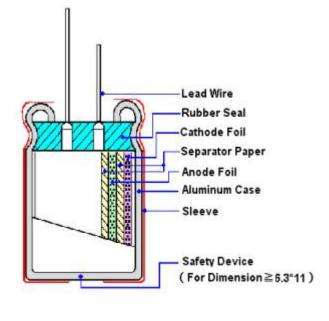
Sheet No.:



#### 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				

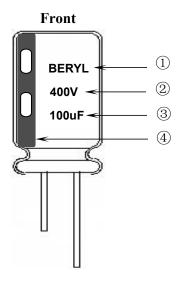
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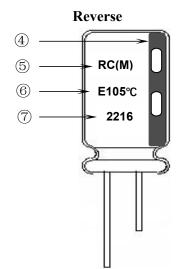
# **BERYL** 绿宝石

### **ALUMINUM ELECTROLYTIC CAPACITORS**

# 6. Product Marking

# Marking Sample:





#### **Marking Details:**

Capacitor shall be marked the following items:

- 1) Trademark (BERYL)
- 2) working voltage(400V)
- 3) Nominal capacitance(100uF)
- 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	19	20	21	22	23	24	25	26	
Year	2019	2020	2021	2022	2023	2024	2025	2026	

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)	<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) ≤0.02CV +10 (μA)     measurement circuit refer to right drawing.     C: Capacitance (μF)     V: Rated DC working voltage (V)								
3	Dissipation factor	<condition> Nominal capacitance, for measuring frequency, voltage and temperature.  <criteria> Must be within the parameters (See page 3)</criteria></condition>								

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	ITEM		PERFORMANCE									
4	Impedance	Me:	asuring frequency: lasuring point: 2mm	max. fro	m the sur	face of a s	sealing rubbe	er on the lead	wire.			
5	Load life test	Max curr exc rec <criter ca="" di<="" le="" td="" the=""><td>ording to IEC6038 kimum operating te ent for Rated life + eed the rated work overing time at atm</td><td>mperature 48/0hour ing voltage cospheric  meet the Not With</td><td>e ±2°C w.s. (The sige) Then to condition  following more than the following mo</td><td>ith DC bia um of DC the products. The rese grequired to the spector of initial values of the spector of the spe</td><td>as voltage plus and ripple post should be to the should ments.  If if it is a value.  If it is a value.</td><td>us the rated ripeak voltage sleested after 16 eet the follow value.</td><td>pple nall not hours</td></criter>	ording to IEC6038 kimum operating te ent for Rated life + eed the rated work overing time at atm	mperature 48/0hour ing voltage cospheric  meet the Not With	e ±2°C w.s. (The sige) Then to condition  following more than the following mo	ith DC bia um of DC the products. The rese grequired to the spector of initial values of the spector of the spe	as voltage plus and ripple post should be to the should ments.  If if it is a value.  If it is a value.	us the rated ripeak voltage sleested after 16 eet the follow value.	pple nall not hours			
6	Shelf life test	<b>Condition&gt;</b> The capacitors are then stored with no voltage applied at a temperature of Maximum temperature±2°C for1000+48/0 hours. Following this period, the capacitors shall be from the test chamber and be allowed to stabilized at room temperature for16 hour leakage current.										
7	Maximum permissible (ripple current, temperature coefficient)	appli Table The c volta <b>Freque</b>	maximum permissi ed at maximum ope	D.C volta verse volta  120  0.55	mperature age and thage.	<b>;</b>						

