Battery Specification
电池规格书

Product Type/产品类型:	Li-ion Cylindrical Rechargeable Battery 锂离子圆柱可充电电池组
Product a2ŘŜt/产品型号:	ϕϕTTOΠЛУНϕЛ
Product No/产品料号:	RH5G09010132

编制 :_____ 日期:_____
Created Date

标准化 :_____ 日期:_____
Standardized Date

审核 :_____ 日期:_____
Checked Date

项目经理 :_____ 日期:_____
Project manager Date

批准 :_____ 日期:_____
Approved Date

客户 **Customer**	**确认 Confirm**	**批准 Approved**

Revision history/修订记录

Version	Prepared by	Date	Approval by	Remark
V1.0	Guoxiong You	2023.10.12	Yawang Jie	First Edition
V1.1	Guoxiong You	2023.10.26	Yawang Jie	1、更新产品型号； 2、更新安规&认证要求； 3、更新输出电压范围和出厂电压范围； 4、更新容量指标表； 1. Update Product Name； 2. Update Safety Regulations & Certification Requirement； 3. Update Output Voltage Range and Shipment Voltage； 4. Update Capacity indicators table.
V1.2	Guoxiong You	2023.11.02	Yawang Jie	1、补充 UL2595 认证； 2、增加连接器 pin 针型号。 1、Supplement UL2595 certification； 2、Increase connector pin type.
V1.3	Guoxiong You	2023.11.22	Yawang Jie	1、更换电芯； 2、更新硬件参数； 3、新增线束信息。 1. Replace the cell; 2. Update hardware parameters; 3. New wiring harness information.
V1.4	Guoxiong You	2023.12.01	Yawang Jie	1、放电过流延时时间、温度保护参数调整为原值； 2、规格书模板更新，产品料号更新。 1. Discharge overcurrent delay time and temperature protection parameters are adjusted to their original values; 2. Specification template updated,product No updated.

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Contents /内容

1. Scope/范围

The specification describes the requirements for 9.773-082.0 Rechargeable Li-Ion battery pack. Battery supplied by Fujian SCUD Power Technology Co., Ltd.
本规格书适用于 9.773-082.0 锂离子电池组，由福建飞毛腿动力科技有限公司生产。

2. Standard compliance/参考标准

UN38.3、UL2054+UL62368、WERCS、UL2595（Test with the machine）.

3. Product name and model/产品型号名称

3.1 Product Name/产品名称

Li-ion Cylindrical Rechargeable Battery

3.2 Product Model/产品型号

9.773-082.0

3.3 Series parallel Construction/串并联结构

4S1P

4. Typical Characteristics/主要参数

4.1 Cell Characteristics/电芯参数

Supplier /电芯厂家	Cell Model /电芯型号	Nominal Voltage /标称电压	Rated capacity /额定容量（mAh）	Cell Impedance /电芯内阻
LGES	Lithium-ion Rechargeable Cell Model : INR18650MH1	3.7 V	3200 (Standard.) 3100 (Min.）	≤ 40 mΩ （AC IR）

4.2 Battery Characteristics/电池组参数

No.	Item	Specification	Remarks
4.2.1	Nominal Capacity /标称容量	3000mAh /44.4Wh	Capacity test with standard charge and standard discharge at 23℃±2℃
	Rated Capacity /额定容量	3000mAh/44.4Wh	
4.2.2	Nominal voltage /标称电压	14.8V	
4.2.3	Charge method /充电模式	CC/CV	
4.2.4	Limited charging Voltage /充电限制电压	16.8V	
4.2.5	Upper Limited charging Voltage /充电上限电压	17V	Upper limit of safe charging voltage of battery pack

				/电池组安全充电电压上限
4.2.6	End of discharge Voltage /放电终止电压		11V	Cut-off voltage is 2.75V/cell
4.2.7	Discharge cut-off voltage /放电截止电压		10V	Cut-off voltage is 2.5V/cell
4.2.8	Standard Charge Current /标准充电电流		1500mA（0.5C5A）	Standard Charge Current (Recommend charging current)
4.2.9	Max. Charging Current /最大充电电流		3000mA	/
4.2.10	Standard Discharge Current /标准放电电流		600mA（0.2C5A）	23±2°C , 65%±20% RH (Recommend discharging current)
4.2.11	Max. Continuous Discharge Current /最大持续放电电流电电流		1500mA	Fast Discharge Current (Maximum discharging current at -20~10℃， operating cell surface temperature)
			4000mA	Fast Discharge Current (Maximum discharging current at 10~60℃， operating cell surface temperature)
4.2.12	Max. Pulse Discharge Current /最大瞬时放电电流		10A（<7ms）	
4.2.13	Weight (g) /重量		About 201.16 g	
4.2.14	Shipping OCV /出厂电压		15.7V~16.2V	About 75~85% SOC.
4.2.15	Internal impedance /内阻		140~220mΩ	AC 1kHz
4.2.16	Operation Temperature /工作环境温度	Charge	+7~+43℃	/
		Discharge	-13~+58℃	/
4.2.17	Operating Cell surface temperature /工作电芯表面温度	Charge	+3~+47℃	/
		Discharge	-17~+62℃	/
4.2.18	Storage temperature /存储温度	Within 1 month	-20～+60℃	长时间储存前要保证电量超过30%. Make sure that the SOC exceeds 30% before long storage.
		Within 3 month	-20～+45℃	
		Within 1 year	-20～+25℃	
4.2.19	Cell sorting specifications /电芯分选规格		≤5mV/5mΩ	Voltage difference/Impedance difference

5. Performance/性能

5.1 Electrical characteristics/电气性能

Items	Conditions and others	Performances
Environment /环境	Unless otherwise specified, all test stated in this specification are conducted at ： 1)temperature: 23±2℃; 2)humidity: ≤75% RH ; 3)atmospheric pressure：86kPa~106kPa /除非另有规定，本规范中规定的所有试验均在： 1)温度:23±2℃; 2)湿度:≤75%; 3)大气压力:86 kpa ~ 106 kpa	
Measure Equipment /测试设备	1）Ammeter and Voltmeter: The ammeter and voltmeter should have an accuracy of the grade 0.2 or higher. 2)Slide caliper: The slide caliper should have less than 0.05mm scale. 3)Impedance meter: The impedance meter with AC 1kHz should be used. /1)电流表和电压表: 电流表和电压表应具有 0.2 级或更高的精度。 2)游标卡尺: 游标卡尺的刻度应小于 0.05mm。 3)阻抗计: 应使用交流 1kHz 阻抗计。	
Standard Charge /标准充电	Under the environment temperature of 23±2℃, charging at 0.5C5A, when the pack terminal voltage reaches the charging limiting voltage, it is changed to constant voltage and charging cut-off current is 50 mA. /在环境温度 23±2℃条件下，以 0.5C_5A 充电，当电池组端电压达到充电限制电压时，改为恒压充电，充电截止电流 50 mA。	

