A perfect combination of high energy density (e.g. NNP technology), safety (e.g. PSS and HRL technology) 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.

**LI-ION • 3D ILLUSTRATION**

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

**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 (NNP) stands for.*1

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

**Heat Resistance Layer (HRL)**

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 Heat Resistance Layer (HRL) 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.

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*1 Panasonic Lithium-Ion cells must always be equipped with a safety unit.  
*2 PEC: Panasonic Energy Company.
**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 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.