



PRODUCT SPECIFICATION

DOC NO.: PS-GB-278697-01

REV. : Draft 8

SHEET : 1 of 19

ECN NO. :

Battery Specification Confirmation Sheet

of

Amperex Technology Limited

Ningde Amperex Technology Limited

Dongguan Amperex Technology Limited

Dongguan NVT Technology Co., Ltd.

电池产品规格书

Product Part Number/产品代码: AMZTEL1

Pack Configuration/电池结构: 1 Series 2 parallel (1S2P)

Customer Confirmation	Authorized Signatory		Date
	Signature	Print Name	
	Company Name Of Customer:		
	Company Stamp Of Customer:		

Confidential : () Level 3 Private confidential () Level 2 High confidential (V) Level 1 Low confidential

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AMENDMENT RECORDS/变更记录

Revision/版本	Description/描述	Originator/制作者	Date/日期
Draft 1	New Release/新发行	Brando Zheng	02/08/2022
Draft 2	Chagne R1/R2 resistance to 100ohm	Brando Zheng	02/23/2022
Draft 3	Updated 6.1 Battery Drawing Updated 6.2 Pad printing drawing Updated 7 Terminal Specification	Brando Zheng	
Draft 4	Updated 6.1 Battery Drawing Updated 6.5 Disassembly Drawing for Pack Updated 8.1 Circuit diagram Updated 8.2 PCM and FPC Layout Updated 8.3 PCM Part list Updated 8.4 PCM Parameter	Brando Zheng	04/12/2022
Draft 5	Updated 6.1 Battery Drawing Updated 6.2 Pad printing drawing Updated 6.3 Battery barcode and Rule Updated CV current to 350mA	Brando Zheng	04/27/2022
Draft 6	Updated 6.1 Battery Drawing: --cancel bottom mylar dimension Updated 8.3 PCM Part list: --updated alternative MOS type from 24106C to 24106E Updated 8.4 PCM Parameter: --complete No.13 0V charge available --correct No.15 Current consumption from (during over discharge) to (Standby)	Brando Zheng	06/21/2022
Draft 7	Updated 8.1 Circuit diagram --Change the value of R-sense --Add a Capacitor (C14) Updated 8.2 PCM Layout Updated 8.3 PCM Part list: --Add a Capacitor (C14) Updated 8.4 PCM Parameter: --Update the over discharge or charge current	Brando Zheng	07/01/2022
Draft 8	Change max discharge current to 0.7C	Brando Zheng	07202022
Draft 8	Updated 8.1 Circuit diagram --C12 Capacitor→DNI Updated 8.3 PCM Part list --Cancle C12 Capacitor		

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1 Scope/适用范围:

The purpose of this Document (“Document”) is to specify the specifications of the Lithium-ion Polymer (“LIP”) rechargeable battery with ATL Part Number _GB-S02-278697-010H_ (“Product” or “Pack”) to be supplied by ATL to Customer under Customer’s purchase order and ATL’s confirmation relevant to the Product. For the avoidance of doubt, the specifications specified herein do not apply to any Host Device, apparatus, instrument, equipment or hardware device containing Product or Cell (“Host Device”).

本产品规格书描述了 ATL 依据客户采购订单生产的可充电聚合物锂离子(“LIP”)电池的产品性能指标, ATL 产品代码号_GB-S02-278697-010H_(“产品”或“电池”)。为避免疑问, 本产品规格书不适用于任何包含该产品或电芯的主机设备、仪器、仪表、器件、硬件设备等(“主机”)。

2 Model Name/型号: AMZTEL1

NVT Model Name/型号: AMZTEL1

3 Standard Environmental Test Conditions/标准环境测试条件:

3.1 Unless otherwise specified, all tests stated in this Product Specification are conducted at below conditions:

除非特别指定, 本产品规格书所有的测试遵循如下条件:

Temperature/温度: $25 \pm 3^{\circ}\text{C}$ (“Temperature Condition” /温度条件)

Humidity/湿度: $65 \pm 20\% \text{ RH}$ (“Humidity Condition” /湿度条件)

3.2 Throughout this Document, numeric criteria annotated by “*” means such criteria are only applicable to fresh unused Product within 30 days from manufacture by ATL. Products either have been used or stored for a period longer than 30 days by Customer and/or its customer may exhibit an inferior numeric parameter than such criteria. Customer agrees that such occurrence does not constitute nonconformance of specification.

