



Lilon

LiFePO₄

LTO

Na-ion

PCM for 13S Battery Pack: Programmable for multiple chemistries

SPECIFICATIONS

Item	Specification				Remark
	MIBMS-13S50A-LNMC	MIBMS-13S50A-LFP	MIBMS-13S50A-LTO	MIBMS-13S50A-NA	
1. General					
Stock Code	67003-050A13	67003-050A13-LFP	67003-050A13-LTO	67003-050A13-NA	
Chemistry	Li-Ion NMC	LiFePO ₄	Lithium Titanate	Sodium ion	Programmed for 13S
Dimensions LxWxH	105 x 65.5 x 1.6mm				
PCB Material	FR4				
2. IC & Mosfet					
Protection IC	BQ76952				
MosFET	LM1A013NHX8A				
Fuse	CLM3820P5045C				
Power consumption - active mode	10mA				
Power consumption - sleep mode	≤300µA				
3. Voltage					
Minimum battery pack voltage	32.5V	26V	19.5V	26V	
Nominal battery pack voltage	46.8V	41.6V	29.9V	39V	
Maximum battery pack voltage	54.6V	47.45V	37.7V	52V	
4. Charge Characteristics					
4.1 Voltage					
Cell nominal voltage	3.6V	3.2V	2.3V	3V	
Charge voltage	4.2V/cell	3.65V/cell	2.9V/cell	4V/cell	#
Charge over voltage threshold	4.25V/cell	3.7V/cell	2.95V/cell	4.05V/cell	#
Charge over voltage delay time	2s				#
Charge over voltage release	3.9V/cell	3.35V/cell	2.6V/cell	3.7V/cell	#
2nd charge over voltage	4.5V/cell	3.95V/cell	3.2V/cell	4.3V/cell	Permanent fail (blows chemfuse)
2nd charge over voltage delay time	30s				Permanent fail (blows chemfuse)
Balancing start voltage	3.9V/cell	3.35V/cell	2.6V/cell	3.7V/cell	#
Balancing start delta voltage	20mV				#
4.2 Current					
Charge over current threshold	15A				#
Charge over current delay time	426ms				#
Charge over current release	426ms				#
4.3 Temperature					
Charge over temperature threshold	50°C ± 3°C				#
Charge over temperature release	45°C ± 3°C				#
Charge under temperature threshold	0°C ± 3°C				#
Charge under temperature release	5°C ± 3°C				#
Temperature protection delay time	2s				#





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	MIBMS-13S50A-LNMC	MIBMS-13S50A-LFP	MIBMS-13S50A-LTO	MIBMS-13S50A-NA	
5. Discharge Characteristics					
5.1 Voltage					
Discharge under voltage threshold	2.5V/cell	2V/cell	1.5V/cell	2V/cell	#
Discharge under voltage delay time	2s				#
Discharge under voltage release	3.05V/cell	2.6V/cell	1.9V/cell	2.5V/cell	#
5.2 Current					
Discharge over current threshold	60A ± 2A				#
Discharge over current delay time	10s				#
Discharge over current release	0A-10s				#
5.3 Temperature					
Discharge over temperature threshold	60°C ± 3°C				#
Discharge over temperature release	50°C ± 3°C				#
Discharge under temperature threshold	-10°C ± 3°C				#
Discharge under temperature release	0°C ± 3°C				#
Temperature protection delay time	2s				#
6. Maximum Current					
Max continuous charge / discharge current	At 25°C: 50A At 45°C: 40A				
7. Short Circuit					
Short Circuit threshold	200A ± 1%				#
Short Circuit delay time	330µs ± 15µs				#
Short Circuit release	Load disconnect				#
8. Maximum Temperature					
Chemfuse max temperature	65°C				
9. Polarity					
Reverse polarity protection	No				

indicates factory adjustable





ENEPOWER

MIBMS-13S50A series

Protection Circuit Module (PCM)

