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# 1970

## Expanded mass production of pin-insertion low-melting-point glass packages

~ Packaging ~

In around 1967, Hitachi developed a pin insertion type, low melting point glass sealed package, in which a lead frame was sandwiched between a base and a cap made by powder molding method and sealed with low melting point glass such as lead glass. In this structure, Al was vapor deposited to the wire bonding portions of the press formed lead frame, and it was then sintered to enhance the adhesion to the lead frame material (Fe-Ni-Co alloy). Later, it was changed to a method of cladding Al foil and pressing. The chip mounting portion was metalized with Au paste, and die bonding was done by metal bonding to the back of the die.

From around 1970 the production volume increased as the production of digital ICs such as ICs for calculators and main frame computers (TTL, ECL, etc.) expanded.



Lead frame

Base attachment

Cap seal

Tin plating after packaging