本产品规格书中, 所有标有“*”的项目是指仅适用于“未使用的且从ATL制造日起30天内的产品”。如果产品已被客户使用或存储时间超过30天, 可能表现出低于标准规格, 客户同意并接受产品不构成不符合规格。

4 Detailed Specifications/详细规格:

The specifications listed in this Section 4 shall be the detailed specifications for the Product (“Detailed Specifications”). 列在第 4 部分的规格作为产品的详细规格。

No.	Items/项目	Specifications/规格	Remark/备注
4.1	*Minimal(Rated) Capacity ($C_{\min}$) /最小容量	7500mAh/29.0Wh	Standard capacity measure method: 0.2Cmin CC (constant current) charge to 4.45 V, then CV (constant voltage 4.45V) charge till charge current decline to 350mA, then with 0.2Cmin discharge to 3.0V cut-off 标准容量测试方法: 先用0.2Cmin 恒流充电至4.45V, 再恒压充电直至充电电流350mA, 然后用0.2Cmin放电至3.0V
4.2	Typical Capacity/ 典型容量	7600mAh/29.4Wh	
4.3	*Typical Voltage/ 典型电压	3.87 V	
4.4	Charge Cutoff Voltage/ 充电截止电压	4.45V	
4.5	Voltage at end discharge/ 放电截止电压	3.0V	
4.6	Charge/Discharge 充电/放电	Cell Surface Temperature 电芯表面温度	Charge Current and Voltage 充电电流和电压

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	Charge/充电	0°C ~15°C	0.18Cmin Max to 4.1V, 0.1Cmin to 4.45V, then CV to 350mA 0.18Cmin Max 充电到 4.1V, 0.1Cmin 充电到 4.45V, 然后CV到350mA
		15°C ~45°C	0.5Cmin Max to 4.45V, then CV to 350mA 0.5CminMax充电到4.45V, 然后CV到350mA
		45°C ~60°C	0.5Cmin Max to 4.1V 0.5Cmin Max 充电到 4.1V
	Discharge/放电	-20°C ~ 0°C	0.3C _{min} Max to 3.0 V 0.3C _{min} Max 放电到 3.0 V
		0°C ~ 60°C	0.7C _{min} Max to 3.0 V 0.7C _{min} Max 放电到 3.0 V
4.7	Storage Condition/ 存贮条件	Temperature/温度: within 3 months/3个月内 -20°C ~ + 45°C; over three months/超过3个月 25±3°C; Humidity/湿度: ≤75%RH	The battery voltage for a long time (Over 3 months) storage shall be 3.6V to 3.95V range/电池存储超过 3 个月长期存储电压维持在 3.6V to 3.95 V
4.8	*Initial resistance 初始内阻	120mΩ Max	Internal resistance measured at AC 1KHz after charge to shipment voltage. 充电到出货电压后, 测量其 AC 1KHz 下的交流阻抗
4.9	*Pack Voltage(as of shipment) 电池电压 (出货状态)	3.6~3.78V	Air transport (IATA require shipping SOC≤30%)/空运 (IATA 要求出货 SOC ≤30%)
		3.9~4.0V	Non air transport /非空运
4.10	*RT Cycle life/常温循环寿命 (25°C±3°C)	0.5Cmin Max Charge to 4.45V, then 0.5Cmin discharge to 3.0V, repeat to 500 cycles, record the remained capacity. 0.5Cmin Max 充电到 4.45V, 然后 0.5Cmin 放电到 3.0V, 重复 500 次, 记录剩余容量。	> 80%of Cmin

5 Warranty period/保质期:

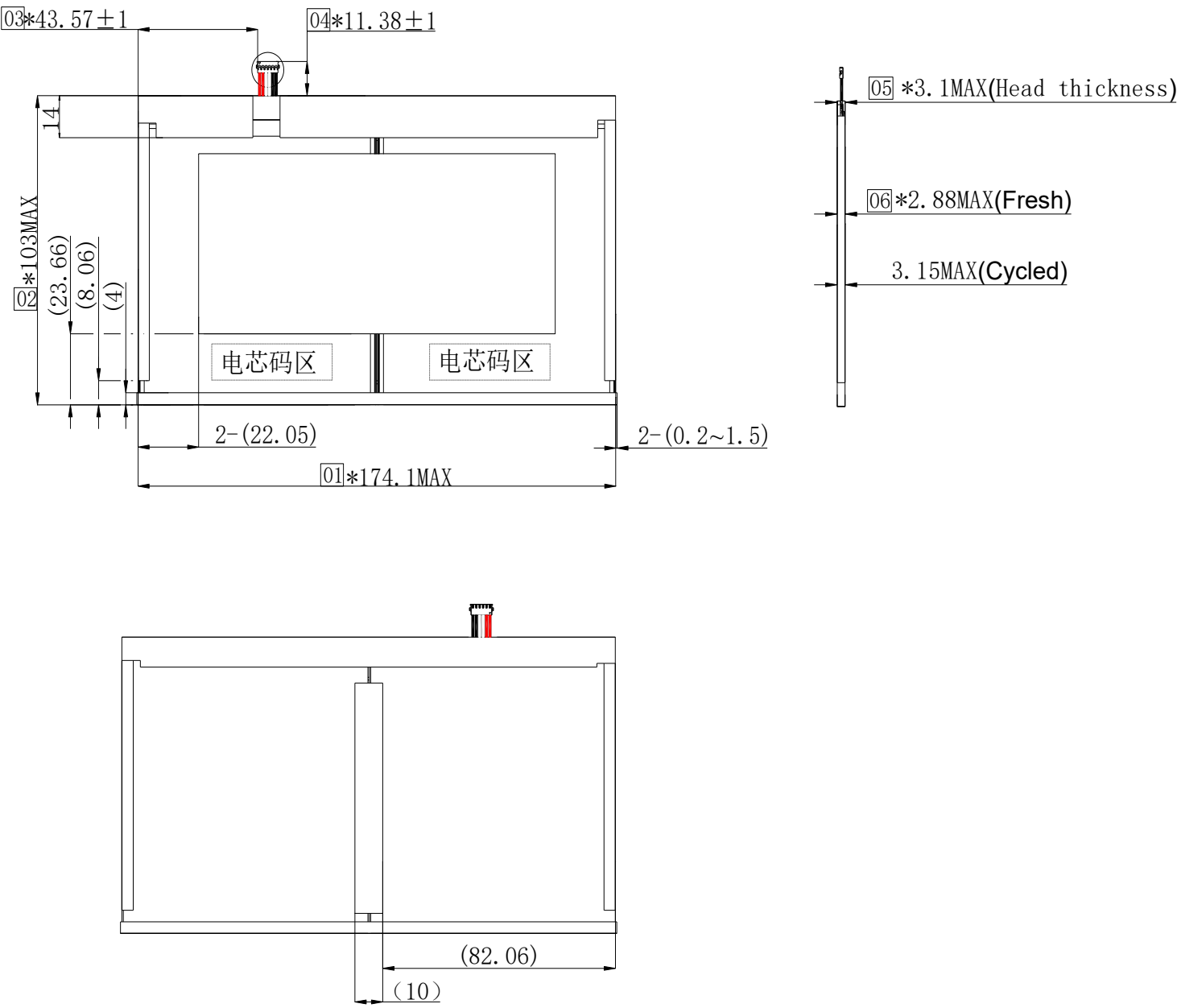
The warranty period of Battery is 24Months after the manufacture date.

