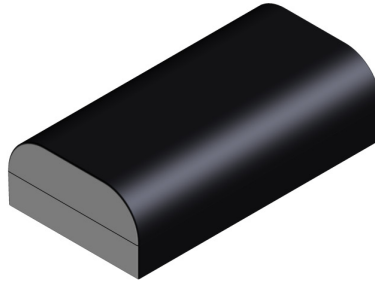


# Product Information

2P/LIC 18650-26HC PCM PC  
EZPack PLUS ▶ VKB 56637 702 099



**VARTA EasyPack**  
Rechargeable Li-Ion Battery EZPack PLUS  
56637 702 099 - 1ICR19/65-2  
3.63V 5.2Ah 19Wh

**CAUTION!**

- May explode if disposed of in fire.
- Do not open.
- Must be recycled or disposed of properly.
- Do not replace by a battery other than that specified by manufacturer.
- Use specified charger only.

VARTA Storage GmbH  
Made in Romania by VARTA Microbattery SRL

CE

Li-ion 00

WW ▶ week two digits  
YY ▶ year two digits

## 1. GENERAL

Battery rechargeable with safety circuit

Cell	▶ LIC 18650-26HC
PCM	▶ Yes
NTC	▶ $10k\Omega \pm 1\%$ , B25/85=3435K $\pm 1\%$
ID	▶ $52.3k\Omega \pm 1\%$
Configuration	▶ 2P
Weight	▶ appr. 105g

## 2. ELECTRICAL SPECIFICATION

Nominal Capacity	▶ 5200mAh min (at 0.2C and 20°C)
Minimum Capacity	▶ 5100mAh min
Nominal Voltage	▶ 3.63V
Charging Method	▶ Constant Current + Constant Voltage
Max. Charge Voltage:	▶ 4.2V
Standard Charge Current:	▶ 1250mA
Max. Continuous Charge Current:	▶ 2500mA (limited by PCM)
Rec. Charge Cut Off:	▶ by time standard charge 3h rapid charge 2.5h by min current 0.05C
Max. Continuous Discharge Current:	▶ 4500mA
Rec. Discharge Cut Off:	▶ 3V
Internal Impedance:	▶ $\leq 80m\Omega$ @ 1kHz at 4.2V
Expected Cycle Life	▶ 300 cycles $\geq 3570$ mAh

## CELL PROTECTION

Overcharge Detection	▶ $4.225V \pm 0.025V$ (0.96 to 1.4sec. delay, resume $4.025V \pm 0.05V$ )
Overdischarge Detection:	▶ $2.8V \pm 0.05V$ (61 to 90msec. delay, resume $2.8V \pm 0.1V$ )
Overcurrent Detection	▶ 5.4A to 9.2A (7.2 to 11msec. delay)

## 3. AMBIENT CONDITIONS

Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -20 to +45°C
• Storage	▶ 1 year at -20 to +25°C 3 months at -20 to +45°C 1 month at -20 to +25°C
• Humidity	▶ $65 \pm 20\%RH$

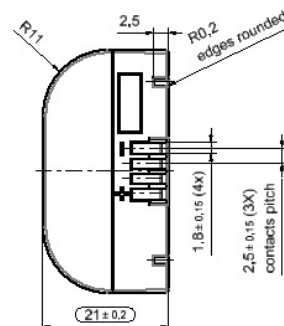
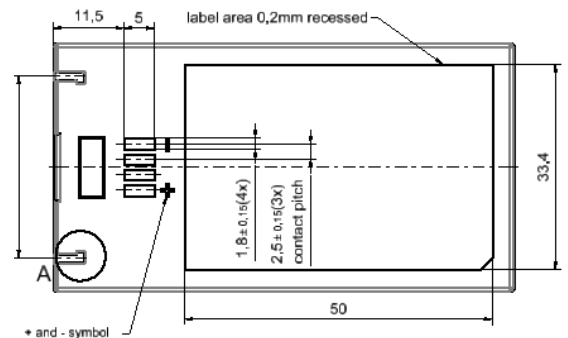
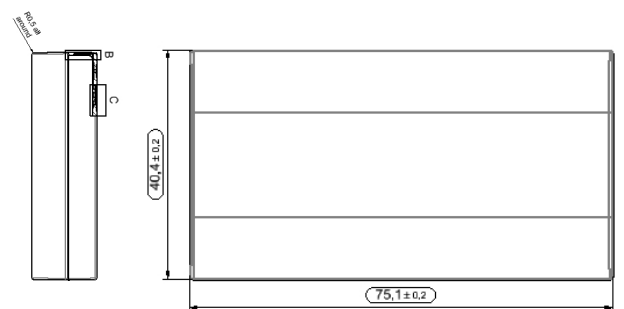
## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.

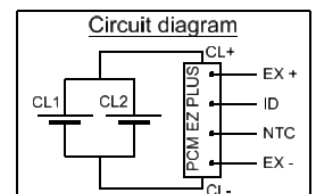
The cell is approved according UL1642 and UN 38.3 certified.

This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant. This battery is UL 2054 listed and certified according to IEC 62133 edition 2.

Minimum Order Quantity: 270 pcs / Order Multiples: 135 pcs - Product for OEM customers only!

