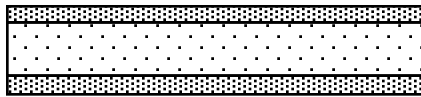
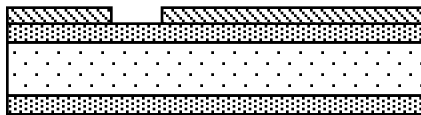


Process Flow for ESS5810 AMSF

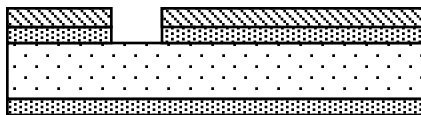
1. Wafer clean 2. Thermal oxidation



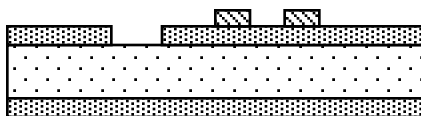
3. PR coating and patterning, Mask #1



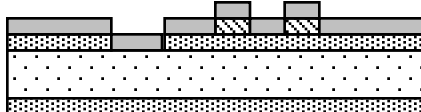
4. Wet BOE etching SiO₂
Dry RIE etching low stress nitride



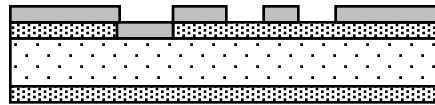
5. Positive resist become negative
PR coating and patterning, Mask #2



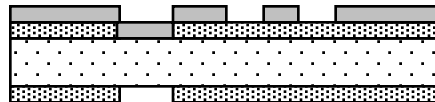
6. E-beam evaporation Cr/Ni



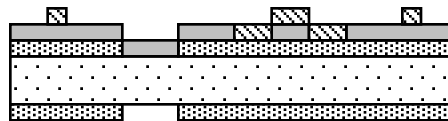
Lift-off process



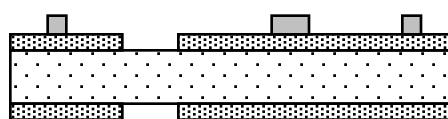
7. Double side alignment and
Dry etching on back side, Mask #B



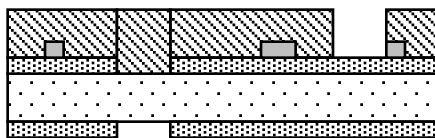
8. PR coating and patterning, Mask #3



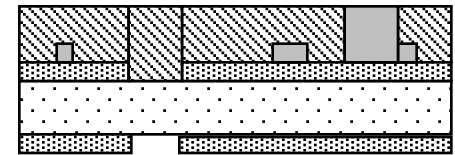
Nickel etching and PR stripping



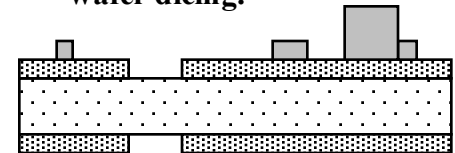
10. Thick PR coating and patterning, Mask #4



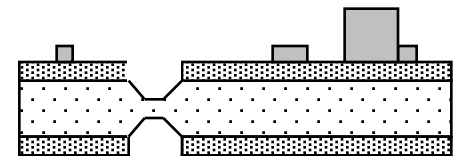
11. Nickel electroplating



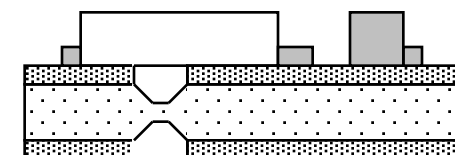
Thick PR stripping, Cr etching, and
wafer dicing.



