

Hitachi Kokusai Electric

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Hitachi Kokusai Electric Inc.

Hitachi Kokusai Electric Announces a Revolutionary Gap Filling Technology

Tokyo, Japan -- Hitachi Kokusai Electric Inc. today announced the new development of a room temperature gap filling CVD(*1) method which previously has only been possible at high temperatures >300 degrees C.

Hitachi Kokusai's deposition process tools have been industry leading solutions for advanced device manufacturing processes that require ultra fine circuit patterning at very low temperature. In order to continue to meet these demands, Hitachi Kokusai has developed a revolutionary room temperature deposition technique which enables bottom up gap filling by selectively depositing from a very narrow opening with high aspect ratio trench.

1. Background

Semiconductor industry technology is rapidly advancing and currently moving to 45nm for device mass production. The complex process technology for 45nm and beyond requires continuous miniaturization and low temperature processing. Hitachi Kokusai's CVD and ALD(*2) process have been well accepted as solutions for such difficult technology challenges at many device manufacturers around the world. In order to meet never-ending further miniaturization and lower temperature limitations, Hitachi Kokusai has put forth tremendous R&D resources to develop this breakthrough deposition technique. This newly developed room temperature gap-fill CVD technology offers void-free, high quality films to fill very narrow high aspect ratio features such as STI(*3) and PMD(*4) characteristics of advanced memory and logic devices. Hitachi Kokusai will continue to extend its process applications with this novel CVD process to enable next generation device innovation.

2. Features

1. Bottom Up Deposition: Selective deposition from trench hole bottom that leads to a void-free and seamless process.
2. Damage Free: Deposition without thermal or plasma energy.
3. Underlying Film Independent Deposition: Deposition on other solid materials other than silicon substrate, such as elastomer, paper, fabric and curved surfaces like film.

(*1) CVD: Chemical Vapor Deposition

(*2) ALD: Atomic Layer Deposition

(*3) STI: Shallow Trench Isolation

(*4) PMD: Pre-Metal Dielectric

About Hitachi Kokusai Electric Inc.

Hitachi Kokusai Electric Inc. is a multi-national corporation with close to \$2 billion in revenue, holding solid market positions in semiconductor equipment, wireless communications and broadcasting and video. The Semiconductor Equipment Group is focused on the movement to larger wafer sizes and shrinking geometries, achieving success by increasing market share and customer base expansion while providing advanced solutions to world markets.

About Kokusai Semiconductor Equipment Corporation

Kokusai Semiconductor Equipment Corporation (KSEC) provides comprehensive North American operations for its parent company, Hitachi Kokusai Electric - a premiere global supplier of Semiconductor Manufacturing Equipment. KSEC is headquartered in San Jose, California and has a strategic parts, service and training facility in Vancouver, Washington.