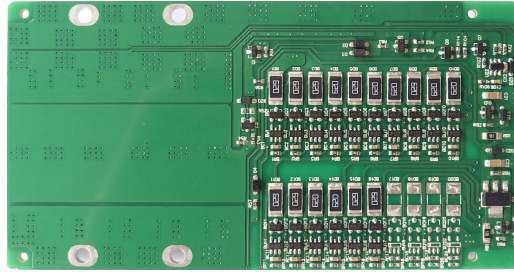
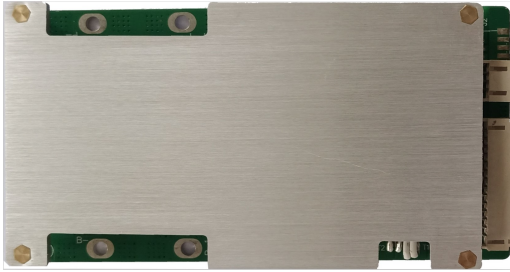


Product Name: LiFePO4 16S Series BMS

Product Model: PCM-LFP16S25A

Brief Introduction



Features:

- It has multifunctional safety protection of over charge, over discharge, over current, short-circuited, temperature (detailed as below parameters);
- It has balancing function under the state of charging;
- The FET temperature is lower than 90°C after discharging for over 1 hours at 25A under ambient temperature 30°C;

- System power consumption:

1. Working $\leq 100\mu\text{A}$ (+25°C)

- Nominal parameters:

Item	Terminals	Nominal value	Unit
Battery design capacity		N/A	mAH
Charge voltage	B+, P-	57.6	V
Continue charge current	B+, P-	<26	A
Continue discharge current	B+, P-	<26	A
Input voltage for terminals	B1,B2,B3,B4,B5,... B20	5	V
Internal resistance	B-, P-	<5	mΩ
Work temperature	-	-20 ~ +90	°C

Storage temperature	-	-40 ~ +125	°C
work humidity	-	<75	%RH
Storage humidity	-	<85	%RH

Detailed parameters

● Cell Overvoltage Protection

Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
Overvoltage	3850mV	3900mV	3950mV	0.8-2S	turn off the Charging FET	-
Overvoltage release	3700mV	3800mV	3900mV	5S	-	turn on the Charging FET

● Cell Undervoltage Protection

Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
Undervoltage	1950mV	2000mV	2050mV	10-200mS	turn off the Discharging FET	-
Undervoltage release	2200mV	2300mV	2400mV	5S	-	turn on the Discharging FET

● Overcurrent in Charge Protection

安全等级 Safety level	最小值 Min	典型值 Typical	最大值 Max	延时 Delay	保护模式 Protected Mode	恢复模式 Release Mode
Overcurrent charge	-	-	-	-	-	-
Overcurrent release	-	-	-	-	-	-

● Overcurrent in Discharge Protection

Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
1 st Level Overcurrent Discharge	80A	100A	120A	250-350mS	turn off the Discharging FET	-
1 st Level Overcurrent release	-	-	-	-	-	Cut Load ,Auto release
2 nd Level Overcurrent Discharge	130A	150A	170A	10-150mS	turn off the Discharging FET	-
2 nd Level Overcurrent release	-	-	-	-	-	Cut Load ,Auto release

● Short Circuit in Discharge Protection

Test conditions: 16 series 20A battery pack, external short circuit (B+, P-)

Safety level	Min	Max	Delay	Protected Mode	Release Mode
Short circuit protection	400A	-	≤ 800uS	turn off the Discharging FET	-
Short circuit release	-	-	-	-	short circuit Release, Auto recovery

● Temperature protection

1、Overtemperature in Charge Protection

Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
1 st Level Over temperature (Battery)	72°C	75°C	78°C	5S	turn off the Charging FET	-
1 st Level Over temperature release	52°C	55°C	58°C	10S	-	turn on the Charging FET
2 nd Level Over temperature (Battery)	-	-	-	-	-	-
2 nd Level Overtemperature release	-	-	-	-	-	-
3 rd Level Over temperature (Battery)	-	-	-	-	-	-
3 rd Level Over temperature release	-	-	-	-	-	-
4 st Level Over temperature (FET)	85°C	90°C	95°C	5S	turn off the Charging FET	-
4 st Level Over temperature release	55°C	60°C	65°C	10S	-	turn on the Charging FET

