

Product Information



2P/LIC 18650-26HC PCM PC

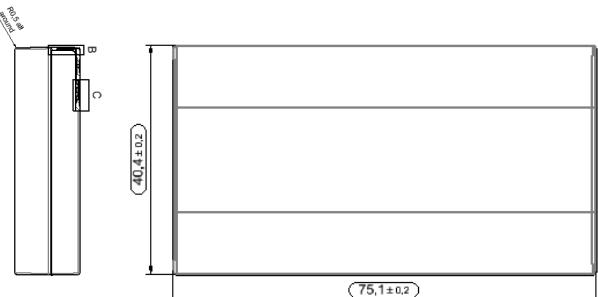
EZPack PLUS ► VKB 56637 702 099



1. GENERAL

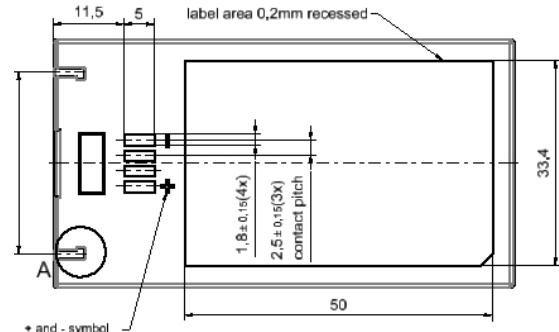
Battery rechargeable with safety circuit

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



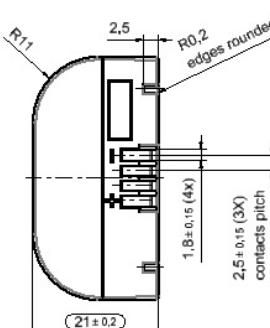
2. ELECTRICAL SPECIFICATION

- 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 $\geq 3570mAh$

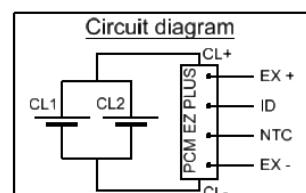


CELL PROTECTION

- 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)



Protection Circuit Module



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 LiIon & 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.

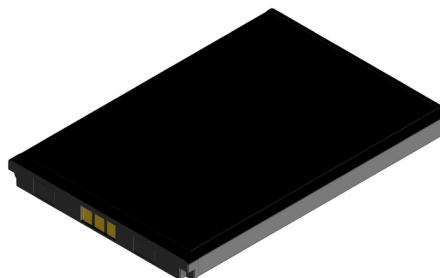
Minimum Order Quantity: 270 pcs / Order Multiples: 135 pcs - Product for OEM customers only!



Product Information



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



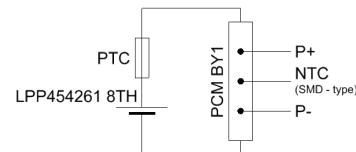
WW ► week two digits
YY ► year two digits

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 |

Protection Circuit Module



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

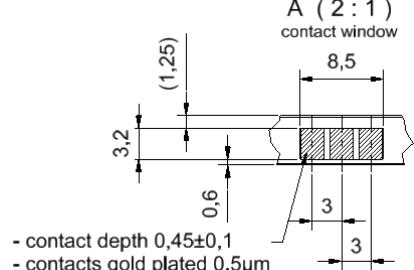
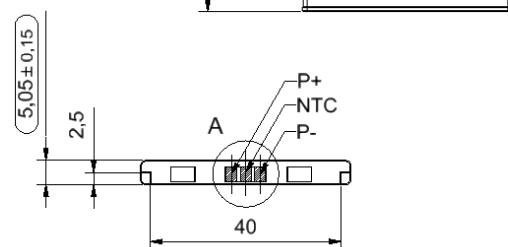
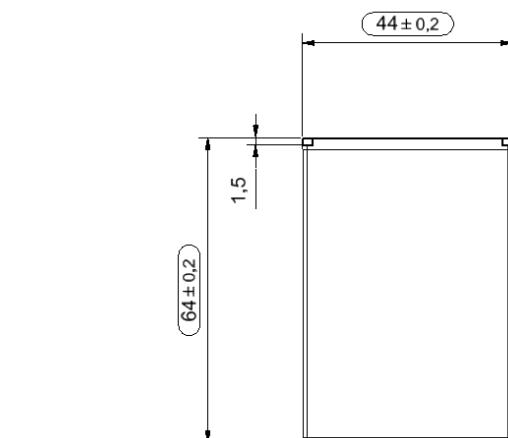
Please follow VARTA Handling and Safety Precautions for LiIon & LiPolymer.

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!