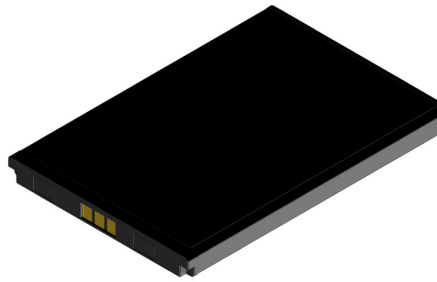


### Protection Circuit Module



# Product Information

1/LPP 454261 8TH PCM MM  
EZPack SLIM ▶ VKB 56426 801 096



WW ▶ week two digits  
YY ▶ year two digits

## 1. GENERAL

Battery with safety circuit and plastic metal combination

Cell	▶ LPP 454261 8TH
PCM	▶ Yes
NTC	▶ 10kΩ ±1%; B-Value 3435K ±1%
ID	▶ None
Configuration	▶ 1P
Weight	▶ appr. 34g

## 2. ELECTRICAL SPECIFICATION

Rated Capacity	▶ 1530mAh min., 1590mAh typical
Nominal Voltage	▶ 3.7V
Watt-Hour Rating	▶ 5.9Wh
Charging Method	▶ Constant Current + Constant Voltage
Max. Charge Voltage:	▶ 4.2V (±50mV)
Max. Continuous Charge Current:	▶ 1.6A (limited by PCM)
Rec. Charge Cut Off:	▶ by current 50mA or time 2.5h
Max. Continuous Discharge Current:	▶ 1.6A (limited by PCM)
Rec. Discharge Cut Off:	▶ 3V
Internal Impedance (1kHz):	▶ approx. 100mΩ fully charged
Expected Cycle Life @ (1C/0.5C) @ 23 ±2°C	▶ 500 cycles ≥ 67% of initial cap.

## CELL PROTECTION

Overcharge Detection	▶ 4.275V ±0.25V (0.7 to 1.3sec. delay, resume 4.275V ±0.25V)
Overdischarge Detection:	▶ 2.3V ±0.58V (14 to 26msec. delay, resume 2.3V ±0.58V)
Overcurrent Detection	▶ discharge: 1.7A to 4.5A (11 to 21msec. delay) charge: 1.6A to 5A (8 to 16 msec. delay)

## 3. AMBIENT CONDITIONS

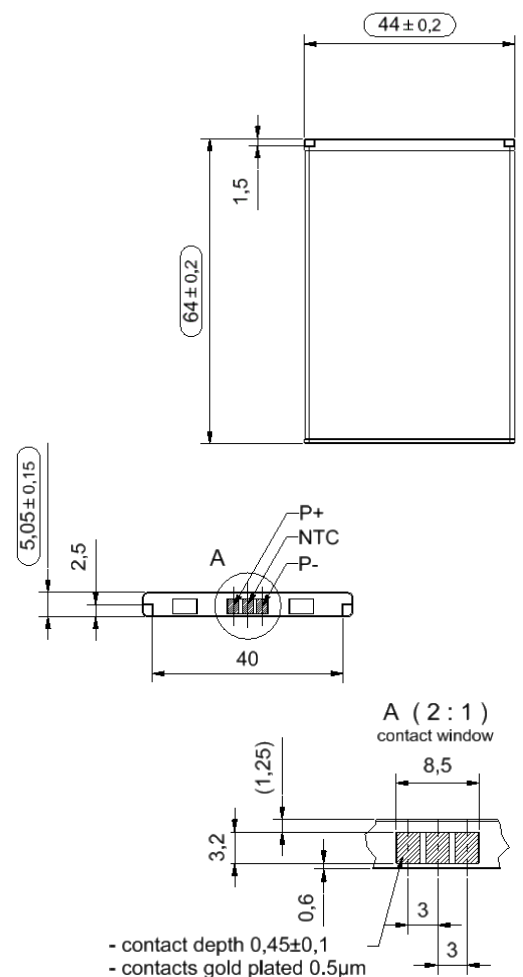
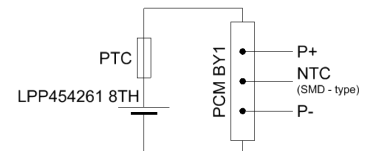
Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -20 to +55°C
• Charge Retention/Storage	▶ 1 month at -10 to +45°C >85%
• Humidity	▶ 65 ± 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.  
The cell 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 2054 listed and certified according to IEC 62133 edition 2.

Minimum Order Quantity: 300 pcs / Order Multiples: 150 pcs - Product for OEM customers only!

## Protection Circuit Module



# 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	▶ 2.5Wh
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

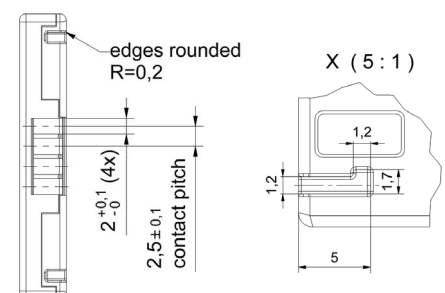
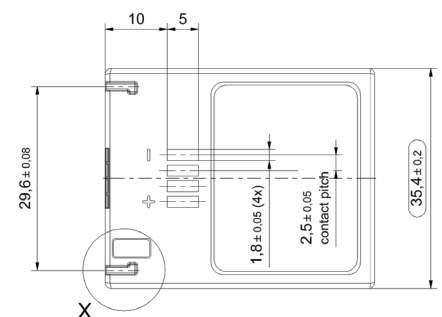
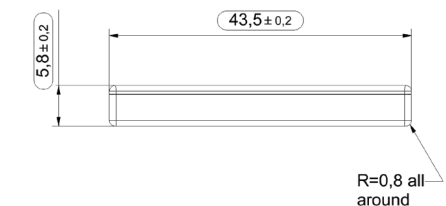
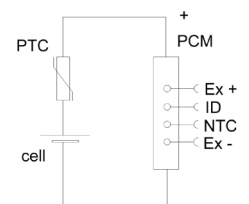
Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -10 to +60°C
• Storage	▶ Less than 1 month at -20 to +60°C ▶ Less than 3 months at -20°C to +45°C ▶ Less than 1 year at -20°C to +30°C
• Humidity	▶ 65 ± 20%RH

## 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 2054 listed and certified according to IEC 62133 edition 2.

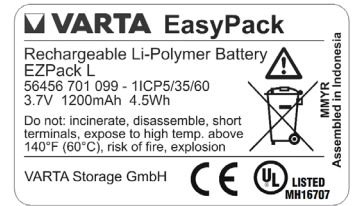
Minimum Order Quantity: 750 pcs / Order Multiples: 150 pcs - Product for OEM customers only!

