Current Version: v.260602
Previous version: NA
Versions will be updated occasionally. Please watch for new releases.

Notes on Variable Shaped Beam Mask Writer SB254 (CF-L28)

1. This exposure service is available by OEM only and self-operation is not available. Photoresist coating, development, and linewidth measurement are self-operated, OEM service not available.
2. The Price details is available on the TSRI website.
3. Standard substrate sizes:

    6-inch Si wafer (thickness: 675 μm)

    25mm x 25mm square chips (recommended, Laser cutting is required. Hand-cleaved samples are not accepted for service.)

    12mm x 12mm square chips (Laser cutting is required. Hand-cleaved samples are not accepted for service.)

Standard resists:

Positive resist P015 (thickness ~380 nm, resolution: iso-trench 200 nm)

Negative resist NEB (thickness ~380 nm, resolution: iso-line 65 nm)

4. The exposure pattern file must be converted to SLS format first.

Please send the exposure layout in GDS format for conversion to an SLS file.

Owner: Anakin Chen — anakin.chen@niar.org.tw or

Deputy: Tony Cheng — tonycheng@niar.org.tw

5. GDS file requirements:

    Set drawing grid to 1 nm.

    Design pattern corners preferably at 45° or 90° to save exposure time and prevent excessively long exposures.

    GDS filename format: <name><YYYYMMDD>, e.g. hccheng20251001. Do not use special characters, symbols, or spaces.

    Place the design file in Structure Cell 0.

    Assign layers in exposure order to Layer1, Layer2, Layer3, … If not using this order, clearly specify which exposure layers correspond to which Layer numbers.

    Exposure pattern layout drawing area:

    ◎ 6-inch wafer will arrange in an array by 20 mm × 20 mm dies (32 dies total); each die area: (−9000, −9000) μm to (9000, 9000) μm, total 18000 × 18000 μm².

    ◎ 25 mm × 25 mm chip: (−9000, −9000) μm to (−9000, −9000) μm, total 18000 × 18000 μm².

◎ **12 mm × 12 mm chip: (−3000, −3000) μm to (3000, 3000) μm, total 6000 × 6000 μm².**

Dose test layout drawing area:

◎ **6-inch wafer: each die may be assigned a unique dose, allowing up to 32 dose groups.**

◎ **25 mm × 25 mm chip: (0, 0) μm to (3000, 3000) μm, total 3000 × 3000 μm², allowing up to 36 dose groups (6×6 array).**

◎ **On 12 mm × 12 mm chip: (0, 0) μm to (1000, 1000) μm, total 1000 × 1000 μm², allowing up to 36 dose groups (6×6 array).**

SLS filename convention: **Substrate_Unit_Lab_Date or Device_Layer or name_Condition**.

Example: **A25_TSRI_HCCHENG_251001_L1_CN01**。

6. For multi-layer patterns, create alignment marks first. Alignment mark process standard:

   Use positive resist P015 and etch to a depth of 1~2 μm.

7. Clients must confirm exposure details with the tool sponsor. The exposure file (SLS file) must be finalized at least **3** days before the scheduled exposure.
8. Before submission, please bring this application form **(signed in the applicant's signature field)** to L28 and exchange it for a『代工執行單』 from the assistant. Subsequent exposure information will be recorded on the execution form, and the original application form will be retained.
9. Commissioned exposure requires advance scheduling and is accepted only after the『代工執行單』and SLS file are prepared. Please email the equipment owner or deputy with the **sample quantity**, **size**, and **exposure file name**; **once confirmed, the details of the reservation cannot be changed**.
10. Each client may reserve up to 2 samples per exposure session, with a maximum total exposure time of 2 hours, and a maximum of 3 pending exposure reservations is allowed.
11. Clients must place the wafers and the『代工執行單』 filled with relevant info (date, name, wafer ID, PR & SB conditions, SLS file name) on the exposure tool workbench **by 14:00 the day before exposure**. Collect samples from the same location after completion.
12. Ensure the backside of the samples are clean before submission to prevent equipment contamination or damage. For non-conductive substrates coated with

Espacer, baking at 100°C for 60 s is required before exposure.

13. Samples that may contaminate or damage the system will be rejected.

14. For technical inquiries, please contact the TSRI Lithography and Mask Division:

    Anakin Chen — anakin.chen@niar.org.tw or

    Tony Cheng — tonycheng@niar.org.tw

15. **The order will be automatically closed 3 months after the Lot ID is issued, and billing will be based on the total actual exposure time. EX. Lot ID 115010229 indicates it was issued in January (Year 115), so the order will be closed in April (Year 115).**