

# Product Information

1/LPP 443441 S PCM PC  
EZPack S ▶ VKB 56455 701 099



- MM ▶ month two digits
- Y ▶ year one digit
- R ▶ week one digit

## 1. GENERAL

Battery with safety circuit and plastic housing

- Cell ▶ LPP 443441 S
- PCM ▶ Yes
- NTC ▶ 10 kΩ ±1%; B-Value 3435K ±1%
- ID ▶ 3.9 kΩ ±1%
- Configuration ▶ 1S
- Weight ▶ appr. 15g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 630mAh min., 660mAh typical
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 2.4Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage: ▶ 4.2V
- Max. Continuous Charge Current: ▶ 630mA
- Rec. Charge Cut Off: ▶ by current 6.3mA or time 3.5h
- Max. Continuous Discharge Current: ▶ 1260mA (limited by cell)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 115 mΩ
- Expected Cycle Life @ (1C/1C) @ 23 ±5 °C ▶ >500 cycles >70% of initial cap.

## CELL PROTECTION

- Overcharge Detection ▶ 4.3 ±0.02V (0.8 to 1.2sec. delay, resume 4.1V ±0.03V)
- Overdischarge Detection: ▶ 2.40V ±0.035V (76.8 to 115.2msec. delay, resume remove load & charging current)
- Overcurrent Detection ▶ 3.2A to 5.2A (9.6 to 14.4msec. delay)

## 3. AMBIENT CONDITIONS

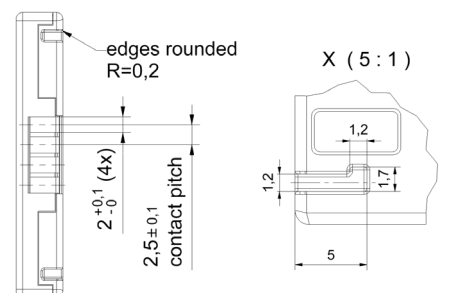
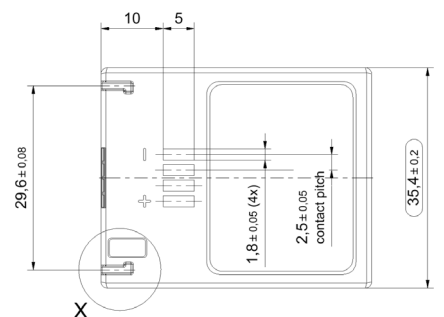
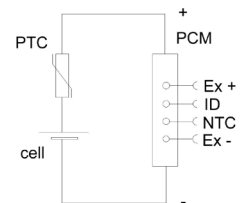
- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Storage ▶ Less than 1 month at -20 to +60°C  
Less than 3 months at -20°C to +45°C  
Less than 1 year at -20°C to +30°C
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell is approved according UL1642 and UN 38.3 certified.  
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.  
This battery is UL recognized and is certified according to IEC 62133 edition 2 (pending).

Minimum Order Quantity: 750 pcs / Order Multiples: 150 pcs - Product for OEM customers only!

## Protection Circuit Module



# Product Information

1/LPP 503562 S PCM PC  
EZPack L ▶ VKB 56456 701 099



**VARTA EasyPack**

Rechargeable Li-Polymer  
EZPack L  
56456 701 099 - 11CP5/35/62  
3.7V 1200mAh 4.5Wh

Do not: incinerate, disassemble, short terminals, expose to high temp. above 140°F (60°C), risk of fire, explosion

VARTA Microbattery GmbH  
Assembled in Indonesia

MM ▶ month two digits  
Y ▶ year one digit  
R ▶ week of month one digit

## 1. GENERAL

- Battery with safety circuit and plastic housing
- Cell ▶ LPP 503562 S
  - PCM ▶ Yes
  - NTC ▶ 10 kΩ ±1%; B-Value 3435K ±1%
  - ID ▶ 10 kΩ ±1%
  - Configuration ▶ 1S
  - Weight ▶ appr. 26g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 1150mAh min., 1200mAh typical
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 4.3Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage: ▶ 4.2V
- Max. Continuous Charge Current: ▶ 1150mA
- Rec. Charge Cut Off: ▶ by current 11.5mA or time 3.5h
- Max. Continuous Discharge Current: ▶ 2100mA (limited by PTC)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 99mΩ
- Expected Cycle Life @ (1C/1C) @23 ±5°C ▶ >500 cycles >70% of initial cap.

## CELL PROTECTION

- Overcharge Detection ▶ 4.3 ±0.02V (0.8 to 1.2sec. delay, resume 4.1V ±0.03V)
- Overdischarge Detection: ▶ 2.40V ±0.035V (76.8 to 115.2msec. delay, resume remove load & charging current)
- Overcurrent Detection ▶ 3.2A to 5.2A (9.6 to 14.4msec. delay)

## 3. AMBIENT CONDITIONS

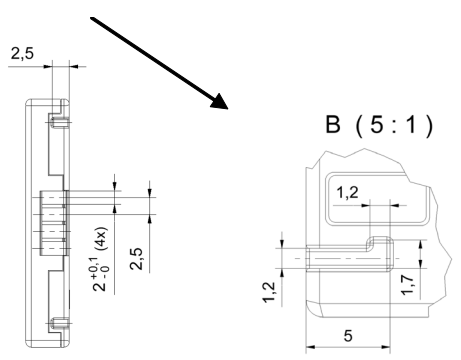
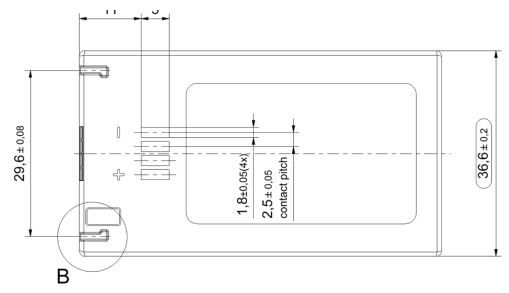
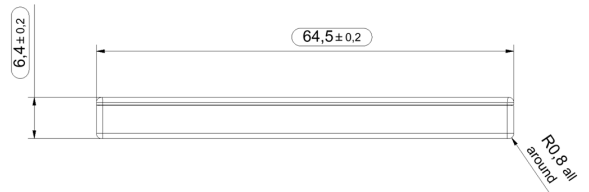
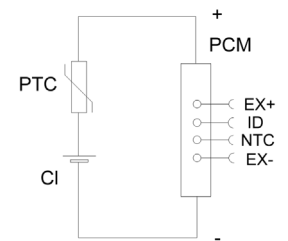
- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Storage
    - ▶ Less than 1 month at at -20 to +60°C
    - ▶ Less than 3 months at -20°C to +45°C
    - ▶ Less than 1 year at -20°C to +30°C
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell is approved according UL1642 and UN 38.3 certified.  
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.  
This battery is UL recognized and is certified according to IEC 62133 edition 2 (pending).

