

## 1. SCOPE

This specification describes the related technical standard and requirements of the rechargeable Li-ion battery pack

## 2. BATTERY PACK SPECIFICATION

ITEMS	SPECIFICATION	REMARK
Model	CM055	
Relative Voltage	3.7V	
Nominal Capacity	4000mAh	
Adaptable for	/	
Cell Type	CM18650/2000mAh	
Dimension	66.5(± 1)× 36.6 (± 0.3)× 18.3(± 0.3) 100(± 5)	
Color	BLUE	
Weight	95.3± 1g	

## 3. STANDARD TESTING CONDITIONS

ITEM	REGISTER		
Standard charge	CC/CV model, relative voltage 4.2V, relative current 0.2C, end current 0.01C		
General charge.	CC/CV model, relative voltage 4.2V, relative current 0.5C, end current 0.01C		
Apace charge	CC/CV model, relative voltage 4.2V, relative current 1C, end current 0.01C		
Standard discharge	Relative current 0.2C, end voltage 2.75V		
General discharge	Relative current 0.5C, end voltage 2.75V		
Apace discharge	Relative current 1C, end voltage 2.75V		
Environmental temperature	Charge	0 -- +45℃	
	Discharge	-20℃ -- +60℃	
	Storage temperature	Short time one month	-20℃ -- +55℃
		Three months	-20℃ -- +45℃
		Long time one year	-5℃ -- +30℃
	General temperature	20℃±5℃	
	Relative humidity	86 -- 106Kpa	
Atmospheric Pressure			

#### 4. APPEARANCE

ITEMS	TEST CONDITION	REQUIRE
APPEARANCES	Under light lamp 40W	Shall be free noticeable flaws breaks, age, Discoloration, deformation, uneven, and other Defects which impair the value of the commodity

#### 5. ELECTRICAL CHARACTERISTICS

ITEMS	TEST CONDITION	REQUIRE
Complete Charge	The battery is charged with constant current 1CmA and constant voltage 4.2v until the charging current is less than 0.01CmA.	
Initial capacity	The capacity measured after the battery is discharged with constant current 0.2C until the voltage reaches 2.75V cut-off in one hour after complete charge.	$\geq 4000\text{mAh}$
Cycle life	The capacity measured after 300 cycles of complete charge and discharge at 1C current to 3.0V cut-off.	Capacity more than 80% of Initial capacity
Impedance	Internal resistance measured at 1KHz after complete charge.	$\leq 180\text{m}\Omega$

#### 6. TEMPERATURE ADAPABILITY

ITEMS	TEST CONDITION	REQUIRE
High temperature discharge	After complete charge .at 60°C , discharge current 0.2C to 2.75V-END discharge.	No explosion, fire, or smoke. Discharge efficiency $\geq 85\%$ .
High temperature cycle	At (50 $\pm$ 2)°C , discharge current 1CmA and charge constant voltage 4.2V cycle test three times	No explosion, fire, or smoke. Charge efficiency $\geq 90\%$
Low temperature discharge	After complete charge. At (-20 $\pm$ 2)°C , discharge current 0.2C to 2.75V-END discharge.	No explosion, fire, or smoke. Discharge efficiency $\geq 80\%$ .
Low temperature cycle	At (-20 $\pm$ 2)°C , discharge current 1CmA and charge constant voltage 4.2V cycle test three times	No explosion, fire, or smoke. Charge efficiency $\geq 85\%$

## 7. DESTROY ADAPTABILITY

ITEMS	TEST CONDITION	REQUIRE
E.S.D TEST	To apply 330Ω resistance and stasis Electricity energy of 150PF capacitor. To All terminals (+, -, TH) apply the below for 10 times each, 1. Contact :±8KV Air : ±15KV	No malfunction. No damage.
Vibration Test	Subject to 1 hour 10-55Hz 3.5mm amplitude Vibration for any direction at shipment (Complete packing) state. Then test discharge and rated charge at 25±2°C.	No explosion. fire ,or Smoke. No leakage or damage and Battery (to the phone) Condition good.
Drop Test	Drop test battery 1.2m above steel board of more than 10mm thickness. One time drop each for 6 surface,4 ride direction of a battery pack	No leakage or damage and Battery (to the phone) Condition good. No explosion, fire or Smoke. Discharge time Less than 50 minute.