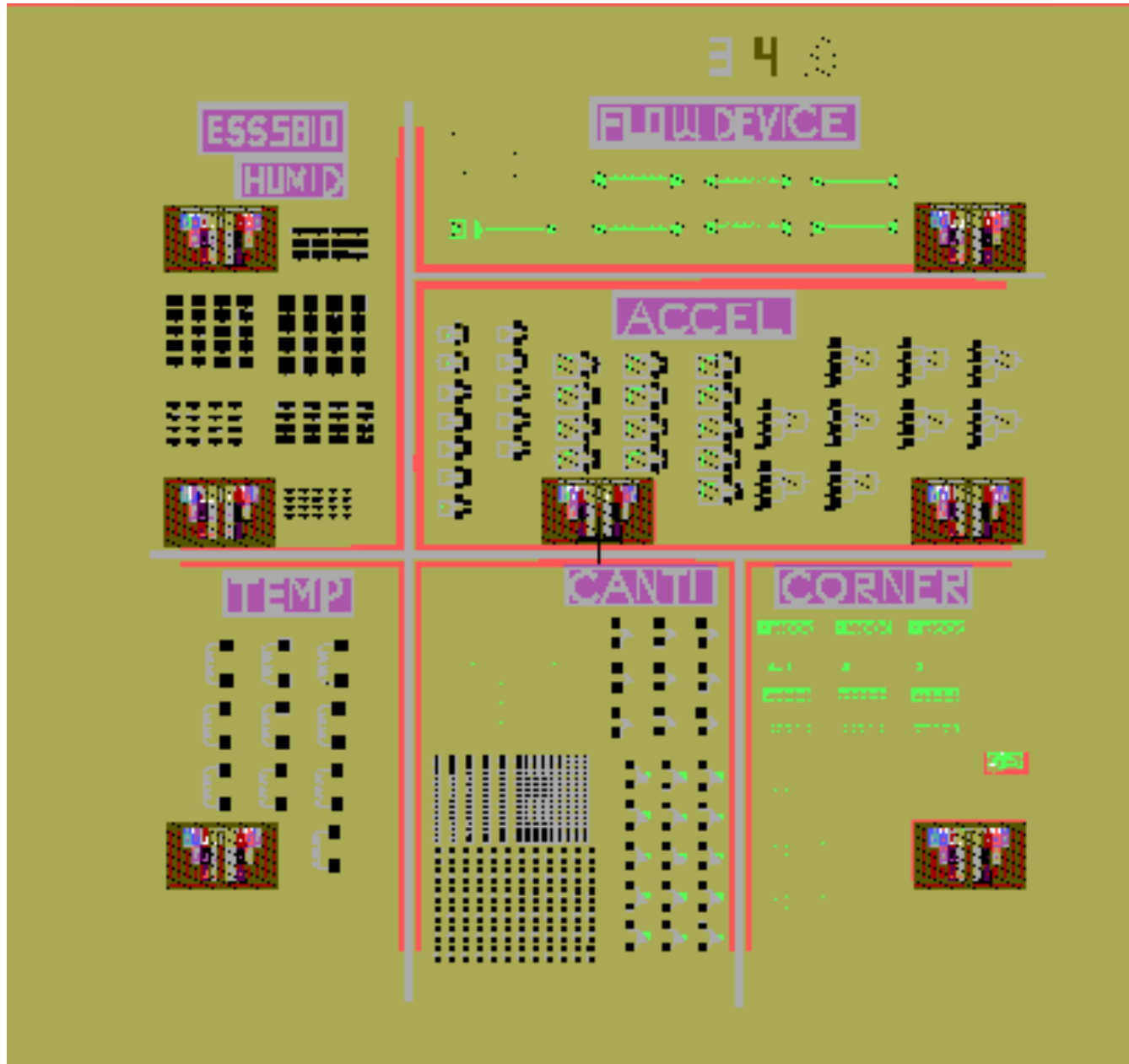
12. TMAH bulk etching



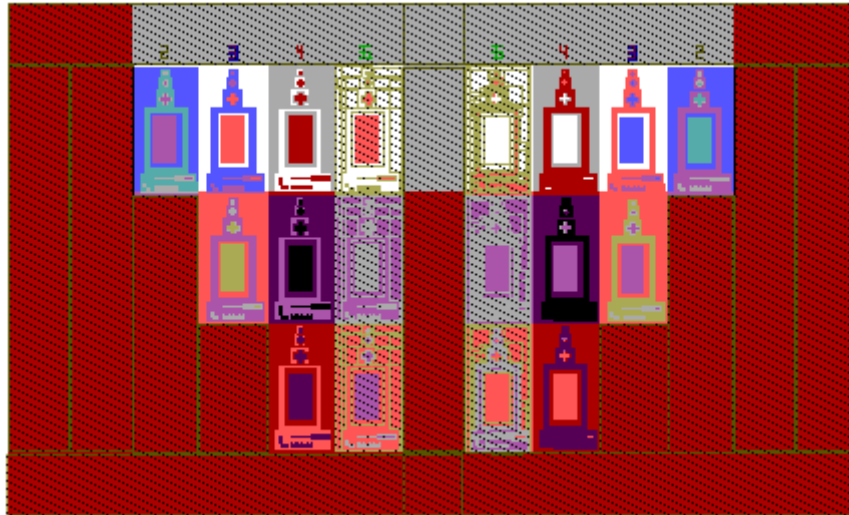
13. Anodic bonding process



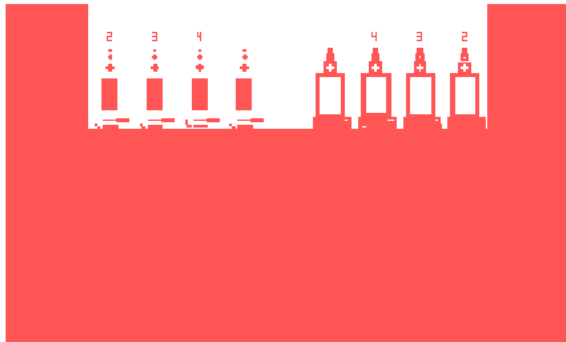
Overview of the MEMS Devices



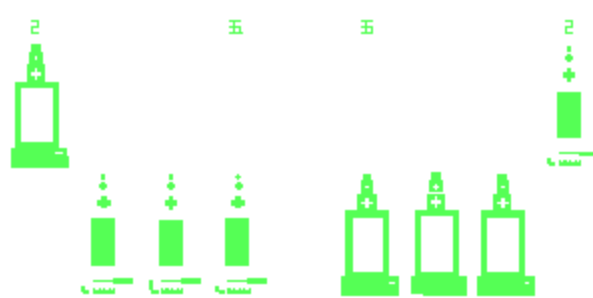
對準記號(Alignment Mark)