Product Information



1/LPP 443441 S PCM PC

EZPack S ► VKB 56455 701 099



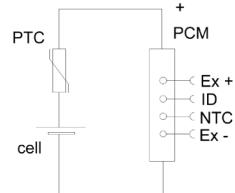
MM ▶ month two digits
Y ▶ year one digit
R ▶ week one digit

1. GENERAL

Battery with safety circuit and plastic housing

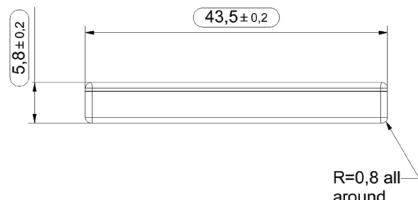
- Cell ▶ LPP 443441 S
- PCM ▶ Yes
- NTC ▶ 10 kΩ ±1%; B-Value 3435K ±1%
- ID ▶ 3.9 kΩ ±1%
- Configuration ▶ 1S
- Weight ▶ appr. 15g

Protection Circuit Module



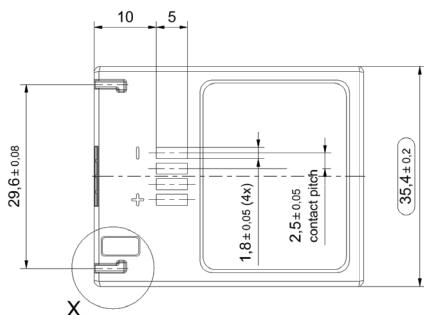
2. ELECTRICAL SPECIFICATION

- 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

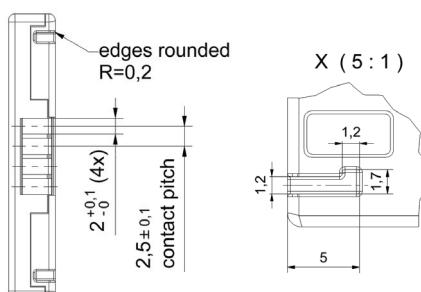
- Overcharge Detection ▶ 4.3 ±0.02V (0.8 to 1.2sec. delay, resume 4.1V ±0.03V)
- Overdischarge Detection: ▶ 2.40V ±0.035V (76.8 to 115.2msec. delay, resume remove load & charging current)
- Overcurrent Detection ▶ 3.2A to 5.2A (9.6 to 14.4msec. delay)



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 LiIon & 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!

Product Information



1/LPP 503562 S PCM PC

EZPack L ► VKB 56456 701 099



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 | ► 0 to +45°C |
| • Charge | ► -10 to +60°C |
| • Discharge | ► Less than 1 month at -20 to +60°C |
| • Storage | ► 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.

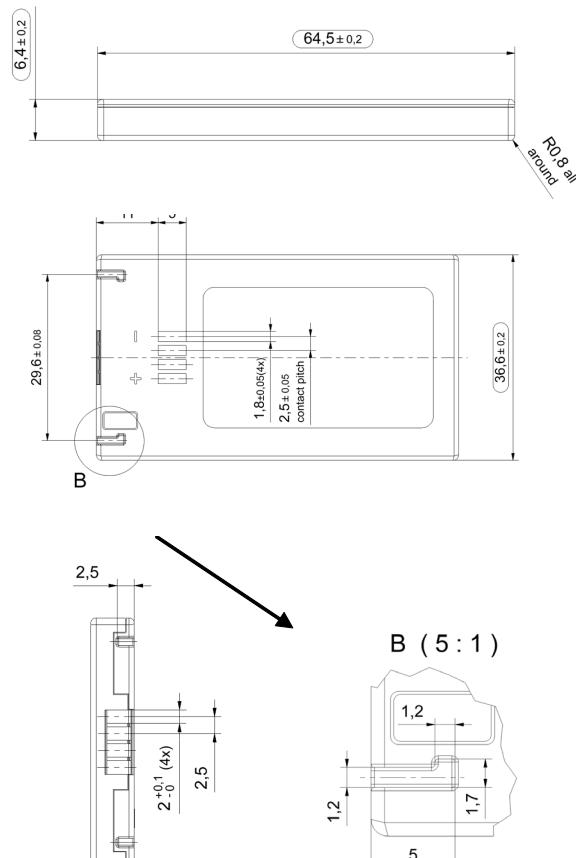
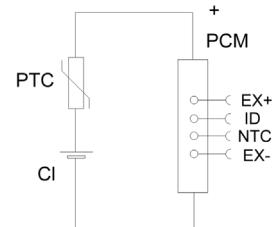
This battery meets the requirements of Battery Directives and the battery parts are RoHS-Compliant.

This battery is UL 2054 listed and certified according to IEC 62133 edition 2.



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

Protection Circuit Module



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

Product Information



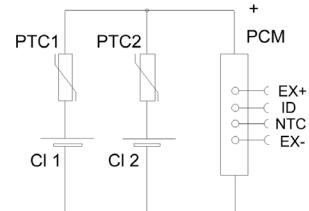
2P/LPP503562 S PCM PC

EZPack XL ► VKB 56456 702 099



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

Protection Circuit Module



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.

