

# Our Flagship

## The top share of the world market for semiconductor photoresists

By honestly continuing efforts to enhance technology and raising the quality levels of products as our management principles since the foundation, TOK has become the world's number one manufacturer of photoresists, which are photosensitive materials indispensable for the manufacture of semiconductors. This section describes the functions, performance, and core value provided by TOK's photoresists in the semiconductor manufacturing process.

### TOK's Semiconductor Photoresist Business

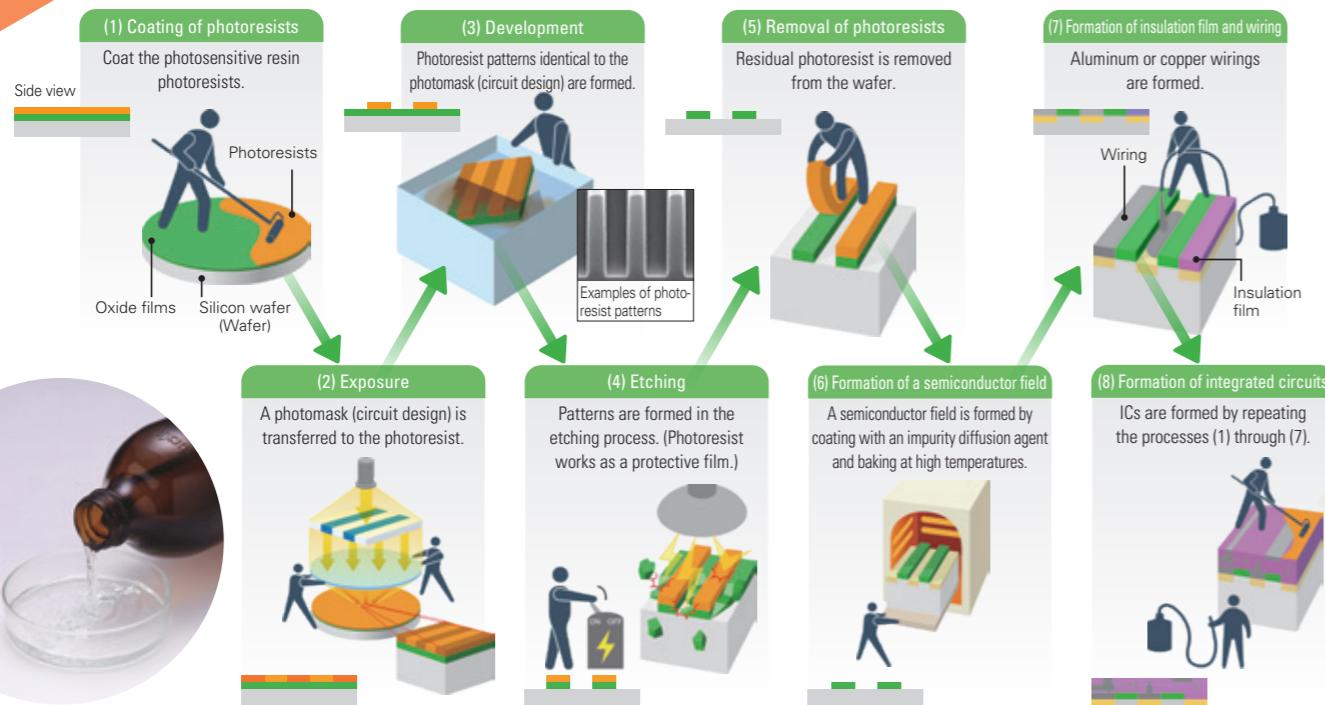
Process of making integrated circuits on a silicon substrate and producing semiconductor chips. The process uses photoresists' resistance to etching.



For more details about the use of our products in the semiconductor manufacturing process, please see our website.

