



CONDUCTIVE POLYMER ALUMINUM ELECTROLYTIC CAPACITORS

承 认 书

DATA SHEET

Customer name: _____

BERYL SERIES: CT TYPE: SMD

DESCRIPTION : 100μF/25V ΦD6.3*7.7L

Apply date : 2020-09-18

BERYL			CUSTOMER		
P/N:			P/N:		
PREPARED	CHECKED	APPROVAL	PREPARED	CHECKED	APPROVAL
李妍芳	何东石	伍小军			

Zhao Qing Beryl Electronic Technology Co., Ltd.

TEL: (0758) 2862871 FAX: (0758) 2862870

E-mail: master@zq-beryl.com <http://www.zq-beryl.com>

NO.8 DUANZHOU ROAD, ZHAOQING CITY. GUANGDONG. CHINA

After the product certification, please sign a copy, if you do not sign the acknowledgment before the formal order, it is considered that the user has defaulted our relevant standards and technical indicators.



CONDUCTIVE POLYMER ALUMINUM ELECTROLYTIC CAPACITORS

Revise record

[illegible]



CONDUCTIVE POLYMER ALUMINUM ELECTROLYTIC CAPACITORS

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℃	WV(V)	Size	Temperature (℃)	Life(hours)
CT	100	25	6.3*7.7	-55-125℃	2000
DF (%) (MAX) 120Hz/20℃	LC(μA) (MAX) 2min/20℃	ESR(mΩ) (MAX) 100KHz/20℃	RC (mArms) (MAX)100KHz	Surge voltage(V)	
12	500	50	560	28.75	

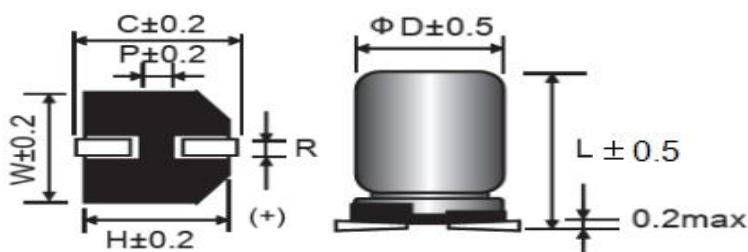
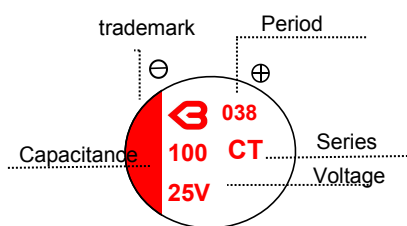
Other:

Frequency Multipliers:

Frequency(Hz)	60Hz	120HZ≤f < 1KHZ	1KHZ≤f < 10KHZ	10KHZ≤f < 100KHZ	100KHZ≤f < 500KHZ
Coefficient	0.04	0.05	0.30	0.70	1.00

3、Product Dimensions

Standard Type



ΦD	L	C	H	W	P	R
6.3±0.5	7.7±0.5	7.3±0.2	6.6±0.2	6.3±0.2	2.1±0.2	0.5~0.8



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4、Part Number

CT	025	M	101	SMD	6.3*7.7
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Size:D*L

TYPE CODE DESCRIPTION

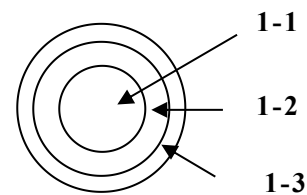
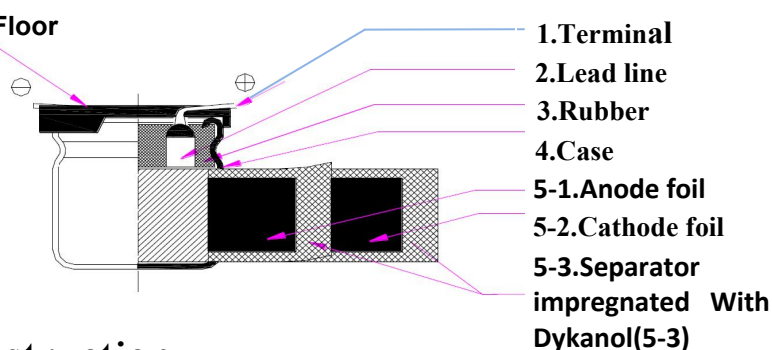
RATED CAPACITANCE:101=100uF

