

# 承 认 书 DATA SHEET

Customer name:		
BERYL SERIES:	RC	TYPE: RADIAL
DESCRIPTION:	1000uF/25V	Ф10*16
Apply date :	2021-08-18	

BERYL			CUSTOMER	
P/N:RC025M102LO10*16TH-2	\1Et	P/N:		
PREPARED CHECKED	APPROVAL	PREPARED	CHECKED	APPROVAL
杨静	邹小云			
73020013988				

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	2020.12.05	First issue	First issue	杨静		

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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

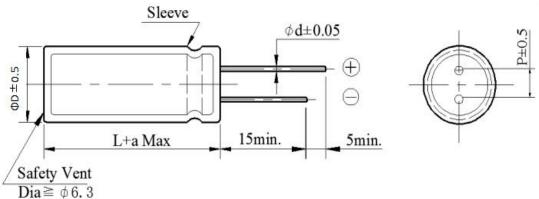
Series	Cap(uF) 120Hz/20°C	WV(V)	V(V) Size (mm) D L		Size (mm) Temperature		Life(hours) @105(°C)
						Tolerance	(W) 103( C)
RC	1000	25	10	16	-40~+105	±20%	3000

DF (%)(MAX)	LC(μA)(MAX)	ESR(Ω)(MAX)	RC (mArms)	Surge voltage(V)
120Hz/20°C	2min/20°C	100KHz/25°C	(MAX)105°C/100KHz	
≤14	≤250	≤0.065	≤1350	29

Other: /

#### 3. Product Dimensions

Type

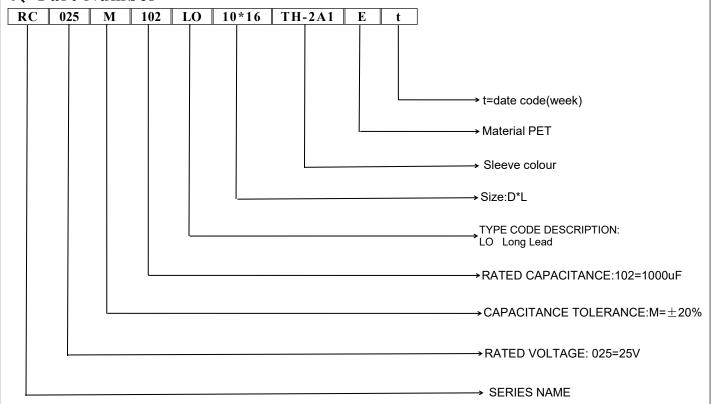


ФD	5	6.3	8	10	13	16	18	22
P	2	2.5	3.5	5	5	7.5	7.5	10
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8	0.8
а			(L<20)	± 1.5	(L≥2	$0) \pm 2.0$		

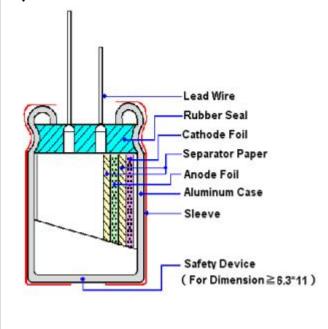
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### 4. Part Number



### 5, Construction



Material name	Composition	Supplier name		
Lead	Al and (Fe+Cu+Sn)	NM、JX		
Rubber	EPT / IIR	LHX、LA、TH、LM2		
Case	Case Aluminum OX, YJ,			
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(25V)
- 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 (2130)

21: Manufactured year 2021

Code	19	20	21	22	23	24	25 2		
Year	2019	2020	2021	2022	2023	2024	2025	2026	

30: 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  $(6.3\sim450WV)$  -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	<ul> <li>Condition&gt; Connecting the capacitor with a protective resistor (1kΩ±10Ω) in series for 2 minutes, and then, measure leakage current.</li> <li>Criteria&gt; I: Leakage current (μA) I (μA) ≤0.01CVor 3 (μA) whichever is greater, measurement circuit refer to right drawing.</li> <li>C: Capacitance (μF)</li> <li>V: Rated DC working voltage (V)</li> </ul>					
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	PERFORMANCE								
4	Impedance	<b>Condition&gt;</b> Measuring frequency:100kHz; Measuring temperature:20±2°C Measuring point: 2mm max. from the surface of a sealing rubber on the lead wire. <b>Criteria&gt;</b> (20°C) Must be within the parameters (See page 3)								
5	Load life test	Max currex rec <criter a<="" ca="" dr="" le="" th="" the=""><th colspan="8">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&gt;  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.</th></criter>	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.							
6	Shelf life test	Condition> The capacitors are then stored with no voltage applied at a temperature of Maximum operation temperature±2°C for1000+48/0 hours. Following this period, the capacitors shall be remove 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 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.							ors shall be removed	
7	Maximum permissible (ripple current, temperature coefficient)	appli Table The c volta <b>Freque</b>	maximum permissib ed at maximum ope	D.C voltage erse voltage 120 0.60	and the	e				