Minimum Order Quantity: 500 pcs / Order Multiples: 100 pcs - Product for OEM customers only!

### Protection Circuit Module



# Product Information

2P/LPP503562 S PCM PC  
EZPack XL ▶ VKB 56456 702 099



**VARTA EasyPack**

Rechargeable Li-Polymer  
EZPack XL  
56456 702 099 - 1ICP5/35/62-2  
3.7V 2400mAh 8.9Wh

Do not: incinerate, disassemble, short terminals, expose to high temp. above 140°F (60°C), risk of fire, explosion

VARTA Microbattery GmbH  
Assembled in Indonesia

MM ▶ month two digits  
Y ▶ year one digit  
R ▶ week of month one digit

## 1. GENERAL

Battery with safety circuit and plastic housing

- Cell ▶ LPP 503562 S
- PCM ▶ Yes
- NTC ▶ 10 kΩ ±1%; B-Value 3435K ±1%
- ID ▶ 24 kΩ ±1%
- Configuration ▶ 2P
- Weight ▶ appr. 48g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 2300mAh min., 2400mAh typical
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 8.6Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage: ▶ 4.2V
- Max. Continuous Charge Current: ▶ 2300mA
- Rec. Charge Cut Off: ▶ by current 23mA or time 3.5h
- Max. Continuous Discharge Current: ▶ 3200mA (limited by PCM)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 68mΩ
- Expected Cycle Life @ (1C/1C) @23 ±5°C ▶ >500 cycles >70% of initial cap.

## CELL PROTECTION

- Overcharge Detection ▶ 4.3 ±0.02V (0.8 to 1.2sec. delay, release 4.1V ±0.03V)
- Overdischarge Detection: ▶ 2.40V ±0.035V (76.8 to 115.2msec. delay, release remove load & charging current)
- Overcurrent Detection ▶ 3.2A to 5.2A (9.6 to 14.4msec. delay)

## 3. AMBIENT CONDITIONS

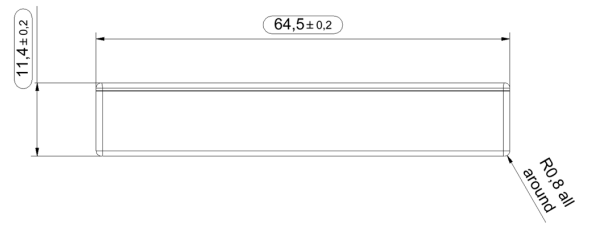
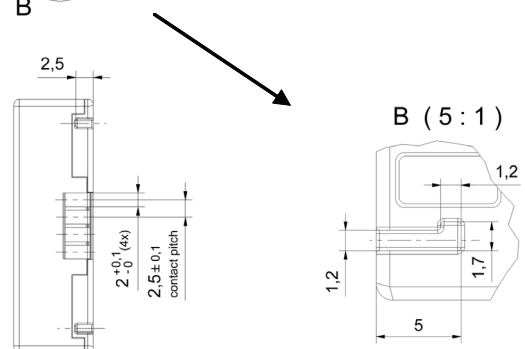
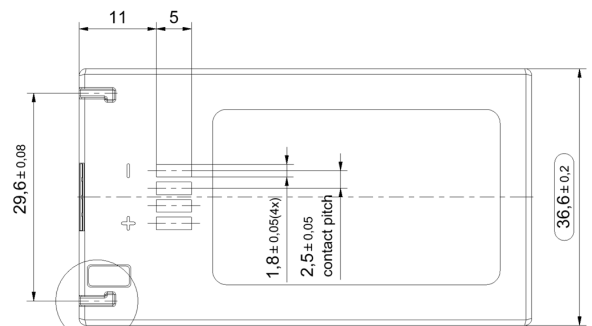
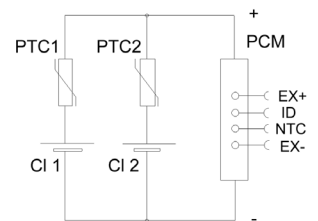
- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Storage
    - ▶ Less than 1 month at at -20 to +60°C
    - ▶ Less than 3 months at -20°C to +45°C
    - ▶ Less than 1 year at -20°C to +30°C
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell is approved according UL1642 and UN 38.3 certified.  
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.  
This battery is UL recognized and is certified according to IEC 62133 edition 2 (pending).

Minimum Order Quantity: 300 pcs / Order Multiples: 60 pcs - Product for OEM customers only!

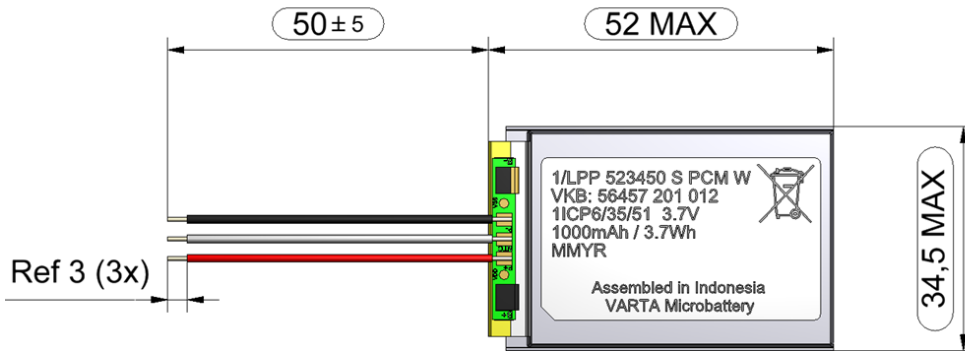
## Protection Circuit Module



# Product Information



1/LPP 523450 S PCM W  
 ▶ VKB 56457 201 012



1/LPP 523450 S PCM W  
 VKB: 56457 201 012  
 11CP6/35/51 3.7V  
 1000mAh / 3.7Wh  
 MMYR

Assembled in Indonesia  
 VARTA Microbattery

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ week one digit

## 1. GENERAL

Battery Pack incl. safety circuit & wires

- Cell ▶ LPP 523450 S
- PCM ▶ Yes
- NTC ▶ 10kΩ ±1%; B-value 3380K
- ID ▶ None
- Configuration ▶ 1S layflat
- Weight ▶ appr. 20g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 950mAh min., 1000mAh typical
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 3.7Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage: ▶ 4.2V
- Max. Continuous Charge Current: ▶ 1000mA (limited by cell DS)
- Rec. Charge Cut Off: ▶ 10mA or timer 3.5h
- Max. Continuous Discharge Current: ▶ 2000mA (limited by cell DS)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 100mΩ
- Expected Cycle Life @ (1C/1C) @ 23 ±5°C ▶ 500 cycles ≥ 800mAh

## CELL PROTECTION

- Overcharge Detection ▶ 4.275V ±25mV (0.7 to 1.3sec. delay, release 4.275V ±25mV)
- Overdischarge Detection: ▶ 2.3V ±58mV (14 to 26msec. delay, resume 2.3V ±58mV)
- Overcurrent Detection ▶ 2A to 4.5A (8 to 16msec. delay)