Standard Discharge Capacity /标准放电容量	Within 10min after standard charge, discharge with 0.2C_5A to end of discharging voltage at 23±2℃. repeat charge and discharge for 2times. The smaller value of the capacity after 2 cycles is taken as the standard discharge capacity. /电池组按标准充电后搁置 10 分钟后，在 23±2℃的温度下以 0.2C_5A 电流放电到放电终止电压。上述实验可以重复 2 次，取两次充放电完整循环后容量的较小值作为标准放电容量。	New production battery discharge capacity ≥Rated capacity /新生产电池放电容量≥额定容量
High Temperature Discharge /高温放电	After standard charged, battery should be stored in a temperature-controlled chamber at 45±2℃ for 2 hours. after storage, battery should be discharged with 0.2C_5A to end of discharging voltage. /电池组按标准充电结束后，将电池组放入 45℃±2℃的高温箱中恒温 2h，然后以 0.2C_5A 电流放电至放电终止电压。	Discharge capacity ≥95% Rated capacity /放电容量≥95%额定容量
Low Temperature Discharge /低温放电	After standard charged, battery should be stored in a temperature-controlled chamber at 0±2℃ for 4 hours. after storage, battery should be discharged with 0.2 C_5A to end of discharging voltage. /电池组按标准充电结束后，将电池组放入 0℃±2℃的低温箱中恒温 4h 后，以 0.2 C_5A 电流放电至放电终止电压。	Discharge capacity ≥85% Rated capacity /放电容量≥85%额定容量

Storage Characteristics (30 days) /荷电保持容量（30 天）	Under the environment temperature of 24℃±2℃, the fully-charged battery pack is stored open-circuit for 30 days, and then discharged with 0.2 C5A to the end of discharging voltage under the environment temperature of 24℃±2℃, and the discharging capacity needs to meet the specified requirements. /在环境温度为 24℃±2℃条件下，将充满电电池组开路搁置 30 天后，在 24℃±2℃的环境温度下以 0.2 C_5A 放电至放电终止电压，放电容量需要满足规定要求。	Remaining Capacity (after the storage) ≥90% of the standard discharge capacity; /储存后的剩余容量为标准放电容量的 90%以上
Cycle Life /循环寿命	Charge at 16.8V/0.5C(1500mA), fully charged at 50mA cut off, then discharge at 0.5C(1500mA) until it reaches 11V or protection action. Repeat this cycle in a standard environment and leave it for 30 minutes after charging and 30 minutes after discharging. When the battery discharge capacity is less than 70% of the rated capacity for 3 consecutive times, stop the test and record the discharge capacity. /按 16.8V/0.5C(1500mA)充电, 50mA 截止条件充满电后，以 0.5C(1500mA)电流放电，直至达到 11V 或保护动作。在标准环境下重复此循环，充电保后静置 30 分钟，放电后静置 30 分钟。当电池放电容量连续 3 次低于额定容量的 70%时，停止试验，记录放电容量。	The life of the battery is not less than 500 cycles. /电池的使用寿命不少于 500 次

5.2 Environmental Safety Test/环境安全试验

Items	Conditions and others	Performances
Low Pressure /低气压	The standard charged battery is to be stored in the vacuum chamber. After close the vacuum chamber, then reduce the pressure, until the internal pressure is no more than 11.6kPa(simulated altitude 15240m), and keep for 6 hours. One cycle discharging/charging follow Spec. standard charge and discharge after low pressure test. /充满电的电池组，将其搁置在真空箱中。真空箱密闭后，逐渐减少其内部压力至不高于 11.6kPa(模拟海拔 15240m)并保持 6 小时。 试验后按照规格书定义标准充放电进行一次放电充电循环。	The battery should be no leakage, no venting, no rupture, no fire or no explosion. /电池组应不泄露、不泄气、不破裂、不起火和不爆炸。
Thermal Shock /温度循环	After the battery pack is fully charged, put the battery pack into the temperature-controlled chamber, 1) Keep it in the temperature-controlled chamber at a temperature of 72℃±2℃ for 6 hours; 2) Reduce the temperature of the temperature-controlled chamber to -40℃±2℃ and keep it for 6 hours; 3) Temperature conversion time is less than 30 minutes; 4) Repeat steps 1) ~ 2) for a total of 10 cycles. /电池组充满电后，将电池组放入温控箱中， 1）在温度 72℃±2℃的温控箱中保持 6 小时 2）将温控箱温度降为–40℃±2℃，保持 6 小时 3）温度转换时间不大于 30 分钟 4）重复步骤 1）~2），共循环 10 次。	The battery should be no leakage, no venting, no rupture, no fire or no explosion. /电池组应不泄露、不泄气、不破裂、不起火和不爆炸。
Vibration /震动试验	After the battery pack has been charged as specified, the battery pack is fixed on the shaking table without deforming the battery pack. Adopt sine wave for vibration, and sweep the frequency from 7Hz to 200Hz and back to 7Hz in 15mins in a logarithmic	OCV ≥ 90% initial OCV (open circuit voltage). The battery should be no leakage, no venting, no rupture, no fire or no explosion. /开路电压不低于初始电压 90%,并

