FIG. 1

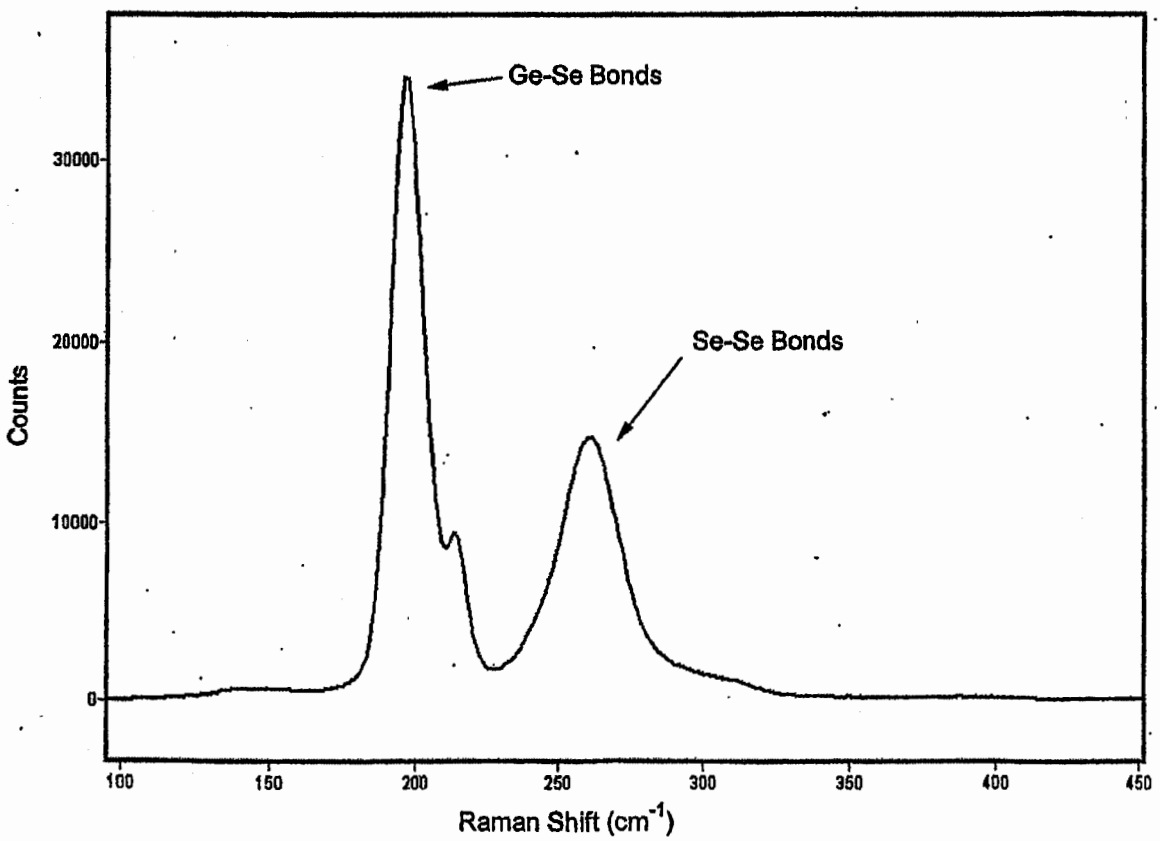

Ge-Se Bonds
Se-Se Bonds
Counts
30000
20000
10000
0
100
150
200
250
300
350
400
450
Raman Shift (cm-1)

FIG. 2

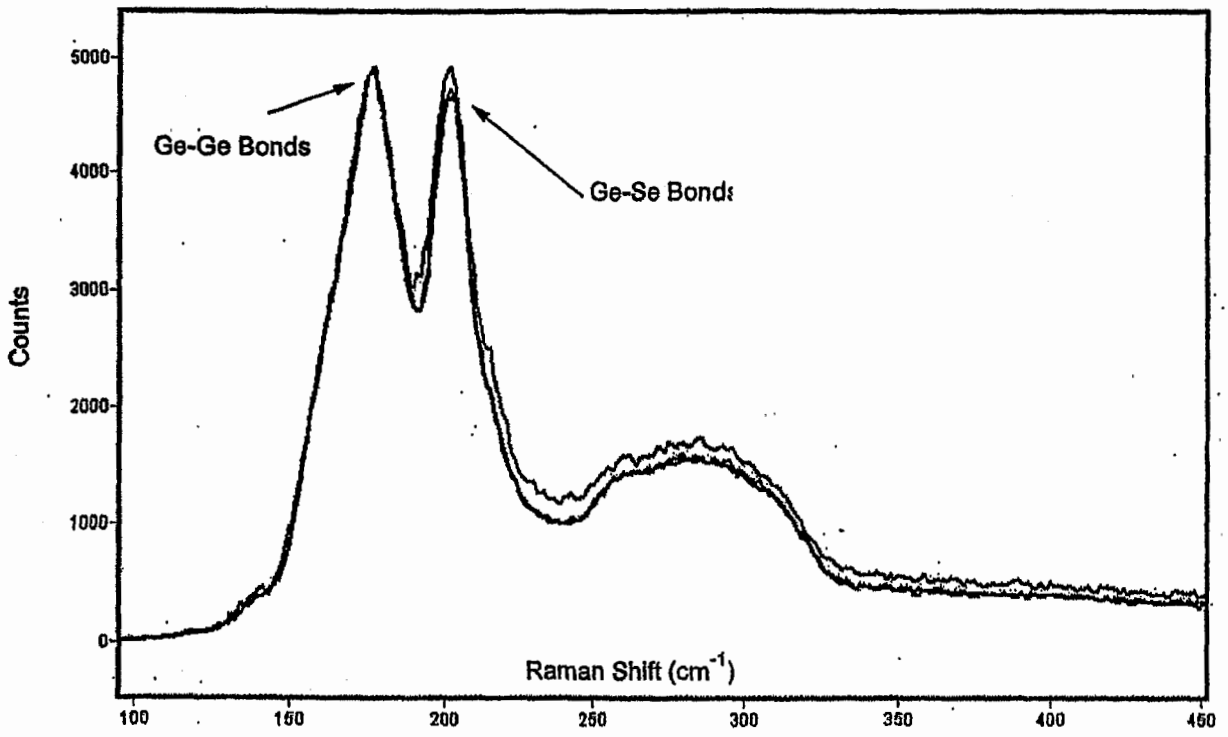

Ge-Ge Bonds
Ge-Se Bonds
Counts
Raman Shift (cm-1)
5000
4000
3000
2000
1000
0
100
150
200
250
300
350
400
450

FIG.3

The figure below is Raman of two films of Ge40Se60 150A thick.

