

EXCELLENT BATTERY SAFETY AND SUPERIOR PERFORMANCE



STABLE POWER SUPPLY
WITH FLAT DISCHARGE VOLTAGE

EXCELLENT RELIABILITY

LOW SELF-DISCHARGE

HIGH ENERGY DENSITY

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CYLINDRICAL SINGLE CELL

A perfect combination of high energy density (NNP technology), safety and long-life shows what is possible with Lithium-Ion battery technology from Panasonic. Excellent battery safety on one hand, and superior battery performance on the other: this is what Panasonic stands for.

FEATURES

- High energy density and high voltage ensure small battery dimensions
- Long-life, stable power supply with flat discharge voltage
- Use of Lithium-Ion batteries requires a safety unit
- Safety technologies such as HRL available

APPLICATIONS

- Power tool
- Garden tool
- Emergency lighting
- UPS system
- Portable POS terminal
- GPS device
- Shaver
- E-bike
- Pedelec, etc.

MODEL NUMBER (EXAMPLE)

NCR-18650A

N	C	R	-	1	8	6	5	0	A
									Appendix stands for battery performance characteristics
									Divide this by 10 to obtain the approx. battery height (in mm)
									Stands for approx. diameter (in mm) of the battery
									Round
									Lithium-Ion battery

UR-18650ZT

U	R	-	1	8	6	5	0	Z	T
									Appendix stands for battery performance characteristics
									Divide this by 10 to obtain the approx. battery height (in mm)
									Stands for approx. diameter (in mm) of the battery
									Lithium-Ion battery, round

Model number	Technology* ¹	Nominal voltage (V)	Typical* ² capacity (mAh)	Diameter (mm)	Total height (mm)	Weight (g)
UR-18650U	Back-up type	3.6	1,200	18.10	64.80	41.5
UR-14650R	High power type	3.6	1,050	13.90	64.80	26.6
UR-18650RX	High power type	3.6	2,050	18.24	65.10	46.5
UR-18650AA	High power type	3.6	2,250	18.10	64.80	42.1
UR-18650EA	High power type	3.6	2,350	18.24	65.10	46.0
UR-18650NSX	High power type	3.6	2,600	18.25	65.07	47.3
NCR-18500A	NNP, HRL	3.6	2,040	18.15	49.36	33.5
NCR-18650	NNP, HRL	3.6	2,900	18.15	65.10	45.0
NCR-18650A	NNP, HRL	3.6	3,070	18.15	65.10	46.0
NCR-18650BF	NNP, HRL	3.6	3,350	18.24	65.10	46.5
NCR-18650PF	NNP, HRL, High power type	3.6	2,900	18.15	65.10	47.0
NCR-18650BD	NNP, HRL, High power type	3.6	3,180	18.25	65.10	49.5
NCR-18650GA	NNP, HRL, High power type	3.6	3,450	18.24	65.10	48.5
NCR-18650F	NNP, HRL, Low temperature type	3.6	2,900	18.15	65.10	45.0
UR-18650A	Standard type	3.6	2,250	18.10	64.80	43.0

*¹ Please find the explanations of our technologies on the following pages. *² 4.20V charge

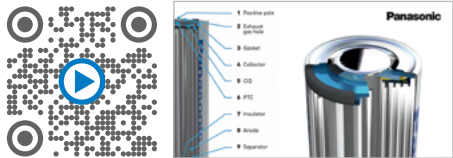
Model number	Technology*1	Nominal voltage (V)	Typical*2 capacity (mAh)	Diameter (mm)	Total height (mm)	Weight (g)
UR-18650W	High power type	3.7	1,600	18.10	64.80	45.3
UR-18650WX	High power type	3.7	1,600	18.10	64.80	44.7
UR-18650ZT	High voltage charge system	3.7	2,800*3	18.24	65.10	48.0
UR-18650ZTA	High voltage charge system	3.7	3,000*4	18.24	65.10	48.0
UR-18650ZY	Standard type	3.7	2,600	18.24	64.80	47.0

3D ILLUSTRATION*5

- 1 Exhaust gas hole
- 2 CID (Current Interrupt Device)
- 3 Insulator
- 4 Separator
- 5 Cathode
- 6 Anode
- 7 Negative pole (cell can)
- 8 Positive pole
- 9 PTC (Positive Temperature Coefficient Device)
- 10 Gasket
- 11 Collector