## Protection Circuit Module



# Product Information

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



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	▶ 4.5Wh
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

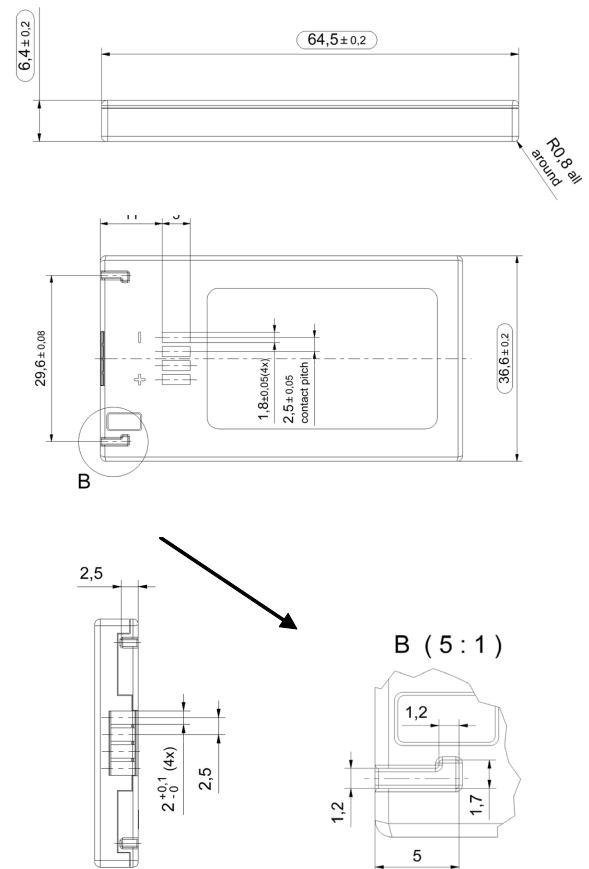
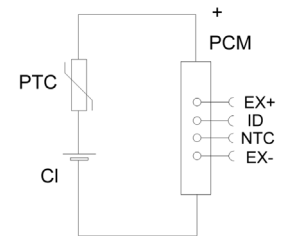
Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -10 to +60°C
• Storage	▶ Less than 1 month at at -20 to +60°C
	▶ Less than 3 months at -20°C to +45°C
	▶ Less than 1 year at -20°C to +30°C
• Humidity	▶ 65 ± 20%RH

## 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 2054 listed and certified according to IEC 62133 edition 2.

Minimum Order Quantity: 600 pcs / Order Multiples: 150 pcs - Product for OEM customers only!

## Protection Circuit Module



# Product Information

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



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	▶ 8.9Wh
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

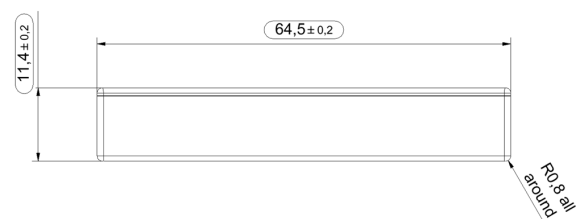
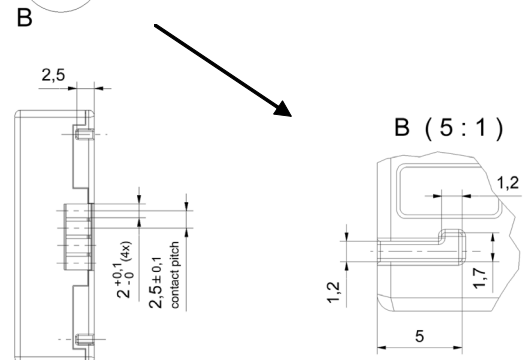
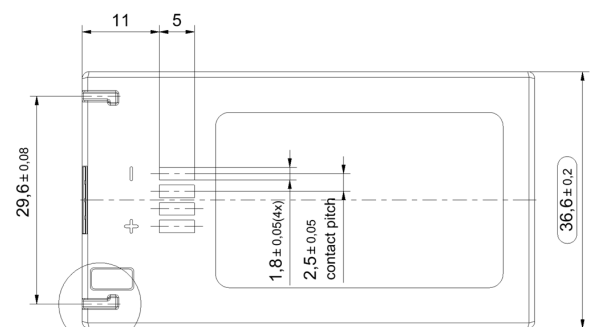
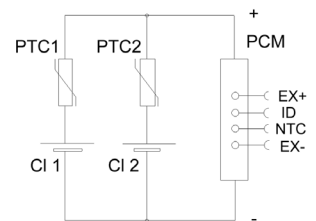
Temperature Range	
• Charge	▶ 0 to +45°C
• Discharge	▶ -10 to +60°C
• Storage	▶ Less than 1 month at at -20 to +60°C
	▶ Less than 3 months at -20°C to +45°C
	▶ Less than 1 year at -20°C to +30°C
• Humidity	▶ 65 ± 20%RH

## 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 2054 listed and certified according to IEC 62133 edition 2.

Minimum Order Quantity: 300 pcs / Order Multiples: 100 pcs - Product for OEM customers only!