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# **ALUMINUM ELECTROLYTIC CAPACITORS**

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	ITEM						PER	FOR	RMAI	NCE				
8	Terminal strength	seconds. Ben Fixed the cap 2~3 seconds,  Diameter  0.5mm  0.6~	ed for n of to d for t it fo	force to the terminal in lead out direction for 30+5-0							r) for 90° within			
9	Temperatur e characterist ics	STEP   Testing temperature (°C)   Time								ium ium ium ium s origir fied va	ilue. value.			
10	Surge test	Condition> Applied a series for 30±5 so 1000 times. There before measurem CR: Nominal CC Criteria> Leakage curred Capacitance CC Dissipation Factorian Appearance Attention: This test simulation voltage as often content of the co	econds in the capacita capacit	nce (	Pery 5:  prs sh  μF)  No  No  TI	ot mo	ore the ±159 ore the shall	an the an the be no	t 15~3 er nor	cified l valucified	value. e. value f electr	y for 1-2 l	be repe	



	ITEM	PERFORMANCE								
		<condition> Temperature cycle: According to IEC60384-4 N according as below:</condition>	o.4.7 methods, capacito	r shall be placed in an oven,	the condition					
		Те	mperature	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 tempera	ature (+105°C)	30±2 Minutes						
		(1) to (3) =1 cycle, total	al 5 cycle							
		Criteria> The characteristic shall meet Leakage current	the following requirem  Not more than the s							
		Dissipation Factor	Not more than the s							
		Appearance		eakage of electrolyte.						
12	Damp 12 heat test	According to IEC60384-4 N be exposed for 500±8 hours	Leakage currentNot more than the specified value.Capacitance ChangeWithin $\pm 10\%$ of initial value.							
		Appearance	There shall be no leal	kage of electrolyte.						
13	Solderabilit y test	<condition> The capacitor shall be tested Soldering temperature : 2d Dipping depth : 2d Dipping speed : 2 Dipping time : 3d <criteria>  Soldering wetting time  Coating quality</criteria></condition>								

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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°					
		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	Condition> 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. Criteria>					
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.					
	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>					
16	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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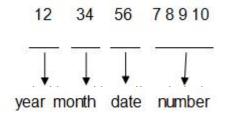


# 8. Packing Information

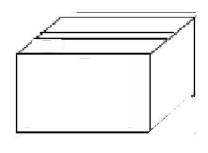
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(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:



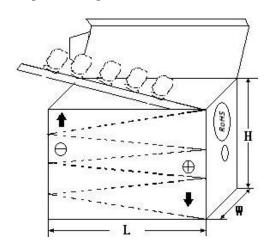
#### 1) Bulk Packing:



#### 3) Outer box



#### 2) Taped Packing:



#### 4) Outer box label:

BERYL	Zhao Qin	g Beryl Ele Ltd.	ctronic	Technology Co.,	
C.S.R:			- 110 115		
C.S.R P/O:				IROHS HE	
C.S.R P/N:					
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 heavy metal  Mercury and mercury compounds  Hexavalent chromium compounds  Polychlorinated biphenyls (PCB)					
heavy metal Mercury and mercury compounds  Hexavalent chromium compounds					
Hexavalent chromium compounds					
Polychlorinated biphenyls (PCB)					
1 0 /					
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)	Polybrominated biphenyls (PBB)				
bromine Polybrominated diphenylethers (PBDE)	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/25V	Size(mm)	10*16
Cap tolerance	±20%	Work temperature	105℃	Color of Tube	Dark green
Test date	2021-08-13	Test humidity	52%	Test temperature	24.7°C

Items	Cap (μF)	D.F (%)	L.C (μA)	ESR (Ω)	Appearance
NO. SPEC	800~1200 (120Hz)	≤14 (120Hz)	≤250 (2min)	≤0.065 (100KHz)	No abnormalities
1	952.90	5.05	30.4	0.033	ОК
2	952.42	5.03	30.4	0.034	ОК
3	952.34	5.04	30.2	0.037	ОК
4	951.54	5.03	30.4	0.034	ОК
5	952.62	4.95	30.2	0.036	ОК
6	952.45	5.05	30.6	0.034	ОК
7	952.29	5.01	30.5	0.034	ОК
8	952.55	5.07	30.3	0.034	ОК
9	952.47	5.06	30.5	0.033	ОК
10	952.84	5.03	30.4	0.034	ОК
Opinion After 2 minutes application of rated voltage					

Approve: 邹小云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