	sweeping mode, vibrate along the three directions perpendicular to each other of the sample (one of the directions must be perpendicular to the plane of the sample where the positive and negative poles are located), and repeat the vibration for 12 times according to the above mentioned logarithmic sweeping mode in each direction, vibrate for 3h. The logarithmic sweeping mode is as follows: keep the peak acceleration at 7Hz to 18Hz, and the peak acceleration at 9.8m/s2. 9.8m/s2 peak acceleration. Keep the amplitude at 0.8mm (displacement 1.6mm) until the peak acceleration reaches 78.4m/s2 (frequency about 50Hz). Maintain the peak acceleration of 78.4m/s2 until the frequency grows to 200Hz. /电池组按规定充电结束后，将电池组固定在振动台上，不可使电池组变形。采用正弦波进行振动，并以对数扫频方式在 15mins 内从 7Hz 扫频到 200Hz 并返回到 7Hz。振动沿样品互相垂直的三个方向（其中一个方向必须与样品正负极所在平面垂直）进行，每个方向按上述对数扫频方式重复 12 次，振动 3h。对数扫频方式如下：7Hz～18Hz 保持 9.8m/s2 的峰值加速度。将振幅保持在 0.8mm（位移为 1.6mm）直至峰值加速度达到 78.4m/s2（频率约为 50Hz）。保持 78.4m/s2 的峰值加速度直到频率增长到 200Hz。	能进行正常的充放电。电池组应不泄露、不泄气、不破裂、不起火和不爆炸。

Acceleration Test /加速度冲击	A standard charged battery is to be firmly secured to the platform of acceleration test equipment. Each shock is to be applied in a direction normal to the face of the battery. For each shock the cell is to be accelerated in such a manner that during the initial 3 milliseconds the minimum average acceleration is 75g.N. The peak acceleration should be between 125 and 175g. N. The acceleration shock test last for 6+/-1ms. After testing, charge and discharge the battery with standard method. /电池组按规定充电结束后，固定在冲击台上，最初 3ms 内，最小平均加速度为 75g.N,峰值加速度为 150+/-25g.N,持续脉冲时间为 6+/-1ms,电池组每个方向进行三次加速度冲击。测试后，电池组按标准充电方式进行一次放电充电循环。	The battery should be no fire, no explosion, or no leakage. /电池组应不起火，不爆炸，不漏液。
Drop Test /跌落试验	The battery is to be dropped down to concrete(or steel plate) from a height of 1m for 6 times (with direction X,Y,Z each 1 times). Discharge with 0.2 C_5A to end of discharging voltage，then with standard charge and discharge . /电池组按规定充电结束后，将电池组样品由高度为 1m 的位置自由跌落到水泥地板或钢板上，从 X、Y、Z 正负方向（六个方向）每个方向自由跌落 1 次。自由跌落结束后，将电池组以 0.2C_5A 电流放电至放电终止电压，然后进行充放电循环。	OCV≥90% initial OCV（open circuit voltage）and can charge and discharge. The battery should be no leakage, no fire or no explosion. /开路电压不低于初始电压 90%,并能进行正常的充放电。电池组应不泄露、不起火和不爆炸。
High temperature stress relieving (Applicable for the thermoplastic shell battery for injection molding.) /高温应力消除 (注塑成型的热塑	The standard charged battery is to be placed in a 70+/-2 ℃ circulating air oven for 7 hours. After finishing the test, remove it and restore to room temperature. /将电池组按照标准充电方法充满电后，在 70+/-2℃的鼓风恒温箱中搁置 7h，取出并恢复至室温。	The battery does not result in the physical deformation that causes the internal components to be exposed or affect safety. /外壳不能发生导致内部组成暴露或影响安全的物理变形。

性外壳电池适用)		
Using at high temperature /高温使用	The standard charged battery is to be placed in the high temperature experiment box, temperature is set as the battery charging upper-limit temperature, or battery discharging upper-limit temperature, or cell charge upper-limit temperature, or cell discharge upper-limit temperature, which specified in the specification, or 80 ℃,choose the highest one, and keep for 7 hours after waiting for the sample surface temperature stability. /将满电样品置于高温实验箱内，将高温箱温度设为规格书定义的电池组组充电上限温度，电池组组放电上限温度，电芯充电上限温度，电芯放电上限温度，以及 80℃中的最大值，待样品表面温度稳定后保持 7h。	The battery should meet one of the requirement: 1)Not discharge, store in the high temperature experiment box , there should be no fire, no explosion, or no leakage. 2)Connect with charge/discharge device, conducted with a standard discharge/charge cycle. /样品应满足下列条件之一： 1)切断放电电路，电池组应不起火，不爆炸，不漏液； 2)未切断电路，在高温中按规格书进行一次标准放电充电循环。

5.3 BMS Specification/保护板规格

5.3.1 Function of BMS/保护板参数

Items (at 25℃)	**Unit**	**Min.**	**Typ**	**Max.**	**Remark**
1st Over charge detection voltage /一级过充电保护电压	V	4.20	4.225	4.25	
1st Over charge detection delay time /一级过充电保护延迟时间	s	0.80	1.00	1.20	
1st Overcharge release voltage /一级过充保护恢复电压	V	4.10	4.125	4.15	
1st Over discharge detection voltage /一级过放电保护电压	V	2.67	2.70	2.73	
1st Over discharge detection delay time /一级过放电保护延迟时间	s	0.80	1.00	1.20	
1st Over discharge release voltage /一级过放电保护解除电压	V	2.90	3.0	3.10	
Charge over current detection current /充电过电流保护值	A	3.1	4	5.1	Discharge release /放电解除
Charge over current detection delay time /充电过电流保护延迟时间	s	0.40	0.50	0.60	
Discharge over current detection current 1 /放电过电流保护值 1	A	8.8	10	11.2	Charge release /充电解除
Discharge over current detection delay time 1 /放电过电流保护延迟时间 1	ms	7	10	13	
Discharge over current detection current 2 /放电过电流保护值 2	A	17.6	20	22.4	Charge release /充电解除
Discharge over current detection delay time 2 /放电过电流保护延迟时间 2	ms	0.7	1	1.3	
Short circuit protection current /短路保护值	A	35	40	45	
Short circuit protection current delay time /短路保护延迟时间	us	160	200	600	
Charge over temperature protection /充电高温保护值	℃	44	47	50	
Charge over temperature protection release /充电高温保护恢复值	℃	39	42	45	
Charge under temperature protection /充电低温保护值	℃	0	3	6	

