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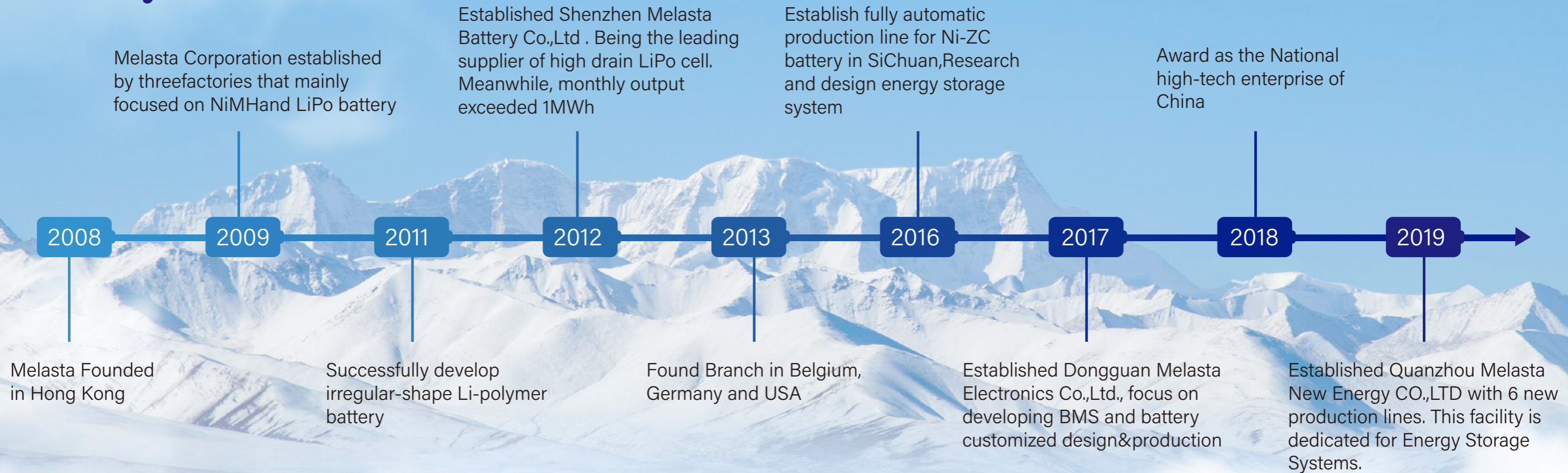
# ENERGY STORAGE SYSTEM BATTERY CATALOGUE



## Company Introduction

MELASTA is one of the Leading Companies in the Power Industry. It established in 2008 as a result of a joint venture between two leading high-tech companies, which were specialized in Research and Development (R&D), Production and Marketing of rechargeable batteries. It mainly focuses on the development of human capital, best quality customer service, and quality products according to international standards. It has global marketing and customer service professional teams with highly qualified people from china as well as from other countries. Melasta has the pride to develop new innovative products through R&D to solve the energy storage problems. We have got more than fifty (50) research patents.

# History Timeline



# Certifications

Melasta batteries are manufactured to international standards including ISO9001 and IEC and certification of CB, KC, UN, RoHS and CE



# Why Melasta?



## One Stop Shop for Battery

- > Replacement Battery Solutions
- > Customized Battery Pack Solutions
- > Customized Charger Design Service
- > Customized BMS Design Service



## Research and Development

- > Hi-Tech Enterprise Award
- > Two (2) State of the Art Research Labs
- > 50+ Research Patents
- > High Capacity Technology
- > Superior Lamination Technology



## Manufacturing Technology

- > Production Capacity
- > 40+ Engineers and Technicians
- > 11 Years Manufacturing Experience
- > State of the Art Production Plants
- > Total Quality Management
- > 500+ Skilled Labor



## After Sales Service

- > Multi-Cultural Teams
- > Product Warranty
- > One to One Support
- > Dedicated Engineers Team



## Battery Cells

Lithium Iron Phosphate (LiFePO<sub>4</sub>) is the safest chemistry among all the lithium ion battery chemistry. With superior production technology and advanced equipment, Melasta LiFePO<sub>4</sub> Battery defines the new standards of the performance and reliability to our customers, this technology enables Melasta to produce high energy density LiFePO<sub>4</sub> cylindrical and prismatic cells. Right now, Melasta's lithium iron phosphate battery are widely using for energy storage solutions and multiple electric mobility solutions.