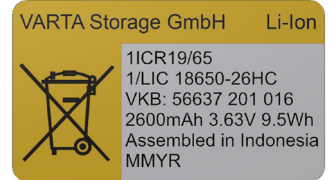
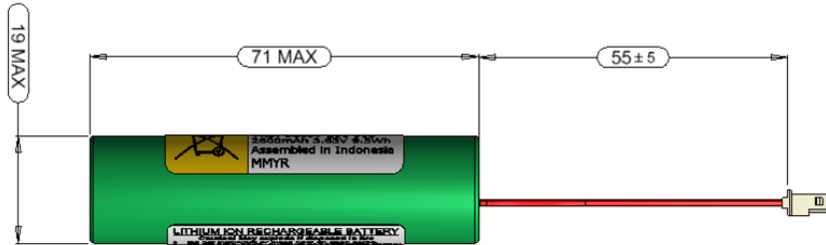
## Protection Circuit Module



# Product Information

1/LIC 18650 26 HC PCM S WC

► VKB 56637 201 016



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.

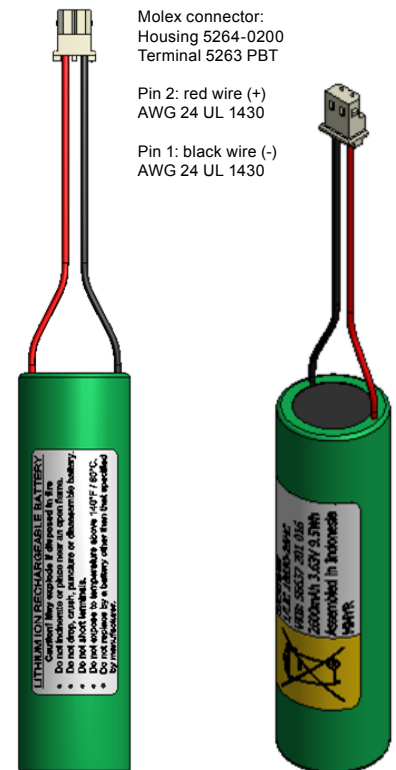
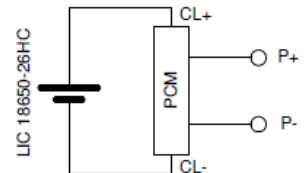
The cell used is a UL recognized component according to UL1642.

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

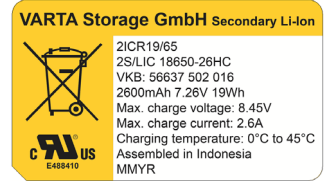
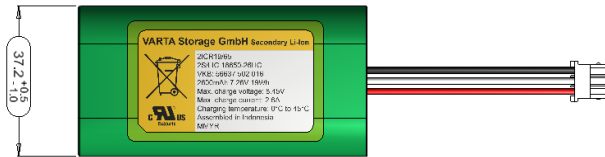




# Product Information

2S/LIC 18650 26 HC PCM S WC

► VKB 56637 502 016



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:	► 2600mA (limited by Cell)
Rec. Charge Cut Off:	► 0.05C or timer 3h
Max. Continuous Discharge Current:	► 3000mA (limited by Wire connector)
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:	► 2.250V ~ 2.350V (115msec. ~ 173msec. delay, resume 2.800V ~ 3.000V)
Overcurrent Detection	► 4A ~ 7A (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.

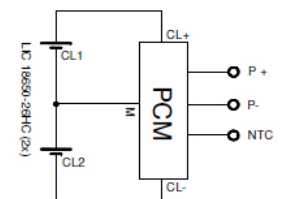
The cell used is a UL recognized component according to UL1642.

This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

This battery is certified according to IEC62133 edition 2.

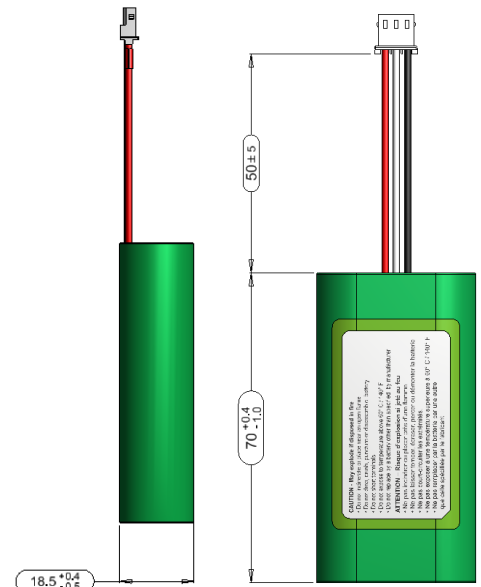
Minimum Order Quantity: 400 pcs / Order Multiples: 50 pcs - Product for OEM customers only!

