PRODUCT Information

MS 3 series 12.6V 20A lithium battery protection board (with recovery function auto recovery)

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Scope of application: lithium battery with nominal voltage of 3.6V and 3.7V (including 18650, 26650 and polymer lithium battery)

Product size: 59 * 20 * 3.4mm

Product weight: 4.3G

Charging voltage: 12.6V - 13.0v

Continuous discharge current (upper limit): 20A (if the heat dissipation environment is bad, please reduce the load current)

Continuous charging current (upper limit): 10A

Standard Version: applicable to electric drills with starting current below 40A and power below 65W.

Note 1: three 15c-20c power batteries or six 10c-15c power batteries are required to successfully start the electric drill (the ordinary 18650 cannot start the electric drill!!!); If the battery is too small or the power of the electric drill is too large, please contact the shopkeeper to tell you the solution.

Note 2: connect 0V, 4.2V, 8.4v and 12.6V in strict accordance with the diagram. Do not intentionally short circuit.

Note 3: for loads with brush motors, a capacitor (10uf-1000uf) must be connected in parallel at the positive and negative terminals of the motor to prevent the reverse peak voltage generated by the motor from interfering with the protection board or breaking down the MOS tube.

Note 4: when three batteries are connected in series, please ensure that the voltage of each battery is the same. If not, please fill each battery separately and use it in series...

During the discharge test, the battery whose voltage drops faster is a poor battery.

For some customers with poor electronic foundation, please explain: do not mix good batteries with poor batteries! The closer the capacity / internal resistance of the three batteries is, the better（ Use effect of 2 good batteries + 1 poor battery = use effect of 3 poor batteries).

For some customers with poor electronic foundation, please explain: do not mix good batteries with poor batteries! The closer the capacity / internal resistance of the three batteries is, the better（ Use effect of 2 good batteries + 1 poor battery = use effect of 3 poor batteries).

Conditions for successful start of electric drill:

1. Three 15c-20c power batteries or six 10c-15c power batteries are required（ Ordinary 18650 cannot start the electric drill!!!)

2. The distance between the battery pack and the protection board shall be as short as possible, and the wire cores shall be in phase as far as possible.

3. When welding the battery for the first time, the output terminal shall not be connected with any load or any equipment.

4. If it still cannot be started, please contact the shopkeeper again to tell you the solution.

Standard Version: applicable to electric drills with starting current of 40A and power below 65W

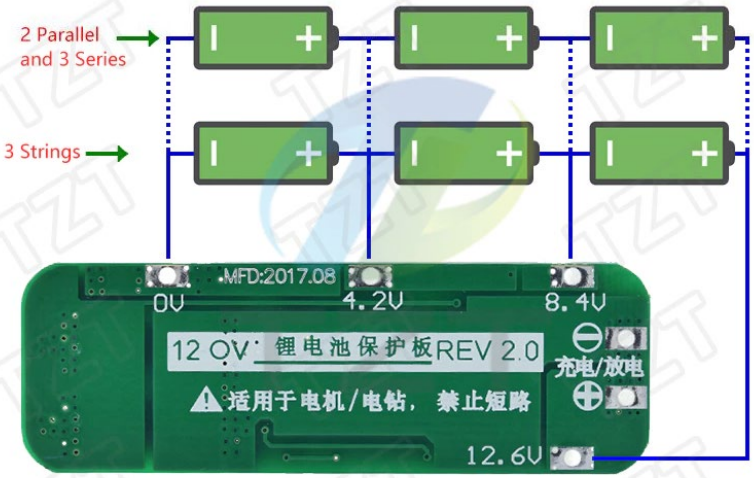
f the battery is too small or the power of the electric drill is too large, which makes it impossible to start, please contact the shopkeeper again to tell you the solution.

Electrical parameters:				
Project	minimum value	Typical value	Maximum	Company
Consumable current	12	18	24	μA
Overcharge protection voltage	4.2	4.25	4.3	V
Overcharge recovery voltage	4.1	4.16	4.2	V
Over discharge protection voltage	2.35	2.5	2.7	V
Over discharge recovery voltage	2.9	3.2	3.3	V
Conduction internal resistance	10	12	14	MΩ
Overcurrent protection current	37	40	43	A
Overcurrent protection current	56	60	64	A
Overcurrent delay time	50	100	150	MS
Continuous operating current	0	20	20	A
Continuous output power	0	252	252	W
Ambient temperature	-40	25	85	℃