电池保质期为从生产日期算起24个月。

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6 Assembly Drawing (all unit is mm, not in scale) / 电池图纸 (单位: mm)

6.1 Battery Drawing/ 电池图纸



Rechargeable Li-ion Battery 可充电锂离子电池

Rated Capacity 额定容量: 7500mAh, 29.0Wh

Ningde Amperex Technology Limited 宁德新能源科技有限公司

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Never attempt to disassemble or reassemble. Do not dispose of in fire or directly short circuit.

Attention: Danger d'explosion si la pile est remplacée de façon incorrecte. Remplacez-la uniquement avec le même type ou équivalent recommandé par le fabricant. Jetez les piles usagées selon les instructions du fabricant. Ne tentez jamais de démonter ou de remonter. Ne pas jeter au feu ou court-circuiter.

注意: 使用错误型号电池更换会有爆炸危险, 务必按照说明处置用完的电池。禁止拆解、短路或投入火中。

Model 型号: AMZTEL1

Limited Charge Voltage 充电限制电压: 4.45V

Made in China 中国制造

执行标准: GB 31241-2014

Nominal Voltage 额定电压: 3.87V

1ICP3/87/97-2

NTAYMDDJ001

02AMZTEL1

PS E

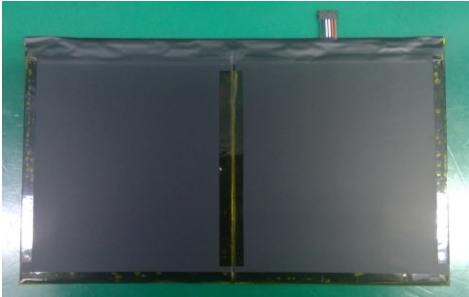
アマゾンジャパン 合同会社

MH29195

Li-ion 00

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6.4 Battery Photos/电池图片

ATL PN	Front Photo	Back Photo
GB-S02-278797-010H	 	 



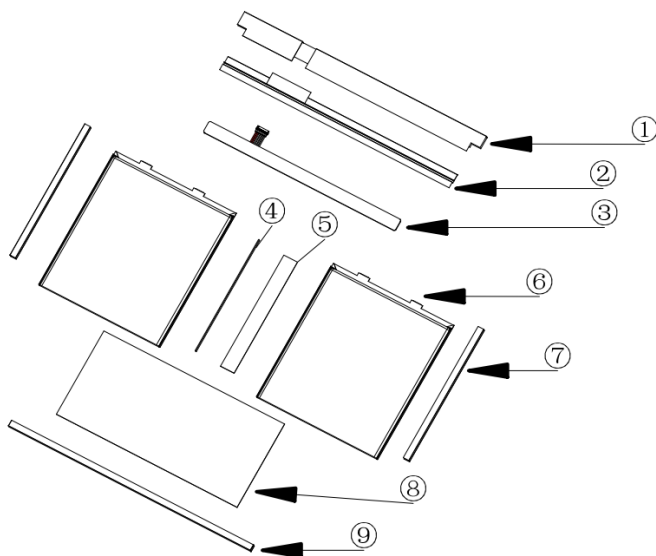
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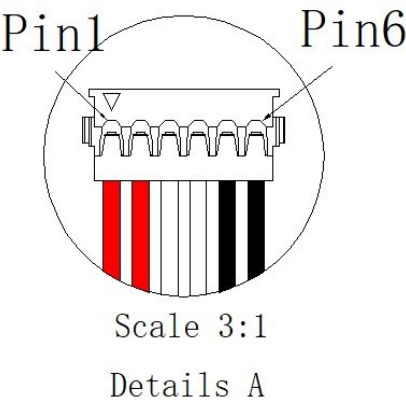
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6.5 Disassembly Drawing for Pack/电池拆分图



