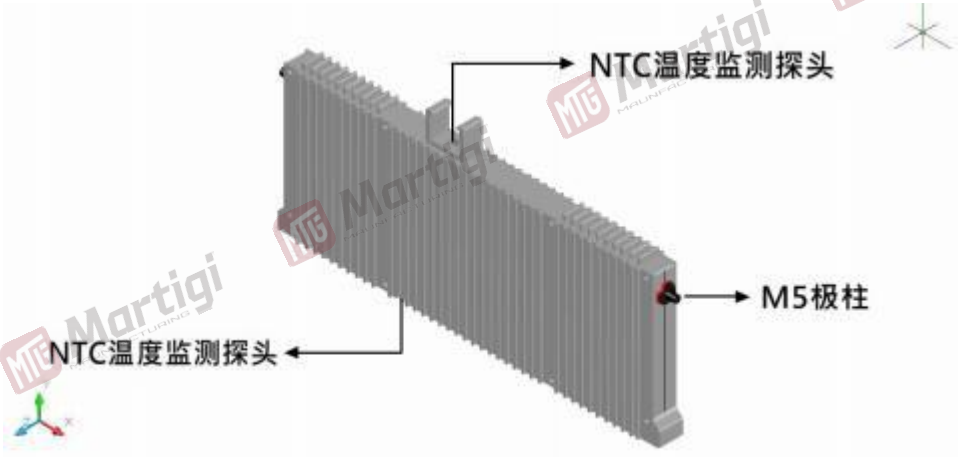
HEV hybrid battery unit specification

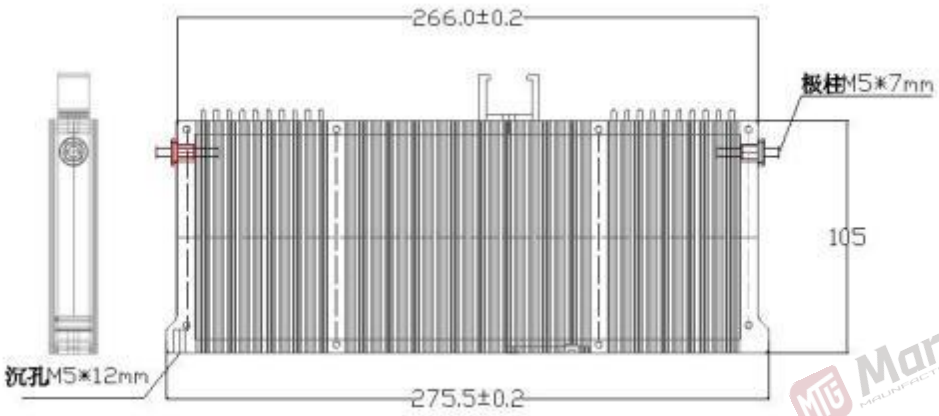
Thank you for choosing our NCM series power battery unit products, this manual will introduce the basic performance, parameters, and the use of installation precautions in detail, to help you better understand the use of this product.

The NCM high power cell unit uses aluminum substrate with better thermal conductivity, combined with high thermal conductivity silicon wafer. The high power characteristics of the NCM and the high energy characteristics of lithium-ion batteries. Optimize material and electrochemical system, adopt full pole ear laser welding technology to realize the design advantages of ultra-low internal resistance, ultra-high reliability and thermal management safety structure; based on the external characteristics of linear charge and discharge curve, SOC and charging control management is very accurate. By adjusting the surface capacity and the N / P ratio, the positive and negative electrode potential is optimized to avoid negative lithium precipitation, and the core is essentially safer in the charge and discharge process. It is widely used in power drag, kinetic energy recovery, 12 / 24V emergency start, 48V light hybrid MHEV, high voltage HEV, FCEV and other vehicle markets.

one. Product model number:

1. Example diagram:




266.0±0.2
极柱M5*7mm
105
沉孔M5*12mm
275.5±0.2

2. Product model naming rules:

The NCM indicates that the cathode material system is a NiCoMn nickel-cobalt-manganese ternary composite material. 21278128 is expressed as the cell body contour dimensions.