## 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

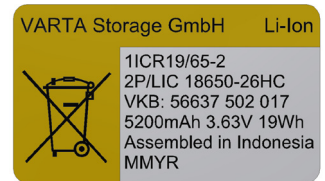
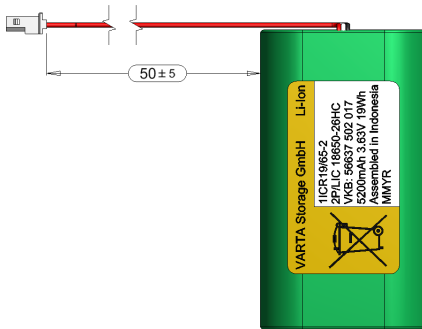
Molex connector:  
Housing 5264-03  
Terminal 5263 PBT



# Product Information

2P/LIC 18650 26 HC PCM S WC

► VKB 56637 502 017



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	
• 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.

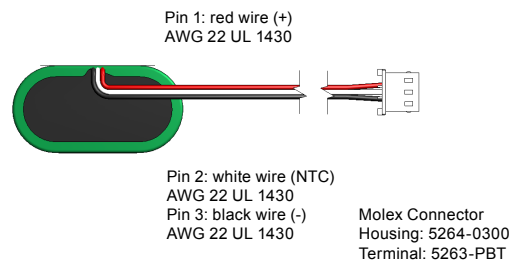
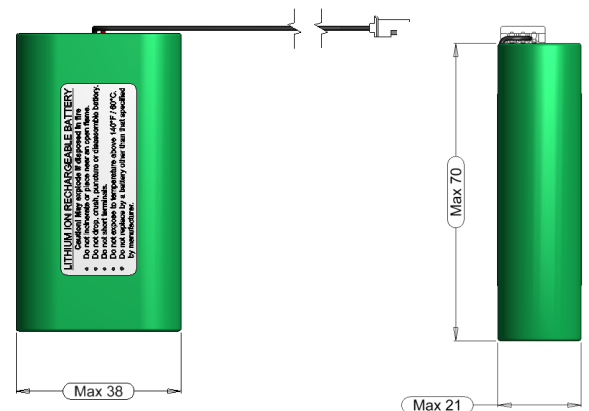
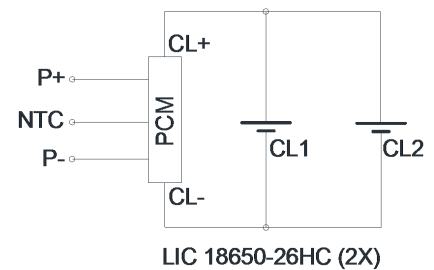
The cell used is a UL recognized component according to UL1642.

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

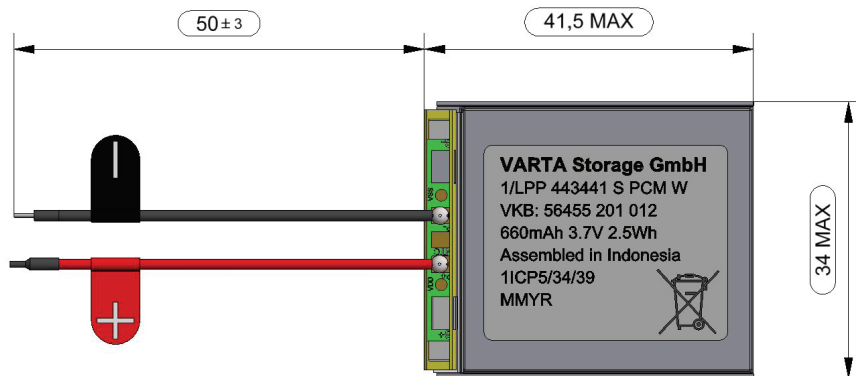
## Circuit Diagram





# Product Information

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



**VARTA Storage GmbH**  
 1/LPP 443441 S PCM W  
 VKB: 56455 201 012  
 660mAh 3.7V 2.5Wh  
 Assembled in Indonesia  
 1ICP5/34/39  
 MMYR

MM ▶ month two digits  
 Y ▶ year one digit  
 R ▶ week 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	▶ -10 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

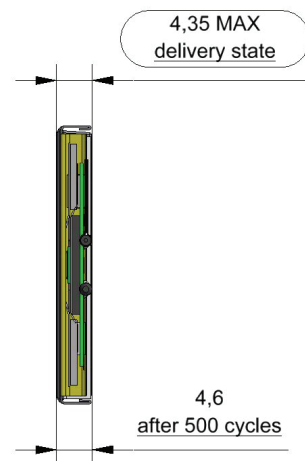
Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.

The cell used is a UL recognized component according to UL1642.

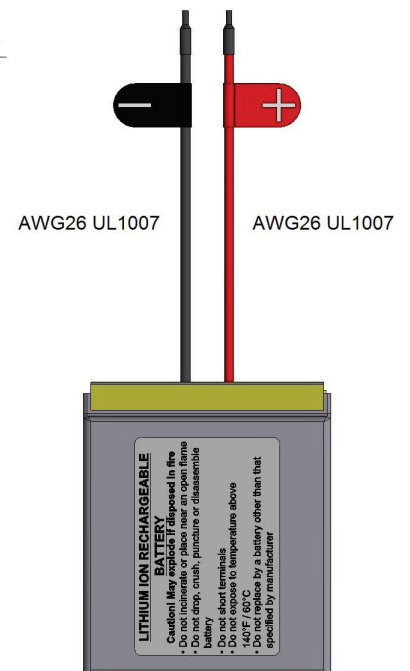
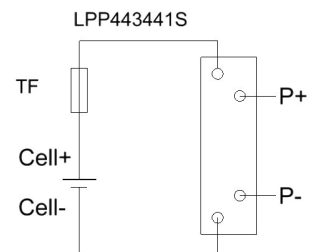
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

The battery is certified according to IEC62133 edition 2 and UN 38.3.