Item/项目	Specification/规格	Qty/数量	Remark/备注
Mylar-1(麦拉-1)	PI;Black;L172×W28×T0.05mm;One side gum;VTM-0/V-0; ROHS+REACH+HF	1pcs	1
Mylar-2(麦拉-2)	PI;Tawny;L141×W26.3×T0.04mm;;One side gum;VTM-0; ROHS+REACH+HF	1pcs	2
PCBA	硬板; L138×W8×T1mmFR-4;4Layers;OSP;V-0;RoHS+REACH+HF	1pcs	3
Foam (泡棉)	PU; L80×W2×T0.3mm; Black; double side gum;No fireproof;	1pcs	4
Mylar-3(麦拉-3)	PI;Tawny;L80×W10×T0.04mm;One side gum;VTM-0; ROHS+REACH+HF	1pcs	5
Soft cell(软包电芯)	GC-SDC-278697-100H	2pcs	6
Mylar-4(麦拉-4)	PI;Tawny;L91×W11×T0.04mm;One side gum;VTM-0; ROHS+REACH+HF	2pcs	7
Label(标签)	PET;Black;L130×W60×T0.05mm;VTM-0;ROHS+REACH+HF;	1pcs	8
Mylar-5(麦拉-5)	PI;Tawny;L174.5×W10.5×T0.05mm;One side gum;VTM-0; ROHS+REACH+HF	1pcs	9

7 Terminal Specification/引脚定义



Connector : ACES 50270-006H0H1-004

PIN NO.	PIN definition	Color颜色	Wire线型
Pin1	P+	Red红色	UL3302, 28AWG
Pin2	P+	Red红色	UL3302, 28AWG
Pin3	ID	White白色	UL3302, 28AWG
Pin4	NTC	White白色	UL3302, 28AWG
Pin5	P-	Black黑色	UL3302, 28AWG
Pin6	P-	Black黑色	UL3302, 28AWG

Name/名称	Pin No./引脚编号	Function/功能	Remark/备注
P+	Pin1,Pin2	Battery positive terminal for charge & discharge 电池正极端用于充电和放电	Red 红色
ID	Pin3	ID resistor 0402,10K±1% ID 电阻 0402,10K±1%	White 白色
NTC	Pin4	Terminal for NTC(47K±1%,B=4050K±1%) NTC 识别端(47K±1%,B=4050K±1%)	White 白色
P-	Pin5, Pin6	Battery negative terminal for charge & discharge 电池负极端用于充电和放电	Black 黑色

8 PCM Specifications/保护板规格



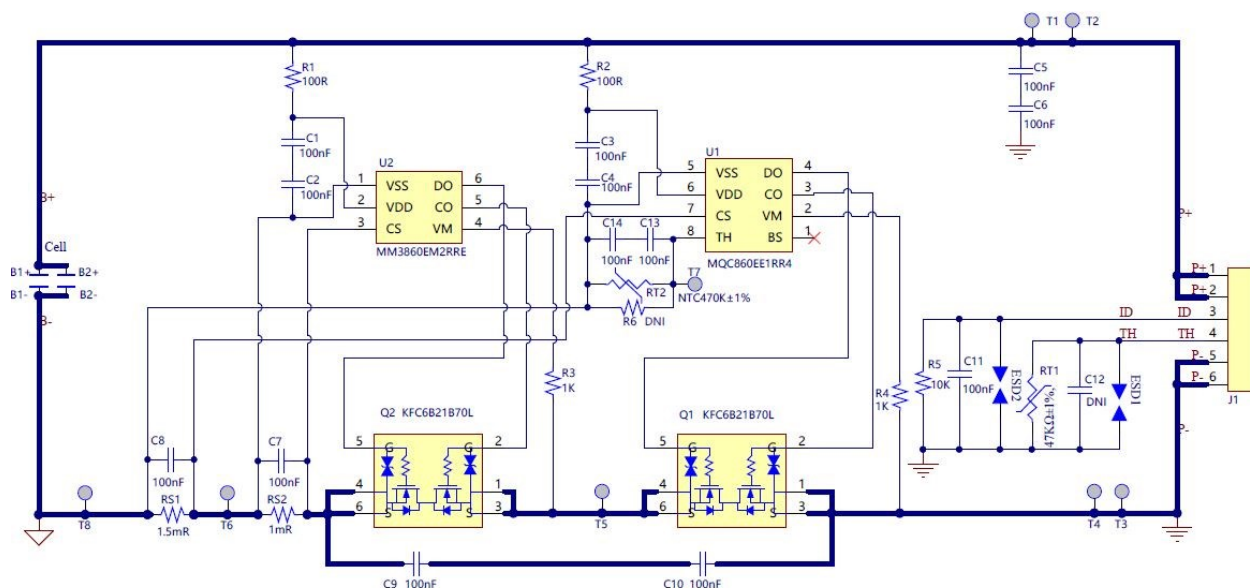
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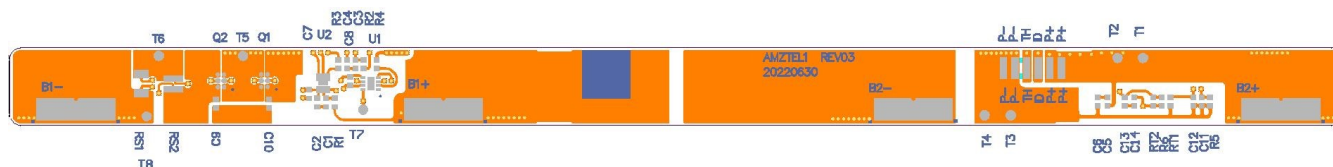
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8.1 Circuit diagram/电路图