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Charge under temperature protection release /充电低温保护恢复值	℃	5	8	11	
Discharge over temperature protection /放电高温保护值	℃	59	62	65	
Discharge over temperature protection release /放电高温保护恢复值	℃	49	52	55	
Discharge under temperature protection /放电低温保护值	℃	-20	-17	-14	
Discharge under temperature protection release /放电低温保护恢复值	℃	-15	-12	-9	
Temperature protection and release delay time /温度保护和恢复延时时间	s	1	2	3	
0V charging disable/ 0V 充电禁止电压	V	1.4	1.5	1.6	
Operating Current Consumption /工作功耗	μA	-	30	50	
Under-voltage Current Consumption/欠压功耗	μA	-	-	30	
Output NTC/输出端 NTC	kΩ	-	10	-	B=3435K，@25℃
2st Over charge detection voltage /二段过充电保护电压	V	4.275	4.300	4.325	永久失效 Permanent failure (Blown SCP fuse)
2st Over charge detection delay time /二段过充电保护延迟时间	s	3.20	4.00	5.20	永久失效 Permanent failure (Blown SCP fuse)

5.3.2 Parts List/器件清单

No.	Reference	Description	Part name	Qty.	Maker
1	U1	IC	CW1244ALJS	1	Cellwise
2	Q2，Q3	MOSFET	JMTG035N04A	2	JJW
3	Q2，Q3	MOSFET	CRTM025N04L2-G		CRMICRO(alt.)
4	Q2，Q3	MOSFET	CRMGTL0404A		CRM(alt.)
5	Q8	BJT	MMBT3906-SOT23	1	ON/MCC/LRC/JJW
6	R1,R22	Chip Resistor	0603-1k-F	2	Yageo
7	R2, R3, R4, R5, R7, R8, R23, R24, R25, R26	Chip Resistor	0402-1k-J	10	Yageo
8	R9, R10	Chip Resistor	0402-3.3M-J	2	Yageo

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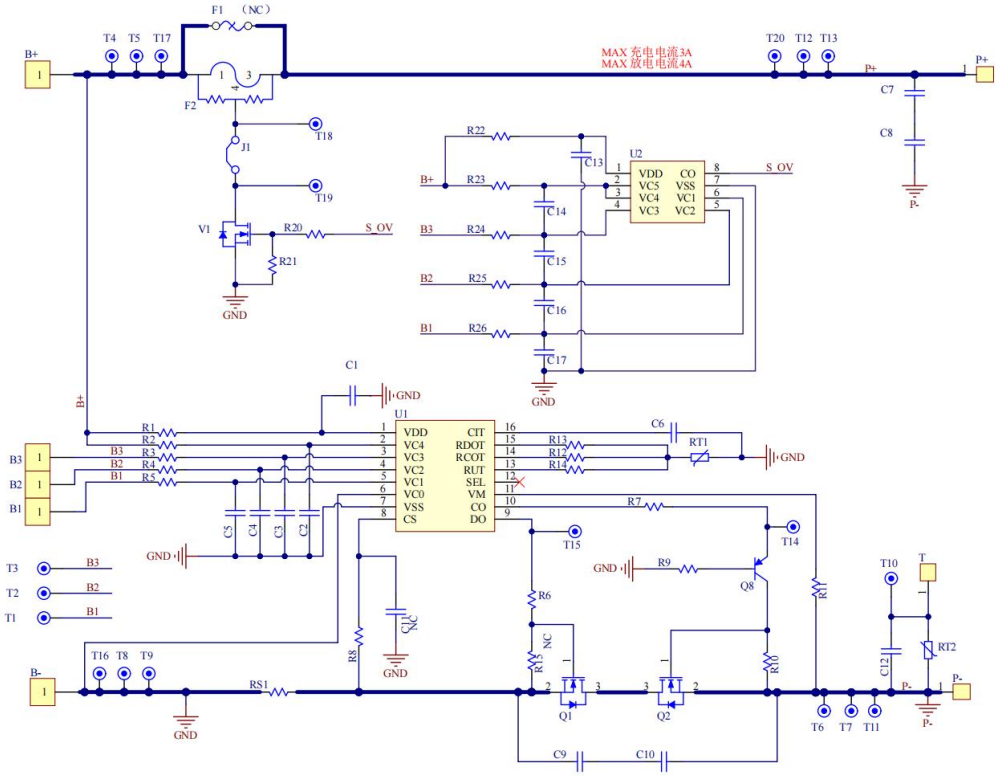
9	R11	Chip Resistor	0402-200k-F	1	Yageo
10	R13	Chip Resistor	0402-28k-F	1	Yageo
11	R12	Chip Resistor	0402-46.4k-F	1	Yageo
12	R14	Chip Resistor	0402-240k-F	1	Yageo
13	R6	Chip Resistor	0402-4.7k-J	1	Yageo
14	RS1	Chip Resistor	2512-2W-5mR-±1%	1	TA-I /Ralec/Yageo
15	C1	Capacity	0603-50V-105-K-X5R	1	Yageo /Samsung /muRata/Taiyo
16	C2, C3, C4, C5, C7, C8, C9, C10, C13, C14, C15, C16, C17	Capacity	0402-50V-104-K-X7R	13	Yageo /Samsung /muRata/Taiyo
17	C6	Capacity	0402-50V-102-K-X7R	1	Yageo /Samsung /muRata/Taiyo
18	RT1,RT2	NTC	0402-10K-1% /B=3435K-1%	1	TDK/muRata
19	B1, B2, B3, B-, B+	Nickel	NP-0.4*4*5-方形	5	大同
20	-	PCB	4S1P-2 层-A01	1	YX/SH/HX
21	F2	Fuse	SFJ-1412x-36V-12A	1	Dexerials
22	F2	Fuse	WPF12A4J-36V-12A		Wayon(alt.）
23	U2	IC	CW1051ALFM	1	Cellwise
24	R20	Chip Resistor	0402-5.1k-F	1	Yageo
25	R21	Chip Resistor	0402-51k-F	1	Yageo
26	V1	MOSFET	NCE0103Y	1	NCE
27	V1	MOSFET	SI2392-TP	1	MCC(alt.）
28	C12	Capacity	0402-50V-103-K-X7R	1	Yageo /Samsung /muRata/Taiyo

*All listed above are RoHS.