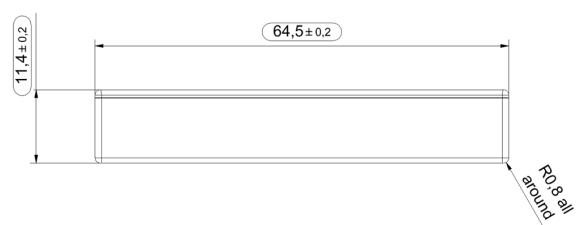
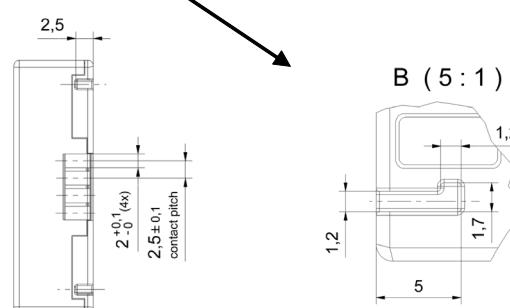
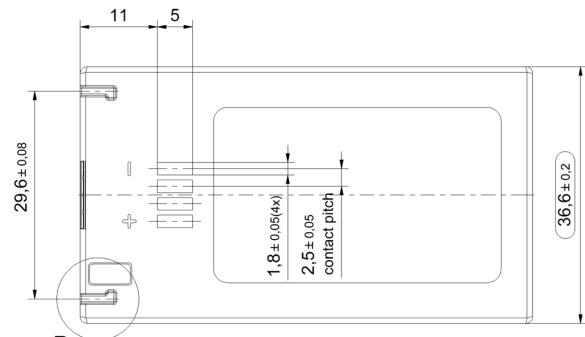
CELL PROTECTION

- 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 -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 LiIon & 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.

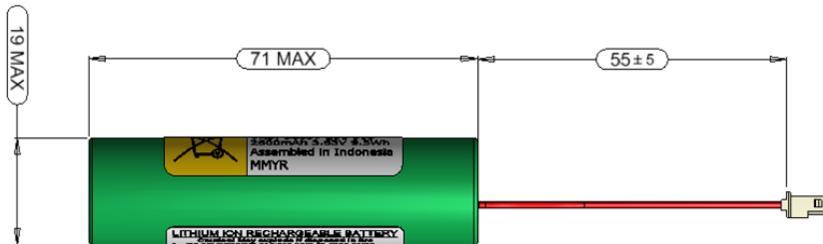
Minimum Order Quantity: 300 pcs / Order Multiples: 100 pcs - Product for OEM customers only!

Product Information



1/LIC 18650 26 HC PCM S WC

► VKB 56637 201 016



VARTA Storage GmbH Li-Ion
1ICR19/65
1/LIC 18650-26HC
VKB: 56637 201 016
2600mAh 3.63V 9.5Wh
Assembled in Indonesia
MMYR

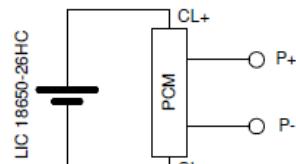
MM ► month two digits
Y ► year one digit
R ► VARTA internal one digit

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 |

Circuit Diagram



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 ($\pm 50mV$) |
| 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. 120m Ω |
| Expected Cycle Life @ (0.5C/0.5C) @ 25°C | ► 300 cycles @ ≥ 1785 mAh |

Molex connector:
Housing 5264-0200
Terminal 5263 PBT
Pin 2: red wire (+)
AWG 24 UL 1430
Pin 1: black wire (-)
AWG 24 UL 1430



CELL PROTECTION

- | | |
|--------------------------|---|
| Overcharge Detection | ► 4.300 \pm 0.025V (0.8 to 1.2sec. delay,
resume 4.100V \pm 0.030V) |
| Overdischarge Detection: | ► 2.400V \pm 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 \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.

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!

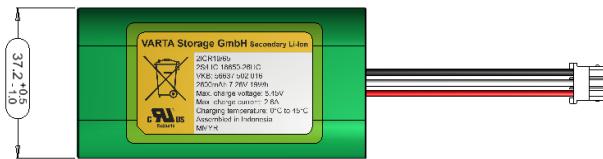
BATTERY DESIGN YOU CAN TRUST

Product Information



2S/LIC 18650 26 HC PCM S WC

► VKB 56637 502 016



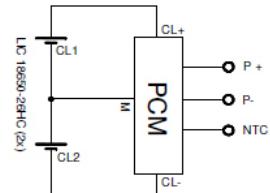
MM ► month two digits
Y ► year one digit
R ► VARTA internal one digit

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

Circuit Diagram



2. ELECTRICAL SPECIFICATION

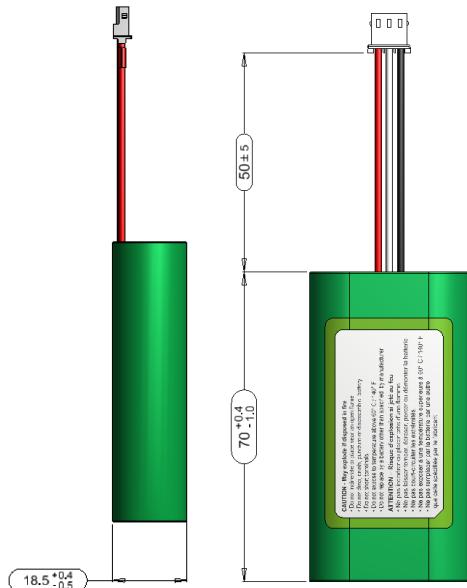
- Rated Capacity ► 2550mAh min., 2600mAh nominal
- Nominal Voltage ► 7.26V
- Watt-Hour Rating ► 19Wh
- Charging Method ► Constant Current + Constant Voltage
- Max. Charge Voltage [V]: ► 8.4 (±50mV)
- Max. Continuous Charge Current: ► 2600mA (limited by Cell)
- Rec. Charge Cut Off: ► 0.05C or timer 3h
- 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

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

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 LiIon & 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!