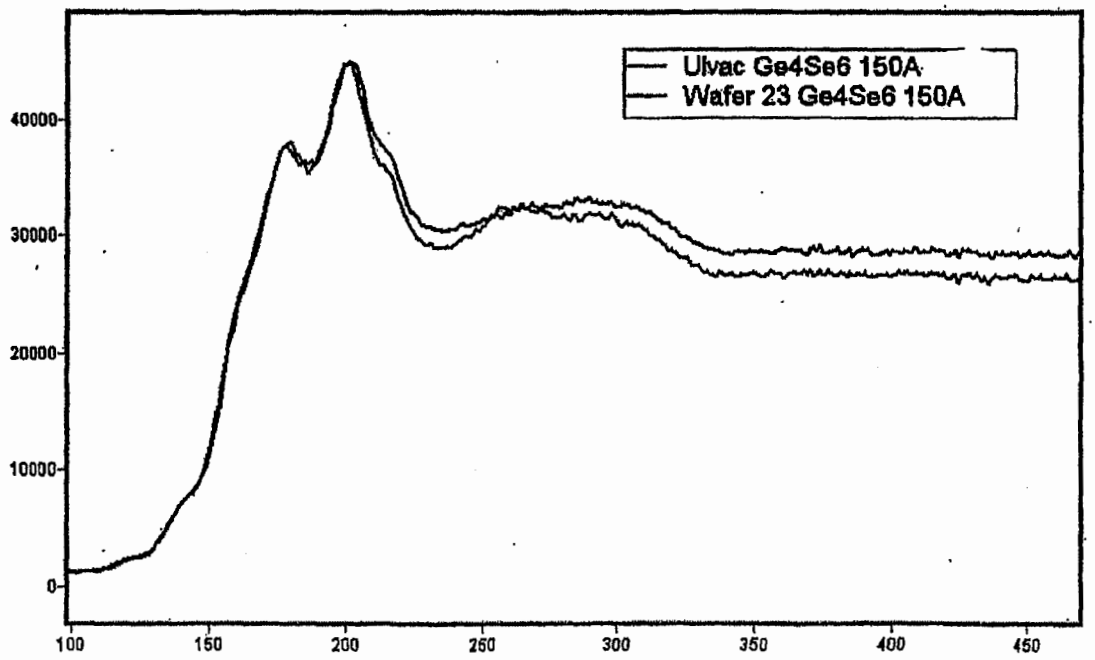


FIG.4

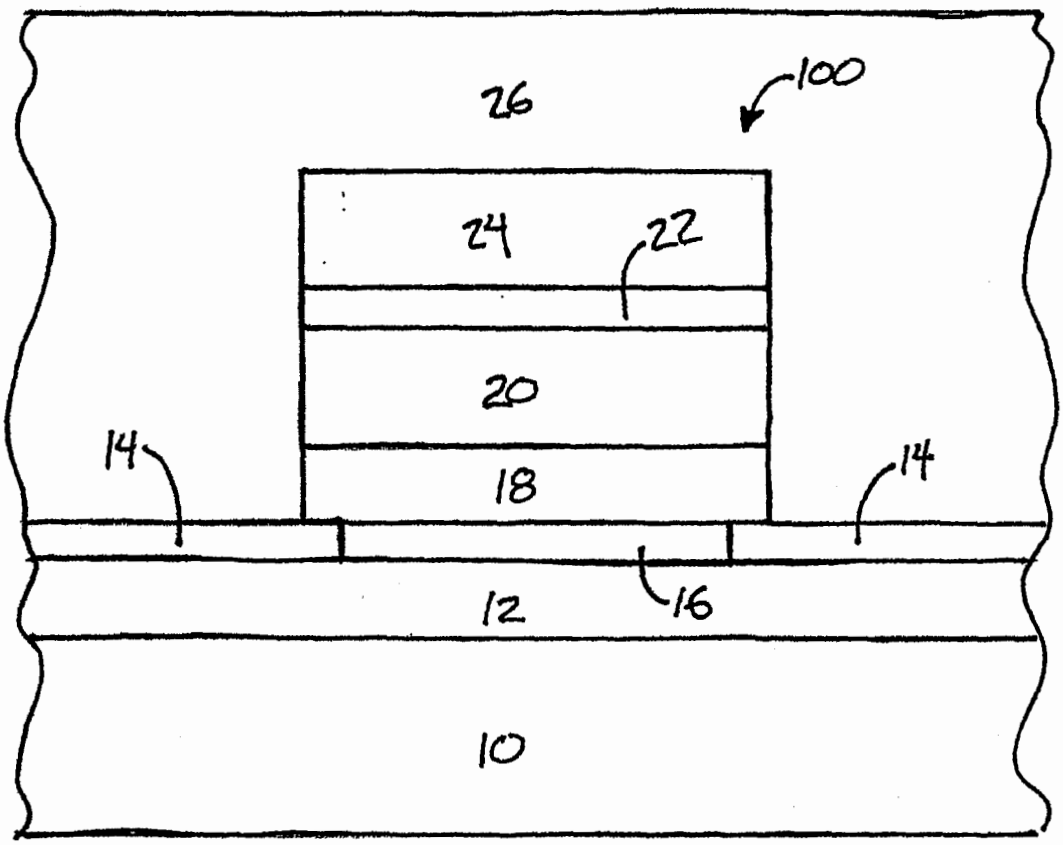


FIG. 5

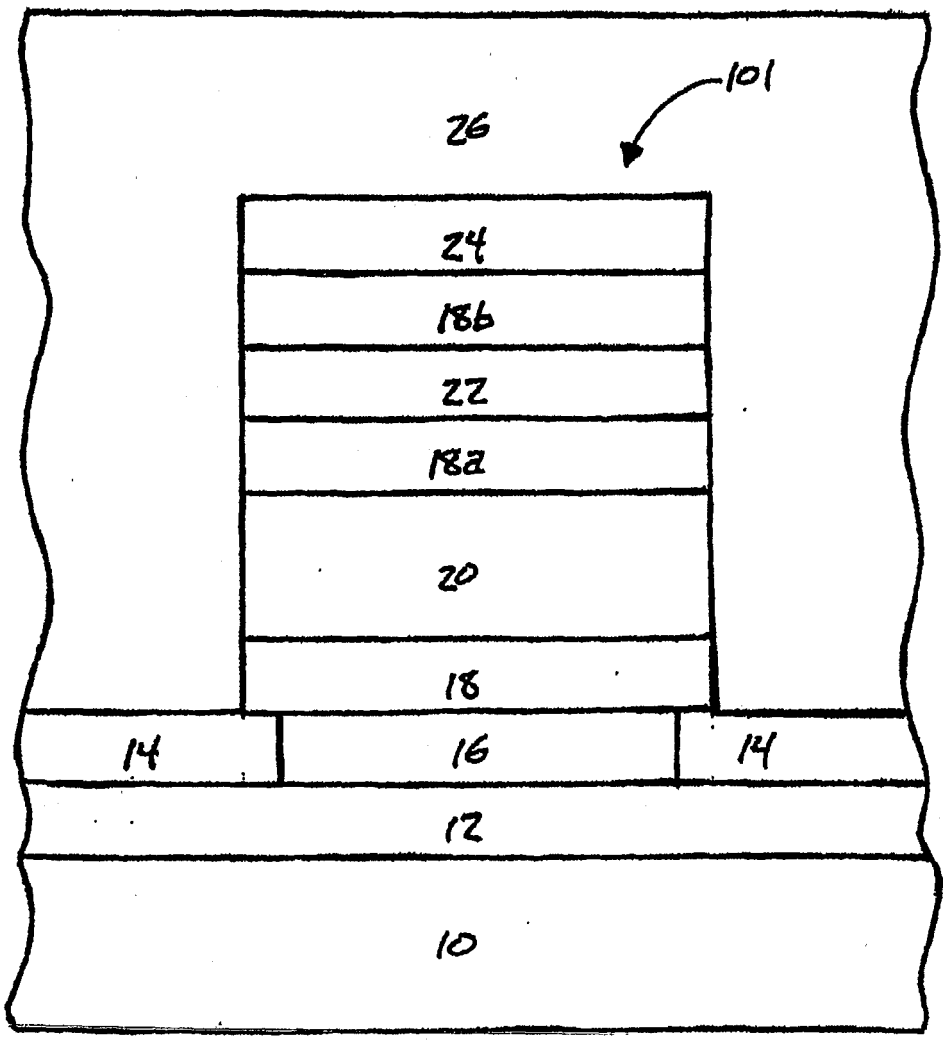


FIG. 6