### Cell Features

High Power Performance

Longer Cycle life

Low Impedance and  
Low Heat Generation

No memory effect

High energy density

High Charge / Discharge  
Energy Efficiency

Light Weight

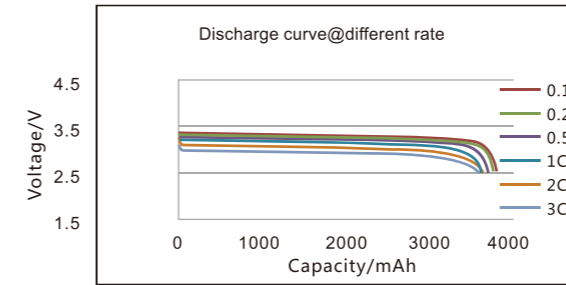
Low Self Discharge Rate

# Cylindrical type cells

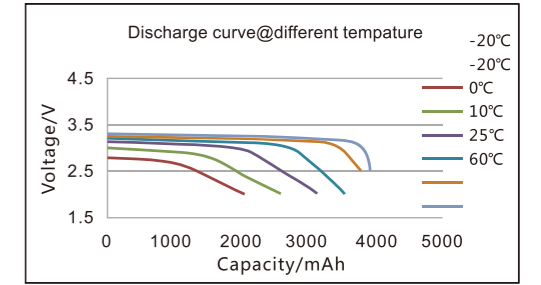
Melasta focuses on R&D of the lithium iron phosphate cells that enables to make the High energy density cells. The cylindrical cells are specially designed to build the battery pack, which can replace the lead-acid battery and use for the high Power applications such as E-Mobility, hybrid energy storage system, and Power Tools.



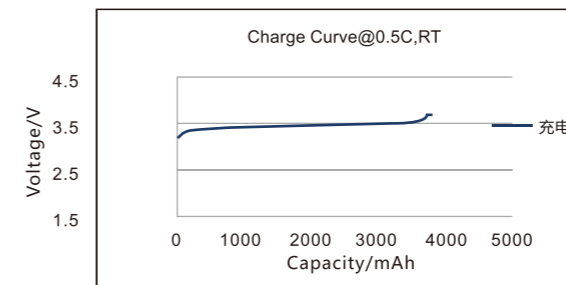
## LiFePO4 Cell Performance Graph



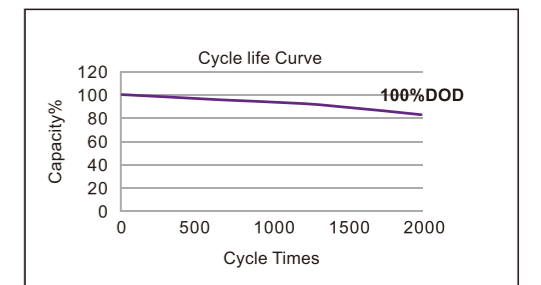
Charge:CC-CV,0.5C,3.65V cut-off at 25°C  
Discharge:CC,0.5C,2.0V cut-off at different rate



Charge:CC-CV,0.5C,3.65V cut-off at 25°C  
Discharge:0.5C,CC,2.0V cut-off at different temp



Charge:CC-CV,0.5C,3.65V cut-off at 25°C



Charge:CC-CV,0.5C,3.65V cut-off at 25°C  
Discharge:0.5C,CC,2.0V cut-off at 25°C

## LiFePO4 Cylindrical Cell Specification

Item	Specification
Cell Model	IFR2665E-3800A
Nominal Voltage	3.2 V
Nominal Capacity	3.8 Ah
Impedance	≤25mΩ
Charge Voltage	3.65 V
Discharge Voltage	3C
Peak Discharge Rate	5C/5S
Charge Temp	0 ~ 45 oC
Discharge Temp	-20~60 oC
Storage Temp	-10~55 oC
Cycle Life	2500 Cycles at 80% DOD
Weight Approx.	87.5 g
Dimensions	H=65.6±0.3mm Diameter= 26.15±0.1mm

## Regular Type Cylindrical LiFePO4 Battery

Cell Model	Nominal Voltage (V)	Nominal Capacity (mAh)	Diameter (mm)	Height (mm)	Standard Charge Rate (C)	Fast Charge Rate (C)	Max Continuous Discharge Rate (C)	Pulse Discharge Rate (C)	Weight approx. (g)
IFR10130E-30	3.2	30	10.3	13.2	0.5	1	1	3	5
IFR10440E-200	3.2	200	10.3	44.2	0.5	1	1	3	7
IFR14430E-250	3.2	250	14.2	43.3	0.5	1	1	3	11
IFR14500E-250	3.2	250	14.2	50.2	0.5	1	1	3	14
IFR14430E-300	3.2	300	14.2	43.3	0.5	1	1	3	12
IFR16340E-300	3.2	300	16.2	34.2	0.5	1	1	3	13.5
IFR16340E-400	3.2	400	16.2	34.2	0.5	1	1	3	15
IFR14430E-400	3.2	400	14.2	43.3	0.5	1	1	3	13
IFR14500E-400	3.2	400	14.2	50.2	0.5	1	1	3	15.5
IFR14500E-500	3.2	500	14.2	50.2	0.5	1	1	3	16
IFR14500E-600	3.2	600	14.2	50.2	0.5	1	1	3	18
IFR18500E-600	3.2	600	18.5	50.2	0.5	1	1	3	26
IFR18500E-750	3.2	750	18.5	50.2	0.5	1	1	3	28
IFR14650E-800	3.2	800	14.2	65.3	0.5	1	1	3	21
IFR18500E-900	3.2	900	18.5	50.2	0.5	1	1	3	30