8.2 PCM Layout/保护板布局

Top layer



Bottom layer: (已镜像)



Middle layer1:



Middle layer2:



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8.3 PCM Part list/保护板清单

Item/项目	Specification/规格	Qty/ 数量 (pcs)	Remark/ 备注
Protection IC	Mitsumi; MQC860EE1RR4	1	U1
Protection IC	Mitsumi; MM3860EM2RRE	1	U2
MosFET	Nuvoton; KFC6B21B70L	2	Q1,Q2
MosFET(Alternative)	AOS; AOCA24106E	2	Q1,Q2
NTC	NTC;0402;47K;±1%;B(25/50℃)=4050K;±1%;RoHS+HF;Mitsubishi;TH05-4B473F;	1	RT1
NTC	NTC;0402;470K;±1%;B(25/50℃)=4700;RoHS+REACH+HF;Panasonic;ERTJ0EV474F	1	RT2
Connector	端子线;ACES 50270-006H0H1-004;6P; RoHS+REACH+HF	1	-
Capacitor	MLCC SMD;0402;100nF;±10%;16V;X5R;RoHS+REACH+HF	13	C1,C2,C3,C4, C5,C6,C7,C8, C9,C10,C11,C 13,C14
RES_5% (电阻_5%)	SMD;0402;100R;±5%;1/16W;Thick film;RoHS+REACH+HF	2	R1,R2
RES_5%(电阻_5%)	SMD;0402;1K;±5%;1/16W;Thick film;GP+HF	2	R3,R4
ID Resistance(ID 电阻)	SMD;0402;10K;±1%;1/16W;Thick film	1	R5
RES_1%(电阻_1%)	SMD;0805;1.5mR;±1%;3/4W; TA-I;	1	RS1
RES_1%(电阻_1%)	SMD;0805;1mR;±1%;1W;Mn-Cu alloy; Walter;MHTC0805M1W0R001F	1	RS2
PCB (PCB 空板)	硬板; L138×W8×T1mm,FR-4,4-layers,OSP/,V-0,RoHS+REACH+HF,Red Board	1	-

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8.4 PCM Parameter/保护板参数

No	Item	MQC860EE1RR4 (1st)			MM3860EM2RRE (2nd)			Unit	Remark
		Min	Typ	Max	Min	Typ	Max		
1	Over charge protection voltage	4.480	4.500	4.520	4.520	4.540	4.560	V	25℃
2	Over charge protection delay time	0.819	1.024	1.229	1.638	2.048	2.457	s	25℃
3	Over discharge protection voltage	2.365	2.400	2.435	2.265	2.300	2.335	V	25℃
4	Over discharge protection delay time	51.2	64.0	76.8	102.4	128.0	153.6	ms	25℃
5	Over discharge current protection current	5.94	6.67	7.41	8.91	10	11.11	A	25℃
6	Over discharge current protection delay time	25.6	32.0	38.4	409.6	512.0	614.4	ms	25℃
7	Over charge current protection current	5.94	6.67	7.41	11.88	13.00	14.14	A	25℃
8	Over charge current protection delay time	12.8	16.0	19.2	25.6	32.0	38.4	ms	25℃
9	Short protection delay time	175	250	325	280	400	560	us	25℃
10	Abnormal Temperature Detection	74	78	82	/	/	/	℃	
11	Abnormal Temperature Release	59	63	68	/	/	/	℃	
12	Abnormal Temperature Detection Delay Time	614.4	1024.0	1228.8	/	/	/	mS	
13	0V charge available	0.6	0.9	1.2	0.6	0.9	1.2	V	25℃
14	Operating Current consumption	/		7.0(Typ)		10.0(Max)		uA	25℃
15	Current consumption (Standby)	/		/		0.2(Max)		uA	25℃
16	PCM breakover Impedance					100(Max)		mΩ	
17	Recommendatory storage condition	Temperature range:25±3℃ Humidity: 65±20%RH							

9 Battery Packing requirement/电池包装要求:

9.1 Cell packing method/电芯包装方式:

N.A

9.2 Pack packing method/电池包装方式:

TBD

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10 Appendix Handling Precautions and Guidelines for LIP Rechargeable Batteries:

附录 聚合物锂离子充电电池操作指示及注意事项

Foreword/前言

These *Handling Precautions and Guidelines for LIP Rechargeable Batteries* shall apply to the Product.