3. Basic parameters of the battery cell:

project	essential parameter	remarks
long L	278 mm	Do not contain pole column
wide W	21 mm	
tall H	128 mm	
Red pole	Positive + pole column	
Black pole	Negative-pole column	
weight	1030g± 15g	
Case material	AL 6061 Aluminum alloy alloy	T6 + was anodized in the cells
Pole column installation size	M5 * 7 mm H 59 copper	Metric tooth distance is 0.8 mm Torsional force of 28~30 kgf • cm(2.8~3.0N • m)
Fixed the hole position at the bottom of the battery cell	M5*12 mm	Metric tooth distance is 0.8 mm Torsional force of 26~28 kgf • cm(2.6~2.8N • m)

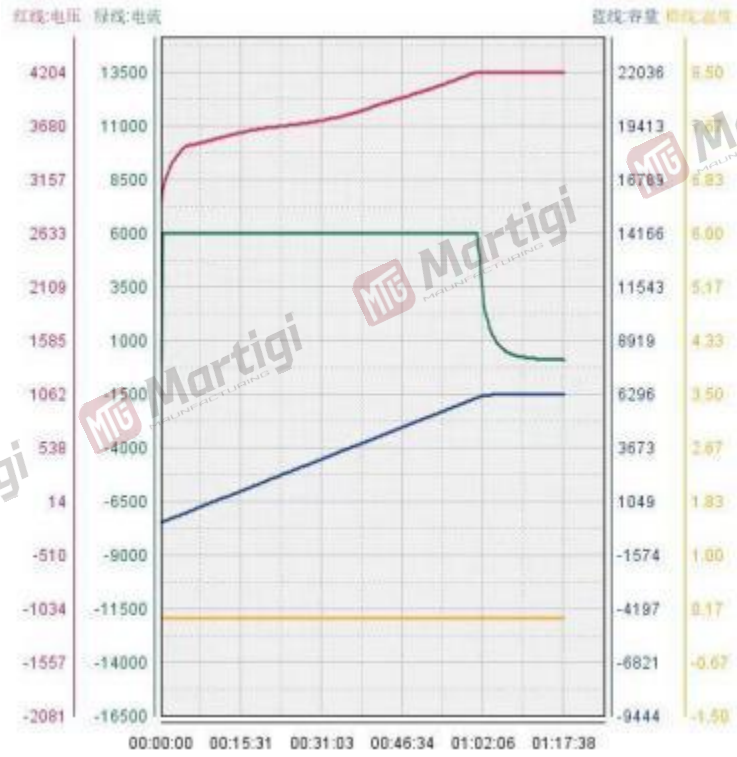
4. Electrical performance index of battery unit:

project	Standard typical value	remarks
nominal capacity	6.0 Ah	1C, 25± 2℃ ,5.60-8.40V
Initial impedance	＜2.4m Ω	AC, 1 KHZ, 50% SOC
nominal voltage	7.2V	
Charging as of voltage	8.4V	CC, with a CV cut-off current of 0.01C
Discharge as of voltage	5.6V	
Circulating performance	3000 cycle	25℃, 80% DOD, and capacity> 80%
safe temperature	-25~65℃	
Maximum continuous working current	59A	
maximum output	1062W@(10S)	50% SOC
Peak input power	740W@(10S)	50% SOC
Shipping voltage	7.25~7.40V	
Ship-form SOC	50%	
Case packaging material	AL 6061	T6 heat treatment + anodized treatment

Overcharge center temperature of the battery cell	45℃± 2	Test environment 25℃± 2, battery unit SOC 100% full charge, voltage 8.4V, 10V5A continuous overcharge, the test time is 4 minutes. Measure the temperature at the center of both housings.

Cell charging curve graph:

1C charging curve, that is, 6A current to 4.20V. Red indicates voltage, green indicates current, and blue capacity.

