

规格书 SPECIFICATION SHEET

BERYL SERIES:	RC	TYPE:	RADIAL
DESCRIPTION:	3.3uF/400V	Ф6.3*9	
Apply date :	2022-04-12		

BERYL		CUSTOMER			
P/N:RC400M3R3LO6.3*9TH-2A	\1Et	P/N:			
PREPARED CHECKED	APPROVAL	PREPARED	CHECKED	APPROVAL	
董桂茹、工程部廖梅君	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.

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Revise record

NO.	Date	Revise reason	Revise content	Prepared
01	2022.04.12	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

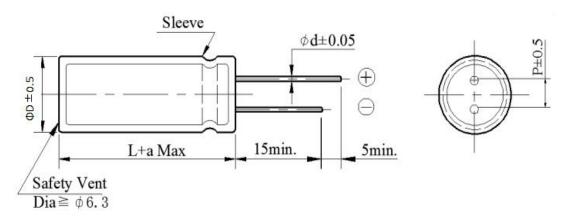
Series	Cap(uF)	WV(V)	Size(mm)	Temperature	Capacitance Tolerance	Life(hours)	
	120Hz/20°C		D	L	(°C)	1 oterance	@105(°C)	
RC	3.3	400	6.3	9	-40~ +105	±20%	3000	

DF (%)(MAX)	LC(μA)(MAX)	ESR(Ω)(MAX)	RC (mA rms)	Surge voltage(V)
120Hz/20°C	2min/20°C	100KHz/25°C	(MAX)105°C/100KHz	
≤20	≤36	-	100	440

Other: /

3. Product Dimensions

Type

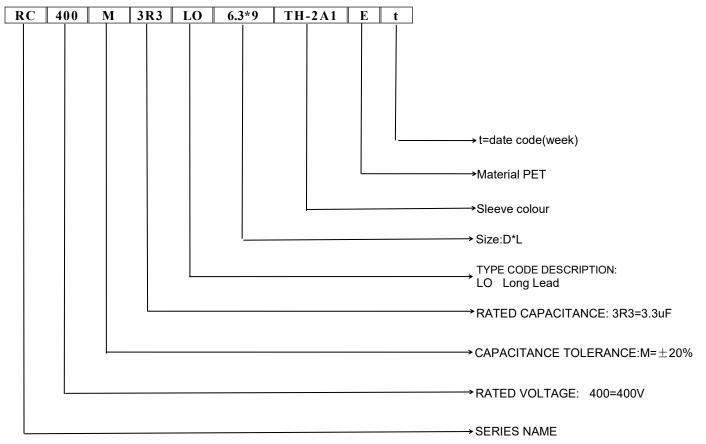


ΦD	5	6.3	8	10	13	16	18	22
P	2	2.5	3.5	5	5	7.5	7.5	10
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8	0.8
a			$(L < 20) \pm 1.5$		(L≥20) ± 2.0			

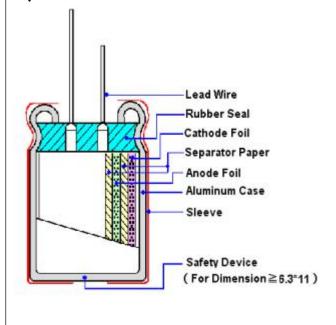
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4. Part Number



5. Construction



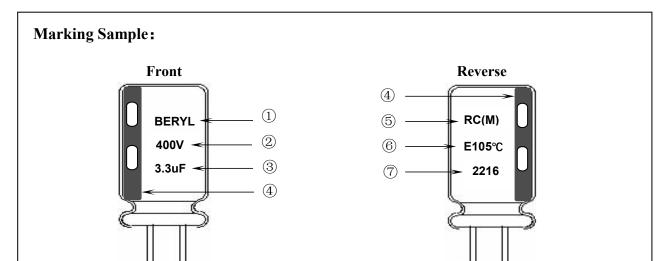
Material name	Composition	Supplier name
Lead	Al and (Fe+Cu+Sn)	NM、JX
Rubber	EPT / IIR	LHX、LA、TH、LM2
Case	Aluminum	OX、YJ、HL、LY2
Paper	Wood / Fibrous plant materials	KE、DF
Anode foil	$Al + Al_2O_3$	HY1、HY2、HF、HY3、 LD、FQ
Cathode foil	Aluminum	GY、LY1
Electrolyte	Glycol + Water +Ammonium salt	XZB、LM1、JZ2、FS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

