



Applied Materials Introduces 300mm Transistor Solutions

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Epi Centura(R) 300 -- SiNgen(TM) Centura(R) 300 --
Radiance(TM) Centura(R) 300 -- SACVD Producer(R) 300 --
Quantum(TM) 300

Applied Materials, Inc. today introduced its comprehensive product line for manufacturing advanced transistor structures on 300mm wafers. These 300mm-ready systems combine industry-leading RTP (rapid thermal processing), ion implantation, epitaxial deposition, and low pressure chemical vapor deposition (LPCVD) technologies with major innovations in factory efficiency to minimize customers' risk and speed time to volume production.

Nick Miller, president of Applied Materials' Transistor and Capacitor Business Group, said, "The technology requirements for transistor fabrication are advancing very rapidly as our customers transition to 300mm manufacturing. New materials and designs demand a reduced thermal budget, creating a significant opportunity for our single-wafer systems. At the same time, the radically shrinking dimensions within the transistor structure allow us to demonstrate equally important advantages in process control offered by these systems. New advances in automation on our 300mm systems contribute even further to maximizing the benefits of 300mm technology."

Applied Materials' 300mm systems cover virtually all of the processing applications required for transistor fabrication. For epitaxial deposition, the Epi Centura 300 system extends the proven, industry-leading technology of the company's 200mm Epi Centura system. Applied Materials announced shipment of its first 300mm epi systems to several wafer manufacturers in 1997 and has since built a large base of experience in large diameter epi deposition.

Single-wafer LPCVD allows chipmakers to significantly decrease a wafer's thermal exposure relative to batch furnaces, providing better control over dopant diffusion, which is critical for maintaining electrical performance. The SiNgen Centura 300 system provides silicon nitride deposition for advanced front-end applications and is a high-performance, cost-competitive alternative to batch furnaces for sidewall spacer, etch stop, shallow trench isolation layers and other applications in 0.13 micron and below devices. The SACVD Producer 300 is an extremely high throughput CVD system for transistor dielectric CVD films such as shallow trench isolation oxides.

RTP has become a critical production process for transistor-level fabrication, with its importance increasing at 300mm. Building on Applied Materials' position as the leading supplier of RTP systems, the new Radiance Centura 300 system provides unmatched temperature uniformity for 0.13 micron feature sizes and beyond. The system offers a full range of production processes, ranging from implant annealing of ultra shallow junctions made with ultra low energy implants to several oxidation processes for growing the highest quality oxides in very thin layers, such as those used in ultra-thin gate stack structures.

As transistor dimensions have radically shrunk with each device generation, chipmakers have required new capabilities from their ion implant systems to control the transistor's electrical characteristics. Applied Materials' Quantum 300 family of ion implant systems offers a combination of low beam energies and an enhanced beamline for high throughput, including the revolutionary Quantum LEAP ultra-low energy (200ev to 80Kev) technology. The Quantum 300 systems can be used in combination with the Radiance Centura system to enable precise creation of ultra-shallow junctions at and below 0.13 micron.

Applied Materials (Nasdaq:AMAT) is a leader of the Information Age and the world's largest supplier of products and services to the global semiconductor and flat panel display industries. Applied Materials' web site is <http://www.appliedmaterials.com>.

CONTACT: Applied Materials, Santa Clara

Betty Newboe, 408/563-0647 (editorial/media)

Carolyn Schwartz, 408/748-5227 (financial community)