

	MAP ELECTRONICS CO., LTD.	P/N:	4-MD068L
		Rev.	05
SPECIFICATION APPROVAL SHEET		Page	3

### 1. Scope :

This product specification shall be applied to Lithium-ion Rechargeable Battery.

### 2. Descriptions and Model Number :

(1) Descriptions	Lithium-ion Rechargeable Battery
(2) Battery Cell Configuration	2S1P
(3) Customer P/N	7018S21C330A
(4) Joules Miles Project name	MAP003

### 3. Composition :

Lithium-ion cells, a protection circuit module, insulators and nickel plates.

### 4. Product Specification :

Cell model	Panasonic Li-ion NCR18650GA 3300mAh (0.67A discharge at 20°C after fully charge 4.2V)	
Battery pack capacity	3300mAh (0.67A discharge at 20°C after fully charge 4.2V)	
Battery pack Nominal Voltage	7.2V	
End voltage	5.0V	
Charge Current	≤ 1.675A	
Charge voltage	8.3±0.05V	
Max peak discharge current	2.4A	
Internal Resistance	≤ 210mΩ	
Charging method	CC/CV (Constant current/ voltage)	
Operation temperature	Charge : 0 ~ 45°C	
	Discharge : -20 ~ 60°C	
Storage Characteristic (Percentage of recoverable capacity 80%)	less than 1 month	-20 ~ +50°C
	less than 3 months	-20 ~ + 40°C
	less than 1 year	-20 ~ + 20°C
Weight	<120g	
Battery pack to be ROHS compatible.		
Battery pack shall be shipped in 25~30% charged state.		

	MAP ELECTRONICS CO., LTD.	P/N:	4-MD068L
		Rev.	05
SPECIFICATION APPROVAL SHEET		Page	4

## 5. Battery pack protection function :

*\*Over charge and over discharge detection voltage per cell.*

### 5.1

Battery pack overcharge detection voltage	4.15 V ± 25 mV
Battery pack overcharge release voltage	3.95 V ± 50 mV
Battery pack overcharge delay time	0.73sec~1.35sec

### 5.2


Battery pack overdischarge detection voltage	2.60 V ± 80 mV
Battery pack overdischarge release voltage	3.00 V ± 100 mV
Battery pack overdischarge delay time	68msec~138msec

### 5.3

Battery pack overcurrent detection current	3.11A~6.96A
Battery pack overcurrent release	Load release or Pack recharged
Battery pack overcurrent delay time	6.7msec~13.9msec

### 5.4

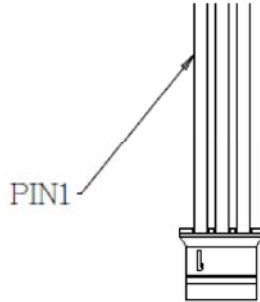
PCM current consumption	<15 uA
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	MAP ELECTRONICS CO., LTD.	P/N:	4-MD068L
		Rev.	05
SPECIFICATION APPROVAL SHEET		Page	6

## 7. Terminal Definitions :

### 7.1 Descriptions

- Pack+(P+) : Charger + / Output +
- TH : TH11-3H103FT-10K 1%
- Pack- (P-) : Charger - / Output -



PIN1	PIN2	PIN3
RED	GREEN	BLACK
P+	TH	P-

	MAP ELECTRONICS CO., LTD.	P/N:	4-MD068L
		Rev.	05
SPECIFICATION APPROVAL SHEET		Page	7

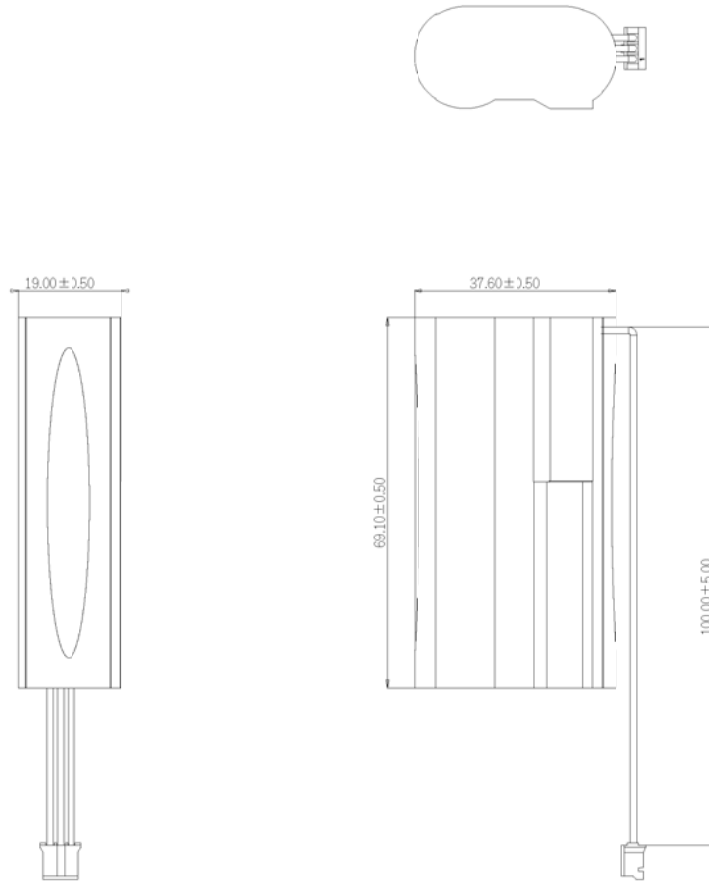
## 8. Handling Warning :

- 8.1 Do not immerse the battery in water or seawater, and keep the battery in a cool dry surrounding if it stands by.
- 8.2 Do not use or leave the battery near a heat source as fire or heater
- 8.3 When recharging, use the battery charger specifically for that purpose
- 8.4 Do not reverse the position (+) and negative (-) terminals
- 8.5 Do not connect the battery to an electrical outlet
- 8.6 Do not discard the battery in fire or heat it
- 8.7 Do not short-circuit the battery by directly connecting the positive (+) and negative (-) terminal with metal objects such as wire.
- 8.8 Do not transport or store the battery together with metal objects such as necklaces, hairpins etc.
- 8.9 Do not strike or throw the battery
- 8.10 Do not directly solder the battery and pierce the battery with a nail or other sharp object
- 8.11 If the battery is stored over 3 months, it should be checked again about the remaining capacity and charge the battery.
- 8.12 We suggest that the voltage of battery should not be lower than 3V/cell when working and storing, or it may cause unrecoverable decay in its capacity.