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BERYL 绿宝石

ALUMINUM ELECTROLYTIC CAPACITORS

6. Product Marking



Marking Details:

Capacitor shall be marked the following items:

- 1) Trademark (BERYL)
- 2) working voltage(400V)
- 3) Nominal capacitance(3.3uF)
- 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.
2	Leakage current	$ \begin{array}{l} \textbf{} \\ \textbf{Connecting the capacitor with a protective resistor } (1k\Omega\pm10\Omega) \text{ in series for} \\ \textbf{2 minutes, and then, measure leakage current.} \\ \textbf{} \\ \textbf{I: Leakage current } (\mu A) \\ \textbf{I } (\mu A) \leqslant 0.02\text{CV} + 10(\mu A) \text{ ,} \\ \textbf{measurement circuit refer to right drawing.} \\ \textbf{C: Capacitance } (\mu F) \\ \textbf{V: Rated DC working voltage } (V) \\ \end{array} $
3	Dissipation factor	Condition> Nominal capacitance, for measuring frequency, voltage and temperature. Criteria> Must be within the parameters (See page 3)

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	ITEM				PER	FORMAN	NCE		
4	Impedance	Measu < Criteria	ring frequency: 1 ring point: 2mn	n max. fr	om the su	face of a s		er on the lead	wire.
5	Load life test	Maxim curren excee recove <criteria: capa="" ch="" dissi<="" leak="" td="" the=""><td colspan="7">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.</td></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	The cap tem fron leak <criteria capaci="" chan="" dissipa<="" leakag="" td="" the=""><td colspan="7"> 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 remo from the test chamber and be allowed to stabilized at room temperature for16 hours. meas leakage current Criteria> The characteristic shall meet the following requirements. Leakage current Not more than 200% of the specified value Capacitance Change</td></criteria>	 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 remo from the test chamber and be allowed to stabilized at room temperature for16 hours. meas leakage current Criteria> The characteristic shall meet the following requirements. Leakage current Not more than 200% of the specified value Capacitance Change						
7	Maximum permissible (ripple current, temperature coefficient)	applied Table-3 The cor voltage Frequenc	ximum permissi at maximum op	D.C volt verse vol	age and that	9			

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	ITEM					PER	FORM <i>A</i>	NCE				
8	Terminal strength	Fixed the c seconds. E Fixed the c 2~3 second Diame 0.5	Tensile strength of terminals Fixed the capacitor, applied seconds. Bending strength of Fixed the capacitor, applied 2~3 seconds, and then bent in Diameter of lead wire 0.5mm and less 0.6~0.8 mm <criteria></criteria>					d force to the terminal in lead out direction for 30+5-0				
9	Temperature characteristics	a. At +105 Dissipat The leak b. In step 5 Dissipat The leak c. At -40°(Voltage (V)	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. Voltage (V) 6.3 10 16 25 35 50 63~160 200~400 450									
10	Surge test	series for 30±; 1000 times. The before measur CR: Nomina Criteria> Leakage cut Capacitance Dissipation Appearance Attention:	Applied a surge voltage to the capacitor connected with a (100 ± 50) /CR (k Ω) resistor 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 (μ F) **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 on the specified value of the such of the state of the such of th									

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	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 conditi	on				
		Te	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	nture (+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						
		Dissipation Factor	Not more than the	specified value.					
			Appearance	There shall be no le	eakage of electrolyte.				
12	Damp 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.Dissipation FactorNot more than 120% of the specified value.						
13	Solderability test	Soldering temperature : 24 Dipping depth : 25 Dipping speed : 2 Dipping time : 3± <criteria></criteria>	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 A minimum of 95% of the surface being						

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ITEM		PERFORMANCE				
14	Vibration test	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</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.				
		Appearance No mechanical damage in terminal. No leakage of electrolyte or swelling of the case. The markings shall be legible.				
15	Resistance to solder heat test	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>				
		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 ≥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. Table 2>				
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.</criteria>				

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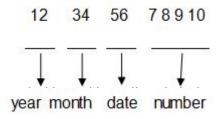


8. Packing Information

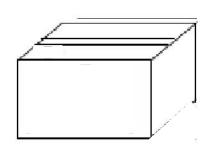
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(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:



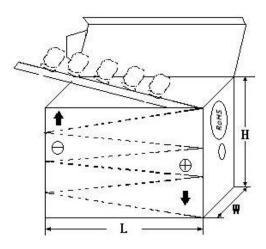
1) Bulk Packing:



3) Outer box



2) Taped Packing:



4) Outer box label:

C.S.R:		2022		
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>

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