## 3. AMBIENT CONDITIONS

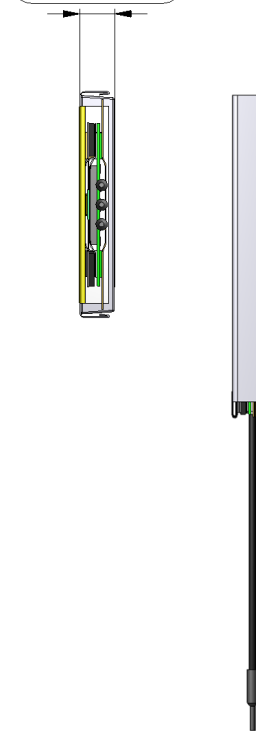
- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Storage
    - ▶ 1 year at -20 to +30°C >80%
    - ▶ 3 months at -10 to +45°C >80%
    - ▶ 1 month at -20 to +60°C >80%
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

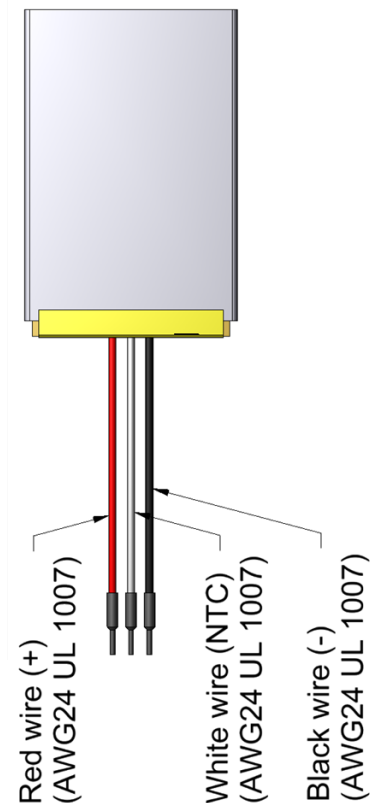
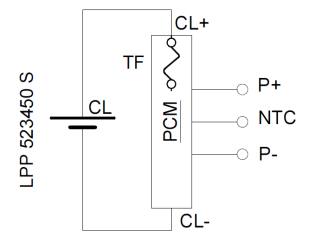
Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.  
 The cell is IEC 62133 edition 2 certified.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!

5,3 MAX



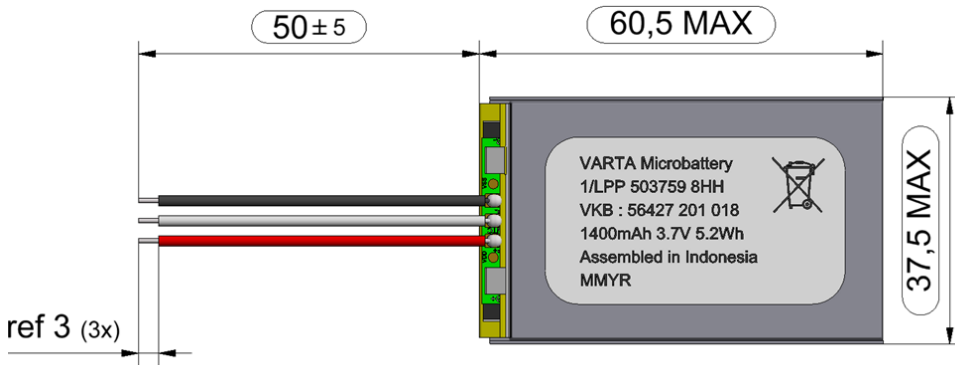
## Circuit Diagram



# Product Information



1/LPP 503759 8HH PCM W  
 ▶ VKB 56427 201 018



VARTA Microbattery  
 1/LPP 503759 8HH  
 VKB : 56427 201 018  
 1400mAh 3.7V 5.2Wh  
 Assembled in Indonesia  
 MMYR

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ week one digit

## 1. GENERAL

Battery Pack in shrink sleeve incl. safety circuit & wires

- Cell ▶ LPP 503759 8HH
- PCM ▶ Yes
- NTC ▶ 10kΩ ± 1%; B-value 3380
- ID ▶ None
- Configuration ▶ 1S
- Weight ▶ appr. 25g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 1320mAh min., 1400mAh typical
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 5.2Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage: ▶ 4.2V (±50mV)
- Max. Continuous Charge Current: ▶ 1980mA (limited by cell DS)
- Rec. Charge Cut Off: ▶ 50mA or timer 2.5h
- Max. Continuous Discharge Current: ▶ 2000mA (limited by PCM)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 100mΩ
- Exp. Cycle Life @ (1C/0.5C) @ 23 ±2°C ▶ 500 cycles ≥ 1098mAh

## CELL PROTECTION

- Overcharge Detection ▶ 4.275V ± 25mV (0.7 to 1.3sec. delay, resume 4.275V ± 25mV)
- Overdischarge Detection: ▶ 2.3V ± 58mV (14 to 26msec. delay, resume 2.3V ± 58mV)
- Overcurrent Detection ▶ 2A to 4.5A (8 to 16msec. delay @ discharge)

## 3. AMBIENT CONDITIONS

- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
- Storage Capacity Recovery Rate ▶ 1 month at -10 to +45°C > 85%
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

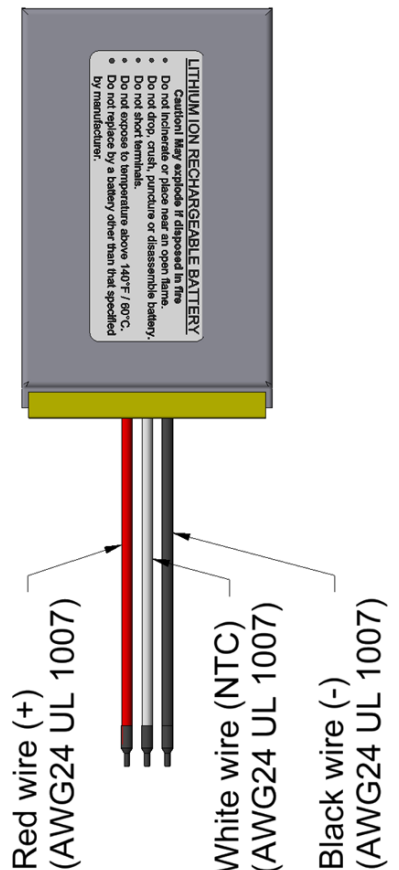
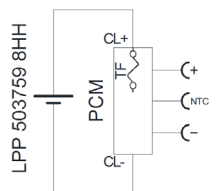
Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.  
 The cell is IEC 62133 edition 2 certified.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!