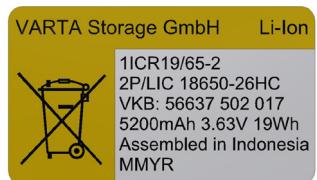
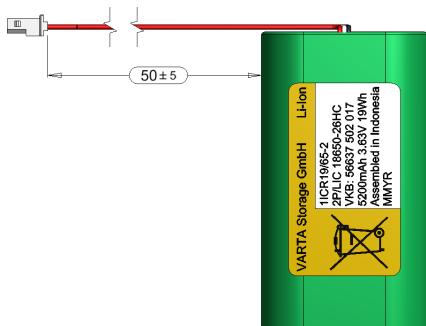


Product Information



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	$10k\Omega \pm 3\%$; B-value: $3435K \pm 3\%$
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 ($\pm 50mV$)
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. 100m Ω
Expected Cycle Life @ (0.5C/0.5C) @ 25°C	► 300 cycles @ $\geq 3570mAh$

CELL PROTECTION

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

3. AMBIENT CONDITIONS

Temperature Range

- Charge
 - Discharge
 - Charge Retention/
Storage [%]
 - Humidity
 - ▶ 0 to +45°C
 - ▶ -20 to +60°C
 - ▶ 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%
 - ▶ 65 ± 20%RH

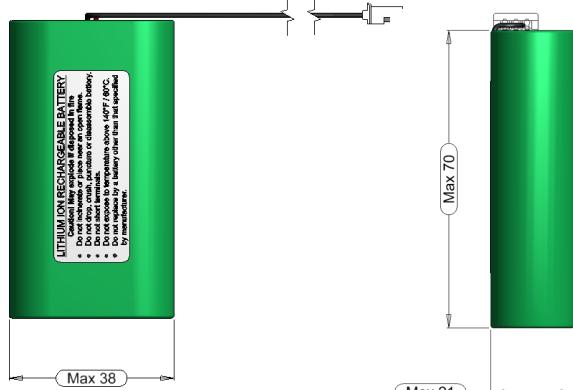
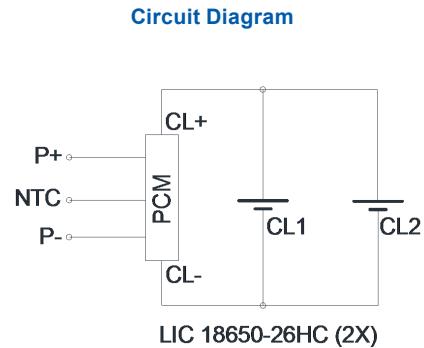
4. ENVIRONMENTAL AND SAFETY

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

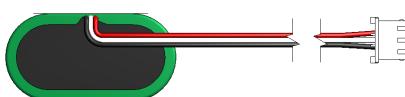
The cell used is a UL recognized component according to UL1642.

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.



Pin 1: red wire (+)
AWG 22 UL 1430



Pin 2: white wire (NTC)
AWG 22 UL 1430
Pin 3: black wire (-)
AWG 22 UL 1430

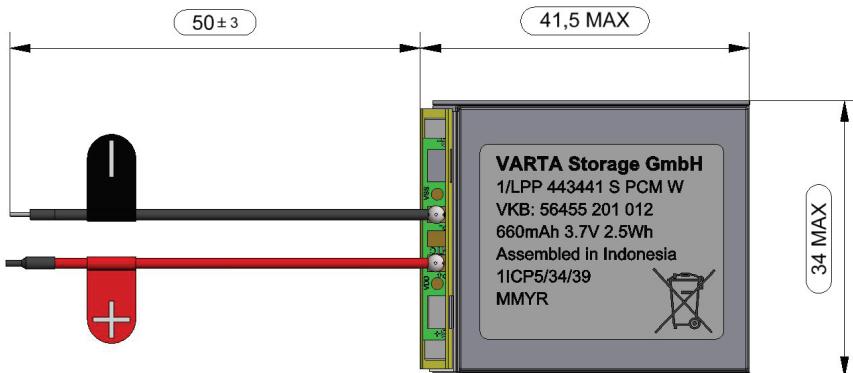
Pin 3: black wire (-)
AWG 22 UL 1430

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

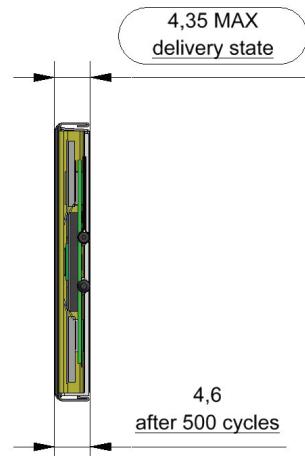


MM ► month two digits
Y ► year one digit
R ► week one digit

1. GENERAL

Battery Pack including safety circuit and wires

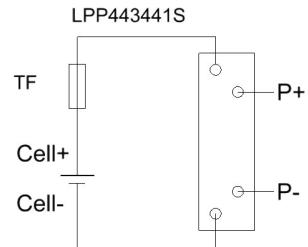
- | | |
|---------------|----------------|
| Cell | ► LPP 443441 S |
| PCM | ► Yes |
| NTC | ► None |
| ID | ► None |
| Configuration | ► 1S |
| Weight | ► appr. 13g |