Regular Type Cylindrical LiFePO4 Battery

Cell Model	Nominal Voltage (V)	Nominal Capacity (mAh)	Diameter (mm)	Height (mm)	Standard Charge Rate (C)	Fast Charge Rate (C)	Max Continuous Discharge Rate (C)	Pulse Discharge Rate (C)	Weight approx. (g)
IFR18500E-1000	3.2	1000	18.5	50.2	0.5	1	1	3	32
IFR22430E-1100	3.2	1100	22.5	43.3	0.5	1	1	3	45
IFR22430E-1200	3.2	1200	22.5	43.3	0.5	1	1	3	47
IFR18650E-1200	3.2	1200	18.5	65.3	0.5	1	1	3	40
IFR18650E-1300	3.2	1300	18.5	65.3	0.5	1	1	3	42
IFR18650E-1400	3.2	1400	18.5	65.3	0.5	1	1	3	42
IFR18650E-1500	3.2	1500	18.5	65.3	0.5	1	1	3	42
IFR18650E-1600	3.2	1600	18.5	65.3	0.5	1	1	3	40
IFR18650E-1800	3.2	1800	18.5	65.3	0.5	1	1	3	41
IFR22650E-1800	3.2	1800	22.5	65.3	0.5	1	1	3	60
IFR22650E-1900	3.2	1900	22.5	65.3	0.5	1	1	3	62
IFR26430E-1900	3.2	1900	26.5	43.3	0.5	1	1	3	54
IFR22650E-2000	3.2	2000	22.5	65.3	0.5	1	1	3	63
IFR26430E-2000	3.2	2000	26.5	43.3	0.5	1	1	3	56
IFR26650E-3000	3.2	3000	26.15	65.6	0.5	1	1	3	84
IFR26650E-3300	3.2	3300	26.2	65.6	0.5	1	1	3	84
IFR26650E-3400	3.2	3400	26.2	65.6	0.5	1	1	3	84
IFR26650E-3500	3.2	3500	26.2	65.6	0.5	1	1	3	85
IFR26650E-3200	3.2	3200	26.15	65.6	0.5	1	1	3	84
IFR26650E-3400	3.2	3400	26.15	65.6	0.5	1	1	3	85
IFR26650E-3800	3.2	3800	26.15	65.6	0.5	1	1	3	85

Regular Type Cylindrical LiFePO4 Battery

Cell Model	Nominal Voltage (V)	Nominal Capacity (mAh)	Diameter (mm)	Height (mm)	Standard Charge Rate (C)	Fast Charge Rate (C)	Max Continuous Discharge Rate (C)	Pulse Discharge Current	Weight approx. (g)
IFR18500P-800	3.2	800	18.5	50.2	1	2	10	12A ≤ 1S	26
IFR18500P-900	3.2	900	18.5	50.2	1	2	10	13.5A ≤ 1S	28
IFR22430P-950	3.2	950	22.5	43.3	1	2	10	14.25A ≤ 1S	45
IFR18650P-1100	3.2	1100	18.35	65.5	2	5	30	40A ≤ 5S	41
IFR18650P-1400	3.2	1400	18.35	66.3	1	3	10	21A ≤ 5S	40
IFR22650P-1600	3.2	1600	22.5	65.3	1	3	10	24A ≤ 3S	60
IFR26650P-3000	3.2	2900	26.15	65.6	1	3	10	45A ≤ 5S	84
IFR26650P-2300	3.2	2300	26.15	65.6	2	5	20	70A ≤ 5S	86
IFR26650P-2500	3.2	2500	26.2	65.5	1	2	20	125A ≤ 3S	86
IFR26650P-3000B	3.2	3000	26.9	65.5	1	2	10	60A ≤ 10S	85

Prismatic type Cells

Melasta High energy density prismatic cells are unique to build technology to provide reliable energy with high safety standards. These cells are used for energy storage solutions, electric buses, golf carts, and other industrial electric vehicles.