5,4 MAX



## Circuit Diagram

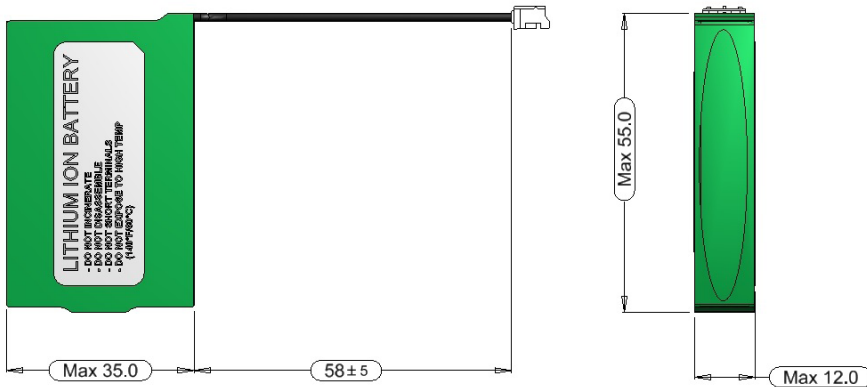


# Product Information



1/LIP 103450 SC PCM S WC

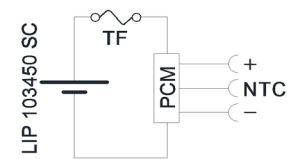
▶ VKB 56429 201 015



VARTA Microbattery		Li-Ion
	1/LIP 103450 SC VKB : 56429 201 015 2000mAh 3.7V 7.4Wh Assembled in Indonesia MMYR	

- MM ▶ month two digits  
Y ▶ year one digit  
R ▶ plant one digit

## Circuit Diagram



## 1. GENERAL

Li-Ion Battery Pack in shrink sleeve including safety circuit and wire connector

- |               |                                   |
|---------------|-----------------------------------|
| Cell          | ▶ LIP 103450 SC                   |
| PCM           | ▶ Yes                             |
| NTC           | ▶ 10 kΩ ± 1%; B-Value = 3435 ± 1% |
| ID            | ▶ None                            |
| Configuration | ▶ 1S                              |
| Weight        | ▶ appr. 43g                       |

## 2. ELECTRICAL SPECIFICATION

- |   |  |
|---|--|
| Rated Capacity                          | ▶ 2000mAh min., 2030mAh typical  |
| Nominal Voltage                         | ▶ 3.7V   |
| Watt-Hour Rating                        | ▶ 7.4Wh  |
| Charging Method                         | ▶ Constant Current + Constant Voltage                                    |
| Max. Charge Voltage [V]:                | ▶ 4.2 (±50mV)  |
| Max. Continuous Charge Current:         | ▶ 1500mA (limited by PCM)  |
| Rec. Charge Cut Off:                    | ▶ 100mA or timer 3h  |
| Max. Continuous Discharge Current:      | ▶ 1500mA (limited by PCM)  |
| Rec. Discharge Cut Off:                 | ▶ 3V   |
| Internal Impedance:                     | ▶ approx. 140mΩ  |
| Expected Cycle Life @ (0.5C/0.5) @ 20°C | ▶ 300 cycles >80% of min. capacity<br>▶ 500 cycles >70% of min. capacity |

## CELL PROTECTION

- |                          |  |
|--------------------------|--|
| Overcharge Detection     | ▶ 4.275V ± 25mV (0.96 to 1.4sec. delay, resume 4.075V ± 50mV, remove charge current) |
| Overdischarge Detection: | ▶ 2.30V ± 50mV (30 to 46msec. delay, resume 2.3V ± 100mV @ charge current)           |
| Overcurrent Detection    | ▶ 5.2A to 8.0A (7.2 to 11msec. delay)  |

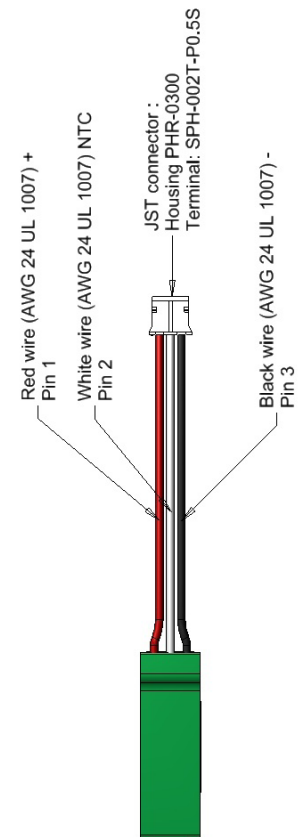
## 3. AMBIENT CONDITIONS

- |                       |                                    |
|-----------------------|------------------------------------|
| Temperature Range     | ▶ 0 to +45°C                       |
| • Charge              | ▶ -20 to +60°C                     |
| • Discharge           | ▶ 1 year at -20 to +20°C > 80%     |
| • Storage Temperature | ▶ 3 months at -20°C to +45°C > 80% |
|                       | ▶ 1 month at -20°C to +60°C > 80%  |
| • Humidity            | ▶ 65 ± 20%RH                       |

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell used is a UL recognized component according to UL1642 and UN38.3 certified.  
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 500 pcs / Order Multiples: 100 pcs - Product for OEM customers only!

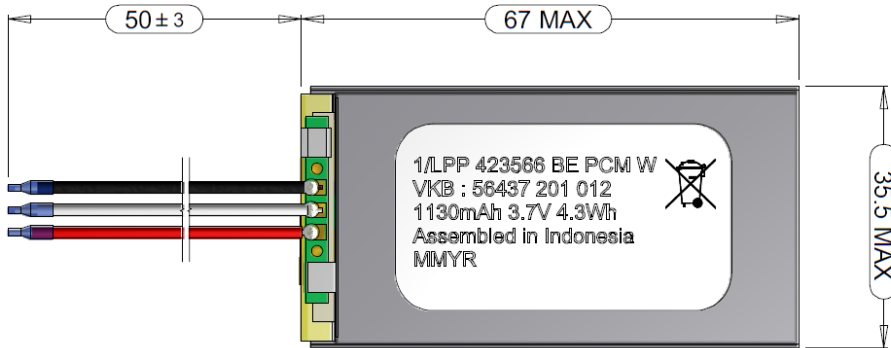




# Product Information



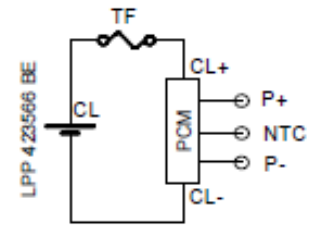
1/LPP 423566 BE PCM W  
 ▶ VKB 56437 201 012



1/LPP 423566 BE PCM W  
 VKB : 56437 201 012  
 1130mAh 3.7V 4.3Wh  
 Assembled in Indonesia  
 MMYR

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ plant one digit

## Circuit Diagram



## 1. GENERAL

- Battery Pack including safety circuit and wires
- Cell ▶ LPP 423566 BE
  - PCM ▶ Yes
  - NTC ▶ 10 kΩ ± 1%; B-Value 3380 ± 1%
  - ID ▶ None
  - Configuration ▶ 1S
  - Weight ▶ appr. 26g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 1130mAh min., 1160mAh typical
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 4.3Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage [V]: ▶ 4.2 (±50mV)
- Max. Continuous Charge Current: ▶ 1130mA (limited by cell DS)
- Rec. Charge Cut Off: ▶ by current 20mA or timer 2.5h
- Max. Continuous Discharge Current: ▶ 2000mA (limited by PCM)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 120mΩ
- Expected Cycle Life @ (C/2) @ 20°C ▶ 400 cycles >75% of initial cap.

