

APPLICATION

Laser Direct Imager

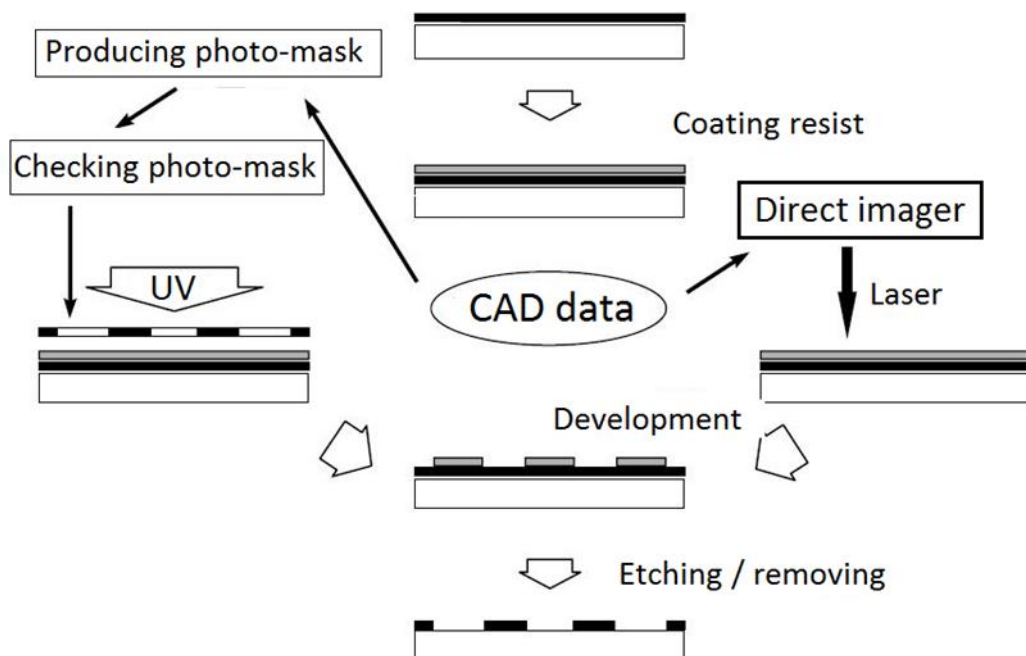
Generally, the printed circuit board is manufactured normally by producing a photo-mask first with a circuit patterns on it, and exposing the photo-mask pattern on the photosensitive material (resist) coated on the substrate with i-rays (365 nm) from a mercury lamp (photolithography) (Figure 1, left).

In contrast, the direct imaging device is a maskless exposure device which directly exposes the photosensitive material (resist) coated on the silicon substrate with a laser (Figure 1, right). In comparison with photolithography using existing masks, producing masks becomes unnecessary, and time and cost can be greatly reduced when manufacturing a small number of trials, etc.

With He-Cd laser, wavelengths 442 nm can primarily be used.

The manufacturing a printed circuit board with the direct imager is as follows.

1. Lightly coat a photosensitive material (resist) on the silicon substrate.
2. Expose the resist with the laser light (direct exposure).
3. The circuit pattern is created on the resist by photo development.
4. After the substrate is etched, the resist is removed and the substrate is completed.



photography process (previous methods / direct imaging)