- Voltage: 3.2 V
- Capacity: 20 Ah
- Dimension: 180\*27\*70mm
- Impedance: 2 mΩ
- Max Continuous discharge rate: 5 C
- Pulse Discharge rate: 10C/10S
- Weight: 610 ± 20 g



- Voltage: 3.2 V
- Capacity: 50 Ah
- Dimension: 128\*32\*173mm
- Impedance: 1 mΩ
- Max Continuous discharge rate: 3C
- Pulse Discharge rate: 5C/10S
- Weight: 1350 ± 20 g



- Voltage: 3.2 V
- Capacity: 100 Ah
- Dimension: 170\*48\*174mm
- Impedance: 1 mΩ
- Max Continuous discharge rate: 3C
- Pulse Discharge rate: 5C/10S
- Weight: 2600 ± 20



- Voltage: 3.2 V
- Capacity: 120 Ah
- Dimension: 170\*48\*174mm
- Impedance: 1 mΩ
- Max Continuous discharge rate: 1C
- Pulse Discharge rate: 3C/10S
- Weight: ±



# Battery Packs

Melasta Provides energy storage solution for a wide range of applications. It has standard products which could be used for replacement for energy storage. Its high-quality product replaces the lead-acid batteries efficiently. These batteries are with plug and play replacement. These batteries have built-in BMS System which controls the battery for charging and discharging. BMS has multiple options for communication protocol such as Bluetooth, Wi-Fi and RS485.

## Melasta Advantages for Energy Storage Battery

- Drop-in Replacement Solution
- High efficiency
- Long Life cycle
- Maintenance Free
- Partial state of charge (PSOC)
- Environment friendly



## 12 Volt Lead-acid replacement battery

Melasta offers a complete range of 12 Volt LiFePO4 batteries as a replacement solution for Lead-acid batteries. These batteries are suitable for a wide range of applications such as Golf carts, marine boats, medical equipment, jump starter, car, ups storage, and many more applications.



### Features

- Compatible with applications
- Drop and replacement solution
- Same size as lead acid batteries
- Same output terminals
- Stable discharge rate
- Lighter weight than Lead-acid battery
- Longer life span up to 3500 cycles

Model Number	Nominal voltage	Capacity (Ah)	Charge Current(A)	Discharge Current (A)	Peak Current (A)	Weight (kg)	Dimension (L*W*H)mm
MB1206F	12V	6	6	6	30	0.83	151*65*95
MB1209F	12V	9	9	9	35	1.15	151*65*95
MB1210F	12V	10	10	15	35	1.5	142*80*80
MB1212F	12V	12	12	15	60	1.6	151*98*95
MB1215F	12V	15	15	15	60	1.9	151*98*95
MB1220F	12V	20	20	30	68	3	180*76*166
MB1224F	12V	24	24	30	60	3	180*76*166
MB1225F	12V	25	25	25	50	3	116*100*200
MB1230F	12V	30	40	40	150	5.3	196*165*174
MB1240F	12V	40	40	50	170	6.5	196*165*174
MB1250F	12V	50	50	50	150	6.5	196*165*174
MB1260F	12V	60	50	50	170	8.5	260*167*211
MB1275F	12V	75	50	50	150	9.8	260*168*213
MB1280F	12V	80	80	100	350	12.1	318*165*215
MB12100F	12V	100	80	100	350	12.3	318*165*215
MB12125F	12V	125	80	100	350	15	318*165*215
MB12150F	12V	150	80	100	350	19.8	485*170*245
MB12200F	12V	200	80	100	350	25	48*170*245
MB12300F	12V	300	80	100	350	35	520*221*296

## 24 Volt Industrial Vehicle Battery Solution

Low-speed vehicles battery mostly required a 24V standard battery pack with high capacity. Melasta offers a capacity range from 10Ah to 300Ah, which are suitable for forklift, golf carts, industrial cleaner, and other industrial robots.



### Features

- Specially design for low speed industrial vehicles
- High safety with advanced built-in Battery Management System
- CAN BUS, and RS485 Communication systems
- Support series and Parallel configurations
- Replacement Solution for Lead acid battery
- Support Solar energy storage Solution
- IP 55 or IP 66 protection

Model Number	Nominal voltage	Capacity (Ah)	Charge Current(A)	Discharge Current (A)	Peak Current (A)	Weight (kg)	Dimension (L*W*H)mm
MB2410F	24V	10	6	15	55	2.95	180*76*166
MB2412F	24V	12	12	15	50	2.8	180*80*150
MB2420F	24V	20	20	20	85	6.5	196*165*174
MB2425F	24V	25	25	25	85	6.5	196*165*174
MB2450F	24V	50	50	50	140	12	318*165*215
MB24100F	24V	100	80	175	300	24.2	485*170*245
MB24125F	24V	125	80	100	350	32.2	518*271*222
MB24150F	24V	150	80	100	300	35	520*221*269
MB24200F	24V	200	100	200	300	60.6	605*490*155
MB24300F	24V	300	100	150	200	85	602*530*202

## 48V Backup Battery

This series is specialized for energy storage and UPS backup battery packs. This series support the modular structure of the ESS infrastructure. These modules can be fit into racks and support a big energy infrastructure.