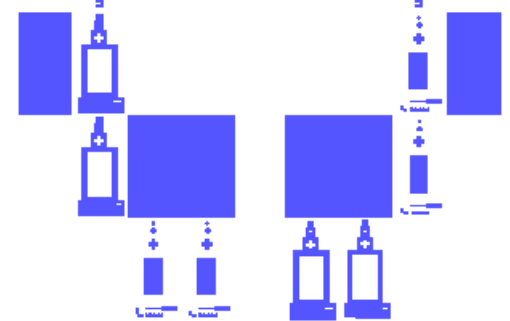
Alignment Mark 1



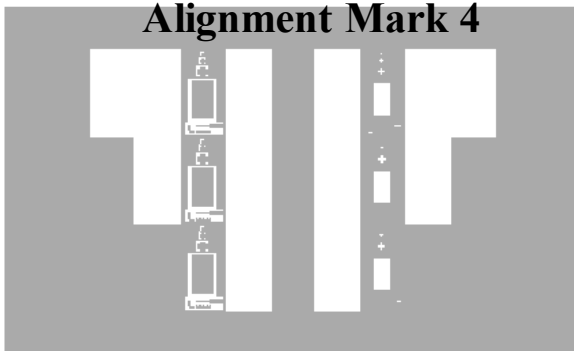
Alignment Mark 2



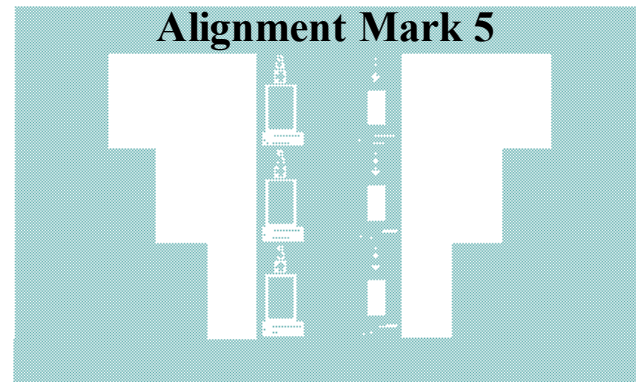
Alignment Mark 3



Alignment Mark 4

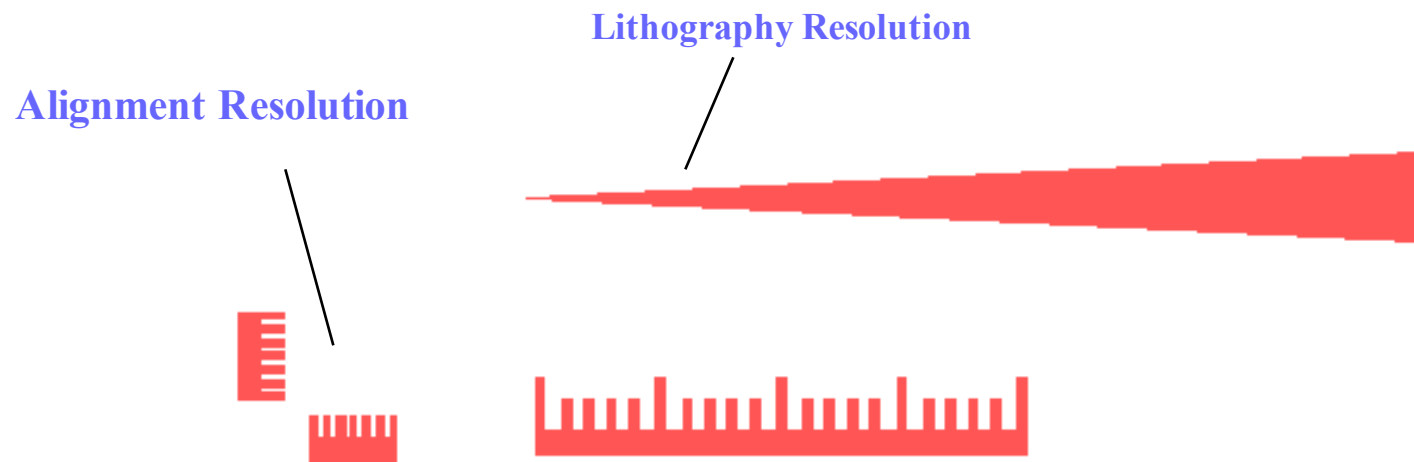


Alignment Mark 5



對準精度以及微影精度

Alignment Resolution and Lithography Resolution



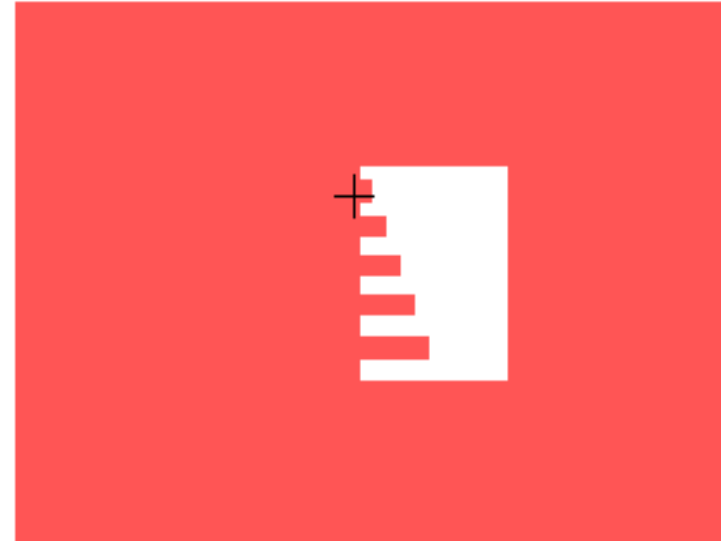
懸臂樑

Cantilever Beam 1



- Beam width: 20;
- Length: 40, 80, 120, 160, 200 micrometer
- Space between each beam: 20 micrometer.

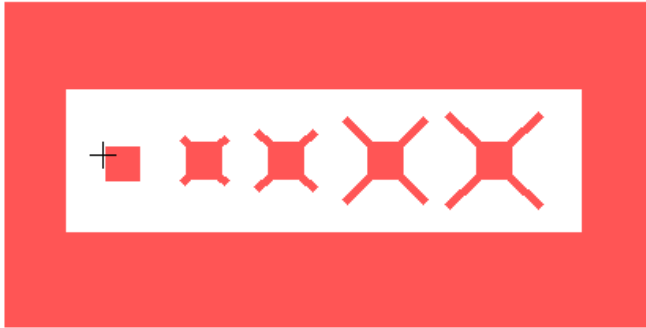
Cantilever Beam 2



- Beam width:50;