CAPACITANCE TOLERANCE:M=±20%

RATED VOLTAGE: 025=25V

SERIES NAME

6.Floor



1-1.Fe

1-2. Copper plate (≥10um)

1-3.Tin Plate(12±2um)

5、Construction

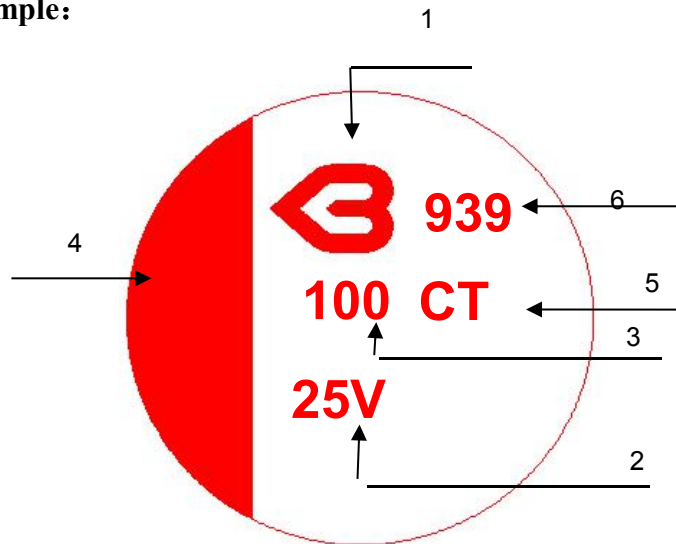
Item	Composition	Material name	Supplier name
1	Terminal	Tinned copper-ply wire	Japan-Funded Enterprises
2	Lead line	Aluminum, 99.95% or 99.97%	Nan Ming(Quan Yong)、Jin Lian Fu
3	Rubber	RE IIR rubber	Lian An, Lian Hua Xin
4	Case	Aluminum, 99.8%	Yi Pend、Ao Xing、Yuan Kang
5-1	Anode Foil	Formed aluminum, 99.99% or 99.98%	KDK、Heng Yang、JCC
5-2	Cathode Foil	Etched aluminum, 99.7% or 99.4%	JCC、TOYO、Na Nuo
5-3	Separator	Manila, pulp,kraft, etc	KAN、NKK
5-4	Dielectrics	Poly3,4-Ethylene Dioxy Thiophene	BERYL
6	Floor	PPS	JS Co. (KOREA) Gang Shan



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6、Product Marking

Marking Sample:



Marking Details:

Capacitor shall be marked the following items:

- 1) Trademark (BERYL)
- 2) working voltage
- 3) Nominal capacitance
- 4) Cathode marked
- 5) Series
- 6) Date code

9: Manufactured year 2019

Code	9	0	1	2	3	4	5	6
Year	2019	2020	2021	2022	2023	2024	2025	2026

16: 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°C ± 2°C

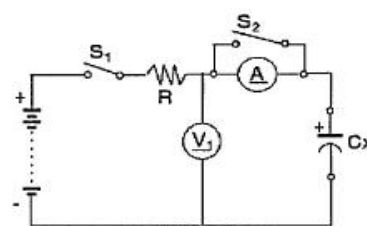
Relative humidity : 60% to 70%

Air pressure : 86kPa to 106kPa

Operating temperature range

The ambient temperature range at which the capacitor can be operated continuously at rated voltage is -55°C to +125°C.

Table

ITEM		PERFORMANCE
1	Nominal capacitance (Tolerance)	<p><Condition> Measuring Frequency: 120Hz±12Hz Measuring Voltage: Not more than 0.5Vrms +1.5~2.0V.DC Measuring Temperature: 20±2°C</p> <p><Criteria> Shall be within the specified capacitance tolerance.</p>
2	Leakage current	<p><Condition> Connecting the capacitor with a protective resistor (1kΩ±10Ω) in series for 2 minutes, and then, measure leakage current.</p> <p><Criteria> I: Leakage current (μA) $I (\mu A) \leq 0.2CV \text{ or } 500\mu A (\mu A)$ whichever is greater, measurement circuit refer to right drawing. C: Capacitance (μF) V: Rated DC working voltage (V)</p> 
3	Dissipation factor	<p><Condition> Nominal capacitance, for measuring frequency, voltage and temperature.</p> <p><Criteria> Must be within the parameters (See page 3)</p>