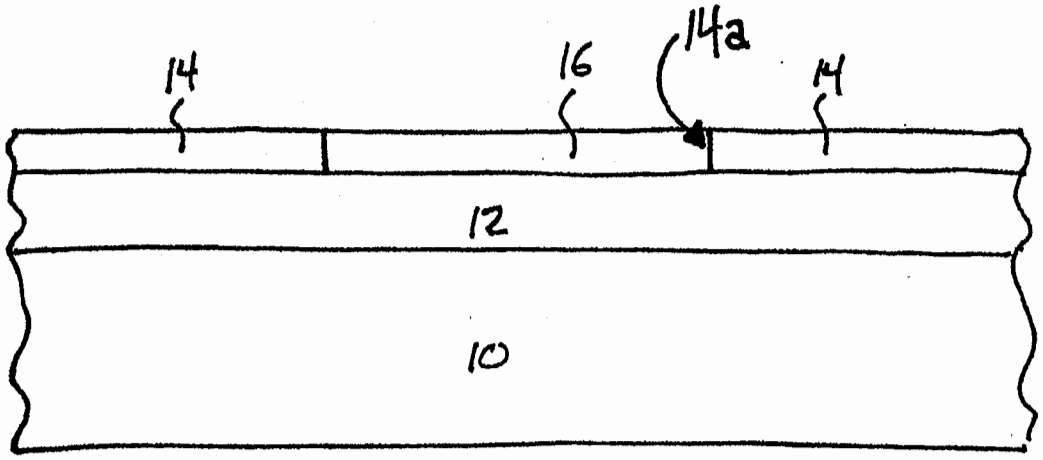


FIG. 7

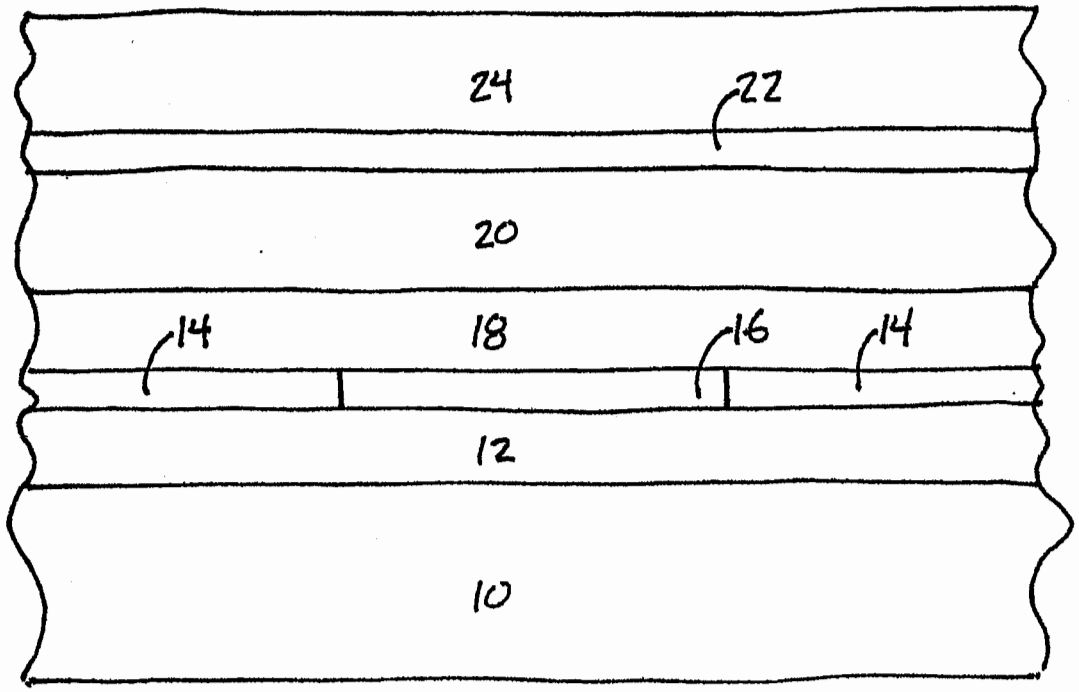


FIG. 8

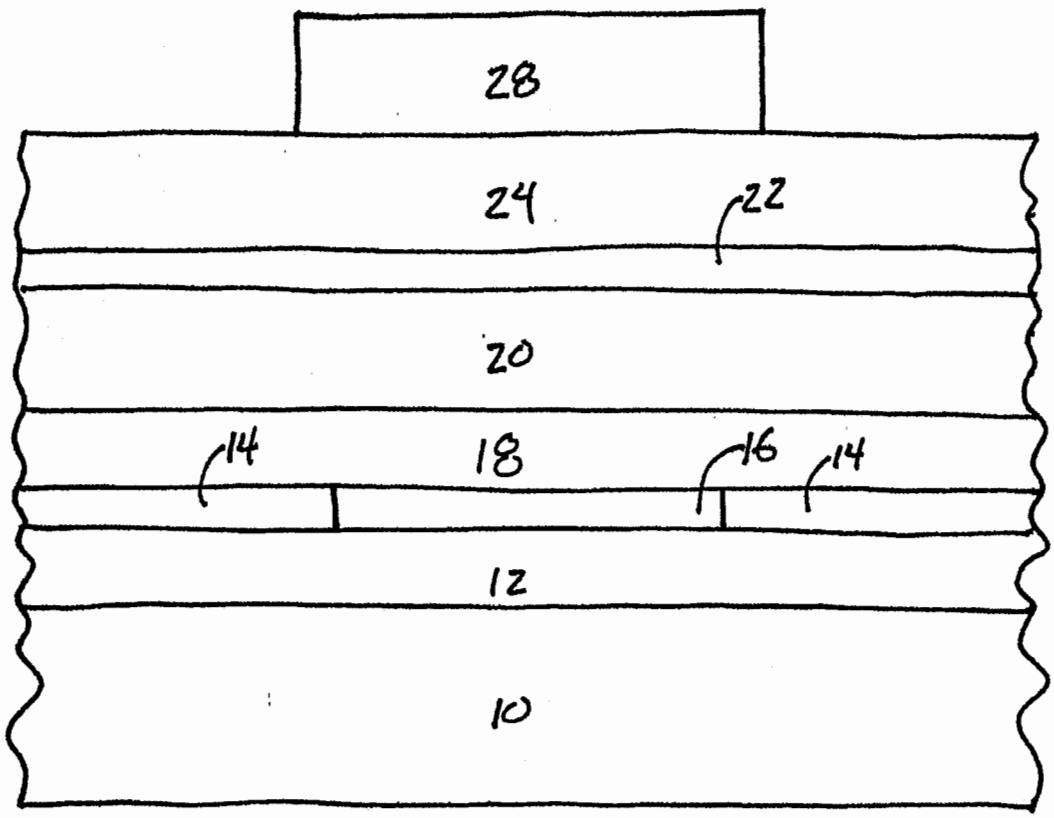


FIG. 9