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 ($\pm 50mV$) |
| 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. 130m Ω |
| Expected Cycle Life | ► 500 cycles $\geq 70\%$ |
| @ (1C/1C) @ 23 $\pm 5^\circ C$ | |

Circuit Diagram



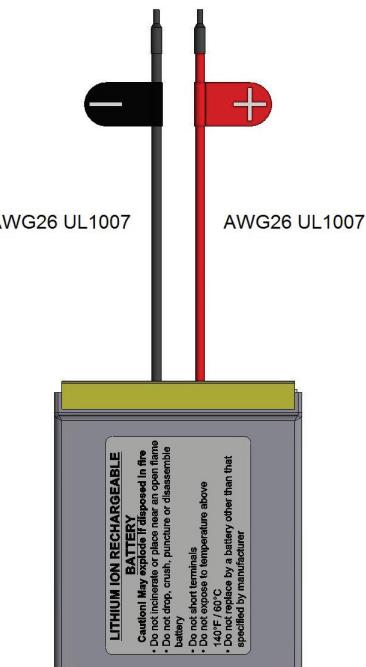
CELL PROTECTION

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

3. AMBIENT CONDITIONS

Temperature Range

- Charge ► 0 to $+45^\circ C$
- Discharge ► -10 to $+60^\circ C$
- Storage Temperature ► 1 year at -20 to $+30^\circ C$ with $>80\%$ capacity recovery
- ► 3 months at -20 to $45^\circ C$ with $>80\%$ capacity recovery
- ► 1 month at -20 to $60^\circ C$ with $>80\%$ capacity recovery
- Humidity ► $65 \pm 20\%RH$



4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for LiIon & 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!

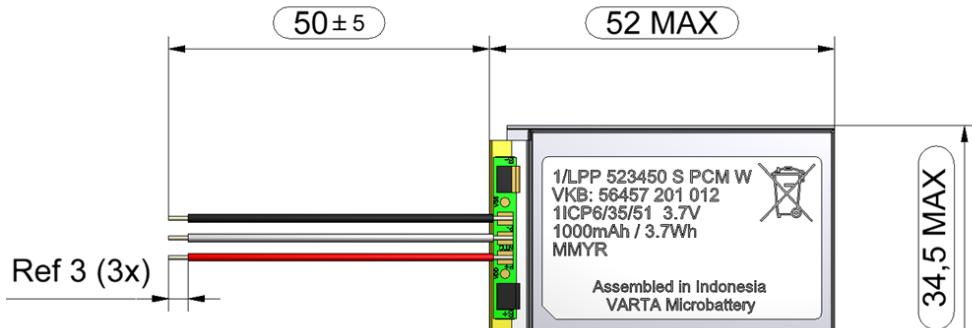


Product Information



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

M 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 ► -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 ± 20%RH

4. ENVIRONMENTAL AND SAFETY

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

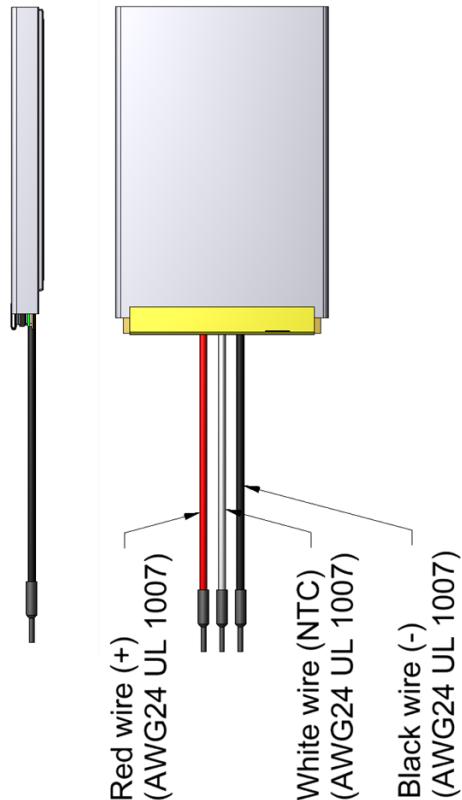
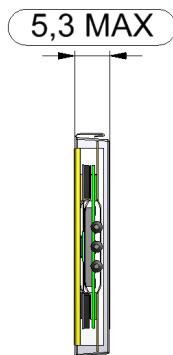
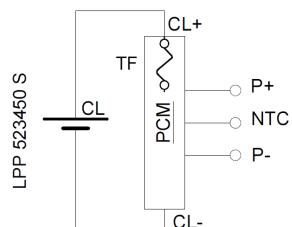
The cell used is a UL recognized component according to UL1642 and UN 38.3 certified.