5.3.3 Circuit Diagram/电路原理图



5.3.4 PCB Layout

5.3.4.1 PCB

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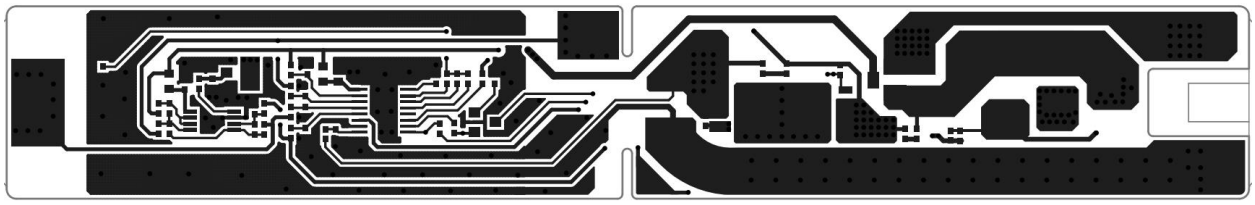

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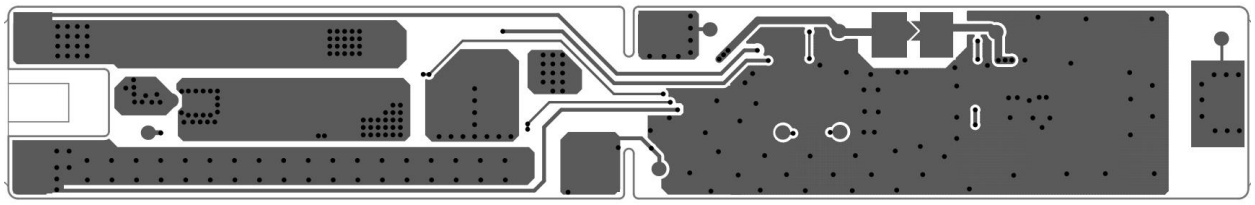

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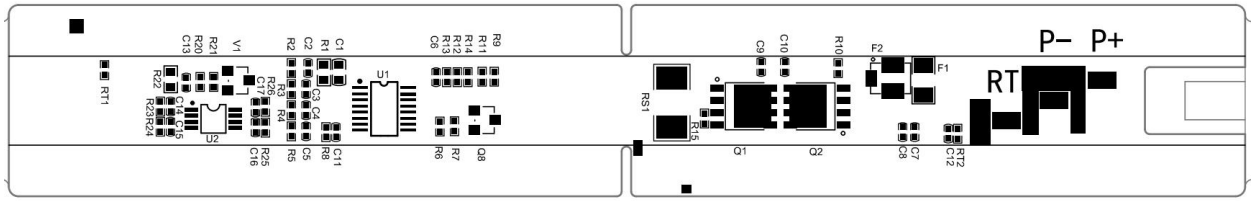
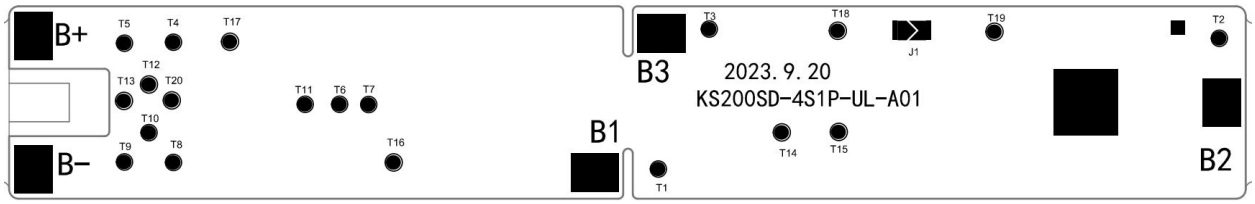
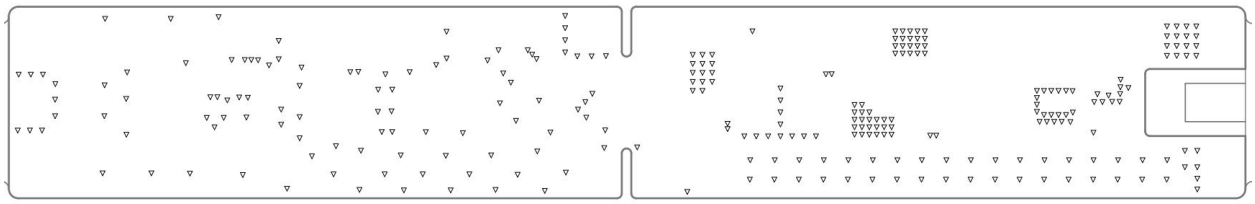


Bottom Silkscreen & Paste:



Dirll:



5.4 Safety Requirement/安全性能

Items	Conditions and others	Performances
Charge Over Voltage Protection /过压充电	The standard charged battery is continue to be charged with maximum charging current to n*6V or the highest possible voltage(Choose the best one), and keep the voltage by CV charging, until the protection circuit starts. 将电池组按标准充电方式充满电后，继续以最大充电电流恒流充至 n*6V 或者电池组可能承受的最高电压值（两者取较高者），并保持该电压进行恒压充电，充电至保护电路起动。	The battery should be no fire, no explosion or no leakage. 电池组应不起火，不爆炸，不漏液。
Charge Over Current Protection /过流充电	The standard discharged battery is to be charged with 1.5 times charge protection current, until the protection circuit starts. 电池组按标准放电方式放完电后，然后以 1.5 倍的过流充电保护电流进行恒流充电，直至保护电路起动。	The battery should be no fire, no explosion or no leakage. 电池组应不起火，不爆炸，不漏液。
Over Discharge Protection /欠压放电	The standard charged battery is to be discharged with maximum continuous discharge current, until the protection circuit starts. then keep for 10 minutes, recharging the battery with standard charge method. 将电池组按标准充电方式充满电后，以其最大持续放电电流放电至保护电路起动，然后静置 10min,继续按标准充电方法充满电。	The battery should be no fire, no explosion or no leakage. 电池组应不起火，不爆炸，不漏液。
Over Load Protection /过载	The standard charged battery is to be discharged with 1.5 times discharge protection current, until the protection circuit starts. 将电池组按标准充电方式充满电后，然后以 1.5 倍过流保护电流恒流放电至保护电路起动。	The battery should be no fire, no explosion or no leakage. 电池组应不起火，不爆炸，不漏液。
External Short Circuit /外部短路	The test should be conducted under 25±5℃. The standard charged battery is to be short-circuited by connecting the positive and	The battery should be no fire, no explosion, no smoke or no leakage. 电池组应不起火，不爆炸，不冒烟或