2、Under temperature in Charge Protection

Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
Under temperature	-	-	-	-	-	-
Under temperature release	-	-	-	-	-	-

3、Overtemperature in Discharge Protection

Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
1 st Level Over temperature (Battery)	72°C	75°C	78°C	5S	turn off the Discharging FET	-

1 st Level Overtemperature release	52°C	55°C	58°C	10S	-	turn on the Discharging FET
2 nd Level Over temperature (Battery)	-	-	-	-	-	-
2 nd Level Overtemperature release	-	-	-	-	-	-
3 rd Level Over temperature (Battery)	-	-	-	-	-	-
3 rd Level Overtemperature release	-	-	-	-	-	-
4 st Level Over temperature (FET)	85°C	90°C	95°C	5S	turn off the Discharging FET	-
4 st Level Overtemperature release	55°C	60°C	65°C	10S	-	turn on the Discharging FET

4、 Under temperature in Discharge Protection

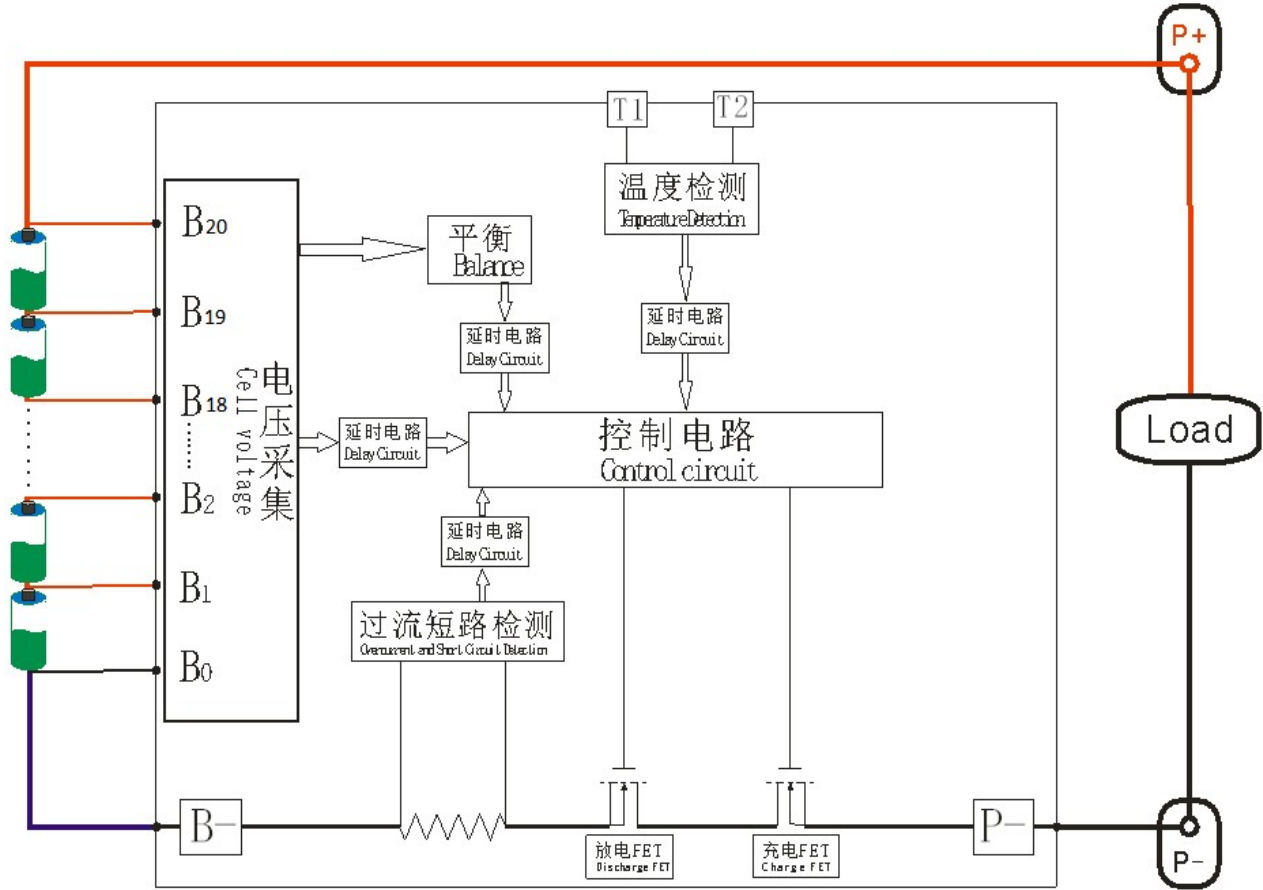
Safety level	Min	Typical	Max	Delay	Protected Mode	Release Mode
Under temperature	-	-	-	-	-	-
Under temperature release	-	-	-	-	-	-

