FIG. 1

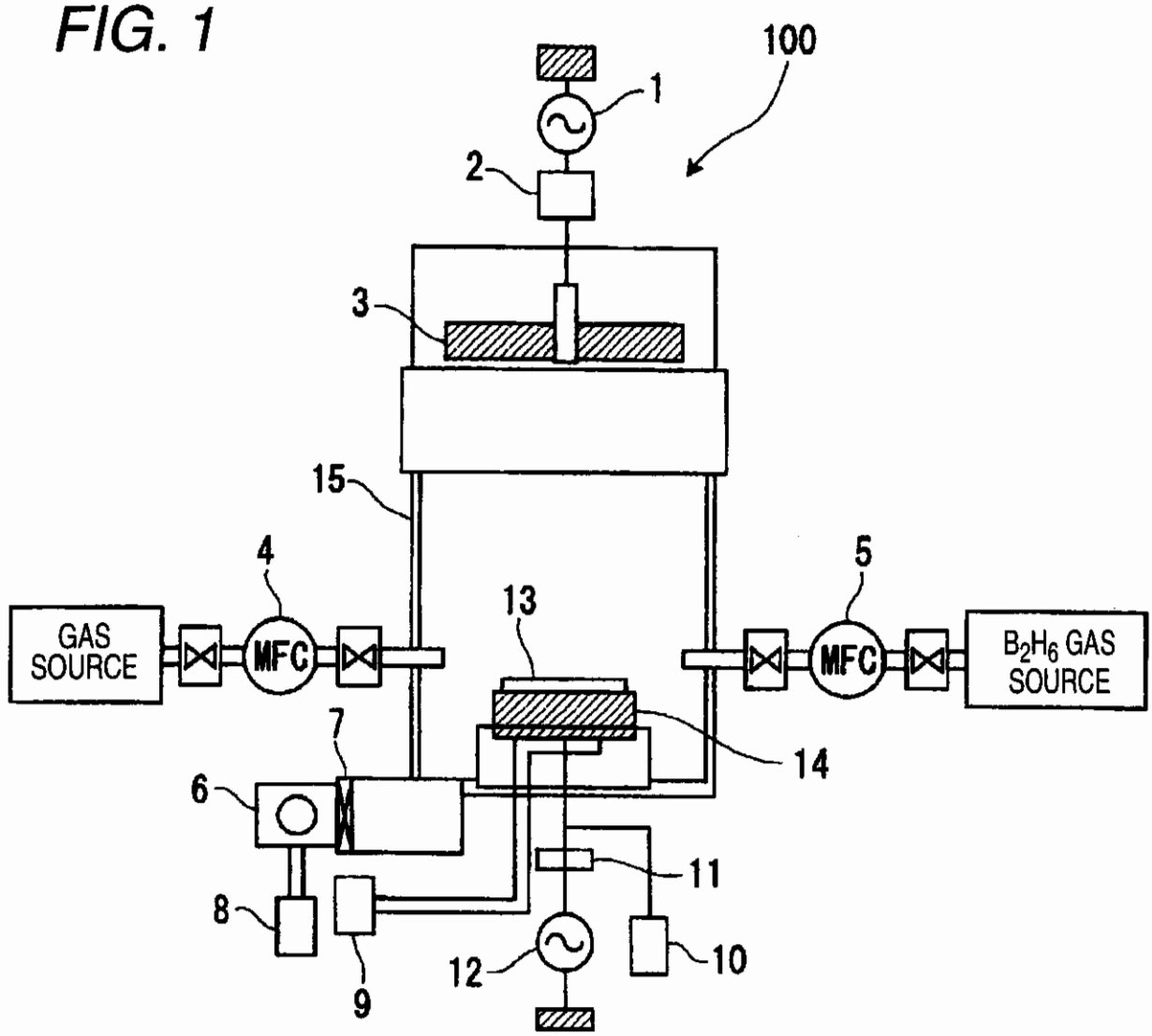

100
1
2
3
15
4
5
13
GAS SOURCE
MFC
MFC
B_2H_6 GAS SOURCE
7
14
6
11
8
12
10
9

FIG. 2

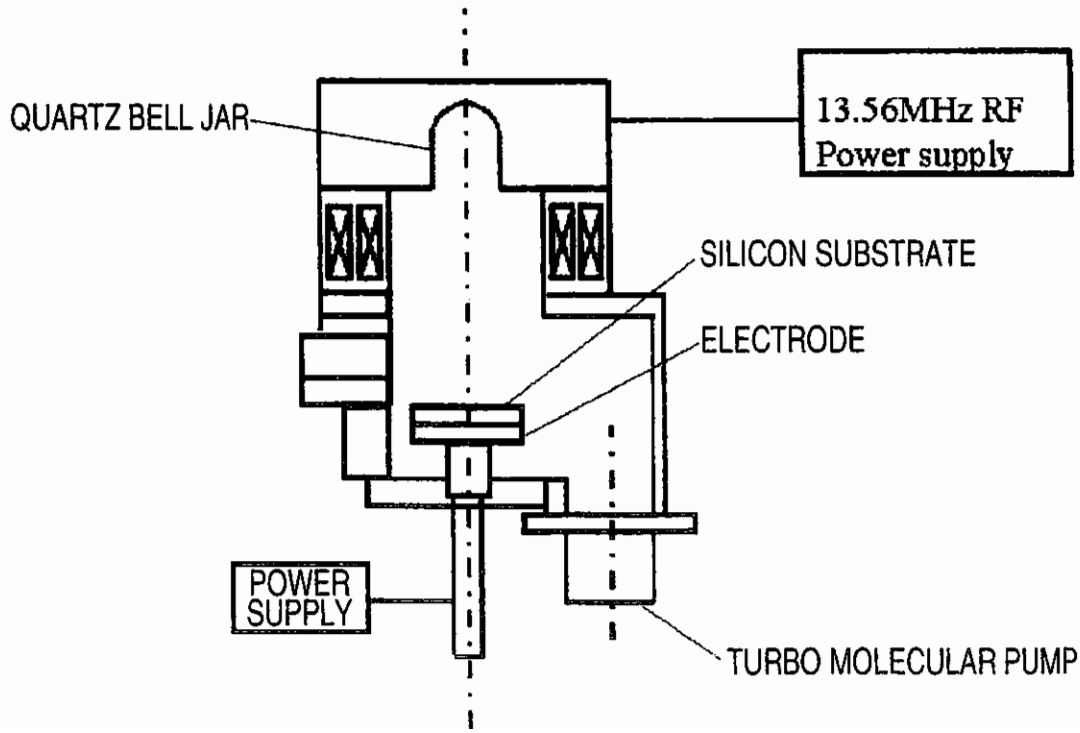

QUARTZ BELL JAR
13.56MHz RF Power supply