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PRISMATIC SINGLE CELL

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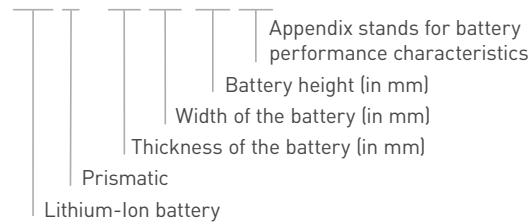
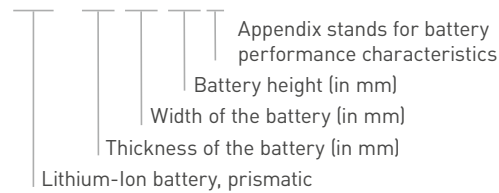
FEATURES

- High energy density and high voltage ensure small battery dimensions
- Long-life, stable power supply with flat discharge voltage
- Use of Lithium-Ion batteries requires a safety unit
- Safety technologies such as PSS and HRL available

APPLICATIONS

- Power tool
- Garden tool
- Emergency lighting
- UPS system
- Portable POS terminal
- GPS device
- Shaver
- E-bike, pedelec, etc.

*1 Please find the explanations of our technologies on the following pages. *2 4.20V charge *3 4.30V charge *4 4.35V charge
*5 Some batteries are not equipped with a PTC. Please consult Panasonic for further information. The illustration shows only one example of a Lithium-Ion battery structure.

MODEL NUMBER (EXAMPLE)**NCA - 7 5 2 8 3 6 A****UF - 1 0 3 4 5 0 P**

Model number	Technology* ¹	Nominal voltage (V)	Typical* ² capacity (mAh)	Width (mm)	Thickness (mm)	Total height (mm)	Weight (g)
NCA-473136	NNP, HRL	3.6	650	30.90	4.70	35.45	11.6
NCA-463436A	NNP, HRL	3.6	720	34.30	4.60	35.50	12.4
NCA-603134	NNP, HRL	3.6	730	31.10	6.06	34.45	13.7
NCA-523436	NNP, HRL	3.6	840	34.30	5.15	35.50	14.1
NCA-572742SA	NNP, HRL	3.6	890	27.00	5.70	41.75	14.5
NCA-752836A	NNP, HRL	3.6	1,010	27.90	7.80	35.70	16.7
NCA-623535	NNP, HRL	3.6	1,100	35.20	6.30	35.10	17.6
NCA-622944SA	NNP, HRL	3.6	1,170	28.70	6.25	44.70	18.1
NCA-573544	NNP, HRL	3.6	1,190	34.60	5.80	44.00	19.9
NCA-673440	NNP, HRL	3.6	1,265	33.80	6.75	40.35	20.3
NCA-593446	NNP, HRL	3.6	1,300	33.80	5.90	46.00	20.6
NCA-843436	NNP, HRL	3.6	1,300	33.90	8.70	35.70	23.0
NCA-882936SA	NNP, HRL	3.6	1,310	28.70	8.80	36.30	20.1
NCA-793540	NNP, HRL	3.6	1,570	35.10	7.95	40.50	24.7
NCA-103443	NNP, HRL	3.6	2,010	33.80	10.50	42.45	33.4
NCA-103450	NNP, HRL	3.6	2,350	33.80	10.50	48.50	38.3
NCA-653864SA	NNP, HRL	3.6	2,400	38.10	6.50	64.60	37.0
NCA-903864A	NNP, HRL	3.6	3,280	38.00	9.00	64.05	50.7
UF-553436G	LCO system	3.7	830	33.85	5.50	35.60	15.6
UF-463443GU	LCO system	3.7	850	33.85	4.55	42.60	16.0
UF-553048F	LCO system	3.7	930	29.65	5.40	47.80	17.9
UF-463450F	LCO system	3.7	960	33.85	4.45	49.60	18.5
UF-553443ZU	LCO system	3.7	1,040	33.80	5.55	42.80	18.7
UF-703141FU	LCO system	3.7	1,090	30.50	7.05	40.70	20.9
UF-553450Z	LCO system	3.7	1,200	33.85	5.55	49.80	22.3
UF-653450S	LCO system	3.7	1,300	33.85	6.35	49.80	25.1
UF-703450F	LCO system	3.7	1,480	33.85	7.00	49.80	28.1
UF-103450P	LCO system	3.7	2,000	33.80	10.50	48.80	38.5

*¹ Please find the explanations of our technologies on the following pages. *² 4.20V charge

Model number	Technology*1	Nominal voltage (V)	Typical*2 capacity (mAh)	Width (mm)	Thickness (mm)	Total height (mm)	Weight (g)
CGA-463443XA	High voltage charge system	3.8	910*3	33.80	4.60	42.45	15.5
CGA-463450XA	High voltage charge system	3.8	1,030*3	33.80	4.55	49.45	17.6
CGA-553450XA	High voltage charge system	3.8	1,310*3	33.80	5.70	49.65	21.5
UF-564447FT	High voltage charge system	3.8	1,580*3	43.90	5.55	46.60	26.5
UF-544357SX	High voltage charge system	3.8	1,880*3	42.25	5.40	56.50	30.2
CGA-583864ZA	High voltage charge system	3.85	2,080*4	37.50	5.83	64.35	33.0