- Length: 40, 80, 120, 160, 200 micrometer
- Space between each beam: 50 micrometer.

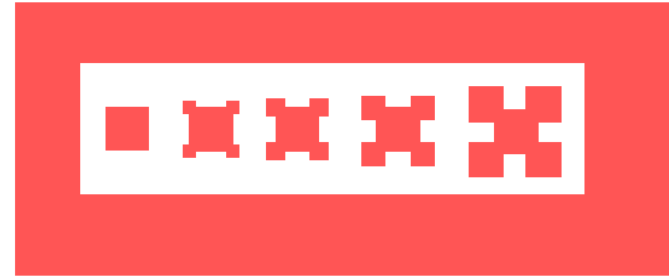
角落補償

Corner Compensation 1



- Main square area length: 300 micrometer
- Corner width: 60 micrometer; length: 80, 160, 280, 360 micrometer

Corner Compensation 2



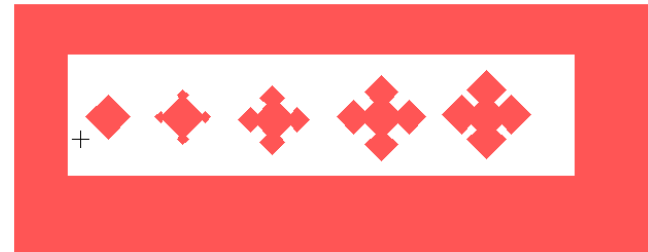
- Main square area length: 300 micrometer
- Corner area width: 80, 125, 160, 260 micrometer

Corner Compensation 3



- Main square area length: 212 micrometer, diagonal length: 300 micrometer.
- Corner width: 40 micrometer; length: 80, 150, 200, 260 micrometer