	negative terminals of the battery with copper wire having a resistance about 80mΩ±20 mΩ, keep the battery short-circuited for 12h. 将电池组按照标准充电方式充满电后，短路电池组组的正负极端子，外部短路总电阻为80+/-20m Ω,保持电池组短路 12h。	漏液。
Reverse Charge /反向充电	The standard charged battery should be reverse charged with recommending current for 90 minutes. 将电池组按标准充电方式充满电后，然后以推荐充电电流反向充电 90min。	The battery should be no fire, no explosion, no smoke or no leakage. 电池组应不起火，不爆炸，不冒烟或漏液。
ESD /静电放电	The standard charged battery(metal terminal) should be test under ESD ±8kV contact discharge and ±15kV air discharge for each 10 times. The interval of discharge is 1min. 对充饱电后的电池组（金属端子）进行±8kV 接触放电与±15kV 空气放电各 10 次，每次放电间隔 1 分钟。	The function of battery should be work well. 电池组所有功能正常。

6 Mechanical characteristics/机械性能

6.1 Appearance and diagrams/外观和尺寸

Sheet 6 Appearance

NO.	Item	Conditions and others	Remark
1	Dimension/外形尺寸	Refer to the structure diagram /参见机械结构图表	
2	Connection PIN/接触极片	Refer to the structure diagram /参见机械结构图表	
3	The material of liner/衬垫材料	Combustion proof grade:V-0 spline sample 3mm /阻燃等级：V-0 样条试样 3mm	
4	Mark and Label/标签	Refer to the attachment of battery label. /参见结构标签部分	

Structure diagrams/机械结构图表：

Please refer to the appendix./请参阅附件。

6.2 Connector/连接器定义

Please refer to the appendix./请参阅附件。

7 Label/标签

Please refer to the appendix./请参阅附件。

8 Package/包装

Please refer to the appendix./请参阅附件。

9 Others/其他

9.1 Odor/气味

The battery do not product special smell or harmful odor./本电池组不会产生特别或有害的气味

9.2 Protection for Environment/环境保护

The material used for packing should meet the criterion to protect environment RoHs 2.0、Halogen Free（HF）、Reach.
/封装电池组所用材料须全部符合环境保护标准 RoHs 2.0、Halogen Free（HF）、Reach .

10 Warning and notice/注意事项

⚠WARNING

1、 Do not put the battery into a fire, or heat the battery. /请勿将电池组放入火中或加热电池组。

2、 Do not store the battery in high temperature environment. /请勿将电池组储存在高温环境中

3、 Do not connect the battery reversed in positive (+) and negative (-) terminals in the charger or equipment. /请勿将电池组反接在充电器或设备的正极(+)和负极(-)上。

4、 Do not let the battery terminals (+ and -) contact a wire or any metal (like a metal necklace or a hairpin) with which it carried or stored together, may cause short-circuit. /不要让电池组(+和-)端子与随身携带或储存在一起的电线或任何金属(如金属项链或发夹)接触，可能导致短路。

5、 Do not drive a nail in, hit with a hammer, or stamp on the battery, do not strike the battery in other ways. /禁止钉、锤、戳电池组，禁止用其他方式敲击电池组。

6、 Do not disassemble or alter the batteries' outside structure. /禁止拆卸或改变电池组的外部结构。

7、 Do not submerge the battery in water, do not wet the battery when store the battery. /请勿将电池组浸入水中，储存电池组时请勿弄湿电池组。

⚠NOTICE

1、 Battery should be charged and discharged with proper charger, in compliance with correct operation contents. /电池组应按照正确的操作内容，使用合适的充电器进行充放电。

2、 Do not use the battery with other maker's batteries, different types and /or models of batteries such as dry batteries, nickel-metal hydride batteries, or nickel-cadmium batteries, or new and old lithium batteries together. /请勿与其他厂商的电池、干电池、镍氢电池、镍镉电池、新旧锂电池等不同型号和类型的电池或电池组混用。

3、 Do not leave the battery in a charger or equipment if it generates an older and/or heat, changes color and/or shape, leaks electrolyte, or cause any other abnormality. /如果电池组产生老化和/或发热、变色和/或形状改变、电解液泄漏或导致其他任何异常，请不要将电池组留在充电器或设备中。

4、 Do not discharge the battery continuously when it is not charged. /电池组未充电时，请勿连续放电。

⚠Caution

1、 Before using the battery, carefully read and follow battery specification and the information on the surface of the batteries./使用电池组前，请仔细阅读和遵守电池组组规格书，以及电池组组表面的信息。