## 8 PCM SPECIFICATION

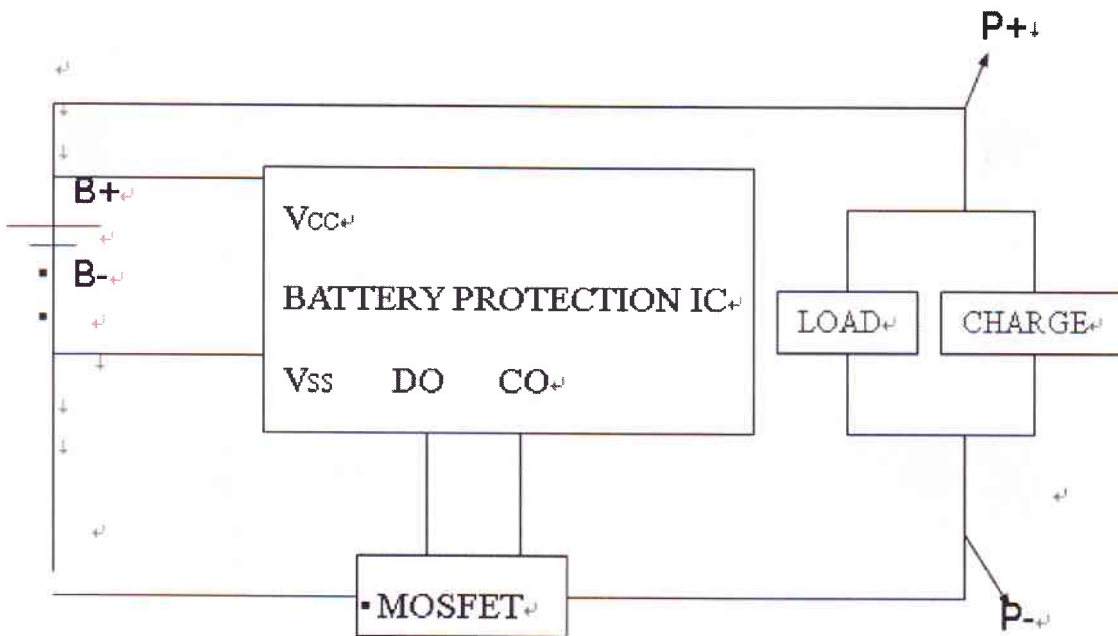
### 8.1 PCM PERFORMANCES

ITEMS	TEST CONDITION
Over charge protection	A battery charge with a charging condition of less than 15V/1 C and the charging shall be shut off when the internal cell Voltage becomes more than specified protection voltage.
Over discharge protection	When battery discharge with a discharging condition of 1C, The discharging shall be shut off when the internal cell voltage Becomes less than specified protection voltage.
Short protection	After rated charge, (+) and (-) terminals are connected with 10m mental resistor or equivalent by
Current consumption	Ordinary current consumption: consumption current of the protection circuit when internal cell voltage reaches 3.7V(Max:6μA)
General current consumption	Shut off current consumption: consumption current of the Protection circuit when internal cell voltage reaches 2.5v(Max:3μA)

## 8.2 PCM STANDARD

Symbol	Name	Conditions	MIN.	TYP.	MAX.	Unit
VDET1	Over-voltage threshold		4.250	4.270	4.350	V
T <sub>VDET1</sub>	Output delay of over-Charge	C <sub>3</sub> =0.01uF, V <sub>DD</sub> =3.6, V <sub>-</sub> >4.2V	192.5	275	357.5	ms
VDET2	Over-discharge threshold		2.25	2.300	2.35	V
I <sub>DD</sub>	Supply current	V <sub>DD</sub> =3.9V, V <sub>-</sub> =0V	/	3.0	6	μA
R <sub>m</sub>	PCM internal impedance		/	35	60	m Ω
I <sub>M</sub>	Over discharge protect current		3.5	5.0	7	A

## 8.3 PRINCIPLE DRAWING:



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## 9. CAUTION IN USE

To ensure proper use of the battery please read the manual carefully before using it.

### . Handling

- Do not expose to, dispose of the battery in fire.
- Do not put the battery in a charger or equipment with wrong terminals connected.
- Avoid shorting the battery
- Avoid excessive physical shock or vibration.
- Do not disassemble or deform the battery.
- Do not immerse in water.
- Do not use the battery mixed with other different make, type, or model batteries.
- Keep out of the reach of children.