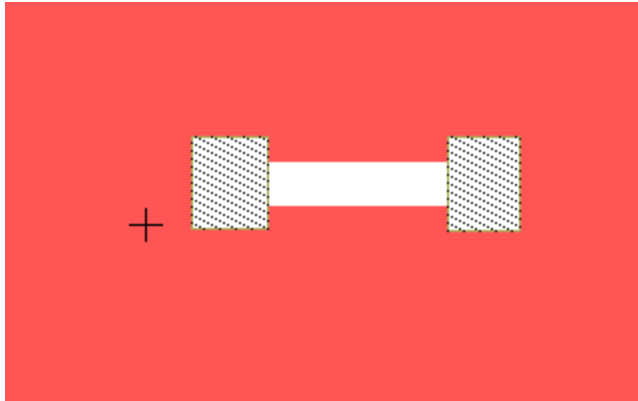
Corner Compensation 4



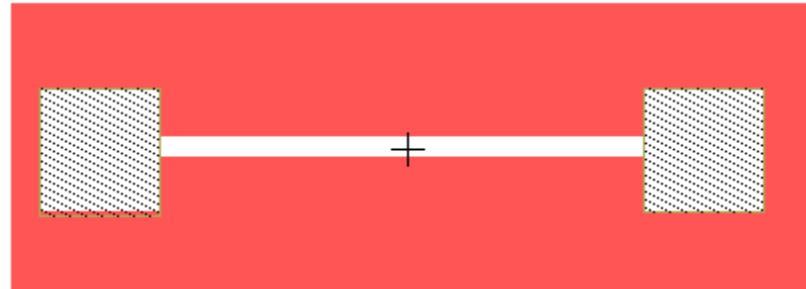
- Main square area length: 212 micrometer, diagonal length: 300 micrometer.
- Corner area horizontal length: 80, 180, 240, 280 micrometer.