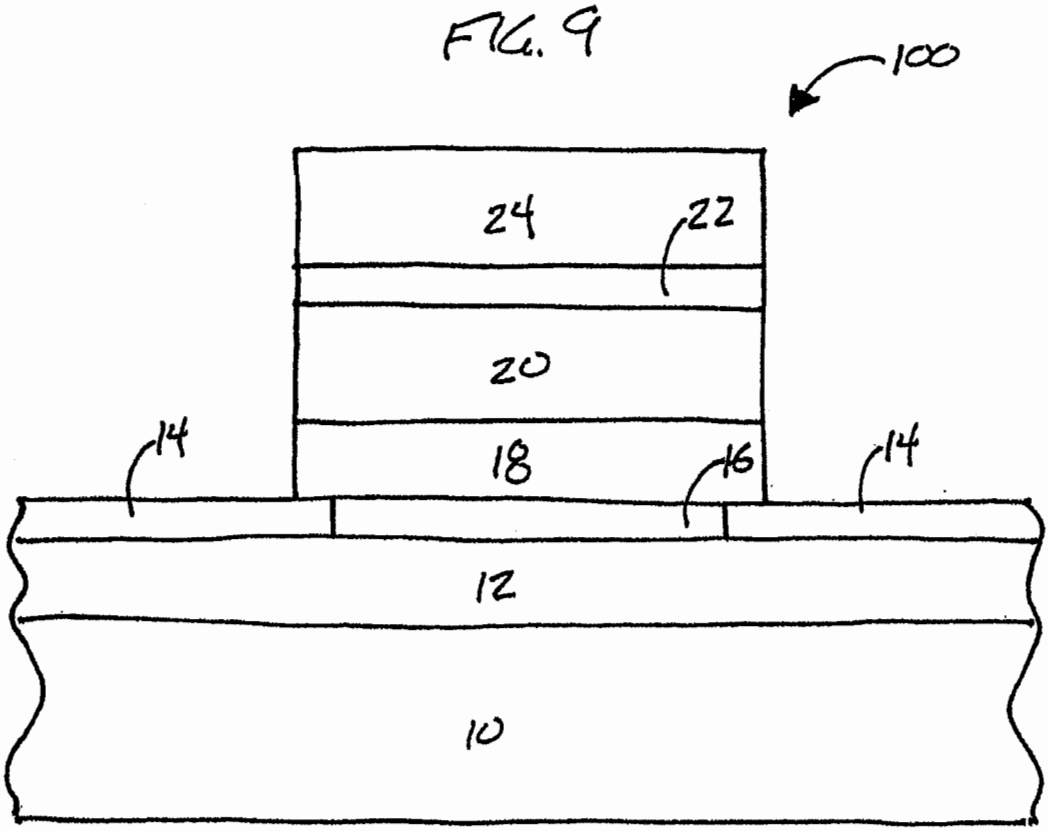


FIG. 10

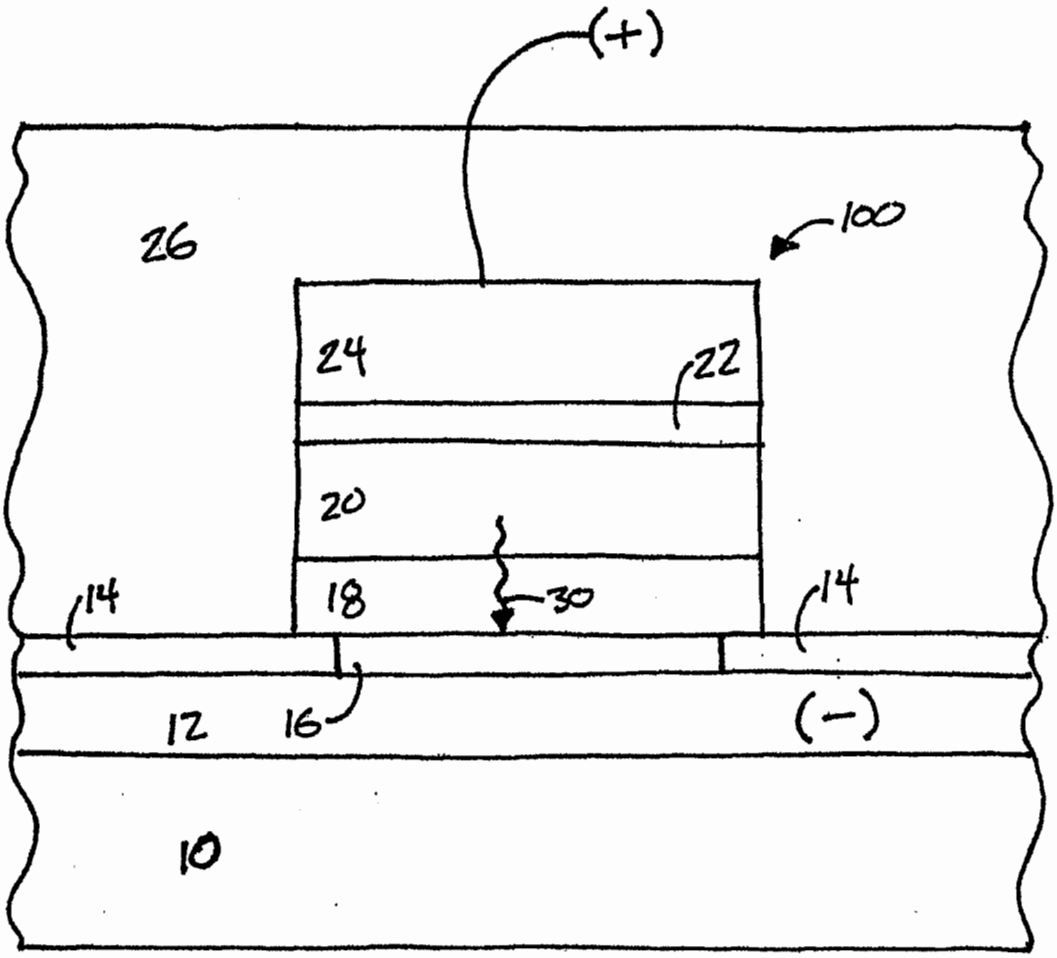


FIG. 11

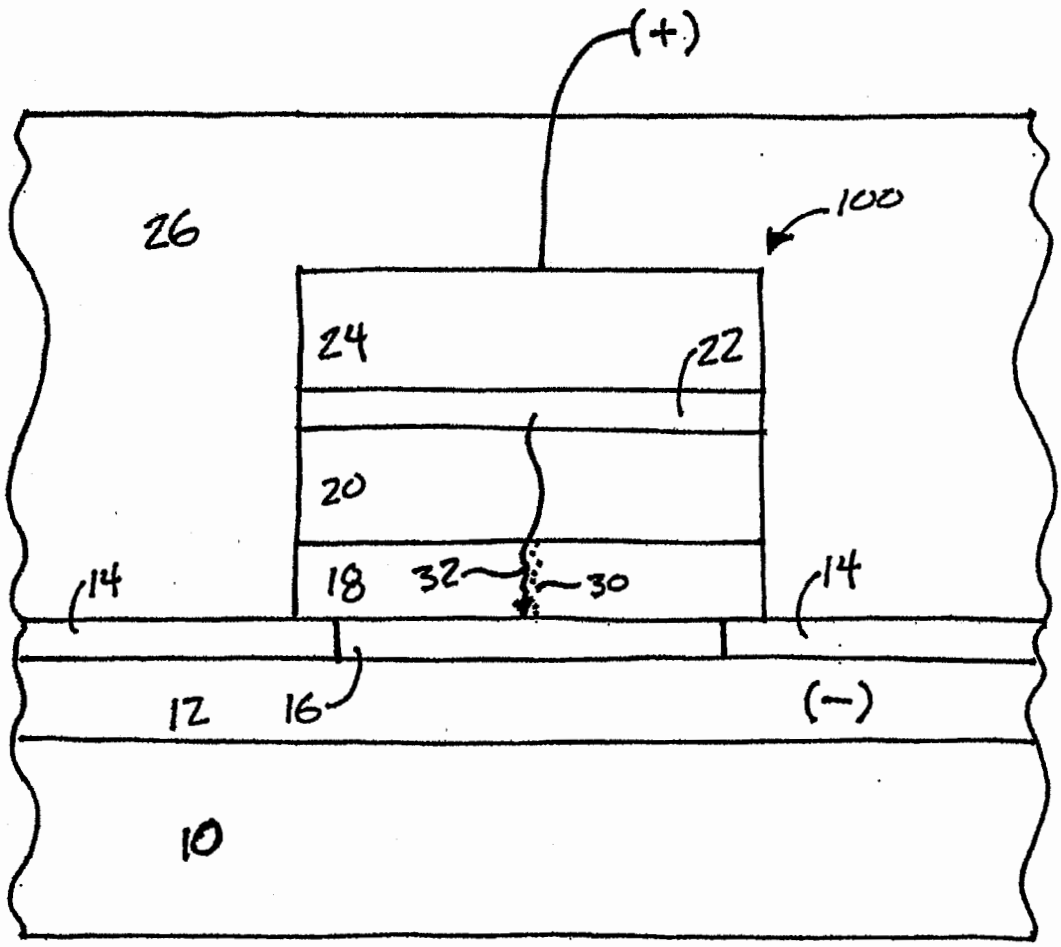


FIG. 12