本文件《聚合物锂离子充电电池操作指示及注意事项》仅适用于新能源科技有限公司生产的电池。

Statement (1):

Customer is requested to contact ATL in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

声明 (1): 客户若需要将电池用于超出文件规定以外的设备,或在文件规定以外的使用条件下使用电池应事先联系 ATL, 因为需要进行特定的实验测试以核实电芯在该使用条件下的性能及安全性。

Statement (2):

ATL will take no responsibility for any accident when the Product is used under other conditions than those described in this Document.

声明 (2): 对于在超出文件规定以外的条件下使用电池而造成的任何意外事故, ATL 概不负责。

- Use specified charge/discharge conditions/使用指定的充放电条件。
- Specified product use only/仅用于指定产品。
- Do not immerse in water pour/禁止投入水中。
- Do not heat or throw in fire/禁止加热或投入火中。
- Do not attempt to crush or drop/禁止尝试挤压或跌落。
- Do not attempt to modify/禁止任何修改。
- Leave in cool places/存放在阴凉处。
- Do not put it in microwave oven, oven or pressure container/禁止放在微波炉, 炉子或压力容器里。
- Do not use battery if not recover during conditions above/假如在上述条件下电池不能恢复请不要继续使用。
- During assembly, charging, normal use and storage of battery pack, such as change of color, mechanical are detected do not use/在组装, 充电, 正常使用和存储中, 如有变色或机械损伤, 请不要继续使用。
- In case of leakage or smells remove from thermal conditions, Also wash off with clean water/万一有漏液或气味, 要从热源移除, 并且用清水清洗干净。
- Do not place or leave the battery and equipment in the reach of infants so that they are not able to swallow or mistreat the battery by mistake. In case of ingestion, consult with a doctor immediately/请将电池放在幼儿不宜触碰的地方, 以免吞食和误处理。万一发生请立即就医。
- Do not let leaked electrolyte come into contact with eyes or skin. In such a case, immediately wash the area of contact with clean water and seek help from a doctor. If not treated soon, prolonged contact may cause serious injury/漏出的电解液远离眼睛和皮肤, 万一发生立即清洗干净或就医, 假如不能立即处理, 可能引起严重伤害。
- Do not put the battery into a fire. Do not use it or leave it in a place near fire, heaters, or high temperature sources. In such a case, the insulator in the battery may be melted, the safety vent and structure may be damaged, or the electrolyte may catch fire, all of which may cause heat generation, explosion, or fire/不要将电池丢入火中。不要在离火源, 热源或高温源近的地方使用或放置。在这种情况下, 电池中的绝缘保护可能融化, 安全阀等结构可能会被毁坏, 这样可能会过热, 爆炸或起火。
- Do not submerge the battery in water, or wet the battery. If the protecting device assembled in the battery is damaged, the battery may be charged with an abnormal current and voltage and may cause a chemical reaction within the battery, which may result in the cause of heat generation, explosion, or fire of the battery/禁止浸泡或弄湿电池, 如果电池保护装置被损坏, 电池可能会被异常电流和电压充电从而引起电池内化学变化, 导致过热, 爆炸或起火。