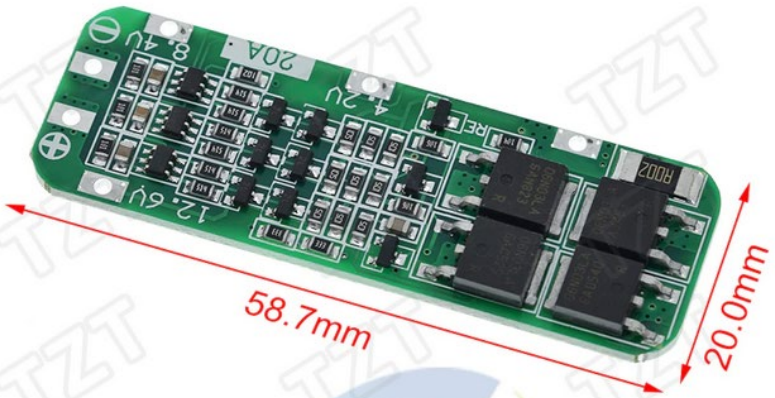
Troubleshooting:		
Fault phenomenon	Fault inspection and cause	Handling method and warranty
Unable to charge	Measure the voltage of three groups of batteries. If the voltage of one group of batteries exceeds about 4.22v, the protection board will start overcharge protection.	Match the battery pack, and do not mix the good battery with the poor battery (normal function, no warranty)
Unable to discharge	Measure the voltage of three groups of batteries. If the voltage of one group of batteries is lower than about 2.7V, the protection board will start over discharge protection.	Match the battery pack, and do not mix the good battery with the poor battery (normal function, no warranty)
Charge / discharge failure	OV, 4.2V, 8.4v and 12.6V are wrongly connected	Rewire or replace with a new board (human failure, no warranty)
Overcharge / over discharge failure	OV, 4.2V, 8.4v and 12.6V are wrongly connected	Rewire or replace with a new board (human failure, no warranty)
Discharge protection	Check whether the battery pack has strong enough discharge capacity and whether the starting current of the load exceeds the overcurrent protection current of the protection board.	Replace the battery pack with stronger discharge capacity or the protective plate with higher current (beyond the working range, no warranty required)
Component faulty welding	There is no connection between one pin of the component andthe PCB pad.	Repair welding (warranty can be returned)
Element welding	There is a short circuit between two or more pins of the element.	Remove components and re weld (warranty can be returned)
Electrostatic breakdown	When not powered on, measure the G pole, D pole and S pole of MOS tube. The forward resistance and reverse resistance of any two pins are 02.	Remove and replace MOS tube (warranty can be returned)

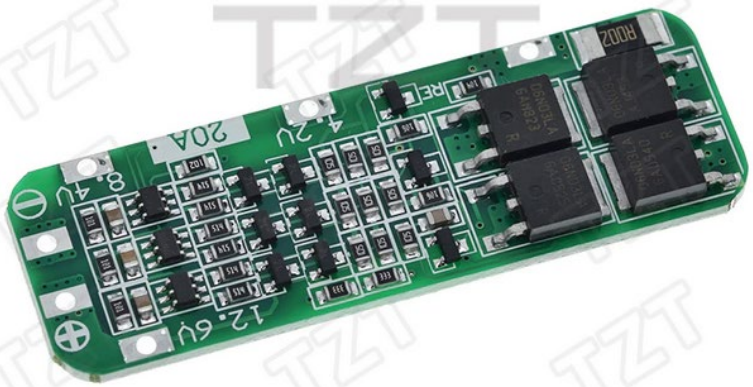
Important note: if you don't understand the wiring diagram, please don't buy it, because it is very possible to burn the board with the wrong wire!

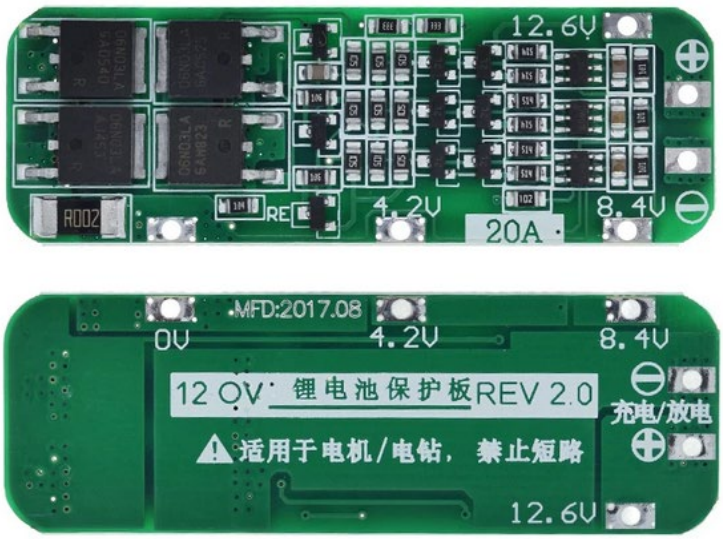
Battery wiring diagram



Weight: 5.65g






12.6V
RE
4.2V
8.4V
20A
MFD:2017.08
0V
4.2V
8.4V
12.6V
锂电池保护板REV 2.0
充电/放电
适用于电机/电钻，禁止短路