### Features

- Support Series and Parallel configurations
- Built in BMS Protection
- UART, RS485, RS232, and CAN Bus Communication protocol
- Available battery case designs 1U,2U, 3U and 4U

Model Number	Nominal voltage	Capacity (Ah)	Charge Current(A)	Discharge Current (A)	Peak Current (A)	Weight (kg)	Dimension (L*W*H)mm	Communication Protocol
MB4810N	48 V	10	10	20	60	2.8	274*151*41.5	
MB4812F	48 V	12	10	10	50	6.5	335*195*89	
MB4820F	48 V	20	6	20	75	9.1	250*150*170	
MB4825F	48 V	25	15	50	115	12.2	318*165*215	
MB4850F	48 V	50	5	50	120	30	482*360*132	
MB4860F	48 V	60	30	60	100	31	503*240*222	
MB4875F	48 V	75	60	100	350	57	520*269*221	
MB48100F	48 V	100	50	50	150	37.7	482*176*590	
MB48200F	48 V	200	100	150	200	125	552*400*400	
MB48300F	48 V	300	150	300	350	200	721*403*431.5	
MB48400F	48 V	400	100	200	350	333	800*600*1200	
MB48600F	48 V	600	100	200	350	454	800*600*1600	

## Bluetooth and Wi-Fi series

To meet the new standards for the communication between the battery pack and other parts of the system through Bluetooth and Wi-Fi protocol, Melasta introduces the battery pack with Bluetooth and Wi-Fi communication protocol. These batteries are a replacement solution for the lead-acid battery pack and use for the applications such as golf cart, energy storage, and Recreational vehicles.



### Features

- Specially design for smart vehicles
- Integrated Battery Management System
- Easily connect to mobile app to check the battery health status
- Easy to integrate with smart vehicle's management system

Model Number	Nominal voltage	Capacity (Ah)	Charge Current(A)	Discharge Current (A)	Peak Current (A)	Weight (kg)	Dimension (L*W*H)mm	Communication Protocol
MB1209F	12V	9	9	9	35	1.15	151*65*95	bluetooth
MB1212F	12V	12	12	15	60	1.6	151*98*95	bluetooth
MB1220F	12V	20	20	30	68	3	180*76*166	bluetooth
MB1224F	12V	24	24	30	60	3	180*76*166	bluetooth
MB1250F	12V	50	50	50	150	6.5	196*165*174	bluetooth
MB1275F	12V	75	50	50	150	9.8	260*168*213	bluetooth
MB12100F	12V	100	80	100	350	12.3	318*165*215	bluetooth
MB12125F	12V	125	80	100	350	15	318*165*215	bluetooth
MB12150F	12V	150	80	100	350	19.8	485*170*245	bluetooth
MB12200F	12V	200	80	100	350	25	48*170*245	bluetooth
MB12300F	12V	300	80	100	350	35	520*221*296	bluetooth
MB2450F	24V	50	50	50	140	12	318*165*215	bluetooth
MB1250F	12V	50	50	50	150	6.5	196*165*174	WiFi
MB1275F	12V	75	50	50	150	9.8	260*168*213	WiFi
MB12100F	12V	100	80	100	350	12.3	318*165*215	WiFi
MB12125F	12V	125	80	100	350	15	318*165*215	WiFi
MB12150F	12V	150	80	100	350	19.8	485*170*245	WiFi
MB12200F	12V	200	80	100	350	25	48*170*245	WiFi
MB12300F	12V	300	80	100	350	35	520*221*296	WiFi
MB2450F	24V	50	50	50	140	12	318*165*215	WiFi








# Portable Generator (UPS power station)

## General Description

Melasta 12V Portable Generator (UPS power station), a portable indoor and outdoor multi-purpose backup power specially designed for the people who often travel outdoors or the area often power outage and no electricity.