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ITEM		PERFORMANCE																	
4	Equivalent Series Resistance	<p><Condition> Measuring frequency:100kHz; Measuring temperature:20±2℃ Measuring point: 2mm max. from the surface of a sealing rubber on the lead wire.</p> <p><Criteria> (20℃) Must be within the parameters (See page 3)</p>																	
5	Load life test	<p><Condition> According to IEC60384-4No. 4.13 methods, the capacitor is stored at a temperature of Maximum operating temperature ±2℃ with DC bias voltage for Rated life +48/0hours. Then the product should be tested after 16 hours recovering time at atmospheric conditions. The result should meet the following table:</p> <p><Criteria> The characteristic shall meet the following requirements.</p> <table><tr><td>Leakage current</td><td colspan="2">Not more than the specified value.</td></tr><tr><td>Capacitance Change</td><td colspan="2">Within ±30% of initial value.</td></tr><tr><td>Dissipation Factor</td><td colspan="2">Not more than 200%of the specified value.</td></tr><tr><td>Equivalent Series Resistance</td><td colspan="2">Not more than 200%of the specified value.</td></tr><tr><td>Appearance</td><td colspan="2">There shall be no leakage of electrolyte.</td></tr></table>			Leakage current	Not more than the specified value.		Capacitance Change	Within ±30% of initial value.		Dissipation Factor	Not more than 200%of the specified value.		Equivalent Series Resistance	Not more than 200%of the specified value.		Appearance	There shall be no leakage of electrolyte.	
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6	Shelf life test	<p><Condition> The capacitors are then stored with no voltage applied at a temperature of Maximum operating temperature±2℃ 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</p> <p><Criteria> The characteristic shall meet the following requirements.</p> <table><tr><td>Leakage current</td><td colspan="2">Not more than the specified value</td></tr><tr><td>Capacitance Change</td><td colspan="2">Within ±30% of initial value.</td></tr><tr><td>Dissipation Factor</td><td colspan="2">Not more than 200%of the specified value.</td></tr><tr><td>Equivalent Series Resistance</td><td colspan="2">Not more than 200%of the specified value.</td></tr><tr><td>Appearance</td><td colspan="2">There shall be no leakage of electrolyte.</td></tr></table>			Leakage current	Not more than the specified value		Capacitance Change	Within ±30% of initial value.		Dissipation Factor	Not more than 200%of the specified value.		Equivalent Series Resistance	Not more than 200%of the specified value.		Appearance	There shall be no leakage of electrolyte.	
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7	Terminal strength	<p><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° within 2~3 seconds, and then bent it for 90° to its original position within 2~3 seconds.</p> <table><tr><td>Diameter of lead wire</td><td>Tensile force N (kgf)</td><td>Bending force N (kgf)</td></tr><tr><td>0.5mm and less</td><td>5 (0.51)</td><td>2.5 (0.25)</td></tr><tr><td>0.6~0.8 mm</td><td>10 (1.02)</td><td>5 (0.51)</td></tr></table> <p><Criteria> No noticeable changes shall be found, no breakage or looseness at the terminal.</p>			Diameter of lead wire	Tensile force N (kgf)	Bending force N (kgf)	0.5mm and less	5 (0.51)	2.5 (0.25)	0.6~0.8 mm	10 (1.02)	5 (0.51)						
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ITEM		PERFORMANCE																							
8	Temperature characteristics	<Condition> <table><tr><th>STEP</th><th>Testing temperature (°C)</th><th>Time</th></tr><tr><td>1</td><td>20±2</td><td>Time to reach thermal equilibrium</td></tr><tr><td>2</td><td>(-55)-25±3</td><td>Time to reach thermal equilibrium</td></tr><tr><td>3</td><td>20±2</td><td>Time to reach thermal equilibrium</td></tr><tr><td>4</td><td>125±2</td><td>Time to reach thermal equilibrium</td></tr><tr><td>5</td><td>20±2</td><td>Time to reach thermal equilibrium</td></tr></table> <p>Capacitance, DF, and impedance shall be measured at 120Hz.</p> <Criteria> <p>a. At +125°C, capacitance measured at +20°C shall be within ±25% of its original value. Dissipation factor shall be within the specified value The leakage current measured shall be within the specified value.</p> <p>b. In step 5, capacitance measured at +20°C shall be within ±10% of its original value. Dissipation factor shall be within the specified value The leakage current measured shall be within the specified value.</p> <p>c. At- 55°C/ (20°C), Impedance (Z) ratio shall not exceed the value of the following table.</p> <table><tr><td>Z-25°C/Z+20°C</td><td>≦ 1.25</td><td rowspan="2">(100KHz)</td></tr><tr><td>Z-55°C/Z+20°C</td><td>≦ 1.25</td></tr></table>	STEP	Testing temperature (°C)	Time	1	20±2	Time to reach thermal equilibrium	2	(-55)-25±3	Time to reach thermal equilibrium	3	20±2	Time to reach thermal equilibrium	4	125±2	Time to reach thermal equilibrium	5	20±2	Time to reach thermal equilibrium	Z-25°C/Z+20°C	≦ 1.25	(100KHz)	Z-55°C/Z+20°C	≦ 1.25
		STEP	Testing temperature (°C)	Time																					
		1	20±2	Time to reach thermal equilibrium																					
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		Z-25°C/Z+20°C	≦ 1.25	(100KHz)																					
		Z-55°C/Z+20°C	≦ 1.25																						
		9	Surge test	<Condition> <p>Applied a surge voltage to the capacitor connected with a (100 ±50)/CR (kΩ) resistor in 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 (μF)</p> <Criteria> <table><tr><td>Leakage current</td><td>Not more than the specified value.</td></tr><tr><td>Capacitance Change</td><td>Within ±15% of initial value.</td></tr><tr><td>Dissipation Factor</td><td>Not more than the specified value.</td></tr><tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr></table> Attention: <p>This test simulates over voltage at abnormal situation only. It is not applicable to such over voltage as often applied.</p>	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.													
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ITEM		PERFORMANCE										
10	Change of temperature test	<Condition> Temperature cycle: According to IEC60384-4 No.4.7 methods, capacitor shall be placed in an oven, the condition according as below:										
		<table><tr><th>Temperature</th><th>Time</th></tr><tr><td>(1) +20℃</td><td>3 Minutes</td></tr><tr><td>(2) Rated low temperature (- 55℃) (-25℃)</td><td>30±2 Minutes</td></tr><tr><td>(3) Rated high temperature (+125℃)</td><td>30±2 Minutes</td></tr><tr><td colspan="2">(1) to (3) =1 cycle, total 5 cycle</td></tr></table>	Temperature	Time	(1) +20℃	3 Minutes	(2) Rated low temperature (- 55℃) (-25℃)	30±2 Minutes	(3) Rated high temperature (+125℃)	30±2 Minutes	(1) to (3) =1 cycle, total 5 cycle	
		Temperature	Time									
		(1) +20℃	3 Minutes									
		(2) Rated low temperature (- 55℃) (-25℃)	30±2 Minutes									
(3) Rated high temperature (+125℃)	30±2 Minutes											
(1) to (3) =1 cycle, total 5 cycle												
<Criteria> The characteristic shall meet the following requirement.												
<table><tr><td>Leakage current</td><td>Not more than the specified value.</td></tr><tr><td>Dissipation Factor</td><td>Not more than the specified value.</td></tr><tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr></table>	Leakage current	Not more than the specified value.	Dissipation Factor	Not more than the specified value.	Appearance	There shall be no leakage of electrolyte.						
Leakage current	Not more than the specified value.											
Dissipation Factor	Not more than the specified value.											
Appearance	There shall be no leakage of electrolyte.											
11	Damp heat test	<Condition> Humidity test: 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℃, the characteristic change shall meet the following requirement.										
		<Criteria>										
		<table><tr><td>Leakage current</td><td>Not more than the specified value.</td></tr><tr><td>Capacitance Change</td><td>Within ±10% of initial value.</td></tr><tr><td>Dissipation Factor</td><td>Not more than 150% of the specified value.</td></tr><tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr></table>	Leakage current	Not more than the specified value.	Capacitance Change	Within ±10% of initial value.	Dissipation Factor	Not more than 150% of the specified value.	Appearance	There shall be no leakage of electrolyte.		
		Leakage current	Not more than the specified value.									
		Capacitance Change	Within ±10% of initial value.									
Dissipation Factor	Not more than 150% of the specified value.											
Appearance	There shall be no leakage of electrolyte.											
12	Solderability test	<Condition> The capacitor shall be tested under the following conditions: Soldering temperature : 245 ±5℃ Dipping depth : 2mm Dipping speed : 25±2.5mm/s Dipping time : 3±0.5s										
		<Criteria>										
		<table><tr><td>Soldering wetting time</td><td>Less than 3s</td></tr><tr><td>Coating quality</td><td>A minimum of 95% of the surface being immersed</td></tr></table>	Soldering wetting time	Less than 3s	Coating quality	A minimum of 95% of the surface being immersed						
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		Coating quality	A minimum of 95% of the surface being immersed									