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



## Circuit Diagram

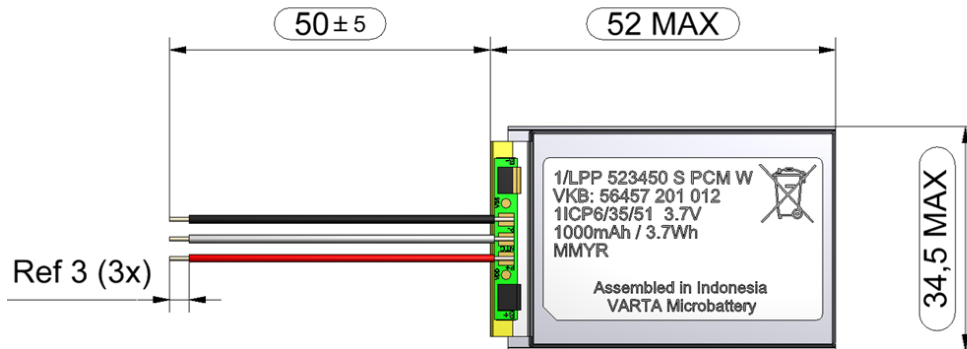


# Product Information



1/LPP 523450 S PCM W

► VKB 56457 201 012



1/LPP 523450 S PCM W  
VKB: 56457 201 012  
1ICP6/35/51 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	► 10k $\Omega$ $\pm$ 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. 100m $\Omega$
Expected Cycle Life @ (1C/1C) @ 23 $\pm$ 5°C	► 500 cycles $\geq$ 800mAh

## CELL PROTECTION

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

## 3. AMBIENT CONDITIONS

Temperature Range

• Charge	► 0 to +45°C
• Discharge	► -10 to +60°C
• Storage	► 1 year at -20 to +30°C >80%
	► 3 months at -20 to +45°C >80%
	► 1 month at -20 to +60°C >80%
• Humidity	► 65 $\pm$ 20%RH

## 4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.

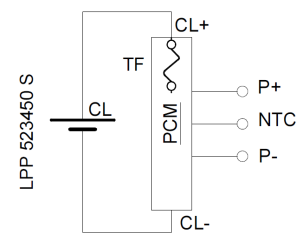
The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.

The cell is IEC 62133 edition 2 certified.

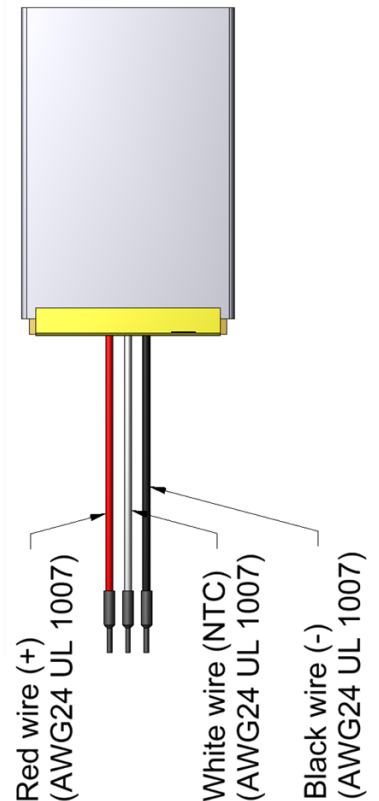
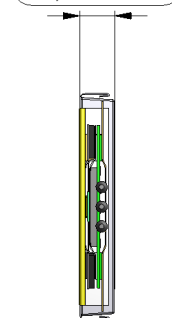
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

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

## Circuit Diagram



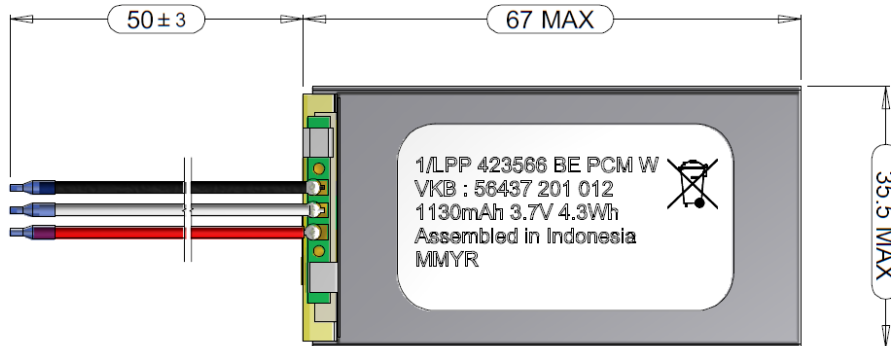
5,3 MAX



# Product Information

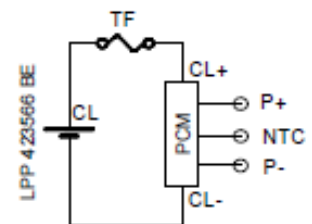
1/LPP 423566 BE PCM W

► VKB 56437 201 012



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)