SILICON SUBSTRATE
ELECTRODE
POWER SUPPLY
TURBO MOLECULAR PUMP

FIG. 3

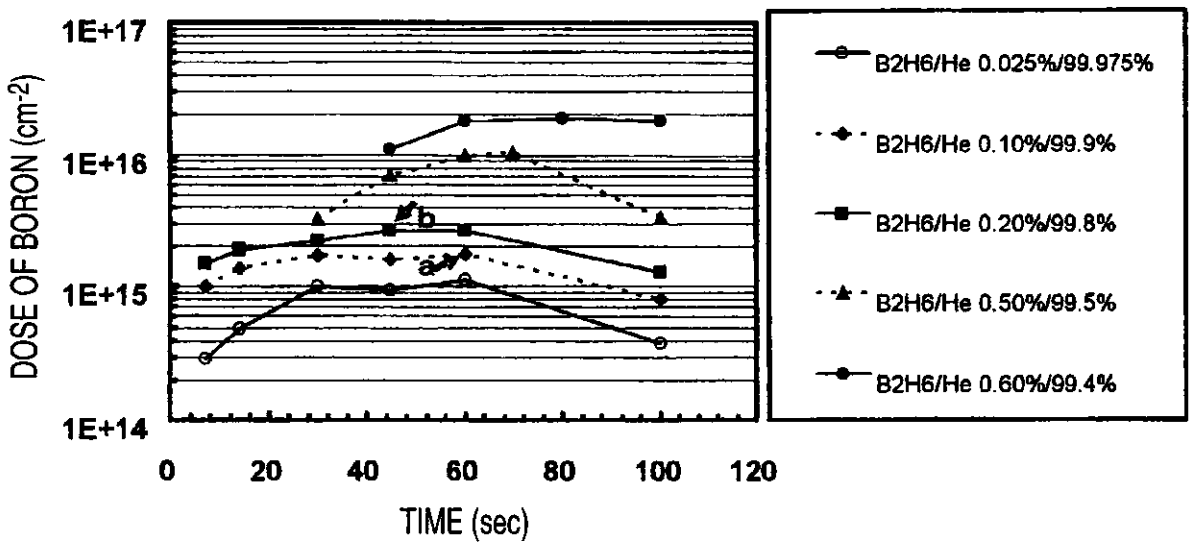

1E+17
1E+16
1E+15
1E+14
DOSE OF BORON (cm-2)
0
20
40
60
80
100
120
TIME (sec)
a
b
B2H6/He 0.025%/99.975%