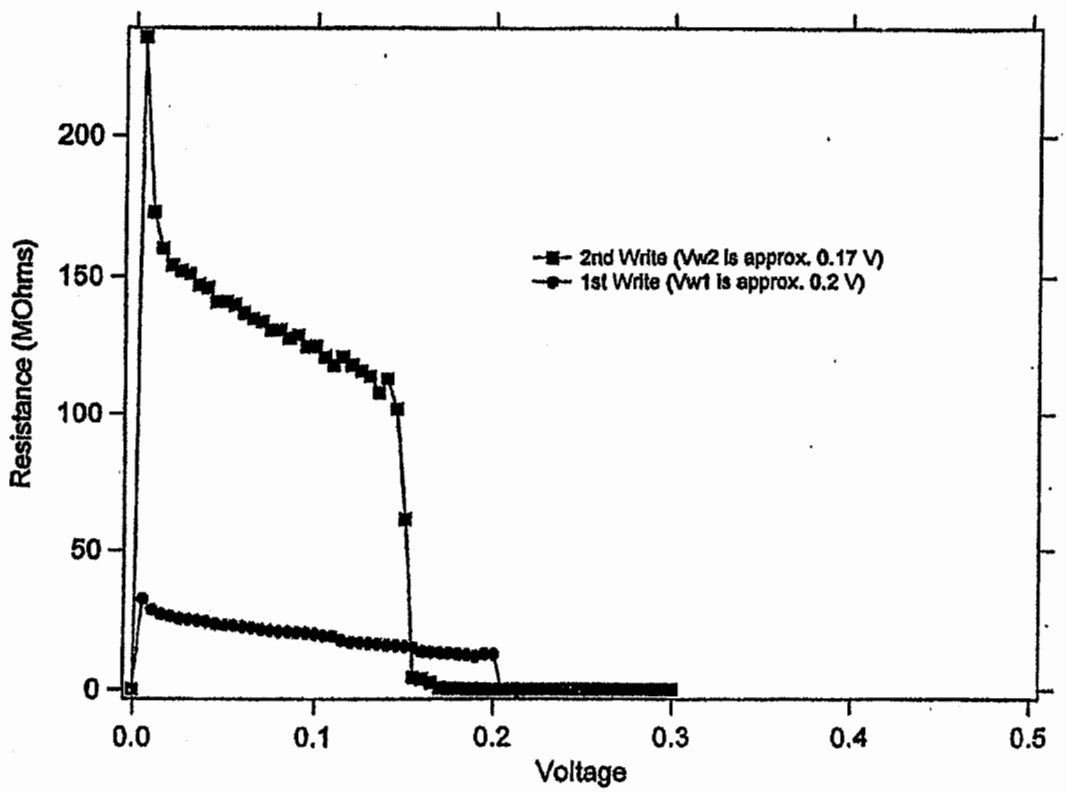

Resistance (MOhms)
200
150
100
50
0
0.0
0.1
0.2
0.3
0.4
0.5
Voltage
2nd Write (Vw2 is approx. 0.17 V)
1st Write (Vw1 is approx. 0.2 V)