## CELL PROTECTION

- Overcharge Detection ▶ 4.275V ± 25mV (0.7 to 1.3sec. delay, resume 4.275V ± 25mV)
- Overdischarge Detection: ▶ 2.30V ± 85mV (14 to 26msec. delay, resume 2.3V ± 58mV)
- Overcurrent Detection ▶ 2.0A to 4.0A (8 to 16msec. delay)

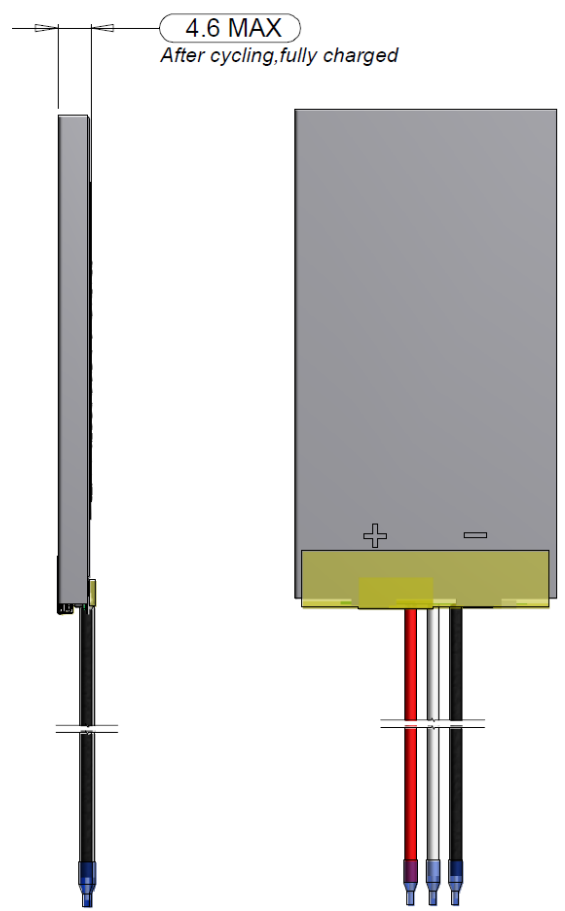
## 3. AMBIENT CONDITIONS

- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Storage Temperature ▶ 6 months at -20 to +35°C  
 ▶ 1 month at -20°C to +45°C
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

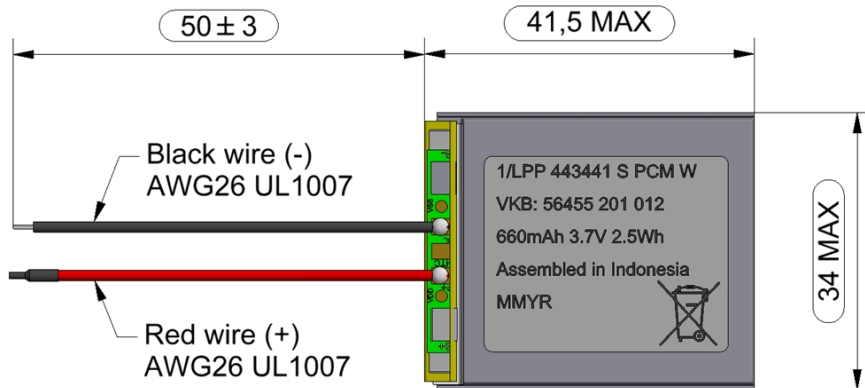
Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.  
 The cell is IEC 62133 edition 2 certified.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!



# Product Information

1/LPP 443441 S PCM W  
 ▶ VKB 56455 201 012



1/LPP 443441 S PCM W  
 VKB: 56455 201 012  
 660mAh 3.7V 2.5Wh  
 Assembled in Indonesia  
 MMYR

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ plant one digit

## 1. GENERAL

Battery Pack including safety circuit and wires  
 Cell ▶ LPP 443441 S  
 PCM ▶ Yes  
 NTC ▶ None  
 ID ▶ None  
 Configuration ▶ 1S  
 Weight ▶ appr. 13g

## 2. ELECTRICAL SPECIFICATION

Rated Capacity ▶ 630mAh min., 660mAh nominal  
 Nominal Voltage ▶ 3.7V  
 Watt-Hour Rating ▶ 2.5Wh  
 Charging Method ▶ Constant Current + Constant Voltage  
 Max. Charge Voltage: ▶ 4.2V (±50mV)  
 Max. Continuous Charge Current: ▶ 630mA (limited by cell DS)  
 Rec. Charge Cut Off: ▶ 6.3mA or timer 2.5h  
 Max. Continuous Discharge Current: ▶ 1260mA (limited by cell DS)  
 Rec. Discharge Cut Off: ▶ 3V  
 Internal Impedance: ▶ approx. 130mΩ  
 Expected Cycle Life @ (1C/1C) @ 23 ±5°C ▶ 500 cycles ≥70%

## CELL PROTECTION

Overcharge Detection ▶ 4.275V ± 25mV (0.7 to 1.3sec. delay, resume 4.275V ± 25mV)  
 Overdischarge Detection: ▶ 2.30V ± 58mV (14 to 26msec. delay, resume 2.3V ± 58mV)  
 Overcurrent Detection ▶ 2.0A to 4.5A (8 to 16msec. delay @ discharge)

## 3. AMBIENT CONDITIONS

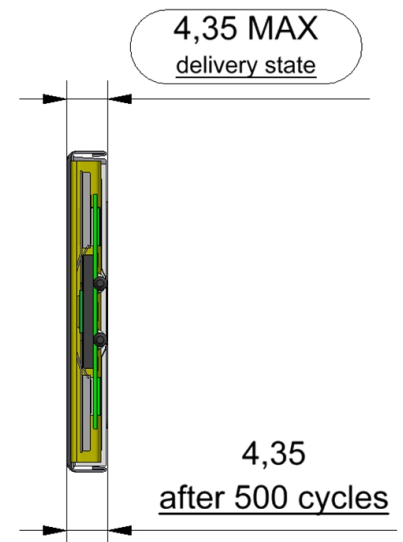
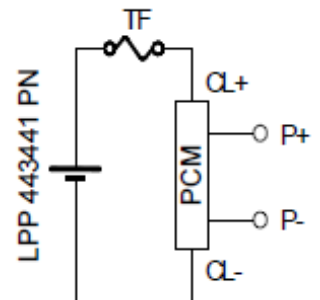
Temperature Range  
 • Charge ▶ 0 to +45°C  
 • Discharge ▶ -20 to +60°C  
 • Storage Temperature  
 ▶ 1 year at -20 to + 30°C with >80% capacity recovery  
 ▶ 3 months at -20 to 45°C with >80% capacity recovery  
 ▶ 1 month at -20 to 60°C with >80% capacity recovery  
 • Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642. UN 38.3 certified.  
 The cell is IEC 62133 edition 2 certified.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!