B2H6/He 0.10%/99.9%
B2H6/He 0.20%/99.8%
B2H6/He 0.50%/99.5%
B2H6/He 0.60%/99.4%

FIG. 4

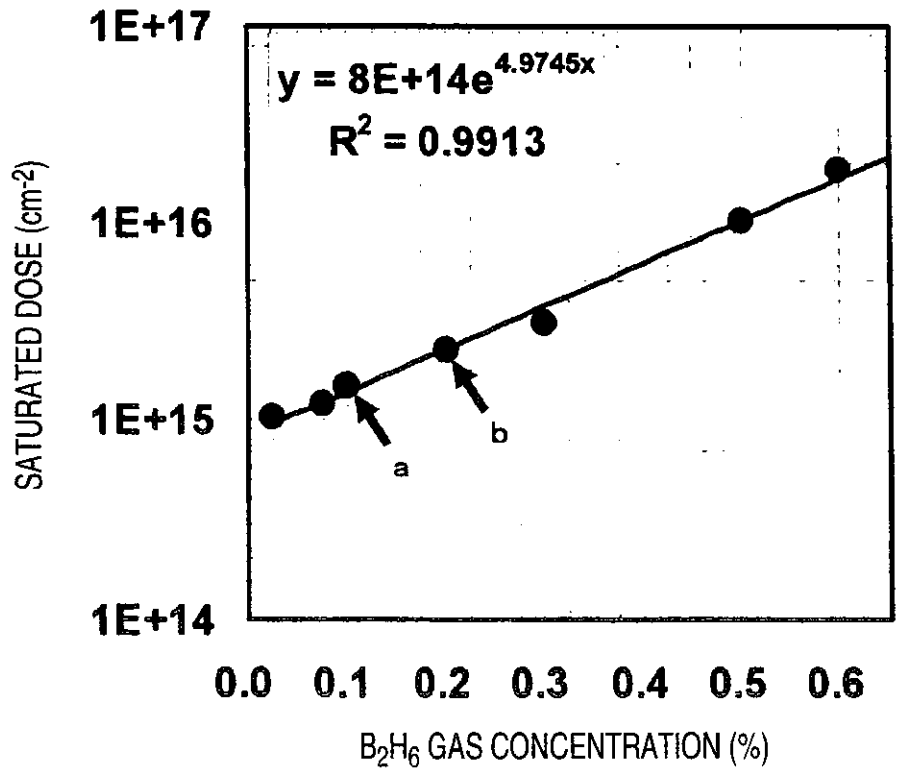
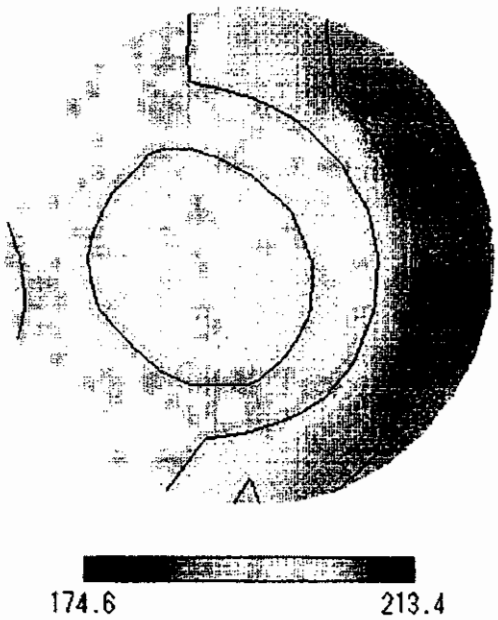
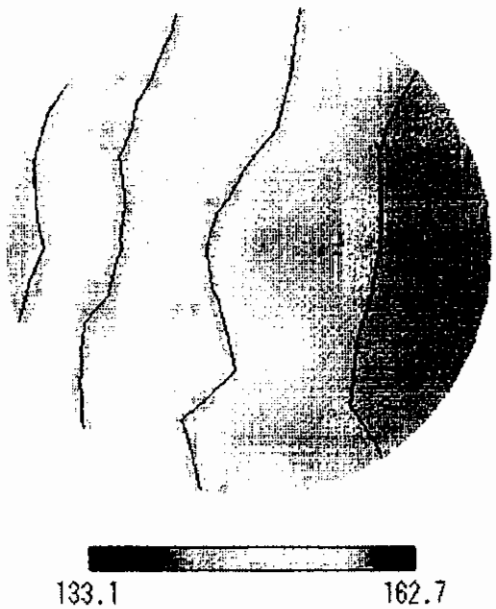