FIG. 13

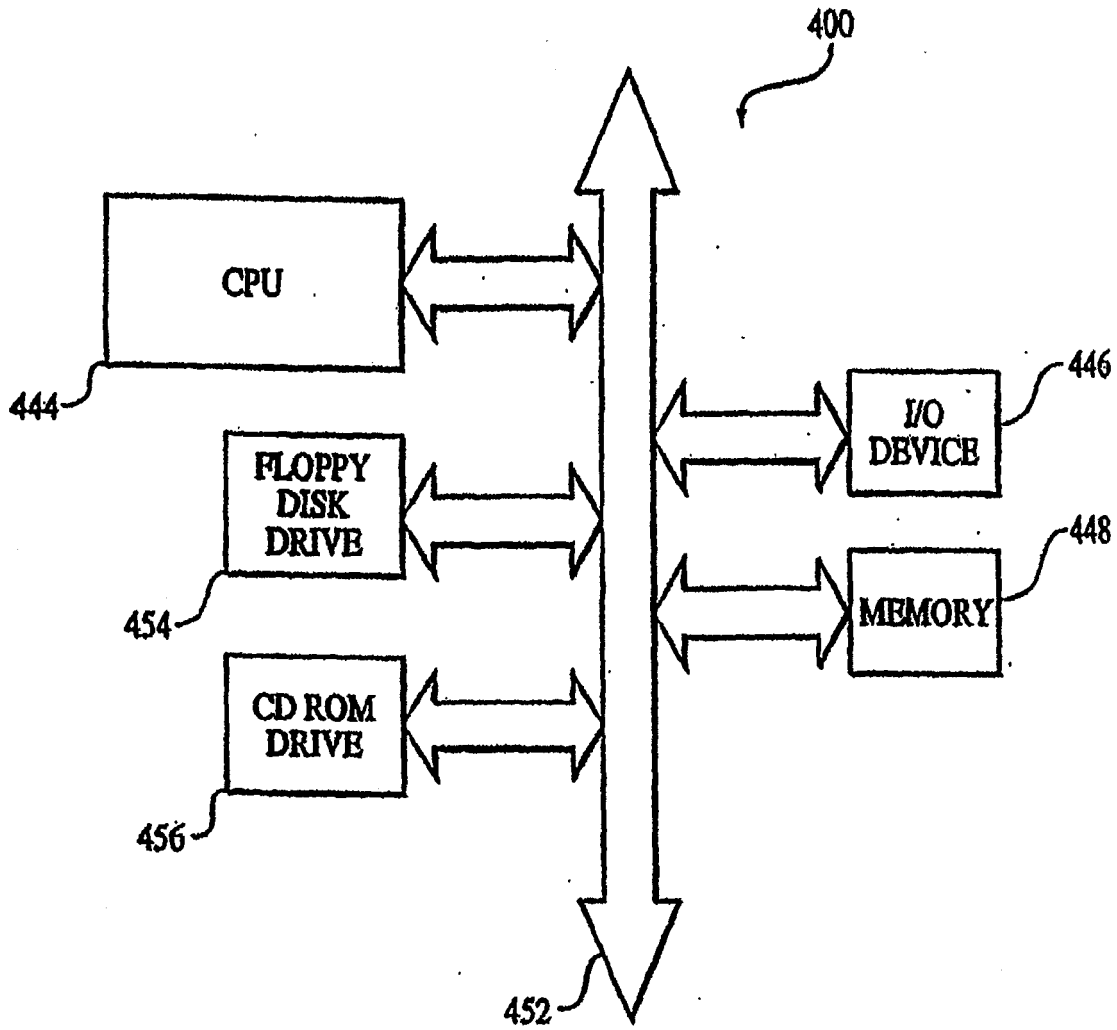
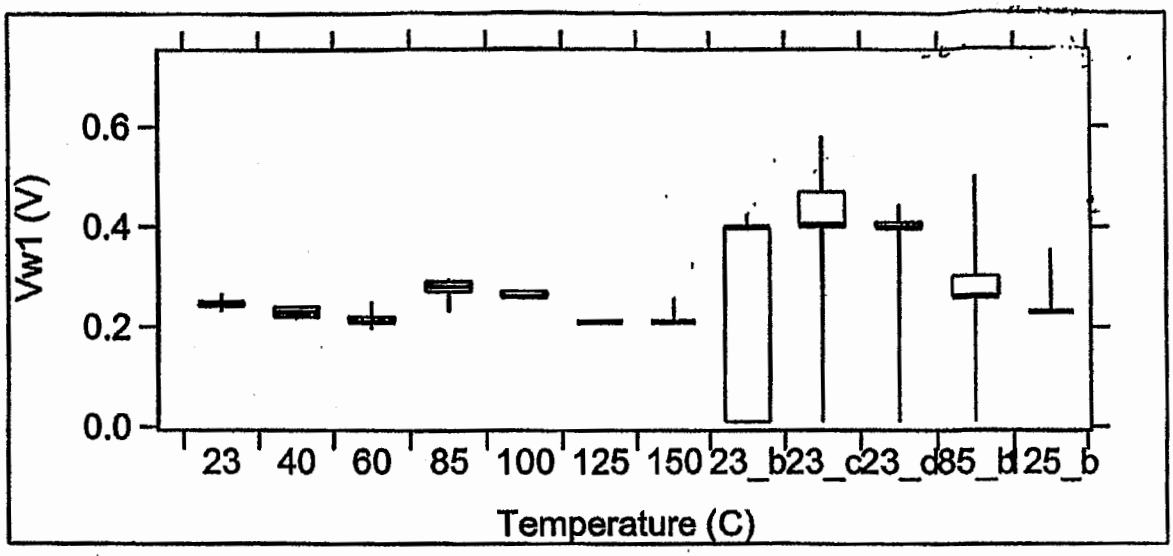

400
CPU
444
FLOPPY DISK DRIVE
454
CD ROM DRIVE
456
I/O DEVICE
446
MEMORY
448
452

FIG. 14

a.


Vw1 (V)
0.6
0.4
0.2
0.0
23
40
60
85
100
125
150
23_b
23_c
23_d
85_b
25_b
Temperature (C)

b.

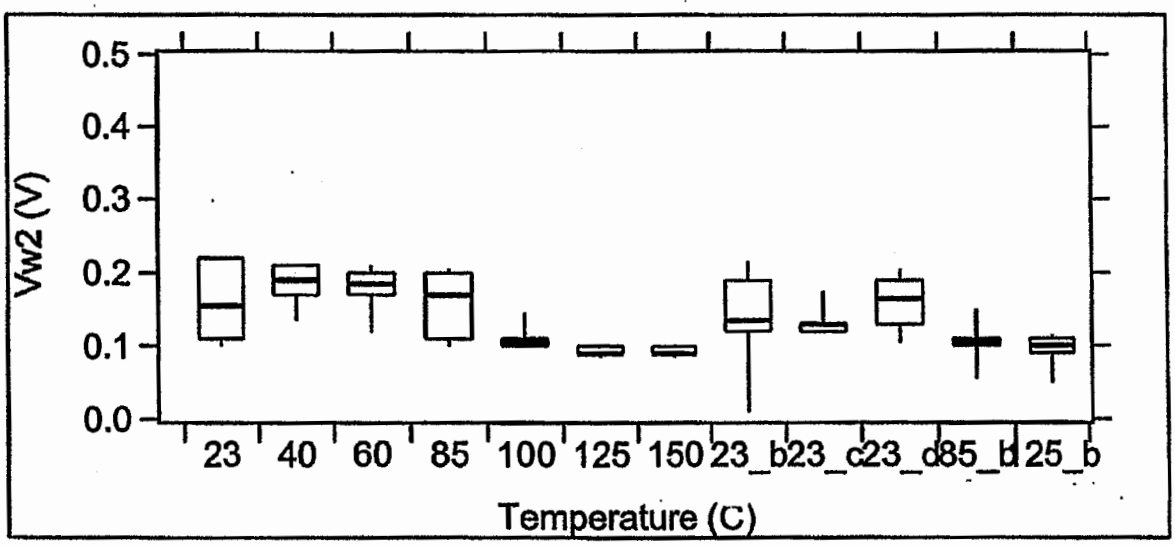
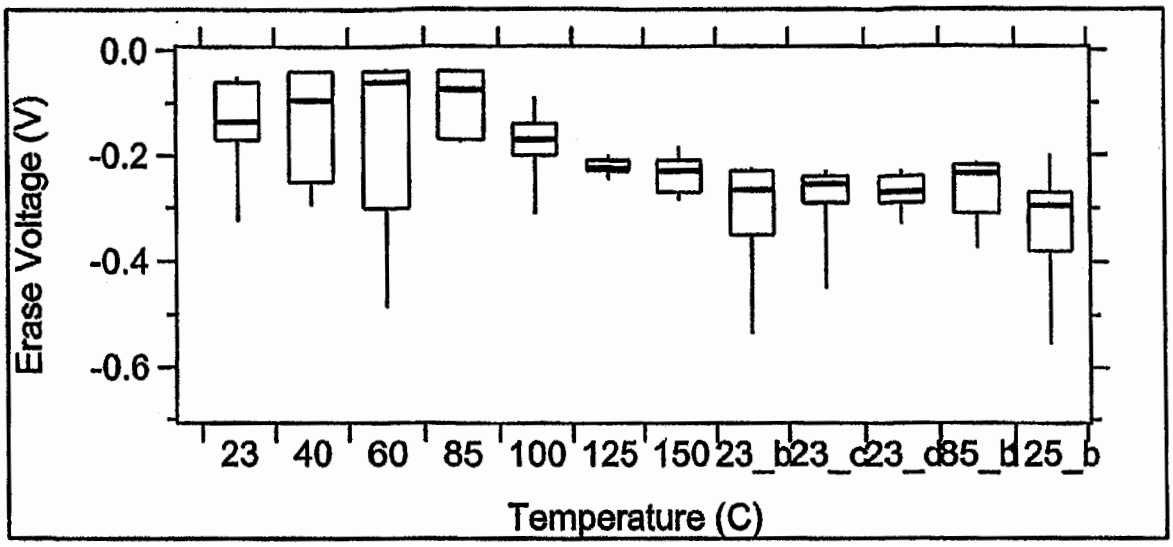
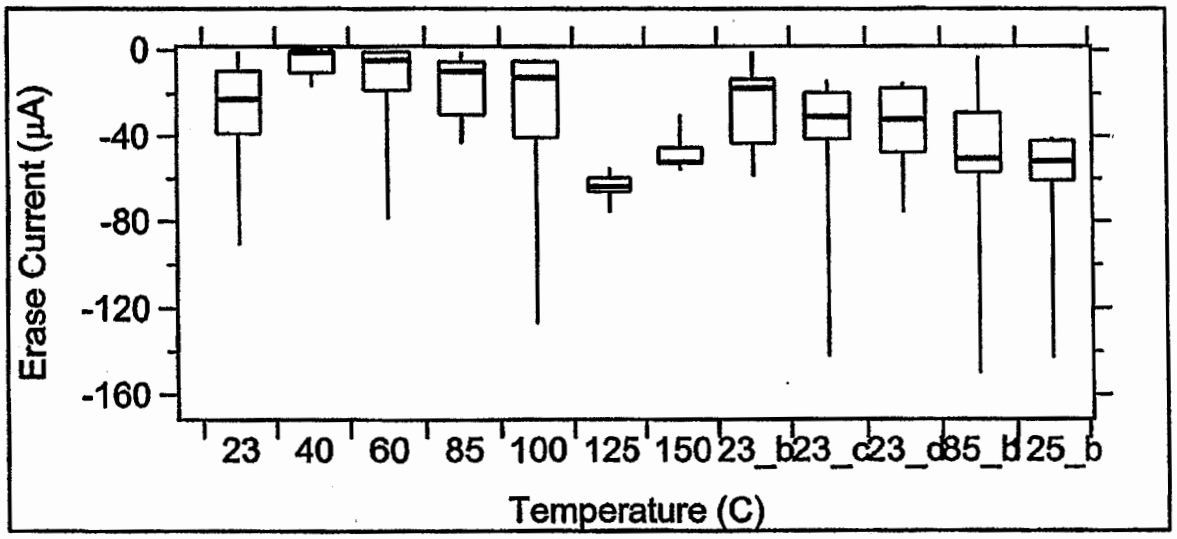

