 To search page

1980

Development of FPGs with high heat-dissipation

~ Packaging ~

Hitachi designed bipolar LSIs for mainframe computers in 1980, and applied them to M-200H/280H and others. This LSI had a cutoff frequency of over 10GHz, a maximum number of output pins of 1000, and a power consumption of about 100 W. In the package, a copper heat dissipation component was silver brazed to the back surface of a surface mount type alumina ceramic substrate, and an aluminum heat dissipation fins were installed. Thereafter, a method of sealing with a low melting point glass for the cost reduction purpose was also developed.

The middle of the figure below is the 160-pin multilayer wiring ceramic package before attaching the heat radiation fin, on the right, the one with a heat radiation fin mounted, and on the left side, the low melting point glass sealed type. The power consumption of the LSI was 6 W.

The mainframe computers with this LSI was an air cooling type, but yet it achieved the highest performance at the time. This package mounting system was adopted in the M - 680H machine and led the era of the air-cooling machine.

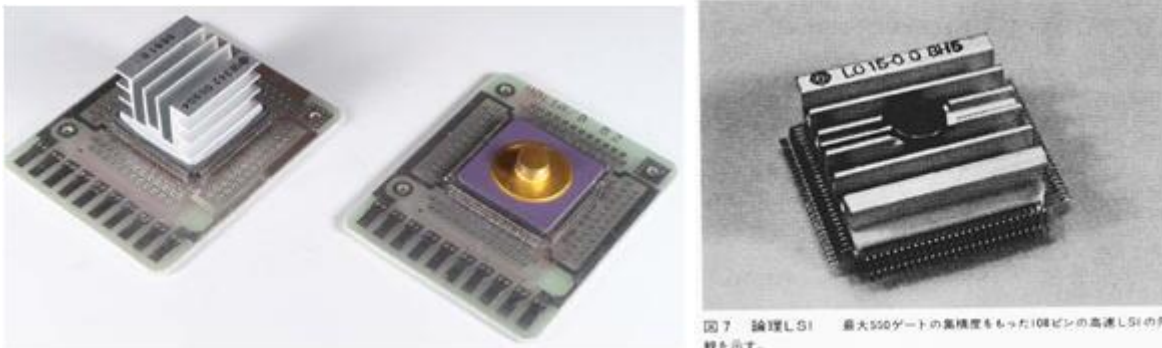


図7 論理LSI 最大500ゲートの高積層もった108ピンの高速LSIの外観を示す。