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- Do not use any battery charger not specified. Incorrect charging method and charging equipment, the battery will be damaged, which may cause firing, or other problems/禁止使用非指定充电器，错误的充电方法和充电设备，可能损坏电池，导致起火或其它安全问题。
- Do not use, charge, or leave the battery near fire or in a car under the blazing sun. Such a high temperature may cause damage of the protecting device in the battery, which may result in an abnormal reaction, and then heat generation, explosion, or fire/禁止离火源很近的位置或烈日下的车中放置，使用或给电池充电，这种高温环境下可能毁坏电池中的保护机构，从而引起异常反应，发热，爆炸和起火。
- Do not connect the battery reversed in positive (+) and negative (-) terminals in the charger or equipment. In the case the battery is connected in reverse, it is charged reversibly and may cause heat generation, explosion, or fire due to an abnormal chemical reaction/禁止反接电池正负极，在这种情况下，电池被异常充电可能会导致过热，爆炸或起火。
- Do not short terminals. 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. In such a case, the battery is shorted and causes an excessive current, which may result in heat generation, explosion, or fire/禁止短接，禁止直接用导线或任何金属（比如金属项链或发卡）连接电池正负极。这种情况下，电池外短路引起过电流，有可能导致过热，爆炸或起火。
- Do not connect the battery directly to an electric outlet or cigarette heater socket in car. With a high voltage applied, the battery may overheat, explode, or cause fire/车上禁止直接连接到电源插座和点烟器上，因为高压下，电池可能会过热，爆炸，或起火。
- Do not throw or drop the battery. Strong impact may damage the protecting device, which may cause an abnormal chemical reaction during its charge and result in heat generation, explosion, or fire of the battery/禁止抛扔或跌落电池，强的重力冲击可能破坏保护机构，可能引起异常化学反应导致发热，爆炸或起火。
- Do not drive a nail in, hit with a hammer, or stamp on the battery. In such a case, the battery may be deformed and shorted, which may cause heat generation, explosion, or fire of the battery/禁止针刺，砸锤或邮戳电池，这种情况下，电池可能变形和短路，从而导致过热，爆炸，起火。
- Do not solder the battery directly. Heat applied during soldering may damage the insulator of the safety vent and mechanism, which may result in heat generation, explosion, or fire of the battery/禁止锡焊电池，可能破坏安全阀，以及机构的绝缘保护措施，导致过热，爆炸，起火。
- Do not disassemble or alter the battery. The battery employs a safety mechanism and a protecting device in order to avoid any danger. If these are damaged, heat, explosion or fire may be caused/禁止拆解或更换电池，电池安置了安全机构和保护机构避免安全隐患，假如损坏，可能导致过热，爆炸或起火。
- Do not put the battery in a microwave oven or a pressure cooker. Sudden heat may damage the seal of the battery and may cause heat generation, explosion, or fire of the battery/禁止将电池放在微波炉或压力锅内，极速的热可能导致过热，爆炸或起火。
- Do not leave the battery in a charger or equipment if it generates an odor and/or heat, changes color and / or shape, leaks electrolyte, or causes any other abnormality. In such a case, immediately take the battery out of the charge or equipment and keep it away from fire, otherwise, the battery might overheat, explode, or cause fire/如果电池已经发出气味或发热，颜色和/或外形有变化，电解液露出或任何不正常的现象，请不要再将电池放到充电器或设备里。这种情况下，应立刻将电池从充电器或设备中取出并远离火源，否则电池可能过热，爆炸或起火。
- Discontinue charging after specified charging time even if the charge is not complete, otherwise, the battery might cause heat generation, explosion, or fire/规定时间内不能完成充电不要继续充电，否则可能导致过热，爆炸或起火。
- Do not use the battery in the place where the static electricity (more than the limit of the manufacturer's guarantee) occurs. Otherwise, the protecting device in the battery might be damaged and cause heat generation, explosion, or fire/禁止将电池搁置在超出制造商定义的静电区，否则保护机构可能损坏导致过热，爆炸或起火。
- Do not use the battery in other than the conditions specified; otherwise, the battery might cause heat generation, damage, or deterioration of its performance/禁止在超出规定条件下使用电池，否则可能导致过热，损坏，恶化

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电池电性能。

- Read the instructions of your equipment regarding the battery installation and removal from the equipment so as not to mishandle and waste the battery/阅读设备和电池关于安装和拆卸指导书，避免误操作导致浪费。
- In case young children use the battery, instruct them on the contents of the instructions and ensure the battery is correctly used by them at all times/如果小孩使用电池，务必指导他们正确操作，确保电池正确使用。
- The battery was manufactured and inspected carefully before shipment to conform with the specification. However, in the case any abnormality of bad smell or heat, etc. arises after purchase, bring the battery back to the retail shop where you bought it/电池制造和出厂前检查是满足本规格的，万一购买后发现像气味，热等任何异常，去购买处退回处理。
- The battery was charged a little before shipment for temporary use by an end user. In case your equipment does not operate with the battery or in the case of a long use, charge the battery with a specified charger once/出厂前电池充了一点电，购买后使用不能工作或使用一段时间后，需要规定的充电器充电。
- Do not charge the battery over the specified time described in the instructions, otherwise, the battery performance might deteriorate/禁止用超出规格书规定的充电时间，否则可能恶化电池电性能。
- Turn off your equipment power switch after use, otherwise, the performance of the battery might deteriorate/设备使用后请关掉电源，否则可能恶化电池电性能。
- The battery after long storage might not be sufficiently charged for use/电池长期存储不用可能导致电量不足。
- Prolonged standing or storage, PACK must be stored after removal from the host (disconnect the electrical properties of contacts); PACK need to conduct a test at least once in half of year. If necessary, the PACK needs to supplement electricity. PACK shall be kept for at least 40% capacity after a path to storage.
- 长时间搁置或储存，电池必须从主机上拆卸下储存（断开电子器件的接触）；电池至少在半年需要进行测试一次，如有必要，电池需要补充电力，保持至少 40%的容量。
- If the PACK cannot removed from the host , the PACK need to be set to the lowest power consumption mode before the storage, and arrangements the PACK supplementary charge regularly and performance testing according the Consumption rate (recommendation: supplementary charge to 60 - 70% every two months), adjustment depending on the system actual storage conditions and power consumption. With Smart-Gauge products, it is strongly recommended to set Shipping Mode of the PACK after storage.
- 如果电池无法从主机上拆卸，电池需要被设置为最低功耗模式存储，并安排定期补充电和性能测试，根据自耗电率（建议：每 2 个月补充电至 60-70%），根据系统的实际存储条件和耗电调整。带有智能电量计的产品，强烈建议储存设置为电池出货模式。
- In the case the battery terminals are dirty, clean the terminals with a dry cloth before use, otherwise, the contact with equipment might cause insufficiency, and power failure or charge failure/万一电池金手指脏污，请清洁干净后使用，否则连接设备后可能引起一些异常，甚至可能导致电源或充电失效。
- Despite being rechargeable, the battery has a limited life span, Replace when usage time between charges becomes short/尽管可充电，电池有极限使用寿命，当满充后使用时间明显变短需要更换电池。
- Keep the handling instructions and your equipment instructions in a suitable place for future reference/确保操作指导书和设备指导书在合适的位置为进一步参考。