3D ILLUSTRATION*5

- 1 Anti-explosion valve
- 2 Anode cap
- 3 Terminal
- 4 Internal terminal
- 5 Lead
- 6 Cathode
- 7 Separator
- 8 Anode
- 9 Case
- 10 (Upper) Gasket
- 11 Sealing tap
- 12 (Lower) Gasket
- 13 Insulation frame body



PIN TYPE

The industry's smallest-diameter cylindrical rechargeable battery has been developed using extremely fine components and materials compared to standard Lithium-Ion batteries. Its outstanding technical design makes this battery ideal for wearable devices with heavy power demands.

Panasonic intends to expand this new battery line-up successively to meet the requirements of next-generation mobile communication devices.

FEATURES

- 3.65mm diameter pin-shaped Lithium-Ion battery which expands design options for micro devices
- Rechargeable battery that can be used repeatedly and has the output capability required for near field communications
- High-strength metal exterior provides excellent reliability

APPLICATIONS

- Electric pen
- Wearables
- Hearing aid
- Smart clothes
- Wearable access, etc.

Model number	Technology*1	Nominal voltage (V)	Typical*3 capacity (mAh)	Diameter (mm)	Total height (mm)	Weight (g)
CG-320A*6	LCO system	3.8	15	3.65	20.0	0.6

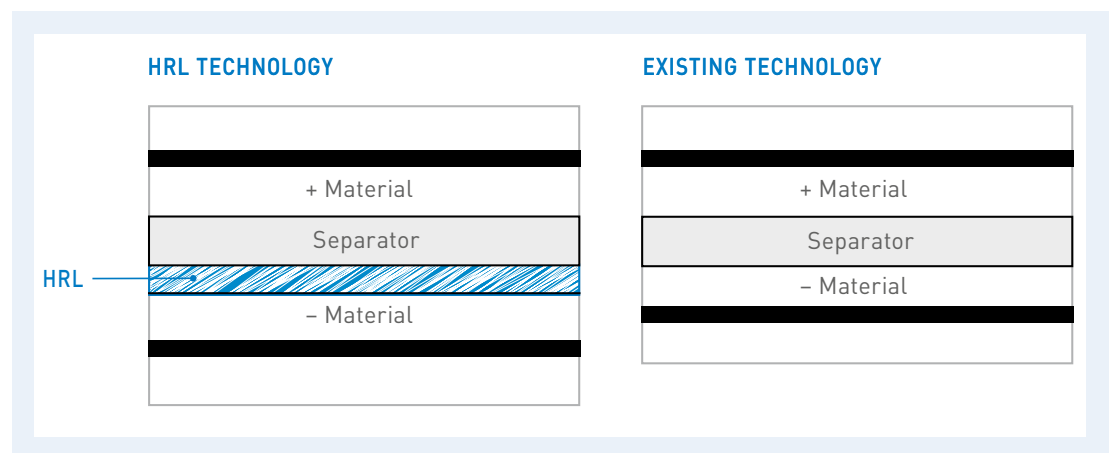
*1 Please find the explanations of our technologies on the following pages. *2 4.20V charge *3 4.35V charge *4 4.40V charge

*5 Some batteries are not equipped with a PTC. Please consult Panasonic for further information. The illustration shows only one example of a Lithium-Ion battery structure. *6 This battery is supplied with tabs or lead wires.

LI-ION TECHNOLOGIES

HEAT RESISTANCE LAYER (HRL)*¹

Nowadays all electronic devices getting more powerful, sophisticated and feature-laden and therefore require more robust and safer batteries. Increasing energy density, however, raises the risk of overheating and ignition due to internal short-circuiting. Panasonic deploys the HRL (Heat Resistance Layer) technology to improve the safety of Lithium-Ion batteries significantly. This heat resistance layer consists of an insulating metal oxide on the surface of the electrodes which prevents the battery from overheating if an internal short-circuit occurs. Safety is the base for everything. Higher energy can be established based on safety technology.



HIGH POWER TYPE

These batteries are designed specifically for applications such as power tools: with optimised electrode material and cell structure for low internal resistance, these Panasonic batteries can drive high drain applications with huge power consumption such as cleaning machines and drills / drivers.

HIGH VOLTAGE CHARGE SYSTEM

Panasonic develops the High Voltage Charge technology: high capacity under the prerequisite of a charging voltage up to 4.40V. This technology is ideal to power devices such as laptops, notebooks, etc.

