

A Process For I- Line Resist Dissolution Modulation Using Hydroxy-polymer

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ABSTRACT

The present invention relates to a positive i-line resist composition comprising hydroxystyrene based terpolymer as the dissolution modulator. The composition of the present invention helps in controlling dissolution of resist film surface, particularly when PACs of low degree of esterification are used as one of the ingredients, during pattern development. The composition has potential to pattern low dimension submicron features with sharp wall profile as required by the industries. The composition of the present invention shows high resolution, required sensitivity and sharp wall profile, and is suitable for fabrication of semiconductor devices, magnetic bubble memory devices and integrated circuits.

KEY APPLICATION AREAS

- 1.Semiconductor device fabrication.
- 2.Microelectronics and IC manufacturing.
- 3.Photolithography for sub-micron patterning.
- 4.MEMS and nanoelectronics fabrication.
- 5.Nanophotonics and LED manufacturing.
- 6.Space, defence, aerospace, railway, and electronics industries.

POTENTIAL USE

- 1.Fabrication of semiconductor devices and integrated circuits (ICs) with high-resolution lithography.
- 2.Patterning sub-micron features ($\leq 700\text{--}750\text{ nm}$) with sharp sidewall profiles and minimal thickness loss.
- 3.Microelectronics, MEMS, VLSI, and nanoelectronics manufacturing.

4.LED, nanophotonics, and hard disk drive fabrication.

5.Patterning on silicon, GaN, sapphire, quartz, aluminium, and silicon dioxide substrates.

6.Advanced electronics fabrication for space, defence, aerospace, railway, and agriculture applications.