### . Charge and discharge

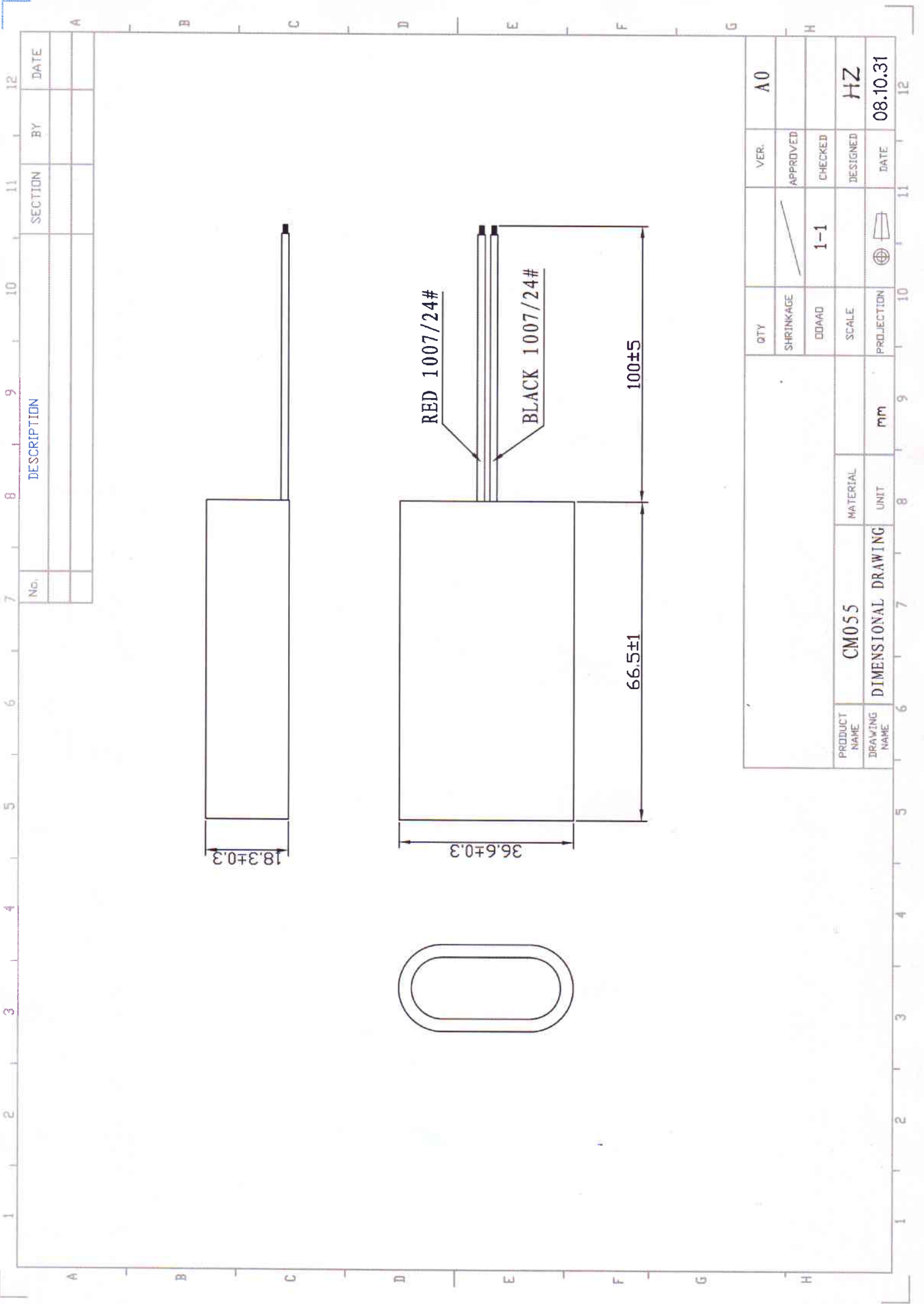
- Battery must be charged in appropriate charger only.
- Never use a modified or damaged charger.
- Do not leave battery in charger over 24 hours.

### . Storage

- Store the battery in a cool, dry and well-ventilated area.

### . Disposal

- Regulations vary for different countries. Dispose of in accordance with local regulations.



No.	DESCRIPTION	SECTION	BY	DATE

PRODUCT NAME	CM055	MATERIAL		QTY		VER.	A0
DRAWING NAME	DIMENSIONAL DRAWING	UNIT	mm	SHRINKAGE		APPROVED	
				DDAAD	1-1	CHECKED	
				SCALE		DESIGNED	HZ
				PROJECTION		DATE	08.10.31