11. Disclaimer/免责声明

11.1 The Customer hereby agrees that it has carefully read and understand any and all terms and conditions, safety precautions and measures set forth in this Document, furthermore, the Customer agrees to bear full responsibilities of these risks and responsible for any accidents, injury to persons, or property damage that may occur, Customer further agrees to waive claiming any liability against ATL.

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11.2 The Product is produced and supplied to Customer with B2B nature, and is not for direct consumer use. Customer

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should verify the fitness for a particular purpose of such Product described hereof under certain application. Except as provided in the Specifications, ATL makes no representation or warranty of any kind, whether express or implied, including with respect to any warranty as to merchantability, compatibility, fitness for use or for any particular purpose. The parameters provided in this Document may vary in different applications and performance may vary from time to time. All operating parameters, including typical parameters, must be validated for each customer application by the Customer's technical experts.

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ATL 在其产品上结合或使用客户、客户之关联方、分包方、客户或终端用户的设计、指定或指示的材料、设计、技术或知识产权；

11.3.2 the combination, assembly, operation, or use of the products with materials, devices, parts, or software not supplied by ATL;

客户将 ATL 的产品与非 ATL 提供的材料、设备、组件或软件进行结合、组装使用/运行；

11.3.3 modifications, disassembly, repair, and rework to the products made by Customer or any third party without the prior written consent of ATL;

未经 ATL 授权(包括甲方或其他第三人)而对 ATL 的产品进行的修改、拆解、维修或重工；

11.3.4 ATL's modification of the products in compliance with the design, specification, requirements, or instructions of Customer;

ATL 依照客户的设计、规格、要求或指示而对其产品进行的修改；

11.3.5 the claim or action arising from non-compliance with the requirements for use, storage, delivery, assembly, and disposal of the products designated by ATL;

客户或任何第三方未依据 ATL 指定的产品使用方式对 ATL 的产品进行使用或未按照 ATL 指定的标准对产品进行安置、贮存、运输、组装或处理而导致的任何侵权或索赔事项；

11.3.6 use of the products outside the scope of intended use under this Document; or

客户或任何第三方未依据本产品规格书中约定的使用范围对 ATL 的产品进行使用；或

11.3.7 any defect that may exist before ATL's product enters the market or any defect that is unable to be detected by the existing technology at the time ATL's product enters market.

ATL 未投入流通的产品或 ATL 产品在投入流通时引起损害发生的缺陷尚不存在或投入流通时的技术水平尚不能发现缺陷的存在的。

11.4 ATL shall have no liability or obligation with respect to any Products which have been subjected to abuse, misuse, improper use, negligence, accident, alternation, repair or rework performed by any unauthorized persons or entities other than ATL.

对于任何未经授权的个人或非 ATL 实体滥用，滥用，不当使用，疏忽，意外，改动，修理或返工的产品，ATL 概不承担任何责任或义务。

11.5 Neither party shall be liable for any indirect, special, incidental, punitive or consequential damages of any kind (including lost profits), regardless of the form of action, whether in contract, tort (including negligence), strict liability or otherwise, even if informed of the possibility of such damages in advance.

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即便对方已提前通知一方下述损失发生的可能性，双方同意并确认，任何一方均不对任何间接的、特别的、附带的、惩罚性的或结果性的损失（包括可得利益损失）承担赔偿责任，无论是基于任何诉讼方式、无论是基于合同或侵权之债（包含过失侵权行为）、无论是否基于严格责任。

11.6 The maximum overall liability of each party, alone or in the aggregate with respect to all claims of any kind, if any, whether in contract, tort (including negligence), strict or product liability, damages, reimburse, indemnification or otherwise, shall not exceed two times of the goods price allocable to the specific Product upon which the claim is directly based.

任一方所应承担的全部责任，无论是基于合同、侵权（包括过失）、严格责任或产品责任、损害、补偿、赔偿或其他任何原因，单次及累计金额应不超过引发该索赔的特定产品的货款的两倍。

12. Miscellaneous/其他

In the event of any conflict, ambiguity or discrepancy between the Chinese version and English version of this Document, both parties agree that the Chinese version of this Document shall prevail.

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