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1968

Birth of Japan's first laminated ceramic package

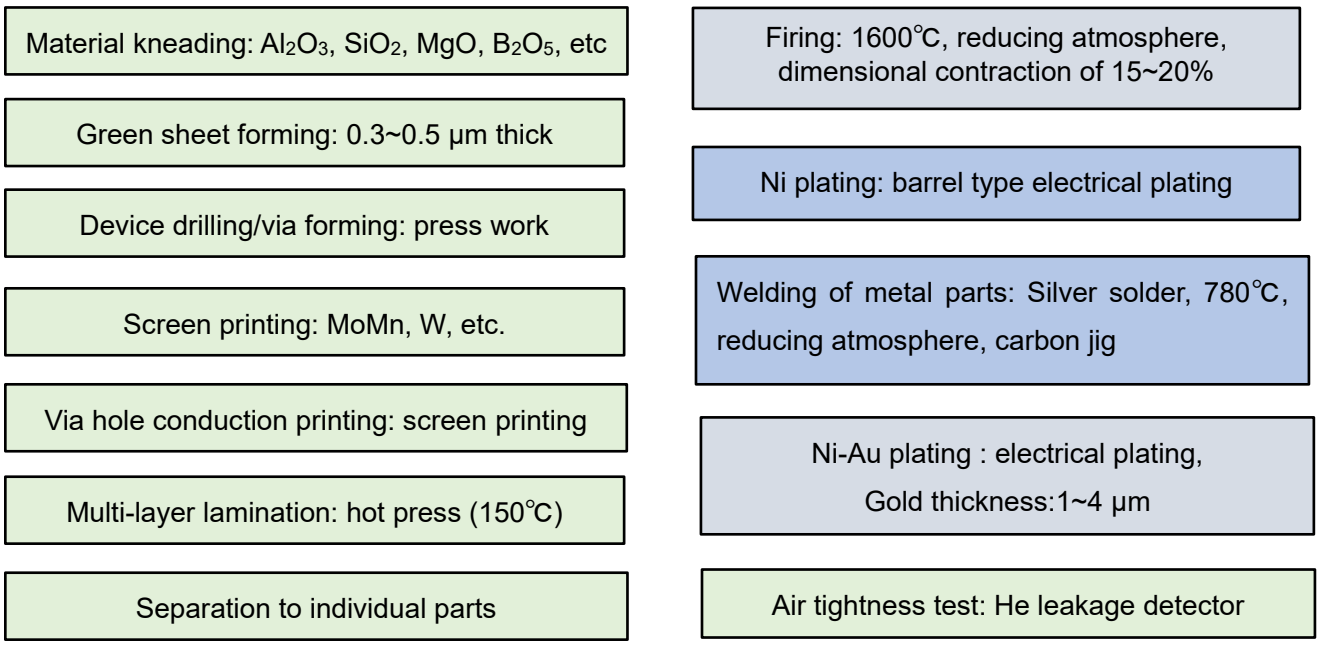
~ Packaging ~

Hitachi introduced a technology from RCA in the U.S. at the end of December 1965 and developed the first laminated ceramic package process in Japan. Based on the technology documents provided in the technology grant, alumina laminated ceramic package process, manufacturing technology and products such as 14-pin FPC (Flat Package Ceramic) were developed and put into production at Musashi Works of Hitachi, with the cooperation of Japanese materials and equipment manufacturers in the development of inorganic powder such as alumina, metal powder such as molybdenum, organic solvent such as butyral, equipment such as firing furnaces, equipment for air tightness tests, assembling equipment such as seam welders, and so on.

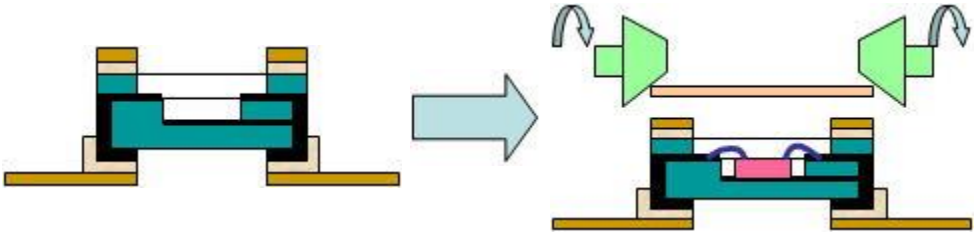
They were applied to the IC products such as CML (Current Mode Logic) and DTL (Diode Transistor Logic) and used for electronic exchangers, mainframe computers, and others.

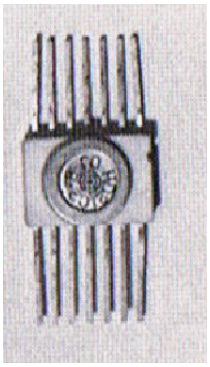
The figure below shows the outline of the process flow, and the figure at the bottom is the schematics of assembly and seam weld and the actual sample photograph.

Seam weld is the welding of package and cap by spot welding with the roller electrodes, which is continuously done and the sealing is completed by rotating around the package. This equipment is called seam welder, and Japan Aviotronics made the first machine by the request of Hitachi.



Cap seal: seam weld





Wire Bonding: Al

Die Bonding: Gilt

FPC14

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