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

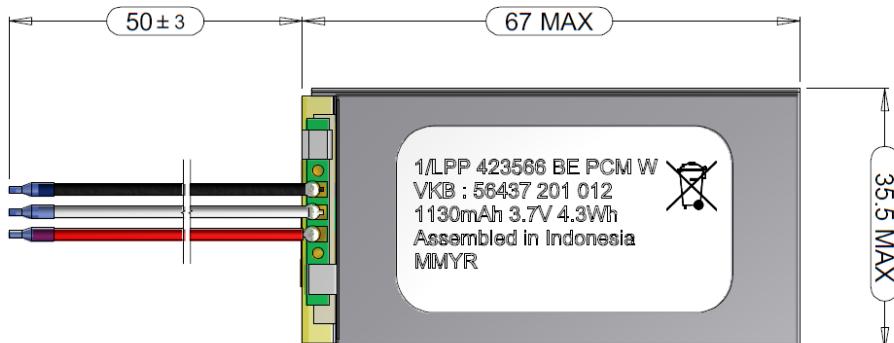


Product Information



1/LPP 423566 BE PCM W

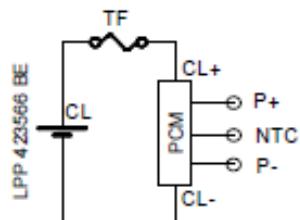
► VKB 56437 201 012



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

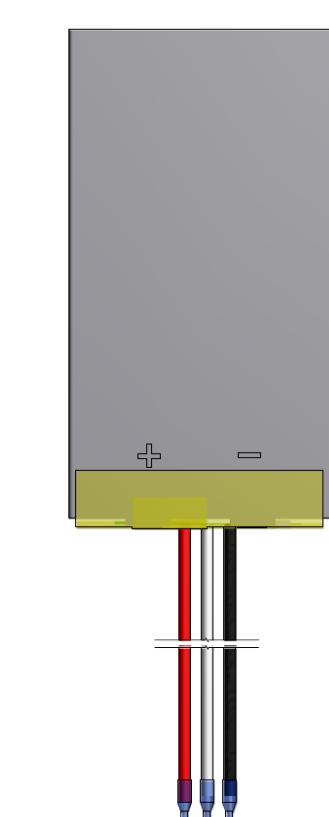
Please follow VARTA Handling and Safety Precautions for LiIon & LiPolymer.

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!

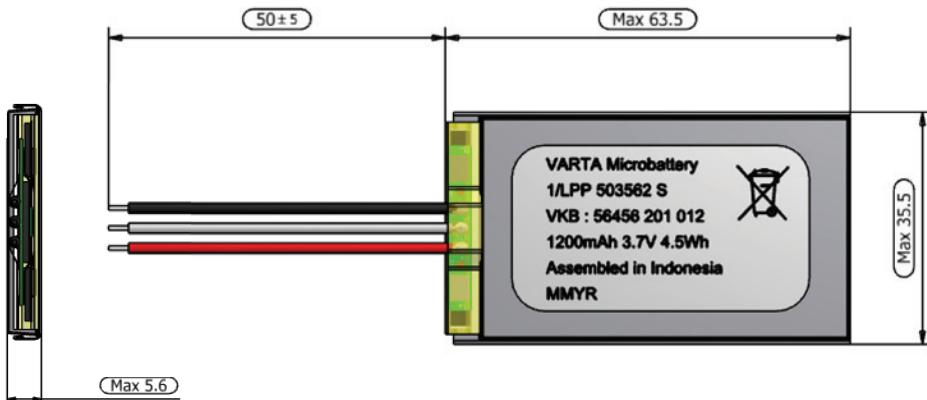


Product Information



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

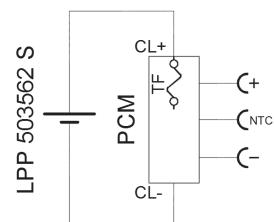
Battery with safety circuit & wires

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

2. ELECTRICAL SPECIFICATION

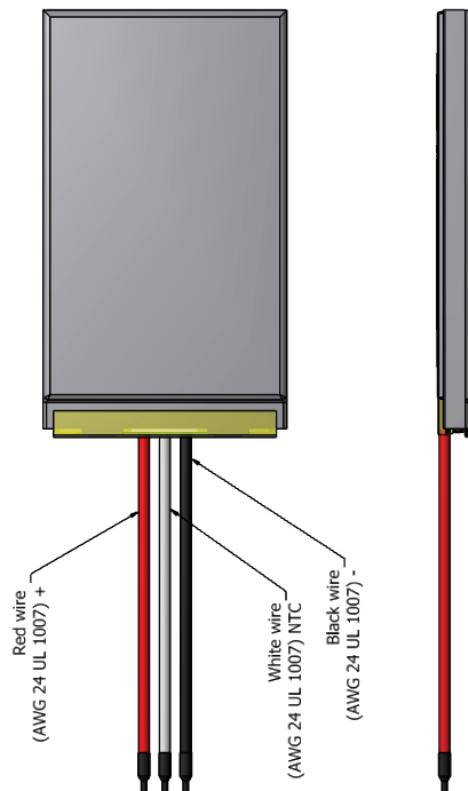
- | | |
|--|---------------------------------------|
| Rated Capacity | ► 1150mAh min., 1200mAh nominal |
| Nominal Voltage | ► 3.7V |
| Watt-Hour Rating | ► 4.5Wh |
| Charging Method | ► Constant Current + Constant Voltage |
| Max. Charge Voltage: | ► 4.2V |
| Max. Continuous Charge Current: | ► 1150mA (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% |

Circuit Diagram



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 LiIon & 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.