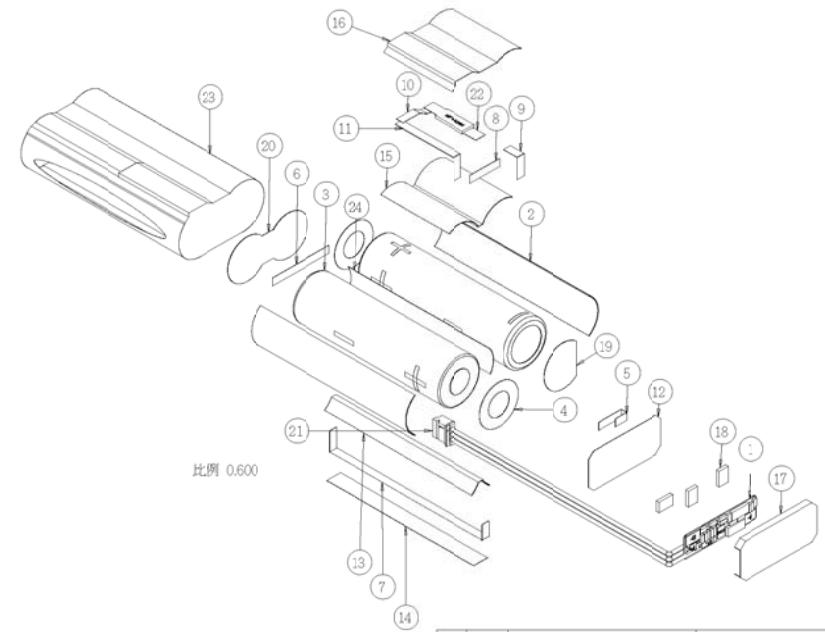
NCTES: (UNLESS OTHERWISE SPECIFIED)

1. UNSPECIFIED RADIUS R=0.5mm.
2. GATE TRIM NOT TO EXCEED 0.2mm.
3. THE MATERIALS AND MANUFACTURING METHODS USED IN THE FABRICATION OF THIS PART OR ASSEMBLY MUST COMPLY WITH JMS ENVIRONMENTAL (RoHS) SPECIFICATION.
4. PART OR ASSEMBLY SHALL CONFORM TO PROJECT COSMETIC SPEC.
5. PART OR ASSEMBLY SHALL BE CLEAN AND FREE FROM FOREIGN MATERIAL. DIRT, OIL, GREASE, OR OTHER CONTAMINANTS ARE NOT ALLOWED.
6. CRITICAL TO FUNCTION DIMENSION: CONFORM TO PICTURE REQUIREMENT.
7. COINED-EDGES SHALL CONFORM TO ELECTRONIC DATABASE CR SHOWN AND SPECIFIED ON DRAWING.
8. BURR SIDE OR PUNCH DIRECTION AS INDICATED.

Rev.	DESCRIPTION	DATE
00	NEW DESIGN	Mar-23-18



PIN1	PIN2	PIN3
RED	GREEN	BLACK
P+	TH	P-



ITEM	TYPE	DESCRIPTION	PART NO	QTY
1	ASSEMBLY	JM-2SP025PP-V1_0_A		1
2	PART	AC402-1		1
3	PART	CELL-18650		1
4	PART	CELL-PET		1
5	PART	NI-P-1		1
6	PART	NI-P-2		1
7	PART	NI-P-3		1
8	PART	NI-P-4		1
9	PART	NI-P-5		1
10	PART	NI-P-6		1
11	PART	NI-P-7		1
12	PART	NOMEX-1		1
13	PART	NOMEX-2		1
14	PART	NOMEX-3		1
15	PART	NOMEX-4		1
16	PART	NOMEX-5		1
17	PART	NOMEX-6		1
18	PART	PET-1		1
19	PART	PET-1R1		1
20	PART	PET-1R2		1
21	PART	PHR-3		1
22	PART	PPTC-MF-LR26)		1
23	PART	PVC-TUBE		1
24	PART	R12-NS-01		1

APPROVED	Ted		MAP ELECTRONICS CO., LTD.		
CHECKED	Ted		MAP03-18650-2S1P		
DESIGN	Josh	DocNO			
MATERIAL		NAME			
REVISION	00	Part No			
UNIT MM	SCALE	1.000	DATE	Mar-23-18	SHEET 1/1

RANGE	COMMON TOLERANCE				0.050
	A	B	C	D	
LESS THAN	±0.05	±0.1	±0.2	±0.4	
8 - 25	±0.08	±0.15	±0.3	±0.6	
25 - 80	±0.12	±0.25	±0.5	±1.0	
80 - 250	±0.25	±0.4	±0.8	±1.5	
250 - 800	±0.5	±0.8	±1.5	±3.0	
800 - 2500	±1.0	±1.5	±3.0	±6.0	
ANGULAR	±0.15°	±0.3°	±0.5°	±0.9°	

QS-2-40092-V1.0