## Features

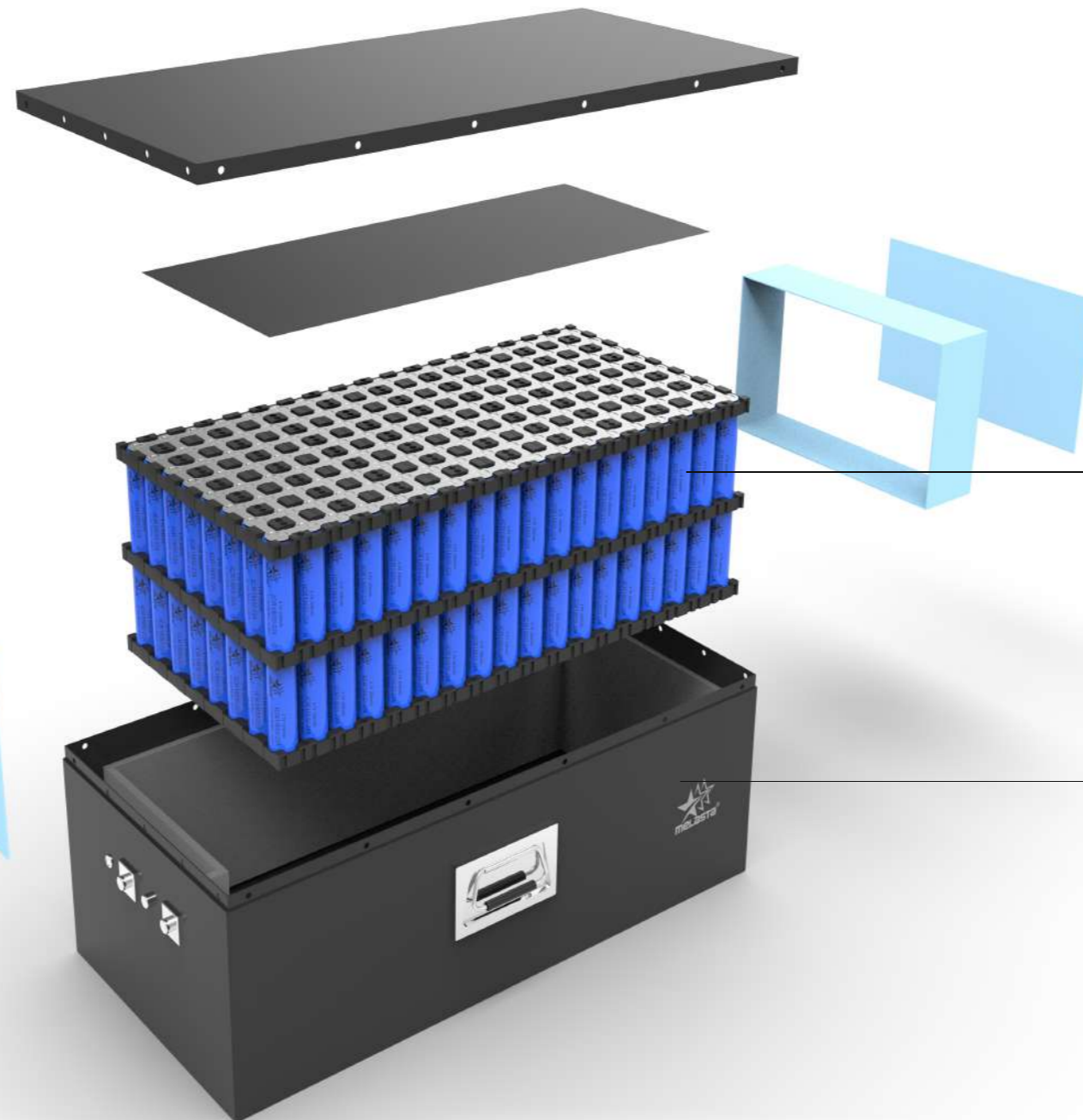
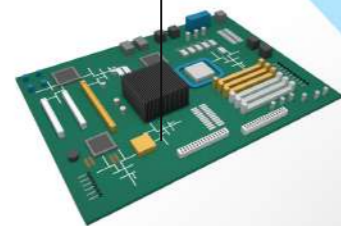
-  3 Charging modes, by AC, Car and Solar Panels
-  5 discharging modes, USB QC3.0, TYPE C, DC (12V), AC (110V/220V) and Car cigarette lighter
-  Real MPPT Photovoltaic Charging Technology charging efficiency more than 97%
-  Ultra Large Capacity(Strong Endurance, long power on time)
-  High performance lithium cells (built-in with CID/PTC, high safety)
-  6 Protections (overcharge, over discharge, over current, over load, over-temperature, short-circuit protection)
-  Portable (Light weight, easy to carry)