1E+17
1E+16
1E+15
1E+14
SATURATED DOSE (cm-2)
y = 8E+14e4.9745x
R2 = 0.9913
a
b
0.0
0.1
0.2
0.3
0.4
0.5
0.6
B2H6 GAS CONCENTRATION (%)

FIG. 5



CONTOUR LINE HAS 2% (3.88 ohm / sq) PITCH, B_2H_6 / He 0.1% / 99.9%,
SP 1500 W, BP 77 W (Vdc 60 V), PRESSURE 0.9 Pa, 60 seconds,
AVERAGE 194.0 ohm / sq, MAXIMUM 200.6 ohm / sq, MINIMUM 184.8 ohm / sq,
1σ = 2.25%

FIG. 6



CONTOUR LINE HAS 2% (2.96 ohm / sq) PITCH, B_2H_6 / He 0.2% / 99.8%,
SP 1500 W, BP 77 W (Vdc 60 V), PRESSURE 0.9 Pa, 45 seconds,
AVERAGE 147.9 ohm / sq, MAXIMUM 156.4 ohm / sq, MINIMUM 141.2 ohm / sq,
1σ = 2.42%

FIG. 7

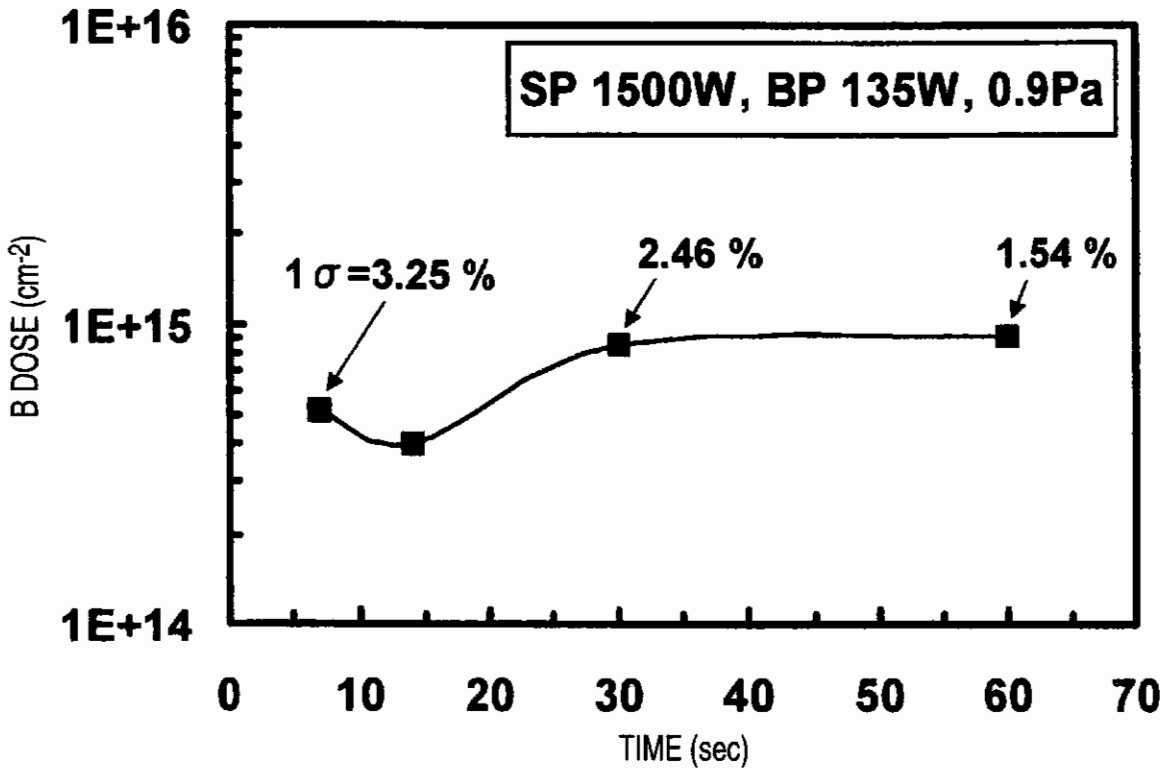

1E+16
1E+15
1E+14
B DOSE (cm-2)
SP 1500W, BP 135W, 0.9Pa
1σ=3.25 %
2.46 %
1.54 %
0
10
20
30
40
50
60
70
TIME (sec)

FIG. 8

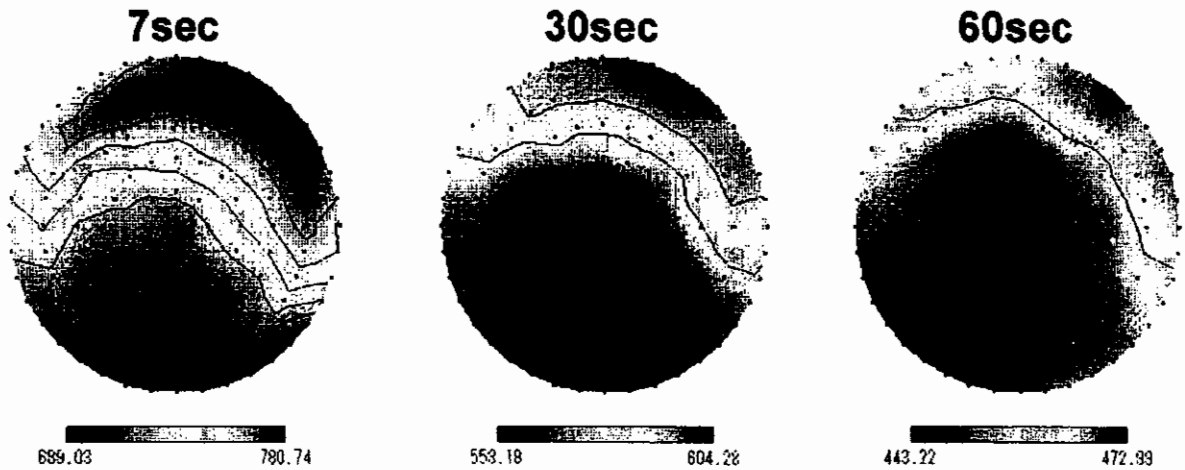

7sec
30sec
60sec
689.03
780.74
553.18
604.28
443.22
472.89
1σ :3.25 %
1σ :2.46%
1σ :1.54%
Edge exclusion 3mm