2、Children should not be allowed to play with them. /避免儿童玩弄电池组。

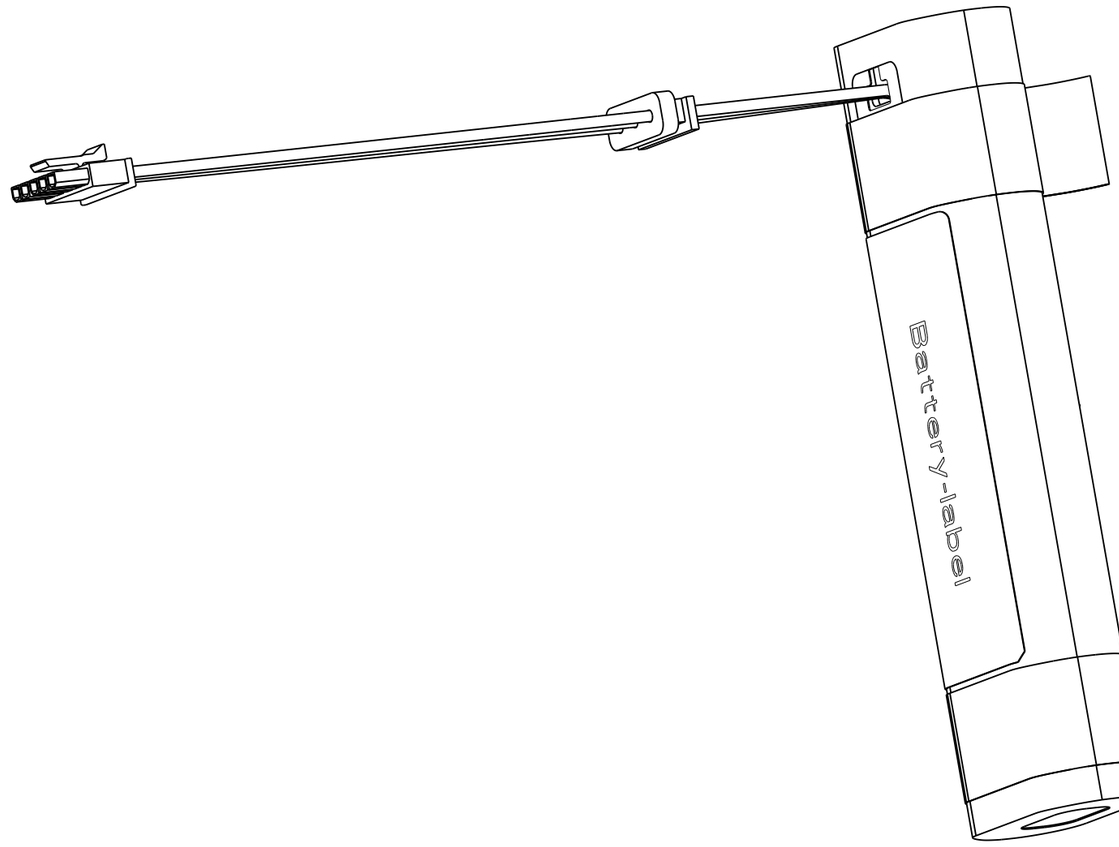
3、The batteries should only be charged with a matching charger. /本电池组只能使用配套充电器充电。

4、Caution – The battery used in this device may present a risk of fire or chemical burn if mistreated. Do no disassemble, heat above (manufacturer's maximum temperature limit), or incinerate. Replace battery with (battery manufacturer's name or end product manufacturer's name and part number) only. Use of another battery may present a risk of fire or explosion. /注意事项-在设备中使用的电池组如果使用不当，可能存在着火或化学灼伤的风险。请不要拆卸、加热超过规格书定义的最高温度限制，或焚烧。只使用(电池组制造商名称或最终产品制造商名称和零件号)替换电池组。使用其他电池组可能会有起火或爆炸的危险。

5、When the batteries are not be used for a long time, please store them safely, the battery shall be charged every three months so that they will stay in a half-charged state. Please wrap the batteries with non-conductive materials in order that metallic materials will not contact the batteries directly, which may result in damage to the batteries. Keep the batteries in a cool and dry place. /长期不用时，请将电池组储存完好，电池组应每隔 3 个月补电一次，让电池组处于半荷电状态。请用不导电材料包裹电池组，以避免金属直接接触电池组造成电池组损坏。将电池组保存于阴凉干燥处。

PART NUMBER APPLICATION TABLE			
ITEM	PART No.	SPECIFICATION	REMARK
1			
2			
3			
4			
5			
6			
7			
8			

REVISONS LIST					
ITEM	MARK	QTY	CONTENTS OF CHANGE	REVISER	DATE
1					
2					
3					



通用技术要求：

1. 所有材料和涂层必须符合所有适用的国际环境相关法规，包含但不限于RoHS、REACH；
2. 所提供的3D数据将用于生产和检验；
3. 几何尺寸公差参照ASME Y14.5-2018；
   本图未注几何公差按：

∅尺寸±0.25　　尺寸±0.25

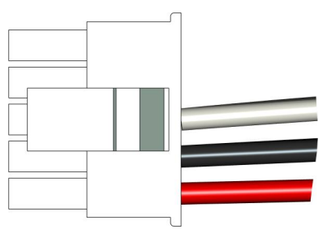
0.8 A BⓂ CⓂ	0.8 A BⓂ CⓂ	∅0.8Ⓜ A BⓂ CⓂ	∅0.8Ⓜ A BⓂ CⓂ
所有混合面	所有切边线	圆形尺寸要素	非圆形尺寸要素

4. Ⓕ表示FAI尺寸，Ⓒ表示CPK尺寸，（）表示参考尺寸，△1表示变更版本，未注尺寸公差按附表；
5. 在运输和搬运过程中，部件必须包装，以防止损坏、变形或污染；
6. 所有部品表面应符合SCUD外观规格标准和封样品；
   外观表面无缺陷，没有流痕、烧伤痕迹、凹痕、裂纹、熔接线、污垢、氧化等缺陷；
   毛刺应控制在材料厚度的10%以内；
7. 不得含有二次料，未经SCUD允许不得更改原材料或量产后的注塑参数；
8. 其他未注项目对比封样，参考部品承认书，依据SCUD进料检验通用规范执行。