微流體結構

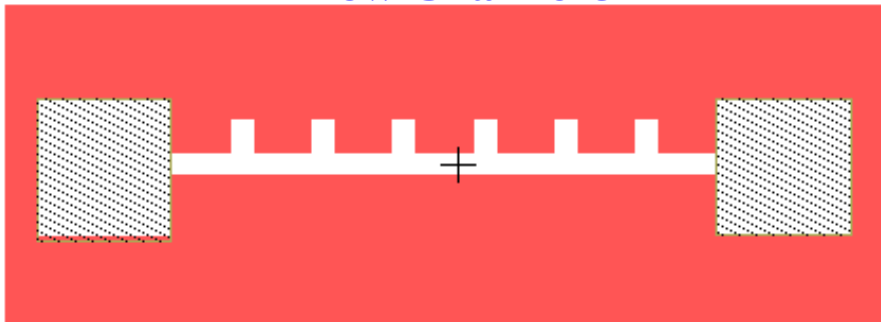
Flow Channel 1



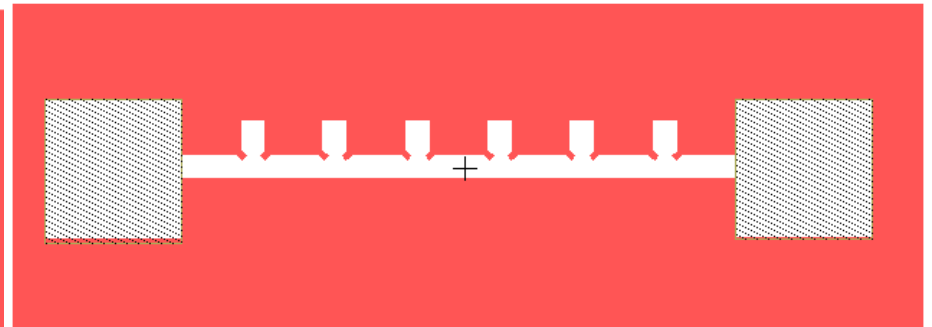
Flow Channel 2



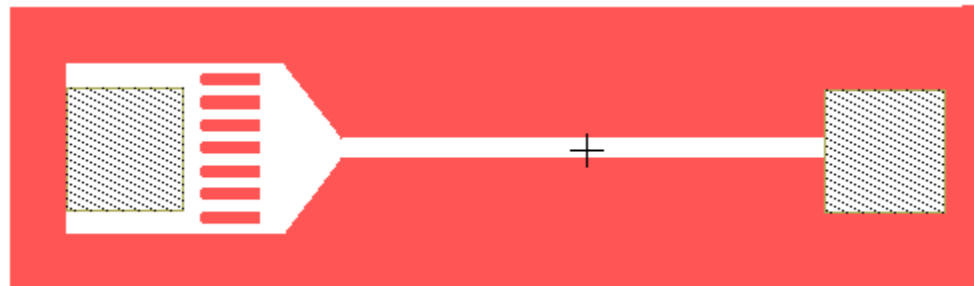
Flow Channel 3



Flow Channel 4

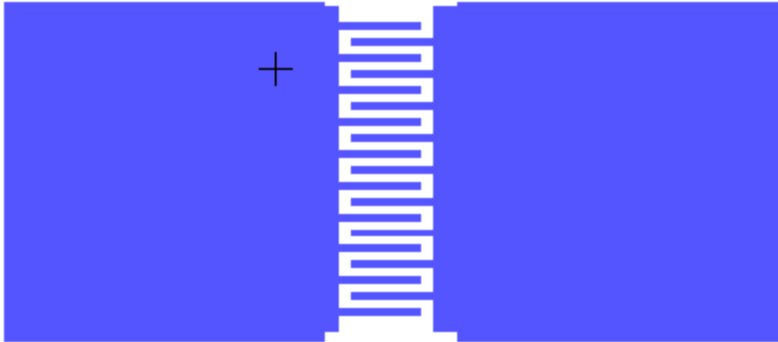


Flow Filter

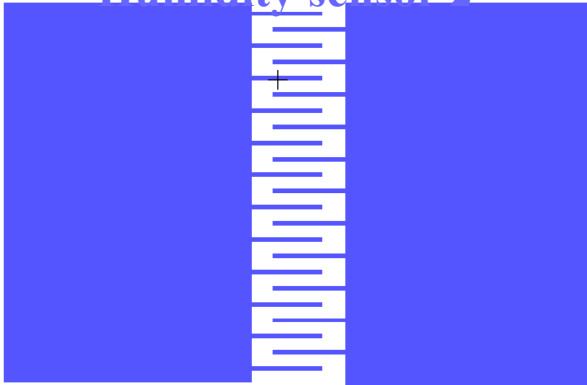


溼度感測器

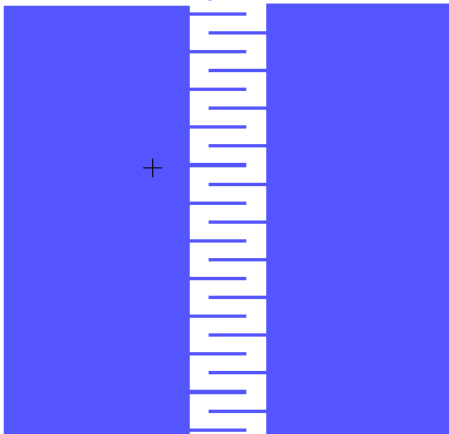
Humidity sensor 1



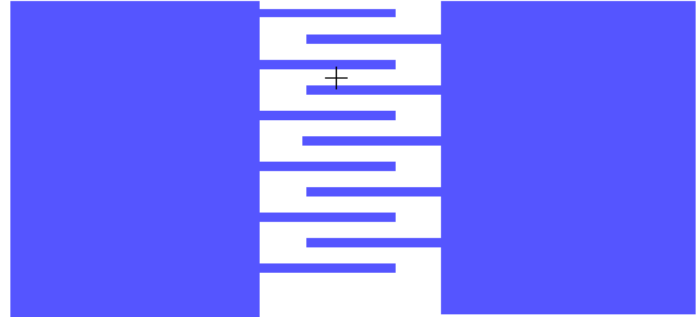
