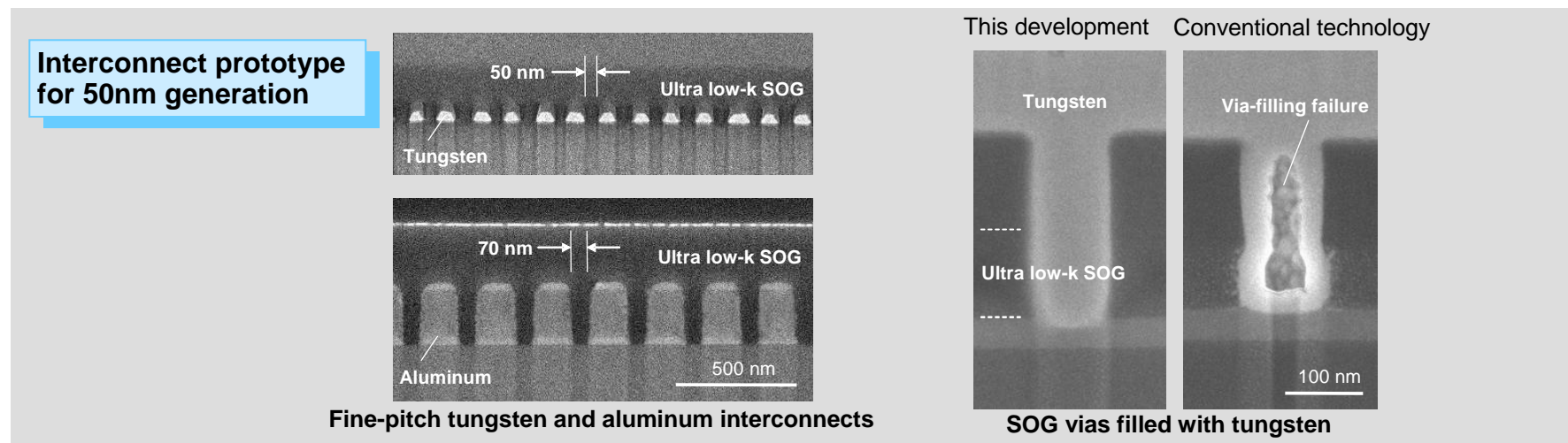


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Development of ultra low-k material and interconnect process for next generation memory devices

- Mechanical strength of film doubled at $k=2.4$, thermal stability raised to 800°C , and interconnect process simplified -



Hitachi, Ltd. and Hitachi Chemical Co., Ltd. have jointly developed an ultra low dielectric constant spin-on glass (ultra low-k SOG) with a dielectric constant of $k=2.4$ and an interconnect (wiring) process, required for sub-50nm memory device fabrication. As a result of these developments, the mechanical strength of the low-k SOG was doubled in comparison to conventional SOGs; thermal stability was greatly increased to 800°C , and the interconnect process was simplified. These developments will contribute to both increasing the performance, as well as decreasing the costs of next-generation memory devices.

This technology will be employed in Hitachi Chemical's "HSG series", spin-on type low-k SOGs ($k=2.4-3.0$), for interconnect process beyond sub 50-nm memory devices.

Details of this development were presented at the 2006 Symposium on VLSI Technology, held in Honolulu, Hawai'i, U.S.A., from 13th - 15th June 2006.