## Circuit Diagram

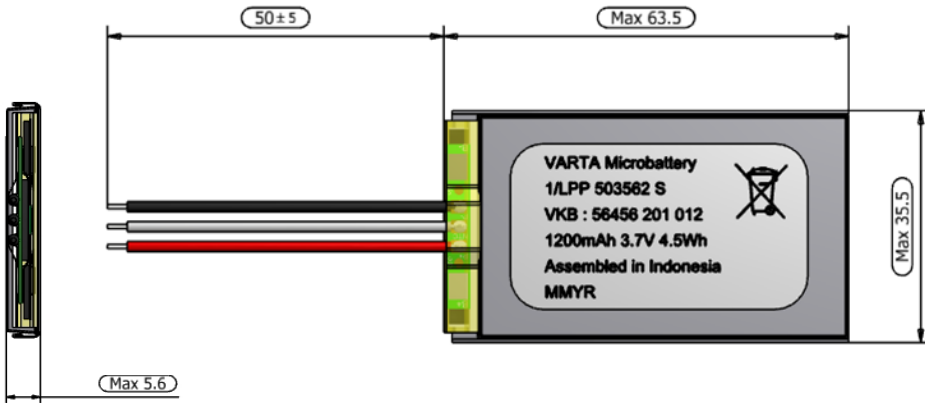




# Product Information



1/LPP 503562 S PCM W  
 ▶ VKB 56456 201 012



VARTA Microbattery  
 1/LPP 503562 S  
 VKB : 56456 201 012  
 1200mAh 3.7V 4.5Wh  
 Assembled in Indonesia  
 MMYR

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ week one digit

## 1. GENERAL

Battery with safety circuit & wires

Cell	▶ LPP 503562 S
PCM	▶ Yes
NTC	▶ 10kΩ ± 1%; B-value 3380
ID	▶ None
Configuration	▶ 1S
Weight	▶ appr. 23g

## 2. ELECTRICAL SPECIFICATION

Rated Capacity	▶ 1150mAh min., 1200mAh nominal
Nominal Voltage	▶ 3.7V
Watt-Hour Rating	▶ 4.5Wh
Charging Method	▶ Constant Current + Constant Voltage
Max. Charge Voltage:	▶ 4.2V
Max. Continuous Charge Current:	▶ 1150mA (limited by cell DS)
Rec. Charge Cut Off:	▶ 11.5mA or timer 2.0h
Max. Continuous Discharge Current:	▶ 2A (limited by PCM)
Rec. Discharge Cut Off:	▶ 3V
Internal Impedance:	▶ approx. 100mΩ
Expected Cycle Life @ (1.0C/1.0C) @ 23.5°C	▶ 500 cycles > 70%

## CELL PROTECTION

Overcharge Detection	▶ 4.275V ± 25mV (0.7 to 1.3sec. delay, resume 4.275V ± 25mV)
Overdischarge Detection:	▶ 2.3V ± 58mV (14 to 26msec. delay, resume 2.3V ± 58mV)
Overcurrent Detection	▶ 2A to 4.5A (8 to 16msec. delay @ discharge)

## 3. AMBIENT CONDITIONS

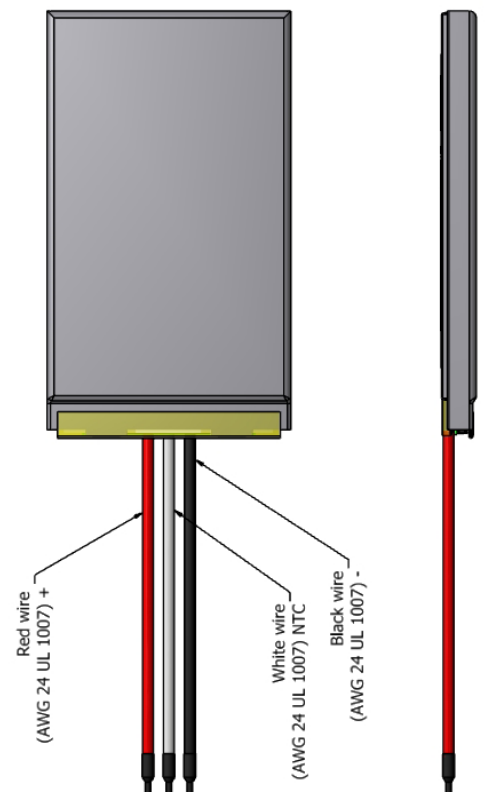
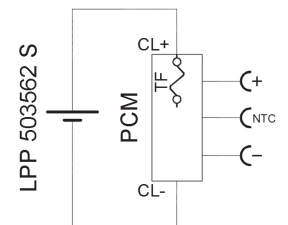
Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -20 to +60°C
• Storage with >60% recovery	▶ 1 year at -20 to +30°C ▶ 3 months at -20 to +45°C ▶ 1 month at -20 to +60°C
• Humidity	▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.  
 The cell is IEC 62133 edition 2 certified.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!

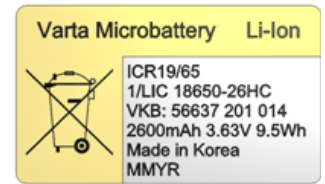
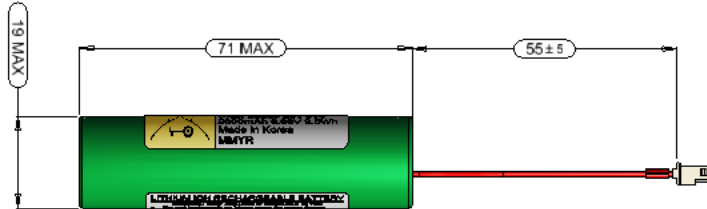
## Circuit Diagram



# Product Information

1/LIC 18650 26 HC PCM S WC

▶ VKB 56637 201 014



MM ▶ month two digits  
Y ▶ year one digit  
R ▶ VARTA internal one digit

## 1. GENERAL

Battery Pack in shrink sleeve incl. safety circuit and wire connector

- Cell ▶ LIC 18650-26 HC
- PCM ▶ Yes
- NTC ▶ None
- ID ▶ None
- Configuration ▶ 1S
- Weight ▶ appr. 50g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 2550mAh min., 2600mAh nominal
- Nominal Voltage ▶ 3.63V
- Watt-Hour Rating ▶ 9.5Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage [V]: ▶ 4.2 (±50mV)
- Max. Continuous Charge Current: ▶ 2500mA (limited by Connector)
- Rec. Charge Cut Off: ▶ 0.05C or timer 2.5h
- Max. Continuous Discharge Current: ▶ 2500mA (limited by Connector)
- Rec. Discharge Cut Off: ▶ 2.75V
- Internal Impedance: ▶ approx. 120mΩ
- Expected Cycle Life @ (0.5C/0.5C) @ 25°C ▶ 300 cycles @ ≥ 1785mAh