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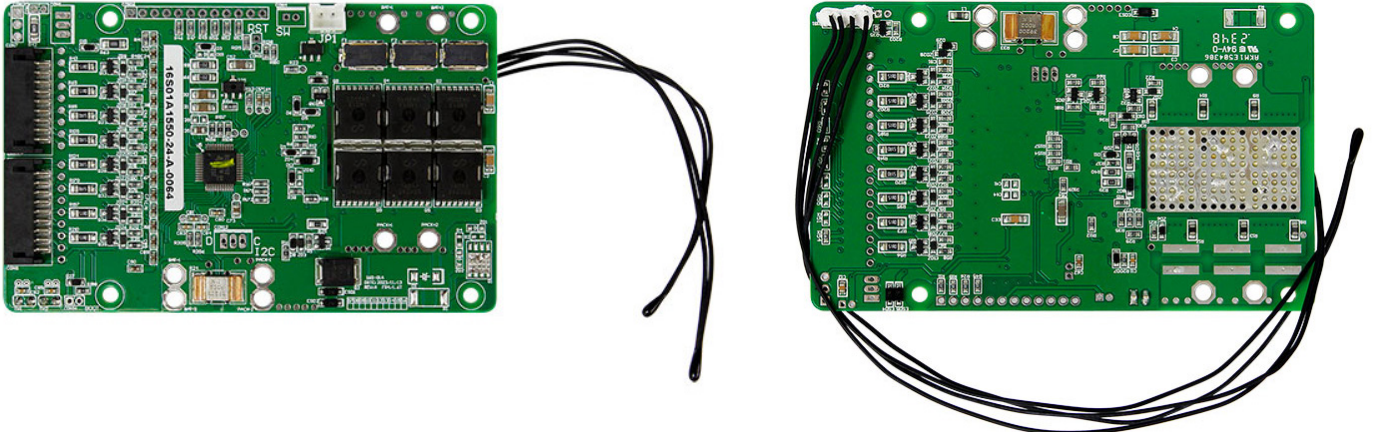
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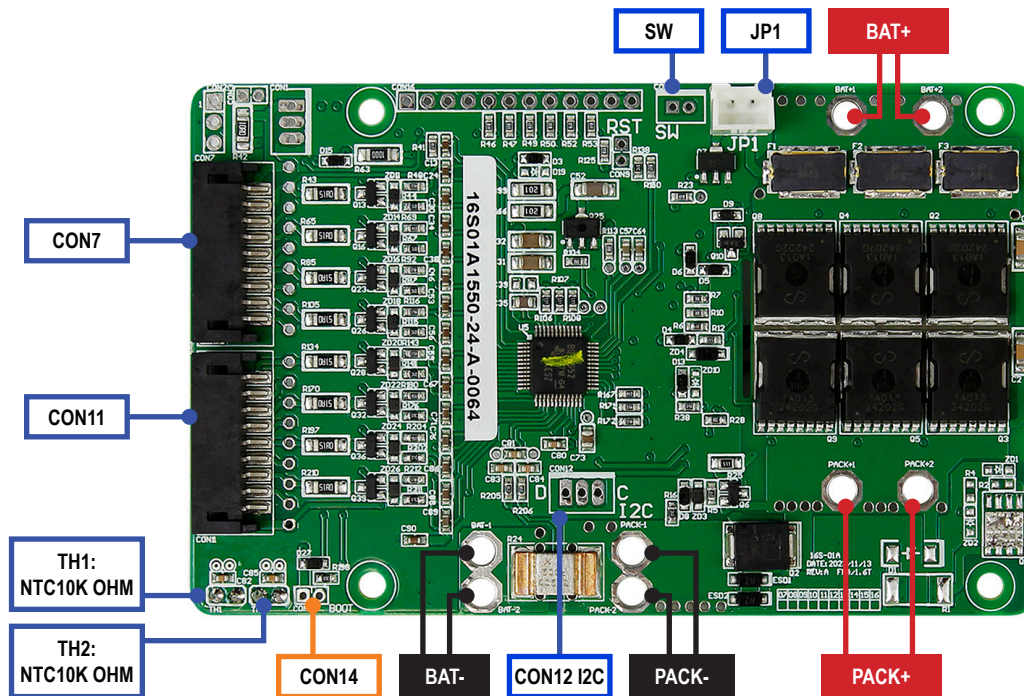
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IMAGE



CONNECTION DIAGRAM



PACK - / PACK +	BATTERY EXTERNAL INPUT / OUTPUT
BAT - / BAT +	CONNECTION TO CELL PACK NEGATIVE AND POSITIVE
CON7	9 PIN (8 WIRE) CELL VOLTAGE SENSE / BALANCE LEADS. Refer FIG 2. CONTACT MI FOR CONNECTION
CON 11	9 PIN (9 WIRE) CELL VOLTAGE SENSE / BALANCE LEADS. Refer FIG 2. CONTACT MI FOR CONNECTION
CON 14	BOOT
JP1	2ND OVERCHARGE VOLTAGE PROTECTION. CONTACT MI
CON12	I2C. (□-DATA, ○-GND, ○-CLOCK)
SW	TO ACTIVATE SWITCH FUNCTION AFTER REMOVAL OF R157 RESISTOR AND PROGRAMMING. CONTACT MI

