

规 格书 SPECIFICATION SHEET

Customer name	:		
BERYL SERIES	:	ME	TYPE : RADIAL
DESCRIPTION	:	15uF/400V Φ8*16	
Apply date	:	2022-11-12	

	BERYL		CUSTOMER				
P/N:ME400M15	50LO8*16TA-1A	3Et	P/N:				
PREPARED	CHECKED	APPROVAL	PREPARED	CHECKED	APPROVAL		
胡晓敏等	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	2022.11.12	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

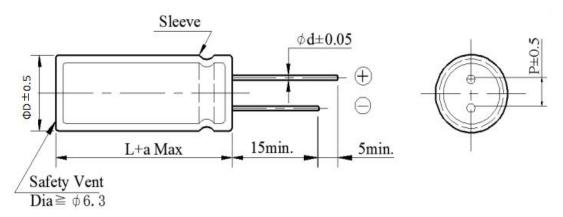
Series	Cap(uF) 120Hz/20°C	WV(V)	Size((mm)	Temperature (°C)	Capacitance Tolerance	Life(hours) @105(°C)	
	120112/20 C		D	L		1 old and	(W103(C)	
ME	15	400	8	16	-40~+105	±20%	2000	

DF (%)(MAX) 120Hz/20°C	LC(μA)(MAX) 2min/20°C	ESR(Ω)(MAX) 100KHz/25°C	RC (mA rms) (MAX)105°C/120Hz	Surge voltage(V)
≤24	≤130	-	210	440

Other: /

3. Product Dimensions

Type

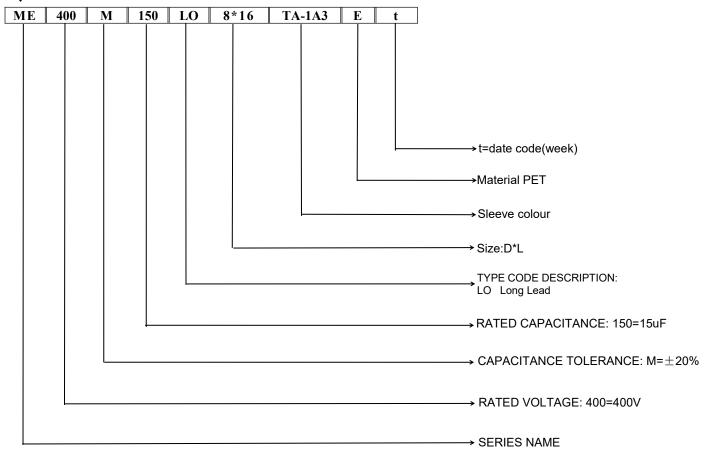


ФD	5	6.3	8	10	13	16	18	22
P	2	2.5	3.5	5	5	7.5	7.5	10
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8	0.8
а		$(L < 20) \pm 1.5$				$0) \pm 2.0$	_	

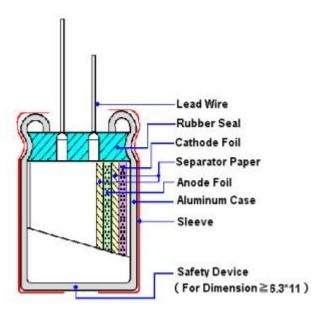
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4. Part Number



5, Construction



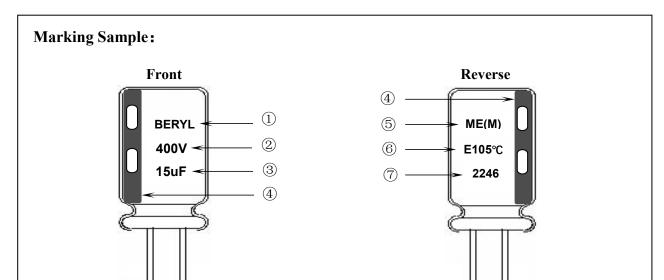
Material name	Composition	Supplier name				
Lead	Al and (Fe+Cu+Sn)	NM、RH、ZY				
Rubber	IIR	LHX、TH				
Case	Aluminum	OX、YJ、LY2、SH				
Paper	Wood / Fibrous plant materials	KE, CY				
Anode foil	$Al + Al_2O_3$	HY1、HX2、HF、 HX1、GD、FC				
Cathode foil	Aluminum	GY、LY1				
Electrolyte	Glycol + Water +Ammonium 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(400V)
- 3) Nominal capacitance(15uF)
- 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 (2246)