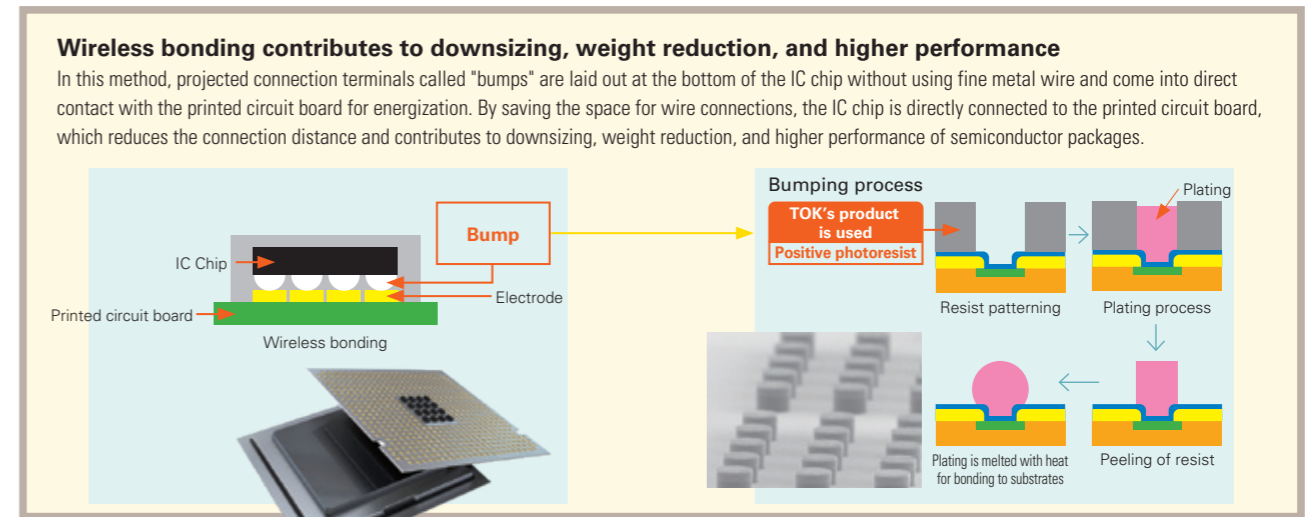
Semiconductor manufacturing flow

#### Front-end processes of semiconductor manufacturing



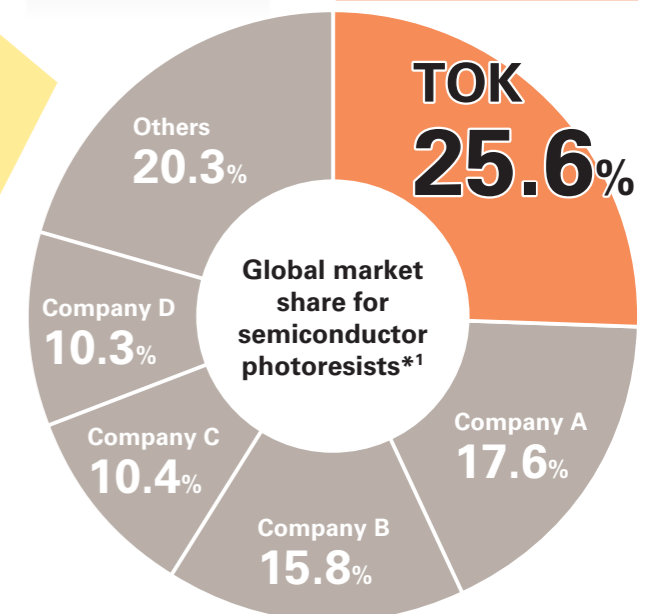
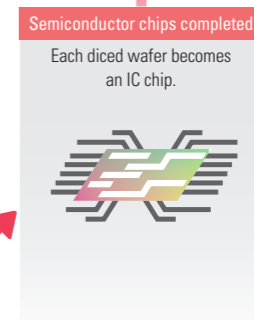
In this process, individual semiconductor chips are cut out to be sealed into different packages. The process takes advantage of the photoresists' thick film forming capacity.

#### Back-end processes of semiconductor manufacturing



#### Wireless bonding contributes to downsizing, weight reduction, and higher performance

In this method, projected connection terminals called "bumps" are laid out at the bottom of the IC chip without using fine metal wire and come into direct contact with the printed circuit board for energization. By saving the space for wire connections, the IC chip is directly connected to the printed circuit board, which reduces the connection distance and contributes to downsizing, weight reduction, and higher performance of semiconductor packages.



#### Starting point for customer's value creation process

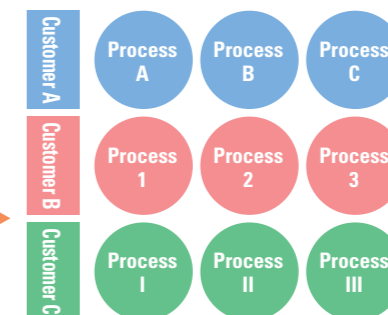
TOK's photoresists create value for customers in their manufacturing process and have a special influence on the quality of customers' output in terms of product quality and yields.

#### Factors adding value to semiconductor photoresists

Sensitivity	Resolution	Roughness* * Fluctuations in line width
Etching resistance	Substrate adhesiveness	Processing applicability
Purity	Substance safety	Cost

#### Core value of TOK

We can swiftly provide finely tuned tailor-made photoresists for the different needs and requirements of each customer or process



\*1 Based on the projected shipment volume of EUV, ArF, KrF, g-Line and i-Line photoresists in 2020 (calculated based on Fuji Chimera Research Institute, "Current Status and Future Outlook of Cutting-edge/Noticeable Semiconductor-related Markets 2020")