## CELL PROTECTION

- Overcharge Detection ▶ 4.300 ± 0.025V (0.8 to 1.2sec. delay, resume 4.100V ± 0.030V)
- Overdischarge Detection: ▶ 2.400V ± 0.035V (76.8 to 115.2msec. delay, resumed by removing load)
- Overcurrent Detection ▶ 6A to 8A (9.6 to 14.4msec. delay)

## 3. AMBIENT CONDITIONS

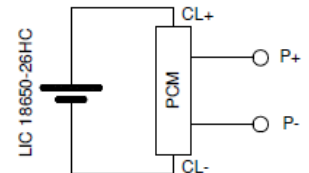
- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Charge Retention/ Storage [%]
    - ▶ 1 year at -20 to +25°C > 80%
    - ▶ 3 months at -20°C to +45°C > 80%
    - ▶ 1 month at -20°C to +60°C > 80%
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell used is a UL recognized component according to UL1642.  
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.  
This battery is certified according to IEC62133 edition 2 and UN 38.3.

Minimum Order Quantity: 550 pcs / Order Multiples: 110 pcs - Product for OEM customers only!

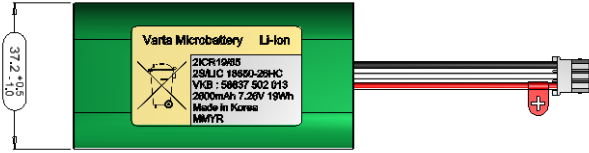
## Circuit Diagram



# Product Information

2S/LIC 18650 26 HC PCM S WC

▶ VKB 56637 502 013



Varta Microbattery	Li-Ion
	2ICR19/65 2S/LIC 18650-26HC VKB : 56637 502 013 2600mAh 7.26V 19Wh Made in Korea MMYR

MM ▶ month two digits  
Y ▶ year one digit  
R ▶ VARTA internal one digit

## 1. GENERAL

Li-Ion Battery Pack in shrink sleeve incl. safety circuit, wires and connector

Cell	▶ LIC 18650-26 HC
PCM	▶ Yes
NTC	▶ 10kΩ; B-value: 3435 ±1%
ID	▶ None
Configuration	▶ 2S layflat multiple
Weight	▶ appr. 95g

## 2. ELECTRICAL SPECIFICATION

Rated Capacity	▶ 2550mAh min., 2600mAh nominal
Nominal Voltage	▶ 7.26V
Watt-Hour Rating	▶ 19Wh
Charging Method	▶ Constant Current + Constant Voltage
Max. Charge Voltage [V]:	▶ 8.4 (±50mV)
Max. Continuous Charge Current:	▶ 2000mA (limited by PCM)
Rec. Charge Cut Off:	▶ 0.05C or timer 3h
Max. Continuous Discharge Current:	▶ 2000mA (limited by PCM)
Rec. Discharge Cut Off:	▶ 5.5V
Internal Impedance:	▶ approx. 220mΩ
Expected Cycle Life @ (0.5C/0.5C) @ 25°C	▶ 300 cycles @ ≥ 1785mAh

## CELL PROTECTION

Overcharge Detection	▶ 4.325V ~ 4.375V (920msec. ~ 1380msec. delay, resume 4.100V ~ 4200V)
Overdischarge Detection:	▶ 2.220V ~ 2.350V (115msec. ~ 173msec. delay, resume 2.800V ~ 3.000V)
Overcurrent Detection	▶ 2.6A to 4.6A (7.20msec. ~ 11.00msec. delay)

## 3. AMBIENT CONDITIONS

Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -20 to +60°C
• Storage with >80% Capacity recovery	
	▶ 1 year at -20 to +25°C
	▶ 3 months at -20°C to +45°C
	▶ 1 month at -20°C to +60°C

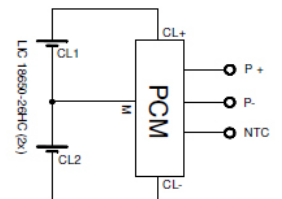
## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell used is a UL recognized component according to UL1642.

This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.  
This battery is certified according to IEC62133 edition 2 and UN 38.3.

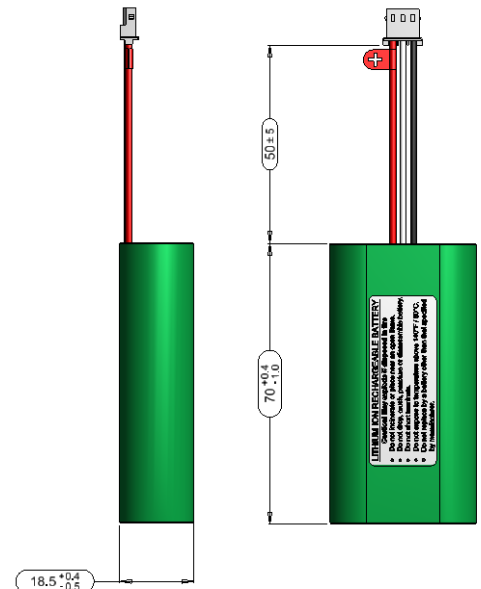
Minimum Order Quantity: 400 pcs / Order Multiples: 50 pcs - Product for OEM customers only!

## Circuit Diagram



Pin 1: red wire (+)  
AWG 22 UL 1007  
Pin 2: white wire (NTC)  
AWG 22 UL 1007  
Pin 3: black wire (-)  
AWG 22 UL 1007

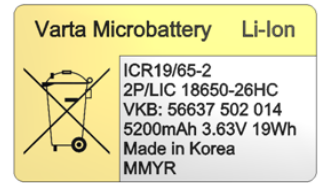
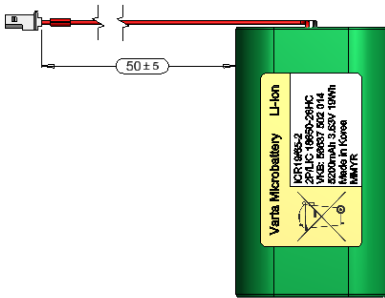
Molex connector:  
Housing 5264-03  
Terminal 5263 PBT



# Product Information



2P/LIC 18650 26 HC PCM S WC  
 ▶ VKB 56637 502 014



MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ VARTA internal one digit

## 1. GENERAL

Li-Ion Battery Pack in shrink sleeve incl. safety circuit, wires and connector

Cell	▶ LIC 18650-26 HC
PCM	▶ Yes
NTC	▶ 10kΩ ± 3%; B-value: 3435K ± 3%
ID	▶ None
Configuration	▶ 2P
Weight	▶ appr. 95g

