

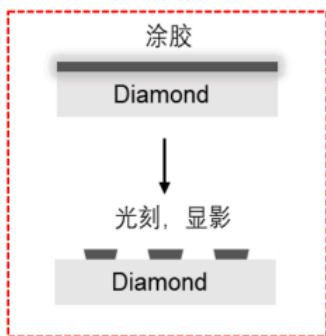
Diamond microstrip detector

Fabrication

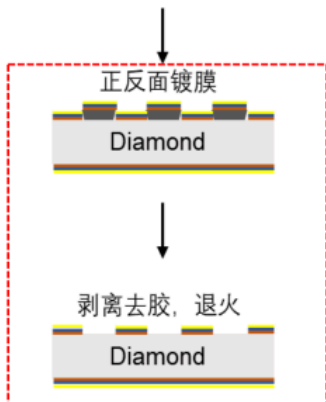
In progress:



- Jan.8: O₂/Ar 500W 15min
- Jan.8: Ultrasonic cleaning
- Jan.9: Mixed acid
H₂SO₄: HNO₃ = 3:1, 200°C, 1h.
- Jan.9: O₂/Ar 100W 30s



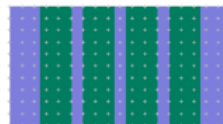
- Feb.20: photoetching



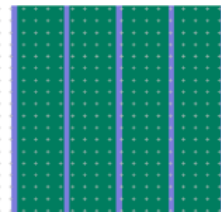
- Feb.21: Magnetron sputtering
- Feb.24~28: EBE, lift-off

Prototype

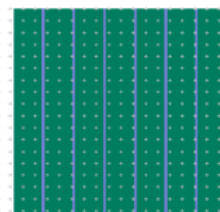
Step 1 : Strip electrodes with Electrode-to-gap ratios 4:1, 7.5:1, 9:1 on one side, planar electrode on the other



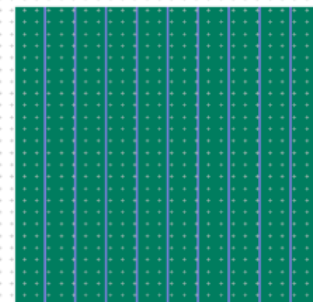
Single-crystal diamond
Size: 7.55mm * 7.58mm
Thickness: 224μm
Pitch: 1.4 mm
Electrode-to-gap 4:1



Polycrystal diamond
Size: 7mm * 7mm
Thickness: 280μm
Pitch: 1.7 mm
Electrode-to-gap 7.5:1

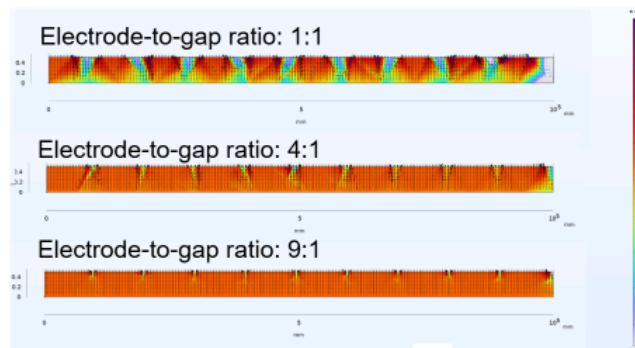


Single-crystal diamond
Size: 7.64mm * 7.58mm
Thickness: 222μm
Pitch: 1 mm
Electrode-to-gap 9:1



Polycrystal diamond
Size: 10mm * 10mm
Thickness: 500 μm
Pitch: 1 mm
Electrode-to-gap 9:1

Simulation



Electric field strength \vec{E} (V/m)