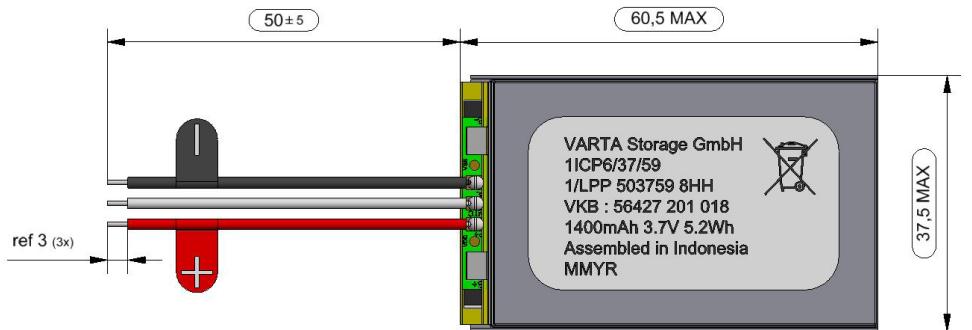
Minimum Order Quantity: 600 pcs / Order Multiples: 120 pcs - Product for OEM customers only!

Product Information



1/LPP 503759 8HH PCM W

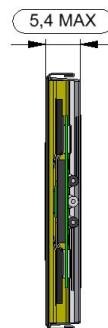
► VKB 56427 201 018



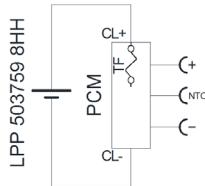
VARTA Storage GmbH
1ICP6/37/59
1/LPP 503759 8HH
VKB : 56427 201 018
1400mAh 3.7V 5.2Wh
Assembled in Indonesia
MMYR



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



Circuit Diagram



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 ► 1 month at -10 to +45°C > 85%
- Recovery Rate ► 65 ± 20%RH

4. ENVIRONMENTAL AND SAFETY

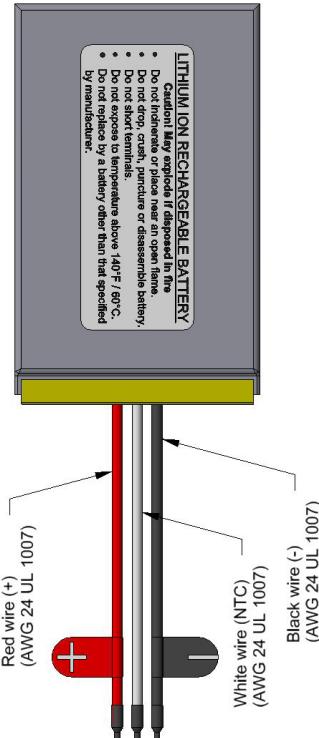
Please follow VARTA Handling and Safety Precautions for Lilon & LiPolymer.

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!

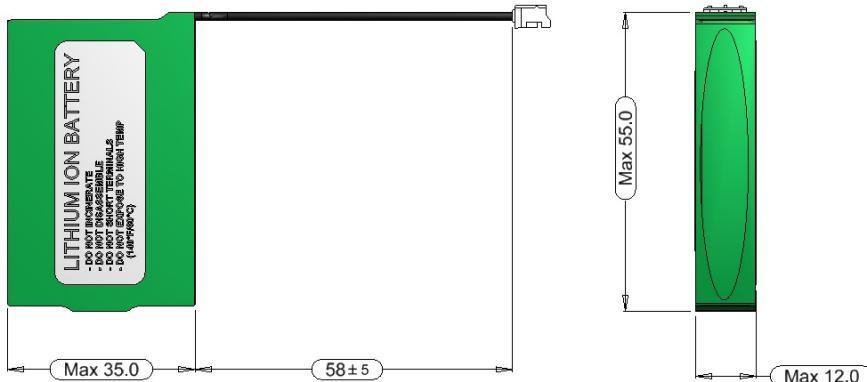


Product Information



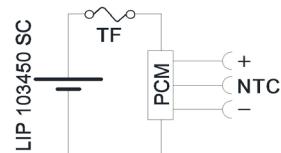
1/LIP 103450 SC PCM S WC

► VKB 56429 201 016



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

Circuit Diagram



1. GENERAL

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

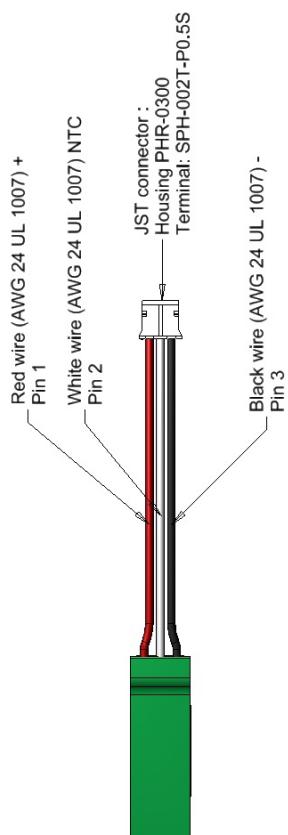
- | | |
|---------------|---|
| Cell | ► LIP 103450 SC |
| PCM | ► Yes |
| NTC | ► $10 \text{ k}\Omega \pm 1\%$; B-Value = $3435 \pm 1\%$ |
| ID | ► None |
| Configuration | ► 1S |
| Weight | ► appr. 43g |