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ITEM		PERFORMANCE																										
13	Resistance to solder heat test	<p><Condition></p> <p>Terminals of the capacitor shall be immersed into solder bath at 260±5℃ for 10±1 seconds or 400±10℃ for 3~0 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.</p> <p><Criteria></p> <table><tr><td>Leakage current</td><td>Not more than the specified value.</td></tr><tr><td>Capacitance Change</td><td>Within ±5% of initial value.</td></tr><tr><td>Dissipation Factor</td><td>Not more than the specified value.</td></tr><tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr></table> <p>Recommendable reflow condition</p> <p>Reflow profile</p> <div></div> <table><tr><td>Peak temperature of the top and terminals of a capacitor</td><td>250℃ and less</td><td>260℃ and less</td></tr><tr><td>Pre-heating</td><td>150℃ to 180℃</td><td>90±30 seconds</td></tr><tr><td>Time of being at 200℃ and higher</td><td>Within 60 seconds</td><td>Within 60 seconds</td></tr><tr><td>Time of being at 220℃ and higher</td><td>Within 50 seconds</td><td>Within 50 seconds</td></tr><tr><td>Time of being at 230℃ and higher</td><td>Within 40 seconds</td><td>Within 40 seconds</td></tr><tr><td>The number of reflow</td><td>Twice or less</td><td>Only 1 time</td></tr></table>	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.	Peak temperature of the top and terminals of a capacitor	250℃ and less	260℃ and less	Pre-heating	150℃ to 180℃	90±30 seconds	Time of being at 200℃ and higher	Within 60 seconds	Within 60 seconds	Time of being at 220℃ and higher	Within 50 seconds	Within 50 seconds	Time of being at 230℃ and higher	Within 40 seconds	Within 40 seconds	The number of reflow	Twice or less	Only 1 time
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**CONDUCTIVE POLYMER ALUMINUM ELECTROLYTIC CAPACITORS****8、 Packing Information**

