



Around 1975

Introduction of aluminum–silicon sputtered wiring

~ Process Technology ~

In the 1960's, Al thin films by evaporation method came to be used for interconnect, but the effect of diffusion of the substrate Si to Al became obvious along with the miniaturization advanced. From around 1975, for preventing diffusion, a method of adding Si into Al was proposed. However, in the conventional vapor deposition method, it was impossible to add Si which had a low vapor pressure, and the sputtering method was adopted. At the same time, high-speed sputtering (magnetron sputtering by Nichiden-Varian etc.) appeared in order to increase productivity. Even though it is called Al-Si, only low concentration of Si, generally around 3%, is added to Al to prevent the diffusion of Si.

As for the Al-Si technology, technological development of silicide application to cope with the problem of precipitation of Si at the contact holes, and of Al-Cu-Si to cope with the electromigration problem continued.

Note : Nichiden-Varian operated in to 1967-1977, then became Nichiden-Anelva, then Anelva, and now Canon-ANELVA.

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