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2000 Development of the LFPAK[®] low-inductance transistor package

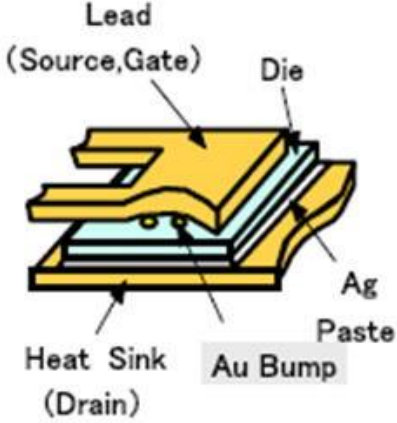
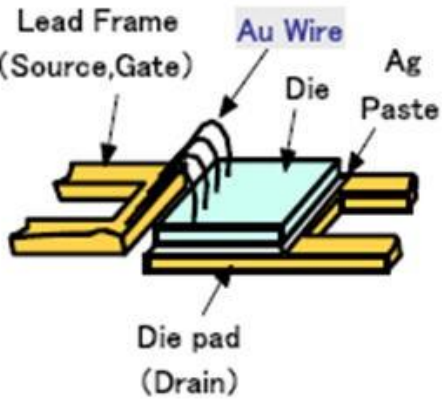
~ Packaging ~

In 2000, with the development of various information equipment terminals, lithium ion batteries were used for power supply. In order to prolong the battery life, efforts were made to reduce wiring resistance and inductance components inside the semiconductor package.

Takasaki Works of Hitachi (later Renesas Takasaki) developed a new structure where metal leads were connected to gold stud bump terminals on the chip instead of wire bonding in order to reduce the resistance and inductance component of the wire bonding part, which was named LFPAK (Loss Free Package) and mass-produced.

The figure in the top shows its structure schematic and its features in the bottom..

A sandwich structure in which the lead frame is arranged on the upper and the lower surfaces of the chip became widely used for semiconductors for power electronics.

New Structure	Conventional Structure
LFPAK [®]	SOP-8
	



○ Performance(Feature)

- **Wireless structure and low Ron: 2.1mΩ**
- **Drain exposed structure and low Rth: 3°C/W**
- **Wireless structure and low inductance: 1.1 nH**
- **Common PCB pattern with SOP8**
- **Complete lead free (environmental measure)**
- **Enables high temperature reflow of 260°C**
- **Dry pack free (MS-L1)**
- **Small size and thin package outline (T=1.1mmmax.)**
- **World standard registered package outline (SC100/JEITA, MO235/JEDEC, IEC)**