# Customized Solution

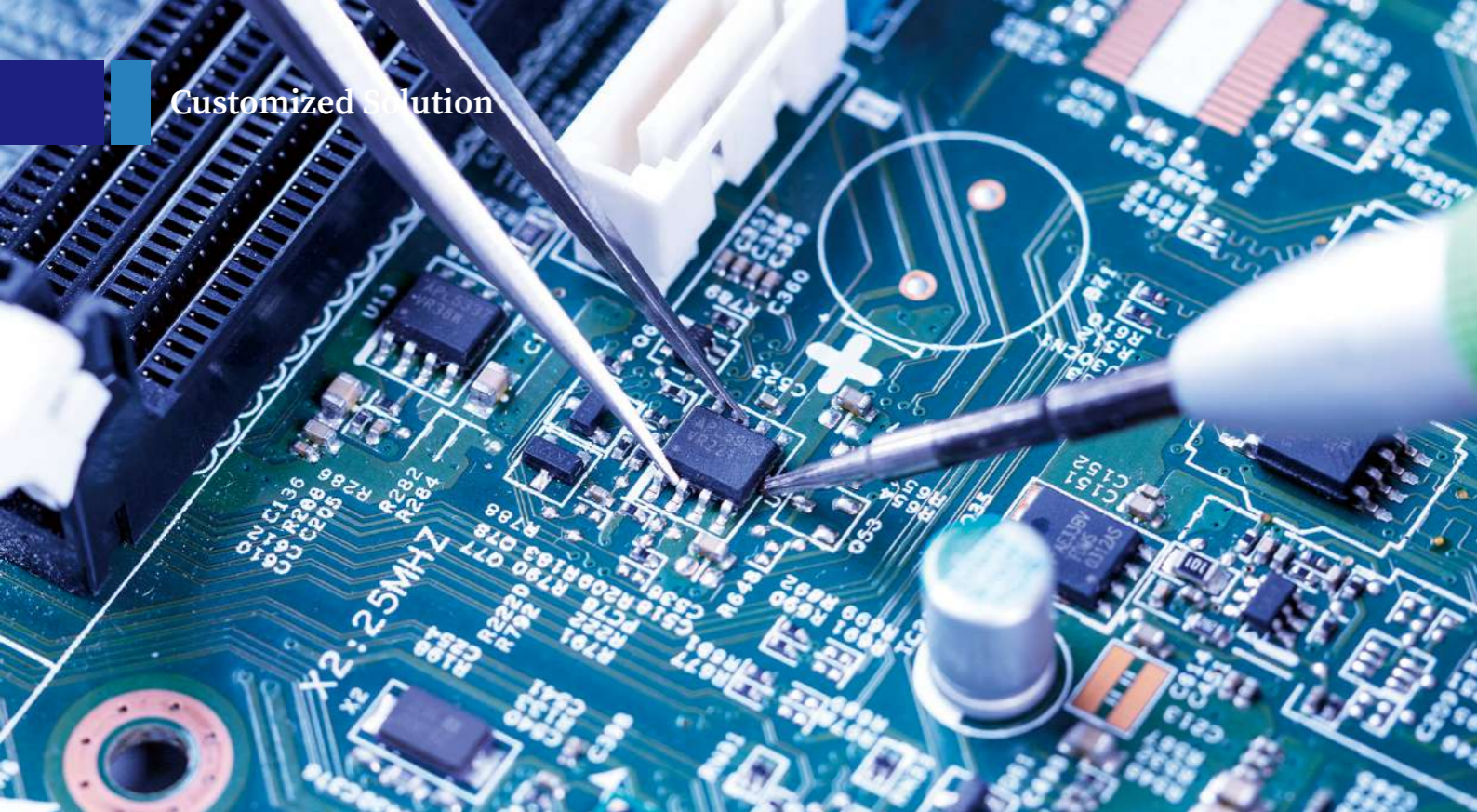
Customized batteries are used for unique applications and special designs according to the requirements customer unique requirements. Melasta follows customer power needs, from Chemistry to structural design to protection system. We focus closely on customer requirement and help customer from first design, to large-scale manufacturing of the battery pack.

PCB/BMS Customized Designed withWifi, Bluetooth, I2C, RS485



- Various Cell Models ( Li-ion, LiPo, LiFePO4)
- Brand Cells Like Panasonic, LG, Sony

Various Battery Pack and Battery Case Customized designed service



## Battery Management System (BMS)

A Battery Management System (BMS) is an intelligent component of a battery pack responsible for advanced monitoring and management. It is the brain of the battery pack which plays a critical role in its levels of safety, performance, charge rates, and longevity. Melasta provides best quality designed BMS for its battery system which ensure the complete safety and longer life span of the battery pack. Melasta also provide the customized BMS design service.