附加技术要求：

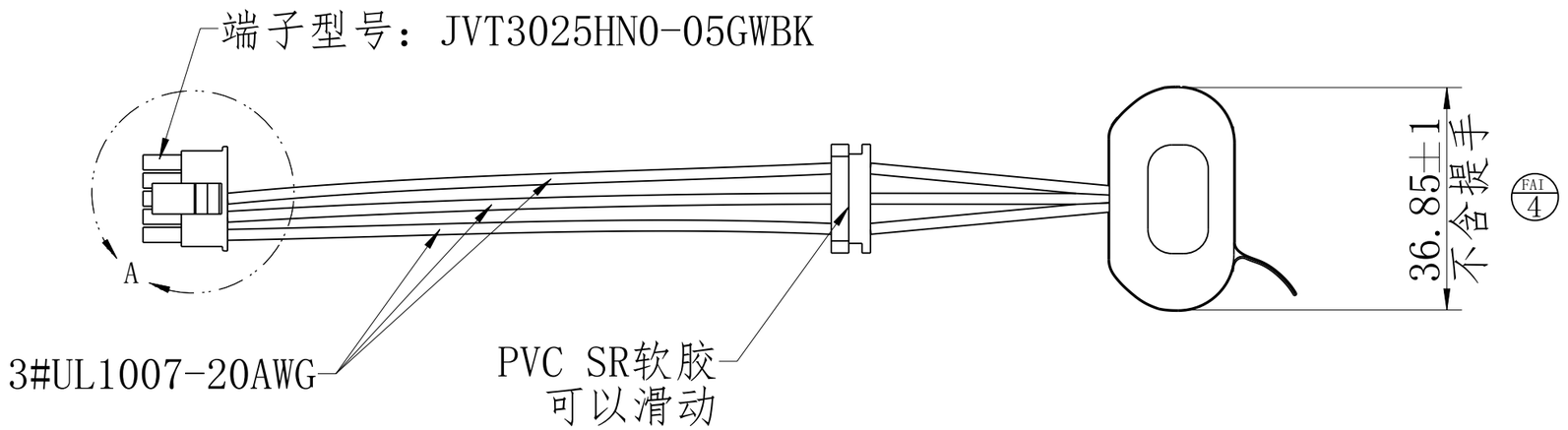
1. 材料及其他信息详见BOM表；
2. 动力电池的实配以封样和规格书为准。

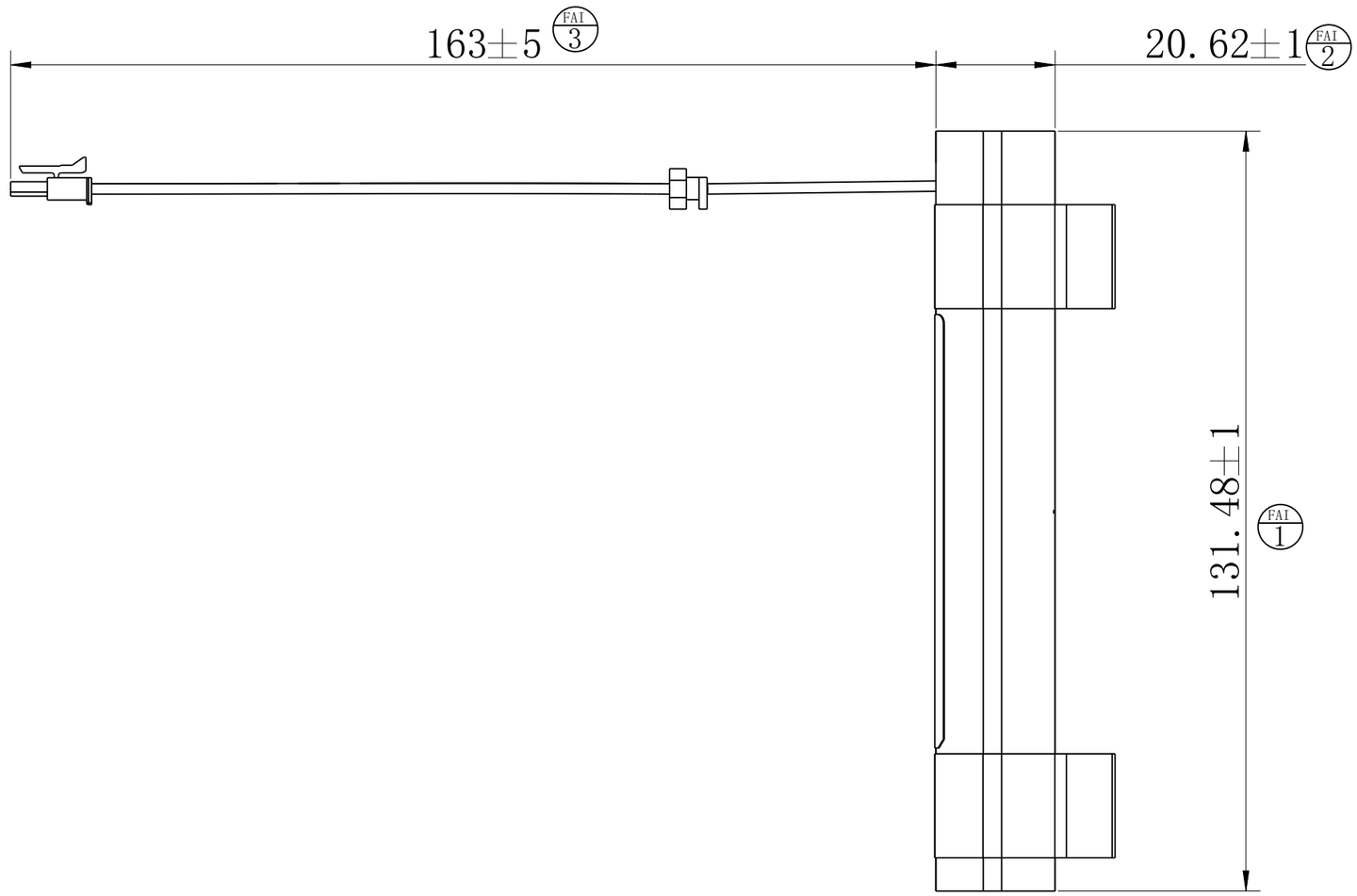
mm<size(A)<=mm	TOL	DRW. No.	/		福建飞毛腿动力科技有限公司 FUJIAN SCUD POWER TECH. CO.,LTD			
-	-	NAME	成品电池尺寸图					
0<A<=30	+/-0.10							
30<A<=50	+/-0.15	DESIGNED			UNIT	mm	MATERIAL	
50<A<=100	+/-0.20	STANDARD			SCALE	NTS		
100<A<=200	+/-0.25	CHECKED			SIZE	A3	PROJECT	KS200NA
200<A	+/-0.30	APPROVED			SHEET No.	1/2	REV	V 1.0



EMPTY
EMPTY
WHITE(T)
BLACK(P-)
RED(P+)

A
2:1





mm<size(A)<=mm	TOL	DRW. No.	/		福建飞毛腿动力科技有限公司			
-	-	NAME	成品电池尺寸图		FUJIAN SCUD POWER TECH. CO.,LTD			
0<A<=30	+/-0.10							
30<A<=50	+/-0.15	DESIGNED			UNIT	mm	MATERIAL	
50<A<=100	+/-0.20	STANDARD			SCALE	NTS		
100<A<=200	+/-0.25	CHECKED			SIZE	A3	PROJECT	KS200NA
200<A	+/-0.30	APPROVED			SHEET No.	2/2	REV	V 1.0