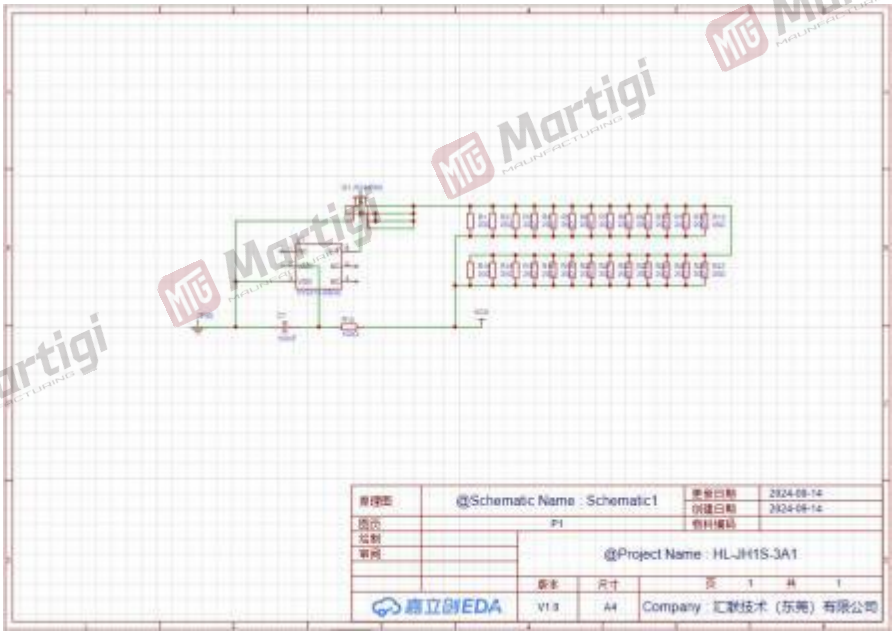


Cell discharge curve diagram:

1C discharge to 2.80V. Red indicates voltage, green indicates current, and blue capacity.

5. BMS example diagram:

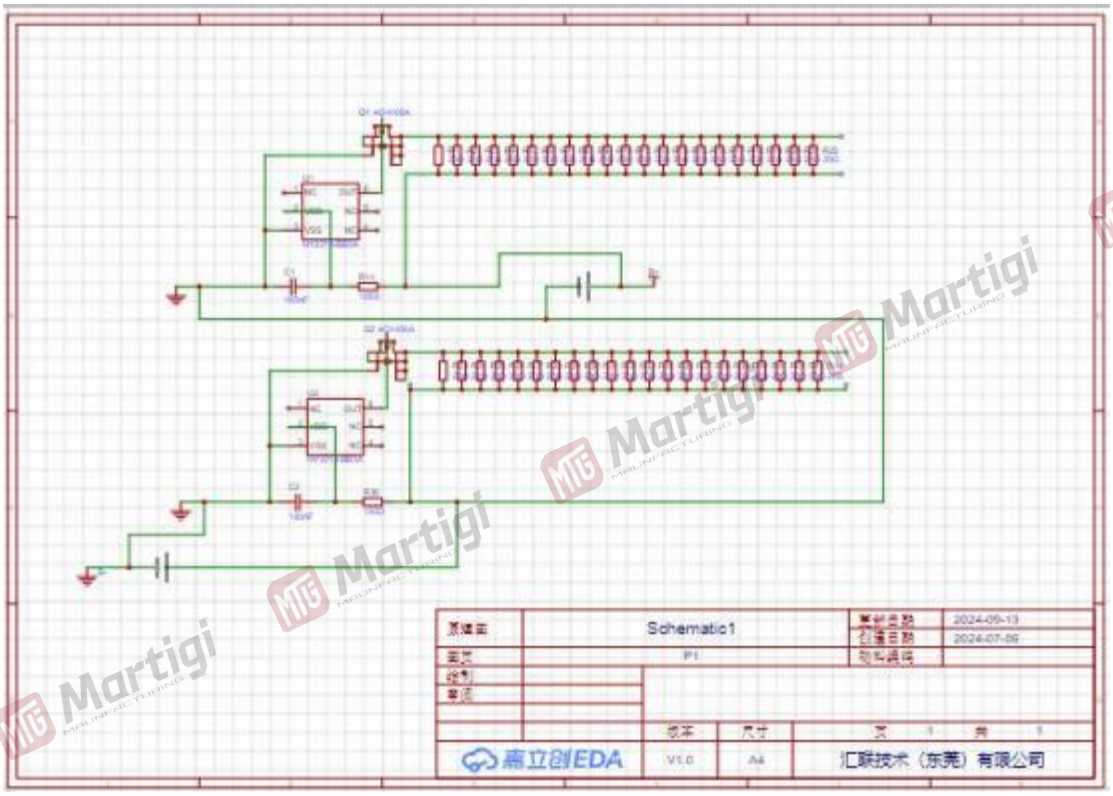
6. BMS Schematics:



7. Data parameters of BMS:

project	representative value	remarks
Overcharge charge monitoringvoltage	4.200±0.025V	
Overcharge release voltage	4.190±0.035V	
Overcharge monitoring the delay time	250 mS	
Guide impedance	0.9±0.1 Ω	
Overcharge load capacity continues	5A	Long time

8. Schematic diagram of the lithium battery unit assembly:

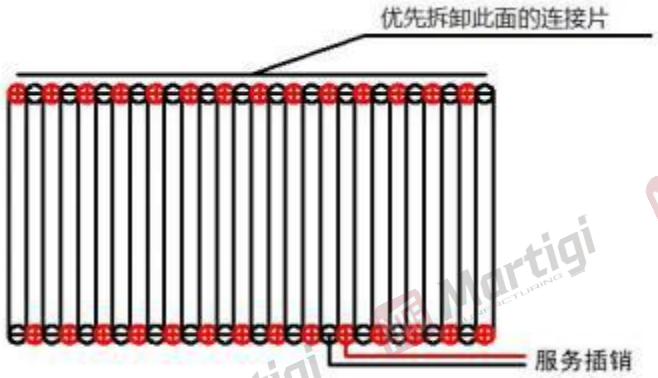


two. Installation

1. Remove the original vehicle battery pack assembly as shown in the figure:

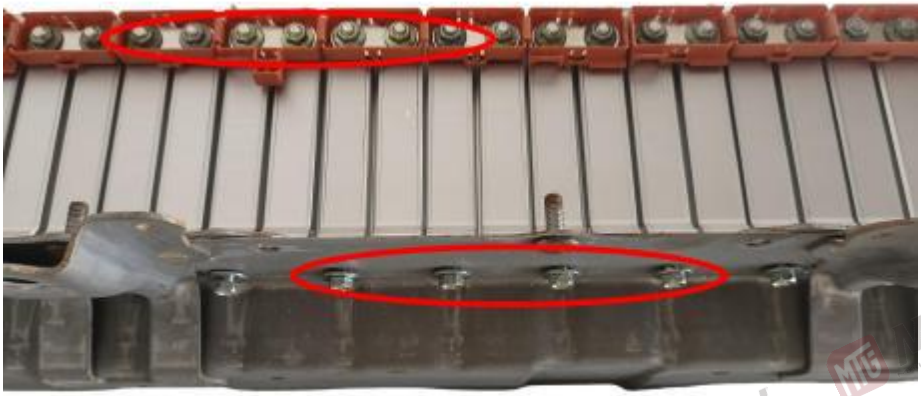
2. After removing the housing, the battery unit is obtained as shown:

3. Remove the guide plate of the BUS bus and the bottom fixing screw of the core preferentially as shown in the figure:

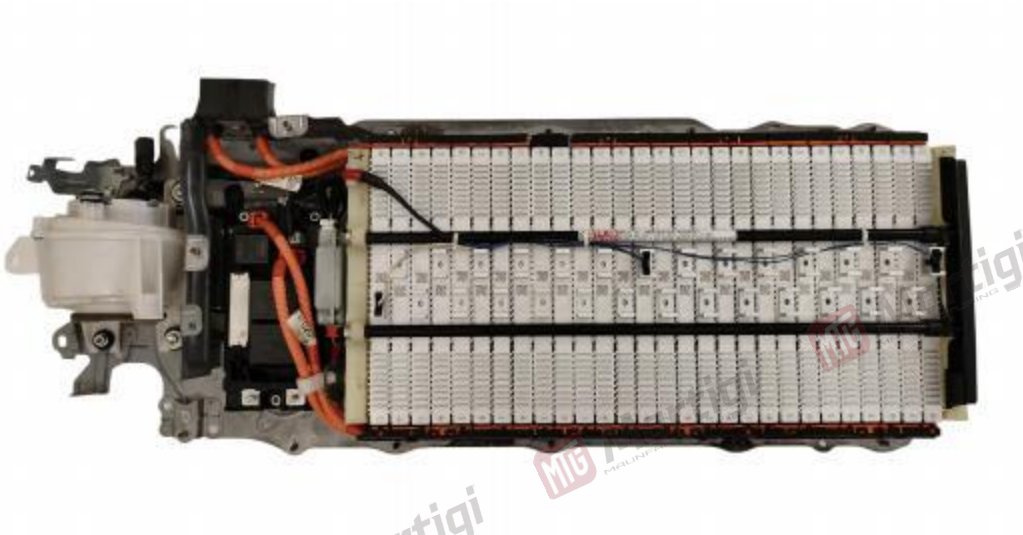


4. After the above steps, start to measure the NCM cell voltage. Note that the short circuit of the battery element; the voltage difference of all cell cells is within 50 mV for the new battery cell replacement. If the voltage difference exceeds this value, please contact the local dealer for replacement.

5. According to the arrangement form of the original battery cell, restore the installation to the original arrangement state. The pole column of the battery cell is made of copper, and the conductivity is more Good, but the material is relatively soft with iron, so it is necessary to pay attention to the installation torque of the guide plate is about 25~28 Kgf • cm(2.5~2.8 N•m). At the same time also need to combine the battery under the fixed nut gradually lock, avoid a twist in place type, and to combine the guide screw up first (not twist), and then to twist to 60% at the bottom of the screw, slightly shaking the battery module, until the guide all free contact, under the condition of no external stress repeat back and forth several times gradually twist. The wiring harness total The tie belt is stuck, the temperature probe is slightly different according to the model, but also according to the original position back.



6. After all the final installation and inspection, the packaging shell can be completed.



three. Applicable vehicle model table

model	graphic	Applicable models	Number of vehicles per vehicle	weight
NCM 2127 8128/7.2v 6.0 Ah		The second and third generation Prius Prius (2004-2011)	28 tablets of slice / 1 vehicles	28.5 kg
		The Prius C / Prius c / Aqua	20 tablets of slice / 1 vehicles	20.2 kg
		Corolla / Corolla	28 tablets of slice / 1 vehicles	28.5 kg
		Lei Ling / Levin	28 tablets of slice / 1 vehicles	28.5 kg
		The Lexus of Lexus CT 200h	28 tablets of slice / 1 vehicles	28.5 kg
		6th generation Camry Camry XV 40 (2007-2011)	34 tablets of slice / 1 vehicles	34.5 kg
		7th generation Camry Camry XV 50 (2012-2016)	34 tablets of slice / 1 vehicles	34.5 kg
		The Lexus of Lexus ES 300h	34 tablets of slice / 1 vehicles	34.5 kg
		The Lexus of Lexus GS 450h	40 tablets of slice / 1 vehicles	40.5 kg

		The Lexus of Lexus IS 300h	32 tablets of slice / 1 vehicles	32.5 kg
		The Lexus of Lexus NX 300h	34 tablets of slice / 1 vehicles	34.5 kg

four. Safety warning

1. Do not put the battery into the fire or in other ways to heat the battery.
2. Do not short-connect or install with incorrect polarity to avoid machinery or abuse.
3. Do not mix different manufacturers or different models of batteries.
4. Do not disassemble or change the external structure of the battery, and do not impact or puncture the battery with external force.
5. Do not put the battery into water, seawater, strong acid, strong alkaline and other substances.
6. Avoid direct sunlight, avoid high temperature and high humidity (temperature 60℃, humidity 95%).
7. Wear rubber or rubber gloves when operating the battery.
8. When charging and discharging the battery, ensure that the battery has voltage, current and temperature monitoring and protection.
9. If the battery has leakage, smoke or damage, you should stop using it immediately and contact the customer service for treatment.