

规 格书 SPECIFICATION SHEET

Customer 1	name :						
BERYL SE	RIES : RC		Т	TYPE : RADIAL			
DESCRIP	TION : 47u	F/35V Φ5*	·11				
Apply	date :						
	BERYL			CUSTOMER			
P/N:RC035M470	0LO5*11TH-2A	1Et	P/N:				
PREPARED	CHECKED	APPROVAL	PREPARED	CHECKED	APPROVAL		

Zhao Qing Beryl Electronic Technology Co., Ltd.

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Revise record

NO.	Date	Revise reason	Revise content	Prepared
01	2024.04.22	First issue	First issue	胡晓敏

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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.

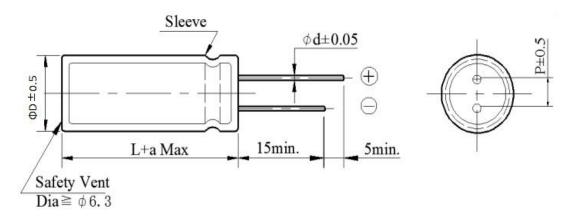
2. Table of specification and characteristics

Series	Cap(uF) 120Hz/20°C	WV(V)	Size	(mm)	Temperature (°C)		Capacitance Tolerance	Life(hours) @105(°C)
	120112/20 C		D	L			Toterance	(a)103(C)
RC	47	35	5	11	-40~+	105	±20%	2000
	6)(MAX) Hz/20°C	LC(µA)(MA 2min/20°C	· ·	ESR(Ω) 100KH	(MAX) Iz/25°C		C (mA rms) 0105°C/100KHz	Surge voltage(V)
	≤ 12	≤16		≤0	45		201	40

Other: /

3, Product Dimensions

Type

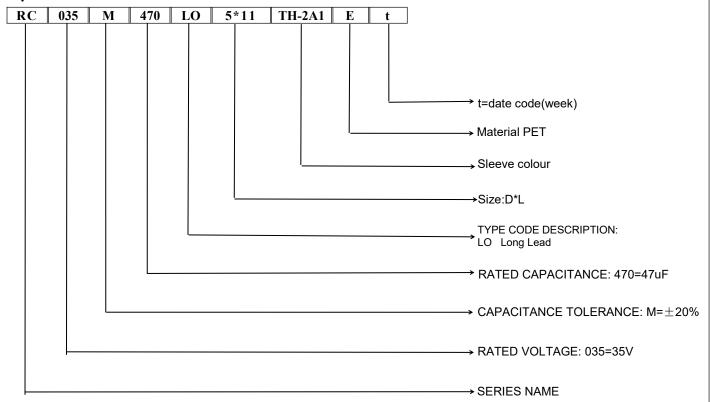


ФD	5	6.3	8	10	13	16	18	22
P	2	2.5	3.5	5	5	7.5	7.5	10
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8	0.8
а			(L<20)	± 1.5	(L≥2	$0) \pm 2.0$		

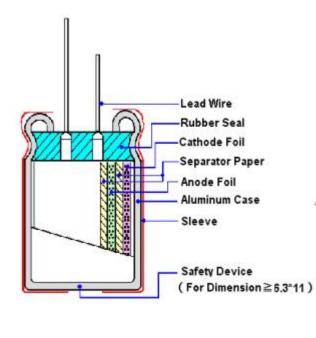
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4. Part Number



5, Construction



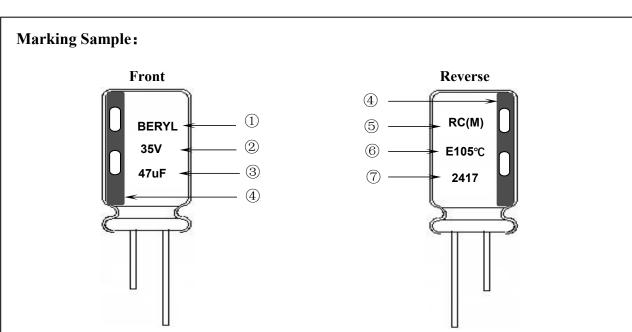
Material name	Composition	Supplier name
Lead	Al and (Fe+Cu+Sn)	NM、RH、ZY
Rubber	IIR	LHX、TH
Case	Aluminum	OX、YJ、LY2、SH
Paper	Wood / Fibrous plant materials	KE、CY
Anode foil	$Al + Al_2O_3$	HY1、HY2、HF、 HX1、GD、FC
Cathode foil	Aluminum	GY、FL、TL
Electrolyte	Glycol + Water +Ammonium salt	XZB、JZ2
Sleeve	PET	YL、CY
Adhesive tape	propylene, butyl acrylate	RK、RB、CW

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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(47uF)
- 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 (2417)

24: Manufactured year 2024

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

17: 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 $(6.3\sim100 \text{WV})$ -40°C to +105°C.