### Melasta Battery Pack BMS features

Functionally safe

Fast and efficient balancing

Shortened charging time

Compatible with all kind of LiFePO4 cells

Maximum battery life

Communication Features

## Our assembly capabilities

Melasta has been recognized as a reputable provider of total power solutions includes rechargeable batteries, battery management systems and chargers to a wide range of applications in over 40 different countries. And Melasta boasts more than 20 patents worldwide relating to battery products and battery manufacturing processes.

### Features

Multiple module configuration design, anti-loosening and fastening, easy for maintenance

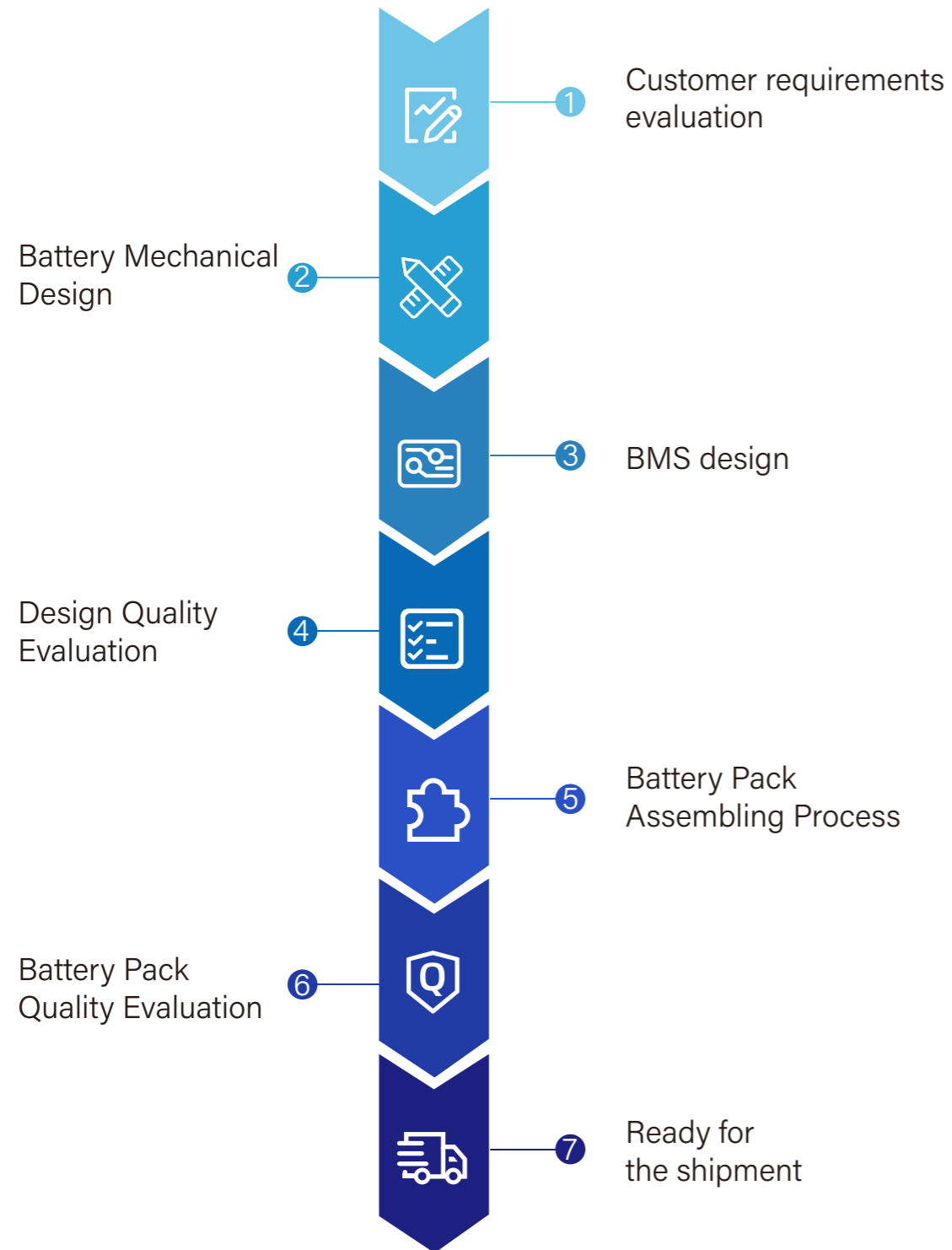
Advanced laser/bonding assembly process, resistant to vibration and impact.

Matching the cells from multiple parameter, keep the cell in the battery configuration with high unified performance, extends battery pack's life.

Battery packs can be used in series and parallel, easy to assembly and shipping

Heating/cooling device on the bottom, extend the working temperature.

# Customization Process



# Appliances