Humidity sensor 2



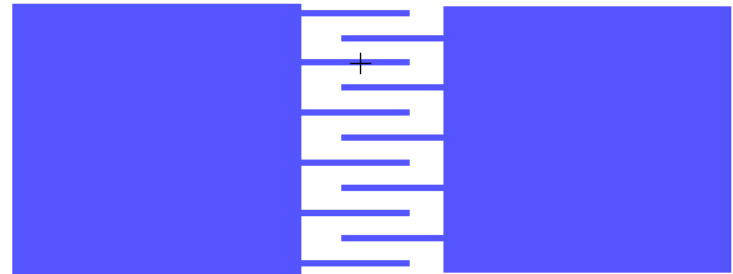
Humidity sensor 3



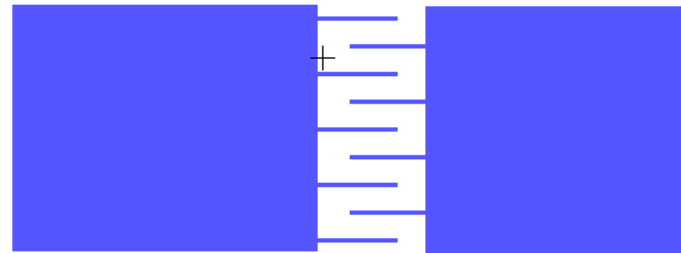
Humidity sensor 4



Humidity sensor 5

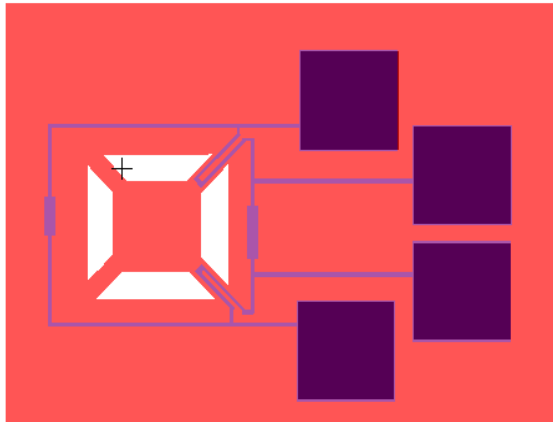


Humidity sensor 6



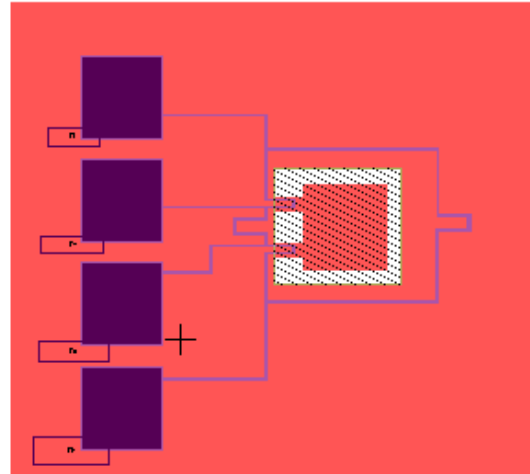
加速規

Accelerometer 1



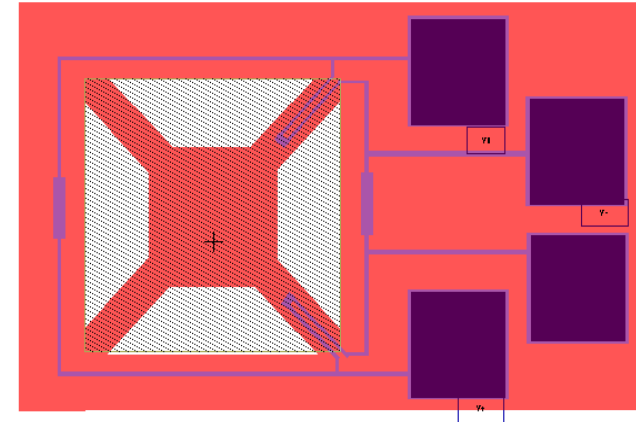
- Mass area: 500 micrometer.
(Width)
- Open space: 145 micrometer
- Support beam width: 100 micrometer;
- Support beam length: 245 micrometer.

Accelerometer 2



- Mass area: 800 micrometer.
(Width)
- Open space: 165 micrometer
- Support beam width: 125 micrometer;
- Support beam length: 250 micrometer.

Accelerometer 3



- Mass area: 800 micrometer.
(Width)
- Open space: 400 micrometer
- Support beam width: 250 micrometer;
- Support beam length: 600 micrometer.