FIG. 9

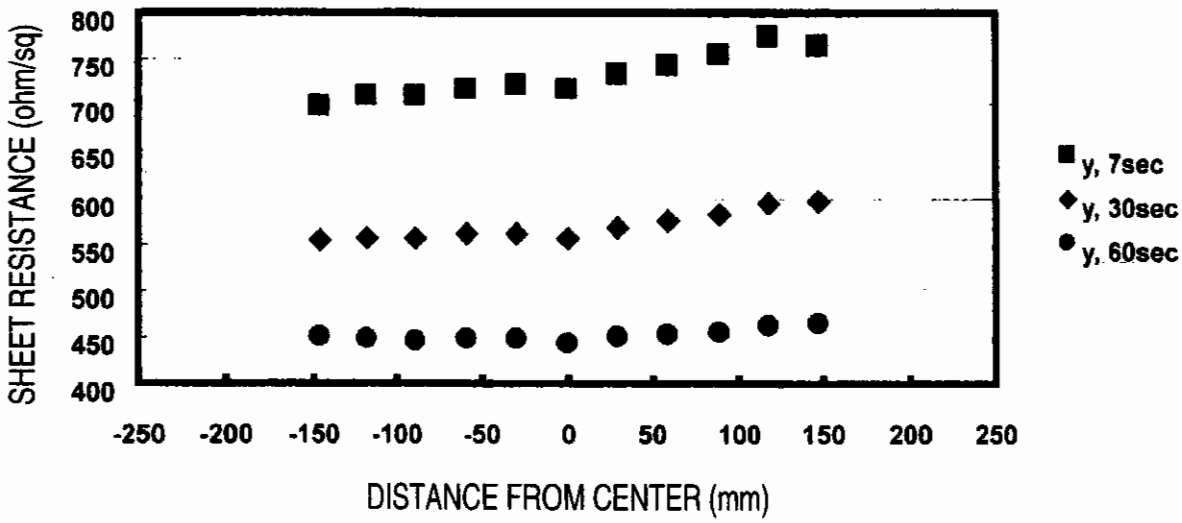
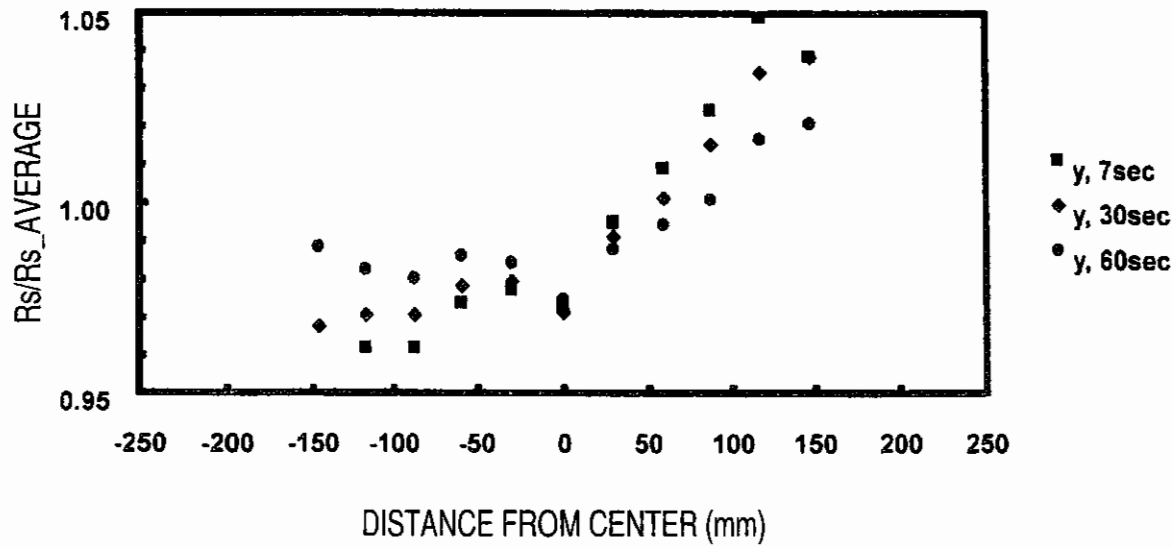

SHEET RESISTANCE (ohm/sq)
800
750
700
650
600
550
500
450
400
-250
-200
-150
-100
-50
0
50
100
150
200
250
DISTANCE FROM CENTER (mm)
y, 7sec
y, 30sec
y, 60sec

FIG. 10


Rs/Rs_AVERAGE
1.05
1.00
0.95
-250
-200
-150
-100
-50
0
50
100
150
200
250
DISTANCE FROM CENTER (mm)
y, 7sec
y, 30sec
y, 60sec