Vw2 (V)
0.5
0.4
0.3
0.2
0.1
0.0
23
40
60
85
100
125
150
23_b
23_c
23_d
85_b
25_b
Temperature (C)

FIG. 14

c.


Erase Voltage (V)
0.0
-0.2
-0.4
-0.6
23 40 60 85 100 125 150 23_b 23_c 23_d 85_b 125_b
Temperature (C)

d.


Erase Current (μA)
0
-40
-80
-120
-160
23 40 60 85 100 125 150 23_b 23_c 23_d 85_b 125_b
Temperature (C)

e.

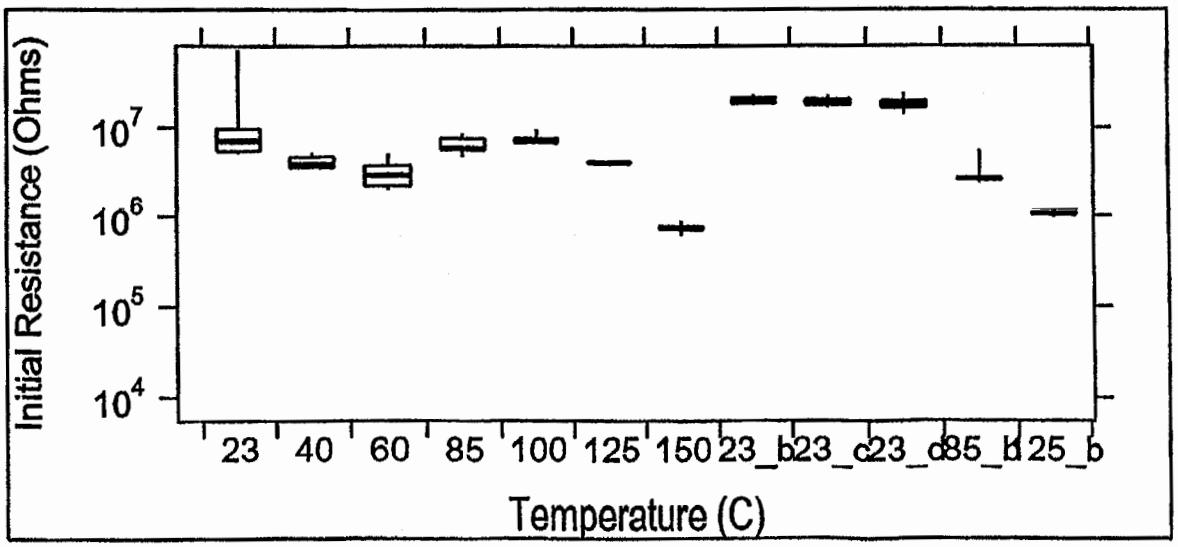
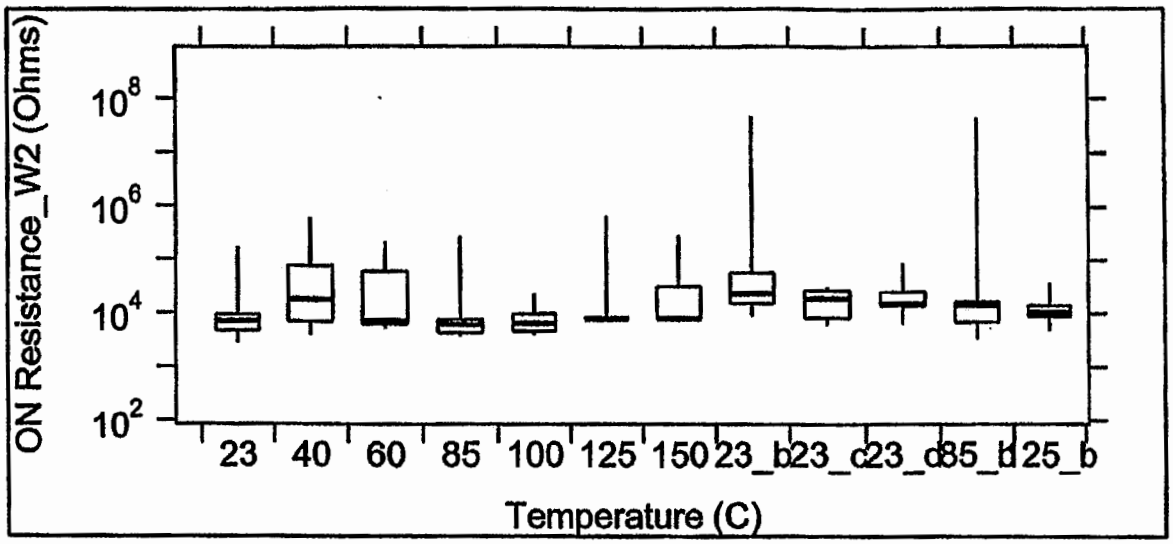
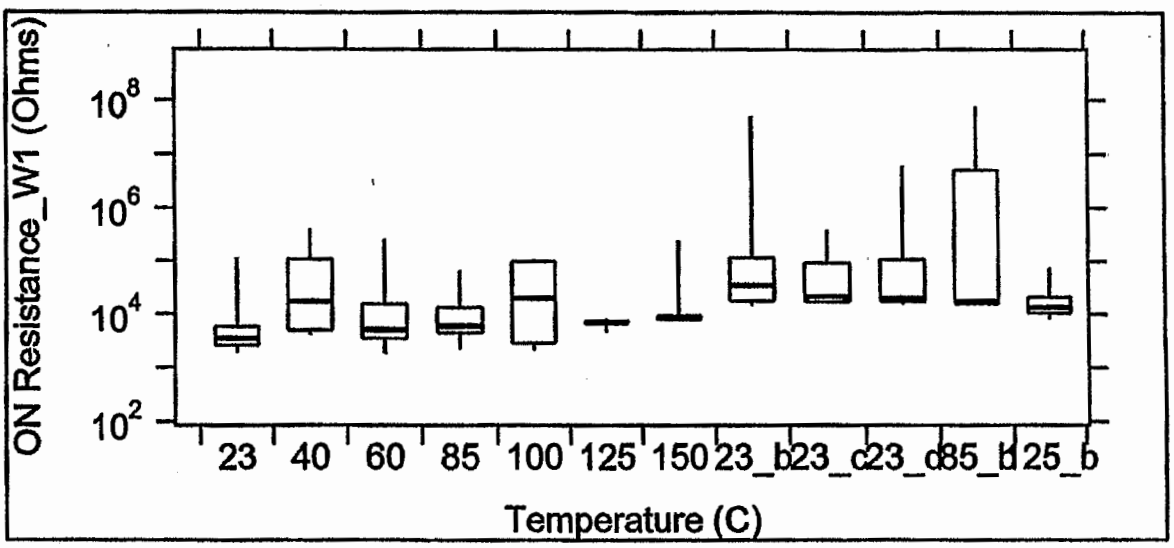