Packing Label Marked (the following items shall be marked on the label)

(Inside box or bag)

(1)Client 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 :

12 34 56 7 8 9 10

↓ ↓ ↓ ↓
year month date number



CONDUCTIVE POLYMER ALUMINUM ELECTROLYTIC CAPACITORS

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	Cadmium and cadmium compounds
	Lead and lead compounds
	Mercury and mercury compounds
	Hexavalent chromium compounds
Organic chlorine compounds	Polychlorinated biphenyls (PCB)
	Polychlorinated naphthalenes (PCN)
	Polychlorinated terphenyls (PCT)
	Chlorinated paraffins (CP)
	Other chlorinated organic compounds
Organic bromine compounds	Polybrominated biphenyls (PBB)
	Polybrominated diphenylethers (PBDE)
	Other brominated organic compounds
Tributyltin compounds	
Triphenyltin compounds	
Asbestos	
Specific azo compounds	
Formaldehyde	
Polyvinyl chloride (PVC) and PVC blends	
F、Cl、Br、I	
REACH	

Test Report

Series	CT	Spec.	100uF/25V	Size(mm)	6.3*7.7
Cap tolerance	±20%	Work temperature	125℃	Color of Tube	Red printing
Test date	2020-09-17	Test humidity	57%	Test temperature	26.1℃

Items	Cap (μF)	D.F (%)	L.C (μA)	ESR (mΩ)	Appearance
SPEC NO.	80~120 (120Hz)	≤ 12 (120Hz)	≤ 500 (2min)	≤ 50 (100KHz)	
1	94.87	1.73	15	34.33	OK
2	94.32	1.75	7	33.71	OK
3	95.11	1.82	23	37.06	OK
4	95.70	1.78	10	34.74	OK
5	94.85	1.74	8	32.23	OK
6	95.32	1.71	31	31.44	OK
7	95.29	1.81	16	36.03	OK
8	95.41	1.77	9	34.48	OK
9	94.61	1.84	14	35.00	OK
10	96.69	1.78	6	34.16	OK
Opinion					
Approve: 伍小军		Audit: 何东石		Test: 唐积君	