Table

	ITEM	PERFORMANCE
1	Nominal capacitance (Tolerance)	Condition> Measuring Frequency: 120Hz±12Hz Measuring circuit:Series equivalent circuit 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.
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	<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	Condition> Measuring frequency:100kHz; Measuring temperature:20±2°C Measuring point: 2mm max. from the surface of a sealing rubber on the lead wire. Criteria> (20°C) Must be within the parameters (See page 3)							
5	Load life test	Condition> According to IEC6038 Maximum operating to current for Rated life = exceed the rated work recovering time at atm Criteria> The characteristic shall Leakage current Capacitance Change Dissipation Factor	According to IEC60384-4No. 4.13 methods, the capacitor is stored at a temperature 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 ta Criteria> The characteristic shall meet the following requirements. Leakage current Not more than the specified value. Capacitance Change Within ±20% of initial value.					t	
6	Shelf life test	Condition> The capacitors are then stored with no voltage applied at a temperature of Maximum opera temperature±2°C for1000+48/0 hours. Following this period, the capacitors shall be remote from the test chamber and be allowed to stabilized at room temperature for16 hours. mean 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.						be removed	
7	Maximum permissible (ripple current, temperature coefficient)	Appearance There shall be no leakage of electrolyte.							

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	ITEM	PERFORMANCE											
		Condition> Tensile street Fixed the conditions. Expected the conditions. Expected the conditions. Expected the conditions.	apacitor, agending stroagacitor, ag	pplied tength opplied t	force f terr force	ninals. to ben	the	termi	nal (l∼4 mı	m from	the rubb	per) for 90° within
8	Terminal strength	Diameter of lead wire				Tensile force N (kgf)			E	Bending	g force	N (kgf)	
		0.5	5mm and less				(0.5)	1)		2	.5 (0.25	5)	
		0	.6~0.8 mm			10 (1.02	2)		5	(0.51))	
		<criteria> No noticea</criteria>	ble change	s shall	be fo	ound, no	bre	akage	e or lo	osene	ss at th	e termina	ıl.
		<condition></condition>											_
		STEP	Testing 1	empera	ature	(°C)				Time	e		
		1	1 20±2				Tit	ne to	reacl	therm	nal equ	ilibrium	
		2 -40 -25±3			=3		Tiı	ne to	reacl	each thermal equilibrium			
		3				Tiı	ne to	reacl	therm	nal equ	ilibrium		
		4	105±2				Tit	ne to	reach	therm	nal equ	ilibrium	
		5		20±2								ilibrium	
9	Temperature characteristics	a. At +105° Dissipati The leak b. In step 5 Dissipati The leak c. At- 40°C	on factor sage current, capacitant on factor sage current, Impedant () 6.3	ance meast meast ce mea hall be t shall rece (Z)	easur with ared s sured with not m	red at + in the l shall no l at +2(in the l nore that shall no	20°C imit t mo °C s imit n the	C shal of Ite ore that shall be of Ite especially	l be ver 7 10 be with m 7 rified the vertex to the v	vithin = 3 times hin ±1 3 value.	±25% of its s 0% of	pecified vits origin	value. al value.
10	Surge test	series for 30±3 1000 times. The before measur CR: Nomina <criteria> Leakage cu Capacitance Dissipation Appearance Attention:</criteria>	s seconds in the cap ement and a capacitant and a capacitant arrent e Change Factor e capacitant and a capac	n every acitors nce (µF	Not r With Not r	.5 minul be left more th in $\pm 15^{\circ}$ more th e shall	an the of no	ne sperinitiane sp	cified values	Proce humid	dure shity for	nall be rep 1-2 hours	

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	ITEM		PERFORMA	NCE				
		<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	1			
			mperature	Time				
		(1) +20°C		3 Minutes				
	Change of	(2) Rated low temperat	cure (-40°C)(-25°C)	30±2 Minutes				
11	temperature test	(3) Rated high tempera	ture (+105°C)	30±2 Minutes				
		(1) to $(3) = 1$ cycle, total	ıl 5 cycle					
		Criteria> The characteristic shall meet Leakage current	the following requirem Not more than the					
		Dissipation Factor	Not more than the	specified value.				
		Appearance	There shall be no le	eakage of electrolyte.				
12	Damp heat test	Humidity test: According to IEC60384-4 Nobe exposed for 500±8 hours	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 >					
13	Solderability test	Dipping depth : 21 Dipping speed : 23	15 ±5°C mm 5±2.5mm/s 10.5 s Less than 3s	nditions: % 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. Amm or less Criteria> 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. No mechanical damage in terminal. No leakage of electrolyte or swelling of the case. The markings shall be legible.
	Resistance to	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>
15	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	Condition> 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. Capacitor Table 2 is applied.
10	test	Diameter (mm) DC Current (A)
		22.4 or less 1

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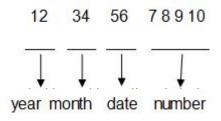


8. Packing Information

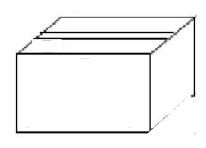
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(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:



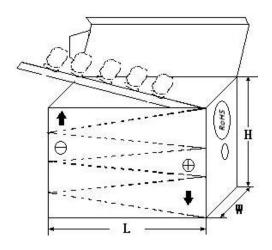
1) Bulk Packing:



3) Outer box



2) Taped Packing:



4) Outer box label:

		Ltd.		111111111
C.S.R:				B UA HE
C.S.R P/O:				ROHS 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>

	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	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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NEVH3.3M450CC KME50VB100M-8X11.5 SG220M1CSA-0407 ES5107M016AE1DA ESX472M16B 476CKH100MSA 477RZS050M

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NEV1000M6.3DE NEV100M16CB NEV100M50DD-BULK NEV2200M16FF NEV220M50EE NEV2.2M50AA NEV330M63EF

NEV4700M35HI NEV4.7M100BA NEV47M16BA NEV47M50CB-BULK NEVH1.0M350AB NEVH2.2M160AB NEVH3.3M350BC

TER330M50GM 477KXM035MGBWSA