Initial Resistance (Ohms)
10^7
10^6
10^5
10^4
23 40 60 85 100 125 150 23_b 23_c 23_d 85_b 125_b
Temperature (C)

FIG. 14

f.


ON Resistance_W2 (Ohms)
10^8
10^6
10^4
10^2
23 40 60 85 100 125 150 23_b 23_c 23_d 85_b 25_b
Temperature (C)

g.


ON Resistance_W1 (Ohms)
10^8
10^6
10^4
10^2
23 40 60 85 100 125 150 23_b 23_c 23_d 85_b 25_b
Temperature (C)

h.

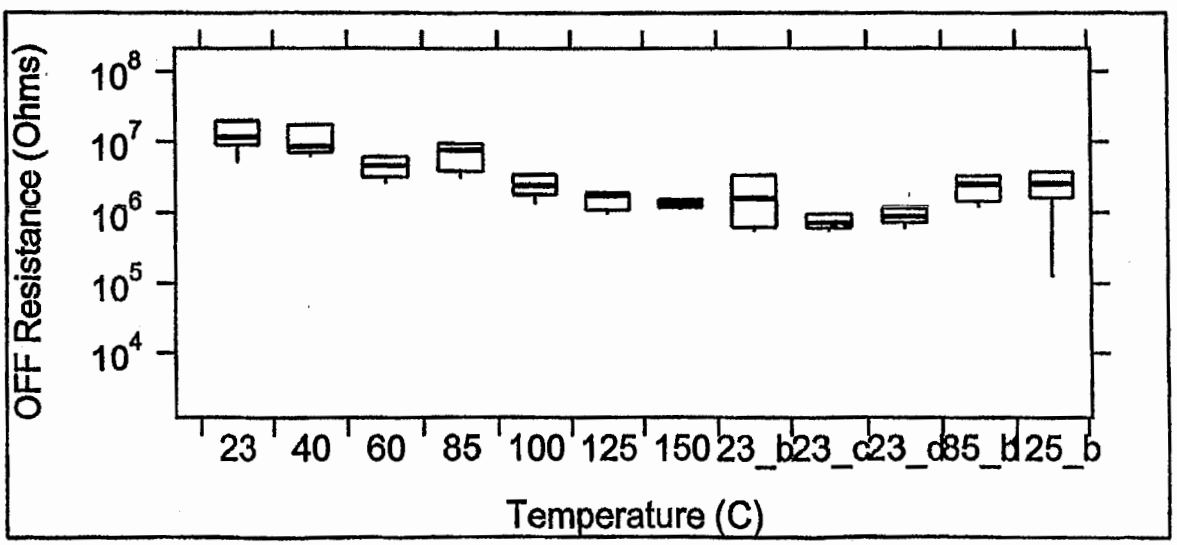
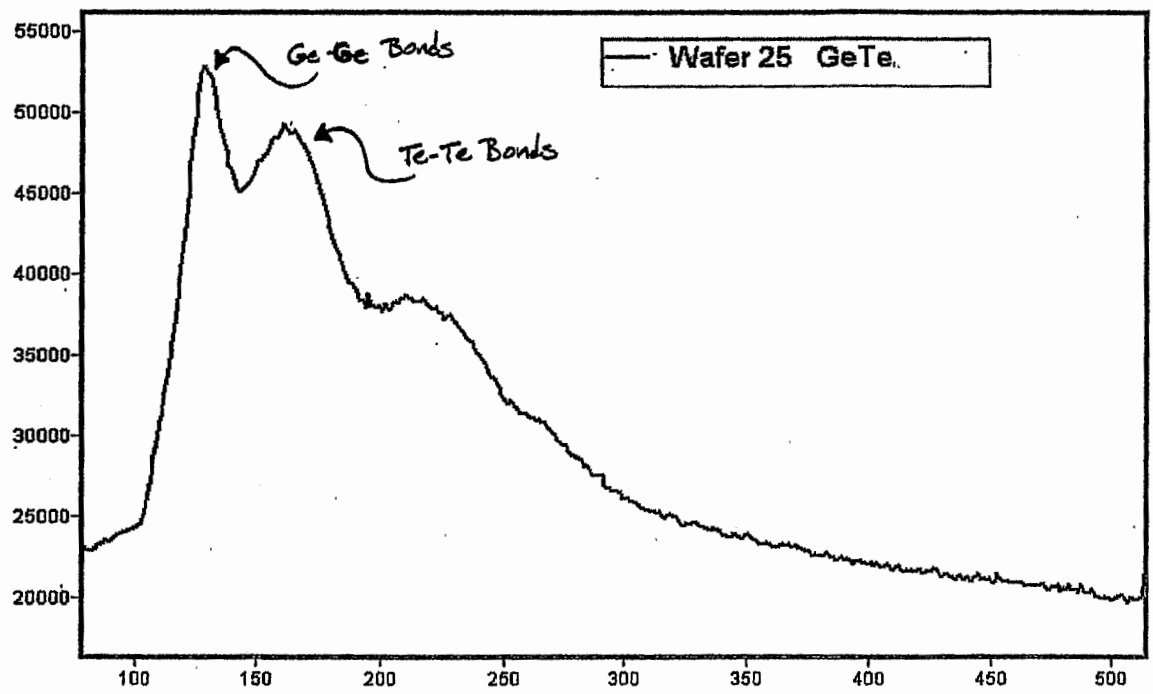

OFF Resistance (Ohms)
10^8
10^7
10^6
10^5
10^4
23 40 60 85 100 125 150 23_b 23_c 23_d 85_b 25_b
Temperature (C)

FIG. 15


55000
50000
45000
40000
35000
30000
25000
20000
100
150
200
250
300
350
400
450
500
Ge-Ge Bonds
Te-Te Bonds
Wafer 25 GeTe
Counts / Raman Shift (cm-1)