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 ($\pm 50\text{mV}$) |
| 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. $140\text{m}\Omega$ |
| 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 | ► $4.275\text{V} \pm 25\text{mV}$ (0.96 to 1.4sec. delay,
resume $4.075\text{V} \pm 50\text{mV}$, remove charge current) |
| Overdischarge Detection: | ► $2.30\text{V} \pm 50\text{mV}$ (30 to 46msec. delay,
resume $2.3\text{V} \pm 100\text{mV}$ @ charge current) |
| Overcurrent Detection | ► 5.2A to 8.0A (7.2 to 11msec. delay) |



3. AMBIENT CONDITIONS

- | | |
|-----------------------|--|
| Temperature Range | |
| • Charge | ► 0 to $+45^\circ\text{C}$ |
| • Discharge | ► -20 to $+60^\circ\text{C}$ |
| • Storage Temperature | ► 1 year at -20 to $+20^\circ\text{C} > 80\%$
► 3 months at -20°C to $+45^\circ\text{C} > 80\%$
► 1 month at -20°C to $+60^\circ\text{C} > 80\%$ |
| • Humidity | ► $65 \pm 20\%\text{RH}$ |

4. ENVIRONMENTAL AND SAFETY

Please follow VARTA Handling and Safety Precautions for LiIon & 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!

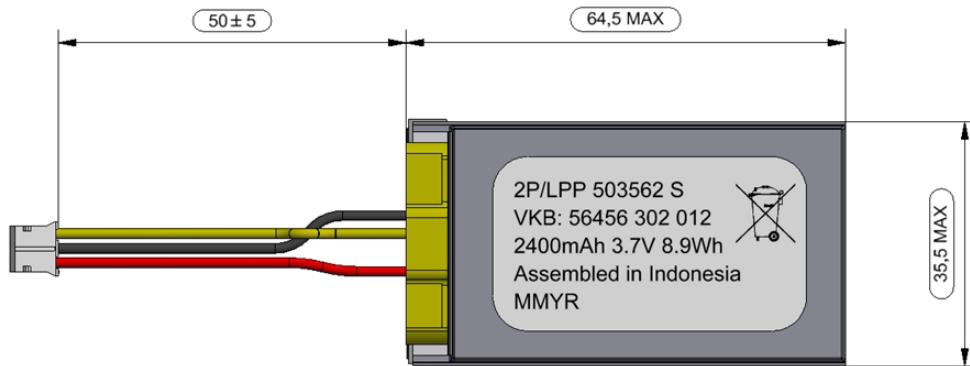


Product Information



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 | ► $10k\Omega \pm 1\%$; B-value $3435K \pm 1\%$ |
| 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. 90m Ω |
| Expected Cycle Life @ (1.0C/1.0C) @ 23.5°C | ► 500 cycles > 70% |

CELL PROTECTION

- | | |
|--------------------------|--|
| Overcharge Detection | ► $4.3V \pm 20mV$ (0.8 to 1.2sec. delay, resume $4.1V \pm 30mV$) |
| Overdischarge Detection: | ► $2.4V \pm 35mV$ (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 $+45^{\circ}\text{C}$
- Discharge ► -10 to $+60^{\circ}\text{C}$
- Storage with >80% capacity recovery ► 1 year at -20 to $+30^{\circ}\text{C}$
- 3 months at -20 to $+45^{\circ}\text{C}$
- 1 month at -20 to $+60^{\circ}\text{C}$
- Humidity ► $65 \pm 20\%\text{RH}$

4. ENVIRONMENTAL AND SAFETY

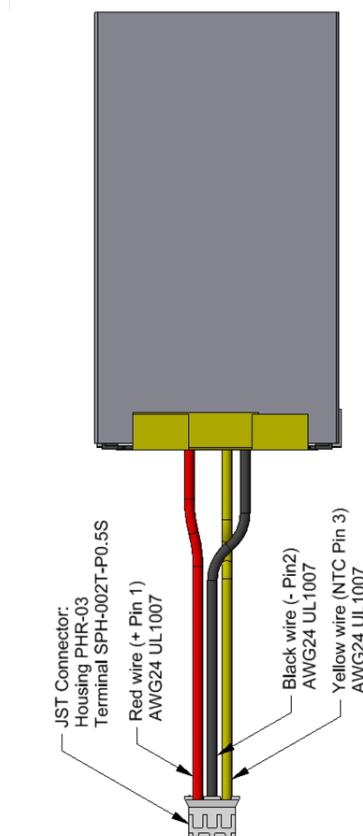
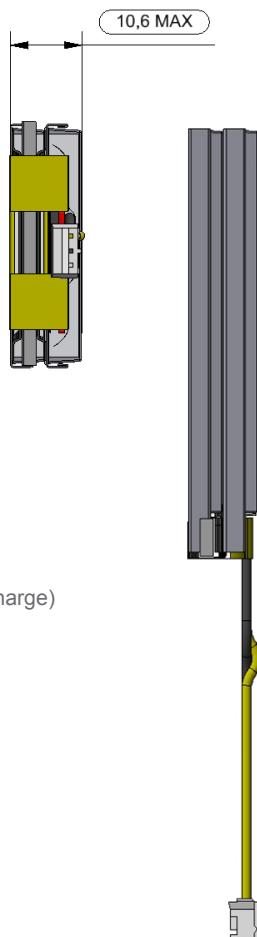
Please follow VARTA Handling and Safety Precautions for LiIon & LiPolymer.

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!



BATTERY DESIGN YOU CAN TRUST