## 2. ELECTRICAL SPECIFICATION

Rated Capacity	▶ 5100mAh min., 5200mAh nominal
Nominal Voltage	▶ 3.63V
Watt-Hour Rating	▶ 19Wh
Charging Method	▶ Constant Current + Constant Voltage
Max. Charge Voltage [V]:	▶ 4.2 (±50mV)
Max. Continuous Charge Current:	▶ 2500mA (limited by PCM)
Rec. Charge Cut Off:	▶ 0.05C or timer 3h
Max. Continuous Discharge Current:	▶ 2500mA (limited by PCM)
Rec. Discharge Cut Off:	▶ 2.75V
Internal Impedance:	▶ approx. 100mΩ
Expected Cycle Life @ (0.5C/0.5C) @ 25°C	▶ 300 cycles @ ≥ 3570mAh

## CELL PROTECTION

Overcharge Detection	▶ 4.250V ± 4.300V (0.6 to 1.3sec. delay, auto release)
Overdischarge Detection:	▶ 2.220V ± 2.380V (60 to 130msec. delay, auto release)
Overcurrent Detection @ charging	▶ 3.6A to 7.0A (15 to 33msec. delay)
Overcurrent Detection @ discharging	▶ 4.0A to 6.3A (9.8 to 22msec. delay)

## 3. AMBIENT CONDITIONS

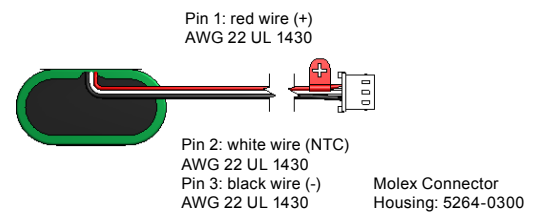
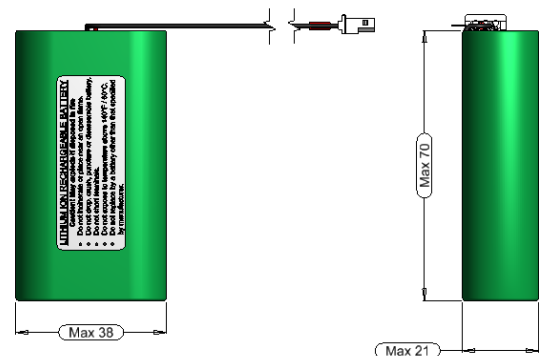
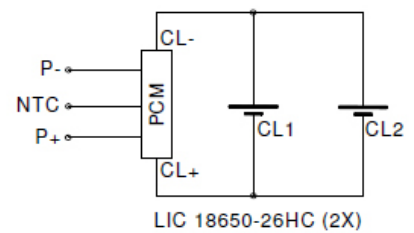
Temperature Range	▶ 0 to +45°C
• Charge	▶ -20 to +60°C
• Discharge	▶ 1 year at -20 to +25°C > 80%
• Charge Retention/ Storage [%]	▶ 3 months at -20°C to +45°C > 80%
	▶ 1 month at -20°C to +60°C > 80%
• Humidity	▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.  
 This battery is certified according to IEC62133 edition 2 and UN 38.3.

Minimum Order Quantity: 400 pcs / Order Multiples: 50 pcs - Product for OEM customers only!

## Circuit Diagram

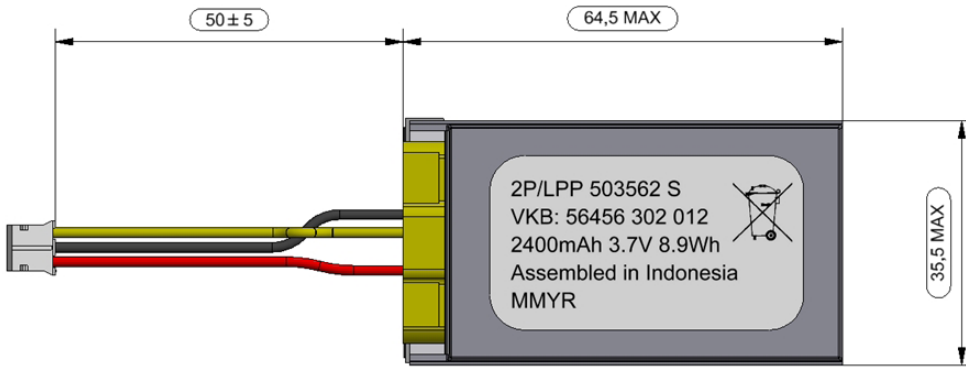


# Product Information



2P/LPP 503562 S PCM W

▶ VKB 56456 302 012



2P/LPP 503562 S  
 VKB: 56456 302 012  
 2400mAh 3.7V 8.9Wh  
 Assembled in Indonesia  
 MMYR

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ week one digit

## 1. GENERAL

Battery Pack including safety circuit & wires with connector

- Cell ▶ LPP 503562 S
- PCM ▶ Yes
- NTC ▶ 10kΩ ± 1%; B-value 3435K ± 1%
- ID ▶ None
- Configuration ▶ 2P stack up
- Weight ▶ appr. 45g

## 2. ELECTRICAL SPECIFICATION

- Rated Capacity ▶ 2300mAh min., 2400mAh nominal
- Nominal Voltage ▶ 3.7V
- Watt-Hour Rating ▶ 8.9Wh
- Charging Method ▶ Constant Current + Constant Voltage
- Max. Charge Voltage: ▶ 4.2V
- Max. Continuous Charge Current: ▶ 1150mA (limited by cell DS)
- Rec. Charge Cut Off: ▶ 23mA or timer 3.5h
- Max. Continuous Discharge Current: ▶ 2300mA (limited by cell DS)
- Rec. Discharge Cut Off: ▶ 3V
- Internal Impedance: ▶ approx. 90mΩ
- Expected Cycle Life @ (1.0C/1.0C) @ 23.5°C ▶ 500 cycles > 70%

## CELL PROTECTION

- Overcharge Detection ▶ 4.3V ± 20mV (0.8 to 1.2sec. delay, resume 4.1V ± 30mV)
- Overdischarge Detection: ▶ 2.4V ± 35mV (76.8 to 115.2msec. delay, @ remove loader & charging current)
- Overcurrent Detection ▶ 3.2A to 5.2A (9.6 to 14.4msec. delay @ discharge)

## 3. AMBIENT CONDITIONS

- Temperature Range
  - Charge ▶ 0 to +45°C
  - Discharge ▶ -20 to +60°C
  - Storage with >80% capacity recovery
    - ▶ 1 year at -20 to +30°C
    - ▶ 3 months at -20 to +45°C
    - ▶ 1 month at -20 to +60°C
- Humidity ▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
 The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.  
 The cell is IEC 62133 edition 2 certified.  
 This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!

## Circuit Diagram