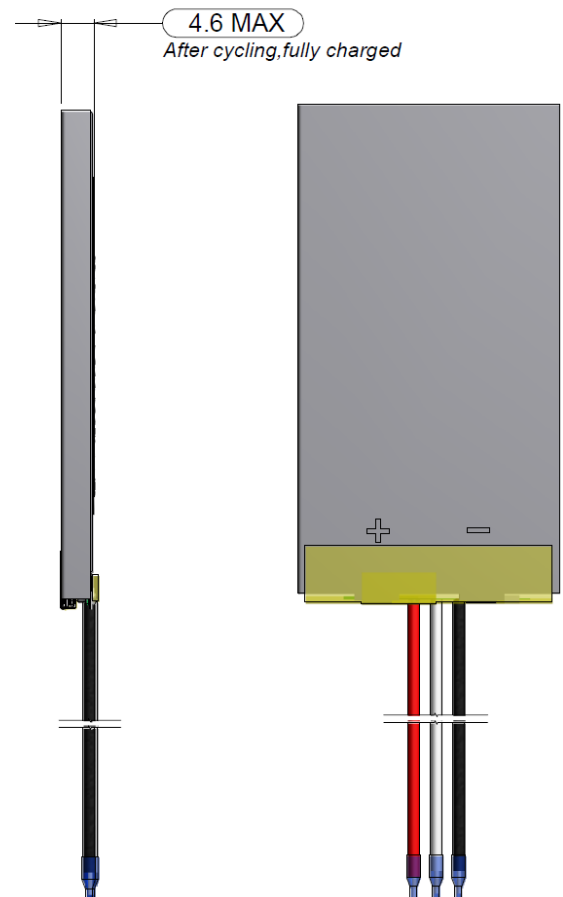
## 3. AMBIENT CONDITIONS

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.

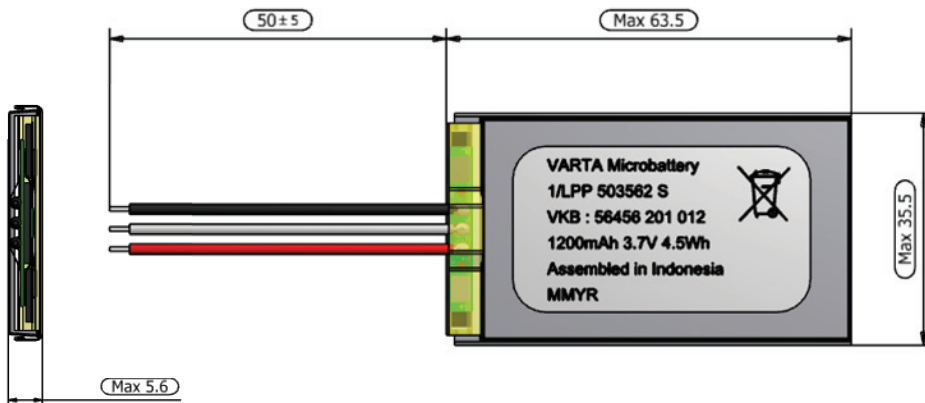
Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!



# Product Information

1/LPP 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

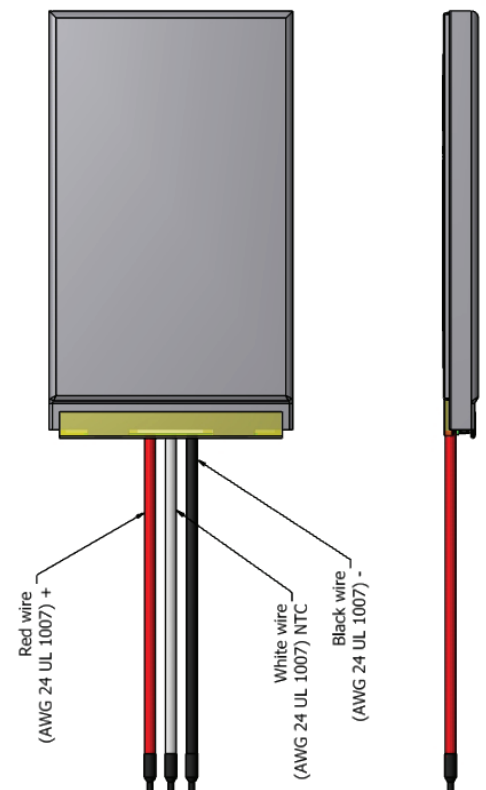
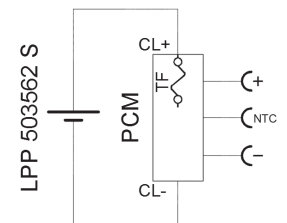
Temperature Range	
• Charge	► 0 to +45°C
• Discharge	► -10 to +60°C
• Storage with >60% recovery	► 1 year at -20 to +30°C ► 3 months at -20 to +45°C ► 1 month at -20 to +60°C
• Humidity	► 65 ± 20%RH

## 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!

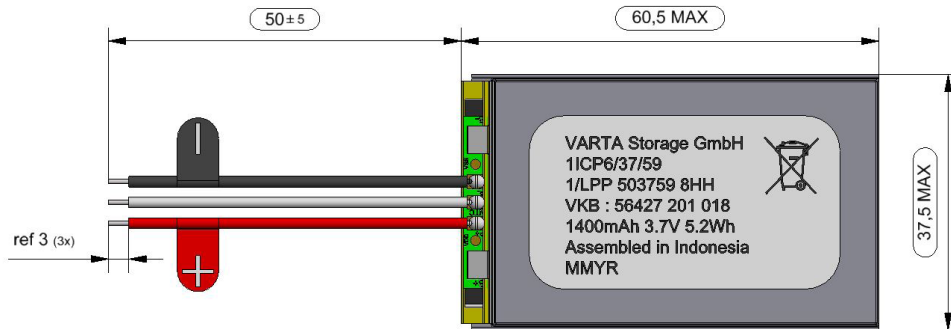
## Circuit Diagram



# Product Information

1/LPP 503759 8HH PCM W

► VKB 56427 201 018



VARTA Storage GmbH  
1ICP6/37/59  
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

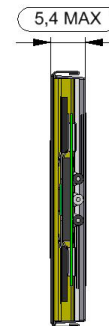
Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.