● Cell Balancing

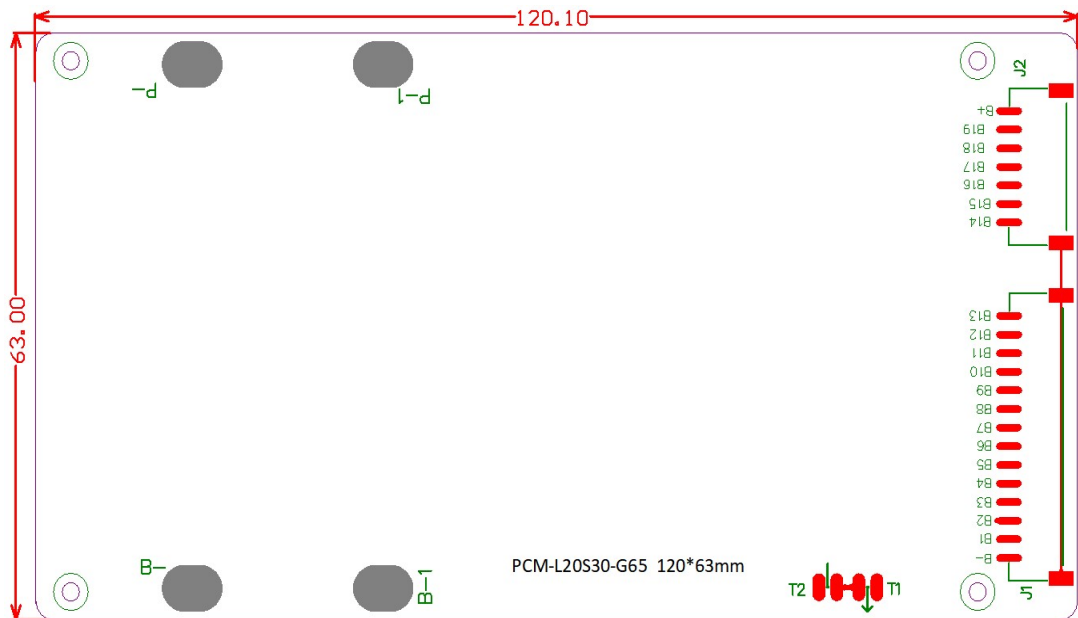
Charge balancing function should be started only when cells voltage difference reached setting value. It will discharge higher voltage cell and balancing function will stop when cells voltage difference lower than setting value.

Name	Cell Balance Threshold	Cell Balance Window	Cell Balance Min	Cell Balance current	Cell Balance Interval
Charge Algorithm	voltage \geq 3600mV	50mV	25mV	58 \pm 10mA	-

● Schematic block diagram



● PCB Port distribution and definition





Terminal No	Descriptions
B-.B-1	Negative pole for main circuit to be connected with negative pole of Cell1
B0	Negative terminal for cell1
B1	Positive terminal for Cell1 and negative terminal for cell2
B2	Positive terminal for cell2 and negative terminal for cell3
B3	Positive terminal for cell3 and negative terminal for cell4
B4	Positive terminal for cell4 and negative terminal for cell5
B5	Positive terminal for cell5 and negative terminal for cell6
B6	Positive terminal for cell6 and negative terminal for cell7
B7	Positive terminal for cell7 and negative terminal for cell8
B8	Positive terminal for cell8 and negative terminal for cell9
B9	Positive terminal for cell9 and negative terminal for cell10
B10	Positive terminal for cell10 and negative terminal for cell11
B11	Positive terminal for cell11 and negative terminal for cell12
B12	Positive terminal for cell12 and negative terminal for cell13
B13	Positive terminal for cell13 and negative terminal for cell14
B14	Positive terminal for cell14 and negative terminal for cell15
B15	Positive terminal for cell15 and negative terminal for cell16
B+	Positive terminal for cell16
P-.P-1	Negative terminals for discharge
J1.J2	Terminals for battery voltage detection
T2	Terminal for MOSFET temperature detection device
T1	terminal for battery temperature detection device