LCO SYSTEM

This Panasonic Lithium-Ion battery system uses a cobalt-based cathode, offers high capacity and is a standard solution for a variety of applications.

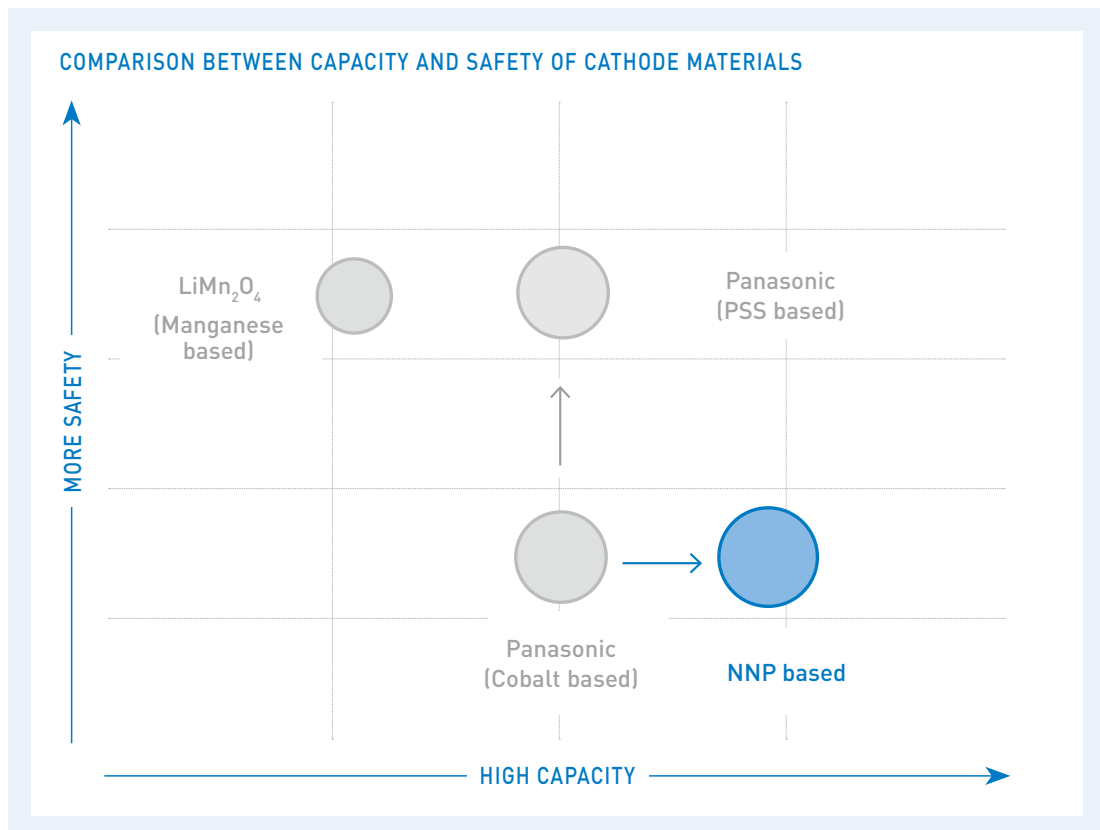
NICKEL OXIDE BASED NEW PLATFORM (NNP)

This new Lithium-Ion battery technology contains on one side a unique high capacity Nickel based positive electrode and on the other side a material and processing technology. The latter prevents deformation of the alloy-based negative electrode when subjected to repeated charge and discharge. This is what our Nickel Oxide Based New Platform stands for.*²

*¹ A couple of our batteries are not provided with our HRL technology yet. Please contact Panasonic to be informed about the current situation. *² Panasonic Lithium-Ion cells must always be equipped with a safety unit.

Characteristics of the Panasonic NNP technology:

- Good cycle life performance
- High energy density
- The new Nickel positive electrode excels in durability in actual use and charge retention
- Low self-discharge
- Long storage reliability through reduced metal elution



STANDARD TYPE

The Panasonic Lithium-Ion batteries feature a good mix of performance and safety, and can power a comprehensive range of applications.



NOTICE TO READERS

We are unable to support single cell business or accept orders from consumers. We design Lithium-Ion battery packs including a suitable safety unit device based on the technical specification of the customer. Due to the need for careful review when selecting Lithium-Ion battery solutions please contact your local Panasonic sales office. In order to avoid a lack of supply please check the battery availability with your Panasonic sales team before design-in.

Moreover this all Panasonic cells must always be equipped with a safety unit. Our battery CG-320A is supplied with tabs or lead wires.