The cell used is a UL recognized component according to UL1642.

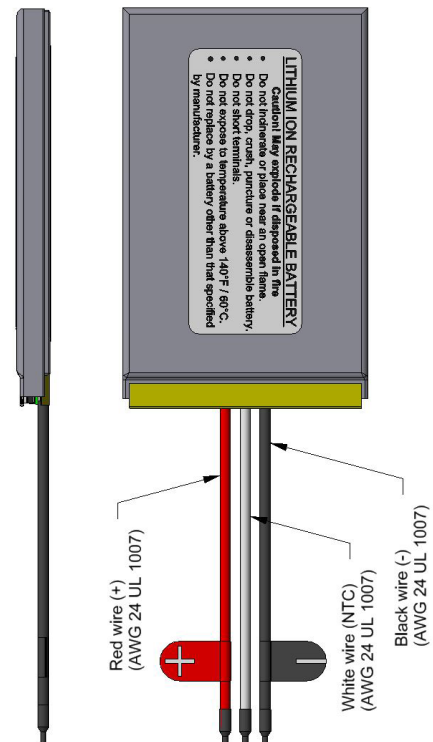
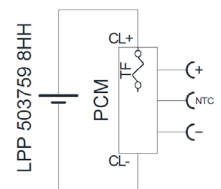
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

The battery is certified according to IEC 62133 edition 2 and UN 38.3.

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



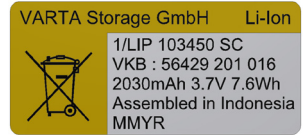
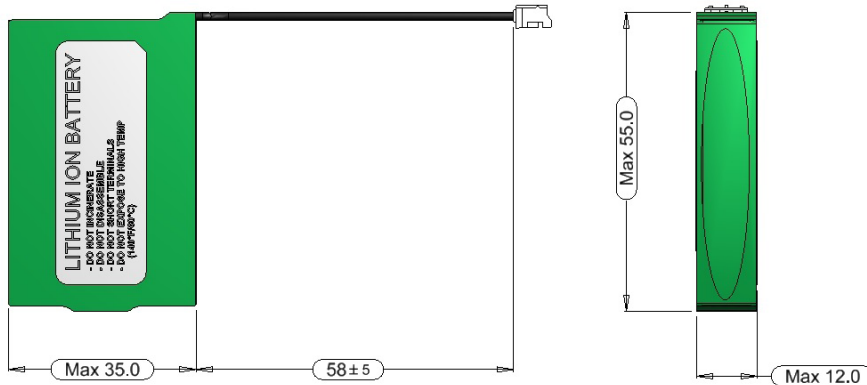
## Circuit Diagram



# Product Information

1/LIP 103450 SC PCM S WC

► VKB 56429 201 016



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

## 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 ► 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	
• Charge	► 0 to +45°C
• Discharge	► -20 to +60°C
• Storage Temperature	► 1 year at -20 to +20°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.

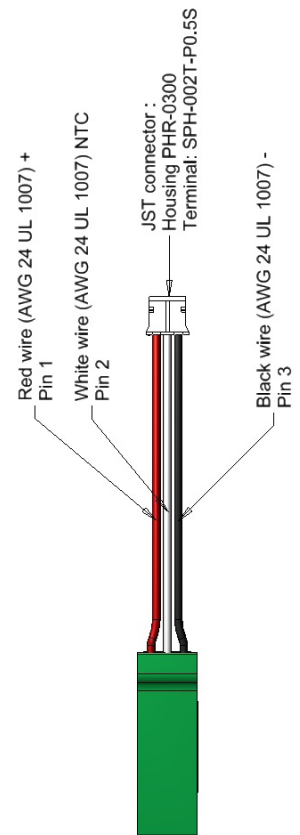
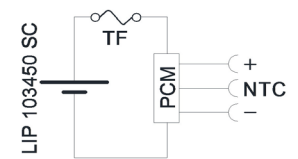
The cell used is a UL recognized component according to UL1642 and UN38.3 certified.

This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

The battery is certified according to IEC62133 edition 2.

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

## Circuit Diagram

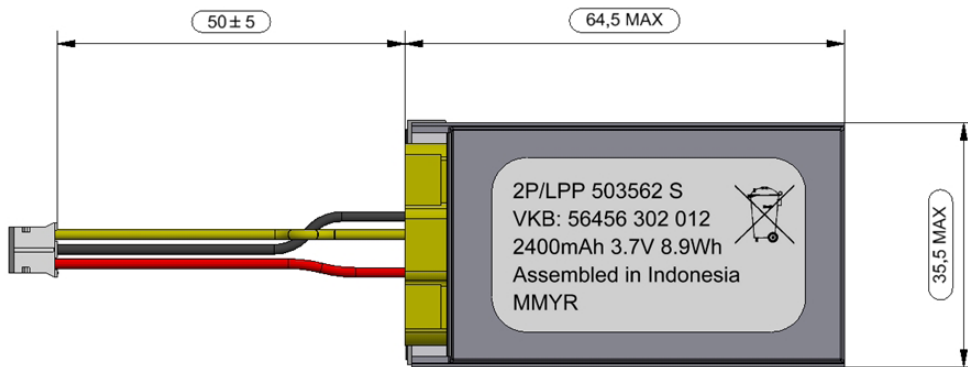




# Product Information

2P/LPP 503562 S PCM WC

► 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:	► 2000mA (limited by connector)
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	► -10 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