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	ITEM					P	ER	FOR	MAN	ICE				
		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 90° wi 2~3 seconds, and then bent it for 90° to its original position within 2~3 seconds.												r) for 90° within
8	Terminal strength	Dia	Diameter of lead wire			Te		e forc (gf)	e N	Bei	Bending force N (kgf)			
		0	.5mm and	less				(0.51)			2.5	(0.25)		
			0.6~0.8 m	m		1	0 (	1.02)			5 (	0.51)		
		<criteria> No notic</criteria>	eable chan	ges sha	ıll be	found	l, no	brea	kage	or loo	seness	at the ter	minal.	
		<condition>  STEP Testing temperature (°C) Time</condition>												
		STEP	Testin			re (°C	)				Time			
		1		2							l equilibri			
	Temperature characteristics	2		$\frac{25\pm 3}{2}$							l equilibri			
		3 4		=2 ±2					each thermal equilibriun					
		5		= <u>2</u> =2							l equilibri			
9		a. At +10 Dissip The le b. In step Dissip The le c. At -40 Voltage Z-40°C/Z		eitance r shall ent mea ance m r shall ent shall ent shall ance (3 10	meas be wi asure easur be wi ll not Z) rat	sured at thin to the thin to the thin to the thin to show the show th	at +2 he li l no +20 he li tha	20°C mit of the more of the more of the more of the mit of the more of the mit of the mi	shall f Iten e than all be f Iten speci	be with 17.3 to within 17.3 fied value	thin $\pm 20$ mes of $10^{\circ}$ alue.	f its specified of its of the follow	ried va riginal	lue. value.
10	Surge test	App series for 30 1000 times. before meas CR: Nomi <criteria> Leakage Capacitan Dissipation Appearar Attention:</criteria>	Leakage currentNot more than the specified value.Capacitance ChangeWithin ±15% of initial value.Dissipation FactorNot more than the specified value.AppearanceThere shall be no leakage of electrolyte.										ated	

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ITEM		PERFORMANCE				
11	Change of temperature test  Damp heat test	<b>Condition&gt;</b> Temperature cycle: According to IEC60384-4 No.4.7 methods, capacitor shall be placed in an oven, the condition according as below:				
			mperature	Time		
		(1) +20°C		3 Minutes		
		(2) Rated low tempera	ture (- 40°C) (-25°C)	30±2 Minutes		
		(3) Rated high tempera	ature (+105°C)	30±2 Minutes		
		(1) to (3) =1 cycle, total 5 cycle				
		Criteria> The characteristic shall meet the following requiren Leakage current Not more than the				
		Dissipation Factor	Not more than the s	specified value.		
		Appearance	There shall be no le	eakage of electrolyte.		
12		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	in an atmosphere of 90- nange shall meet the following that the special within ±10% of initial transfer of the special within ±10% of initial transfer of the special transfer	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°  4mm or less				
		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 to solder heat test	<b>Condition&gt;</b> Terminals of the capacitor shall be immersed into solder bath at 260±5°Cfor10±1seconds or 400±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		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 test	<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>				
10		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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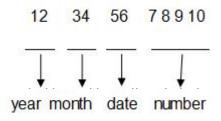


# 8. Packing Information

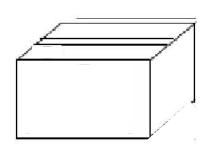
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(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:



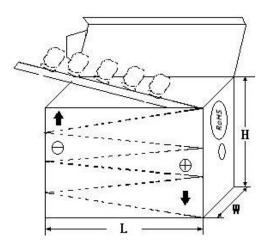
#### 1) Bulk Packing:



#### 3) Outer box



#### 2) Taped Packing:



#### 4) Outer box label:

C.S.R:		277.7979		
C.S.R P/O:			ROHS HF	
C.S.R P/N:	27			
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>

	1 7				
	Cadmium and cadmium compounds				
Accord with	Lead and lead compounds				
heavy metal	Mercury and mercury compounds				
	Hexavalent chromium compounds				
	Polychlorinated biphenyls (PCB)				
	Polychlorinated naphthalenes (PCN)				
Organic chlorin	Polychlorinated terphenyls (PCT)				
compounds	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	REACH				

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

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NEV2.2M50AA NEV330M63EF NEV4700M35HI NEV4.7M100BA