22: Manufactured year 2022

Code	19	20	21	22	23	24	25	26	
Year	2019	2020	2021	2022	2023	2024	2025	2026	

46: 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 $(6.3\sim400\text{WV})$ -40°C to +105°C. (450WV) -25°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			PERI	FORMA	NCE				
4	Impedance	<condition> Measuring frequency: 1 Measuring point: 2mm <criteria> (20°C) Must be within</criteria></condition>	max. fro	om the sur	face of a	sealing		the lead wi	re.	
5	Load life test	Maximum operating te current for Rated life + exceed the rated work recovering time at atm < Criteria>	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	temperature±2°C for from the test chambe leakage current < Criteria>	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.							
7	Maximum permissible (ripple current, temperature coefficient)	applied at maximum oper Table-3 The combined value of voltage and shall not reverse Frequency Multipliers: Freq (Hz) Cap. (µF) 15 Temperature Coefficient	Appearance There shall be no leakage of electrolyte. Condition> The maximum permissible ripple current is the maximum A.C current at 120Hz an applied at maximum operating temperature Table-3 The combined value of D.C voltage and the peak A.C voltage shall not exceed the voltage and shall not reverse voltage. requency Multipliers: Freq (Hz) 50 120 300 1k 10k 100k Cap. (μF) 15 0.75 1.00 1.25 1.50 1.75 1.80 emperature Coefficient: Temperature (°C) 60 85 95 105							

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ALUMINUM ELECTROLYTIC CAPACITORS

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	ITEM				PE	RFORMA	NCE					
8	Terminal strength	0.5	apacitor, a Bending strapacitor, a las, and the eter of lead mm and lo	applied for applie	f terminals orce to be for 90° to Tens	nt the terminits original ile force N (kgf) (0.51) (1.02)	nal (1~ positio	4 mm from within 2 anding force 2.5 (0.2 5 (0.51)	m the 1 ~3 sec e N (kg 25)	conds.)° within
9	Temperature characteristics	a. At +105 Dissipat The leak b. In step 5 Dissipat The leak c. At -40°C	ce, DF, and PC, capacitation factor age current, capacitation factor age current impedant (7) 6.3	20±2 -40 -25± 20±2 105±2 20±2 Id imped tance measure meas	easured at within the red shall resured at +2 within the tot more that to shall n	Time to Time to Time to Time to Time to be measure +20°C shall limit of Ite of more that 0°C shall be limit of Ite an the speces of exceed the	reach t reach t reach t reach t reach t reach t d at 12 l be wir m 7.3 an 10 ti be within m 7.3 ciffied v	thin $\pm 25\%$ mes of its n $\pm 10\%$ of alue.	uilibriu uilibriu uilibriu uilibriu of its specif f its or	um um origina ied valiginal	ue. value.	450 6
10	Surge test	series for 30±: 1000 times. The before measur CR: Nomina <criteria> Leakage cu Capacitance Dissipation Appearance Attention: This test sin</criteria>	Condition> Applied a surge voltage to the capacitor connected with a (100 ± 50) /CR (k Ω ries for 30 ± 5 seconds in every 5 ± 0.5 minutes at $15\sim 35^{\circ}$ C. Procedure shall be repead 000 times. Then the capacitors shall be left under normal humidity for 1-2 hours effore measurement R: Nominal Capacitance (μ F) Criteria> Leakage current							ated		



11	ITEM	PERFORMANCE							
		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	ature (+105°C)	30±2 Minutes					
		(1) to $(3) = 1$ cycle, total	al 5 cycle						
		Criteria> The characteristic shall meet Leakage current	t the following requirem Not more than the						
		Dissipation Factor							
			Appearance	There shall be no le	eakage of electrolyte.				
12	Damp heat test	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</criteria>	in an atmosphere of 90- nange shall meet the foll Not more than the sp Within ±10% of initia	295%R H .at owing requirement. ecified value. al value. of the specified value.					
13	Solderability test	Dipping depth : 2 Dipping speed : 2	45 ±5°C mm 5±2.5mm/s ±0.5 s Less than 3s	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°				
		<criteria> To be soldered</criteria>				
		After the test, the following items shall be tested: No intermittent contacts, open or short circuiting.				
		Inner construction No damage of tab terminals or electrodes. No mechanical damage in terminal. No leakage				
		Appearance 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 test	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. Table 2>				
16		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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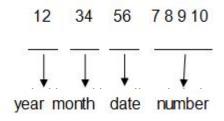


8. Packing Information

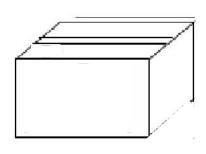
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(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:



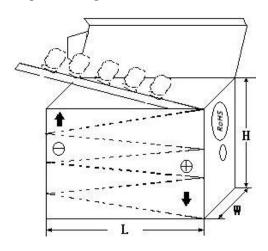
1) Bulk Packing:



3) Outer box



2) Taped Packing:



4) Outer box label:

C.S.R:		Ltd.		
C.S.R P/C):		ROHS HE	
C.S.R P/N	: 2			
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 Lead and lead compounds heavy metal Margury and margury compounds							
~							
heavy metal Margury and margury compands							
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)							
Other chlorinated organic compounds							
Organic 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 SK035M0100AZS-0611

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

NEV4700M35HI NEV4.7M100BA NEV47M16BA NEV47M50CB-BULK