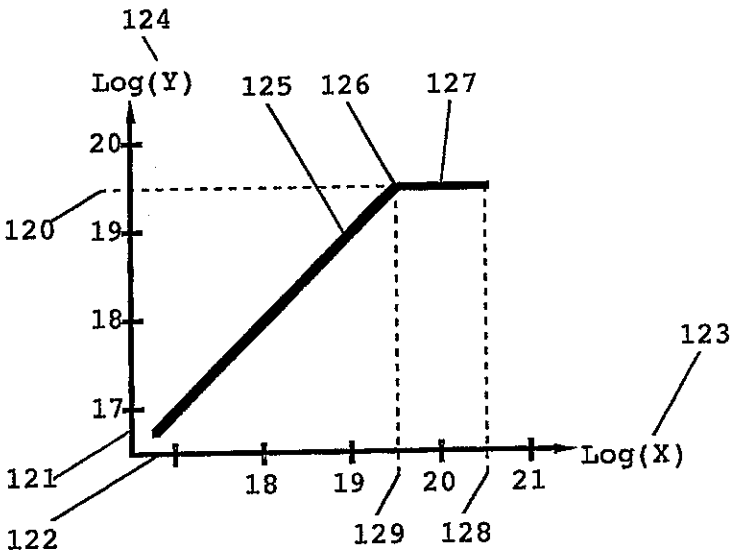
A)


124
Log(Y)
125
126
127
20
120
19
18
17
123
121
Log(X)
18
19
20
21
122
129
128

B)

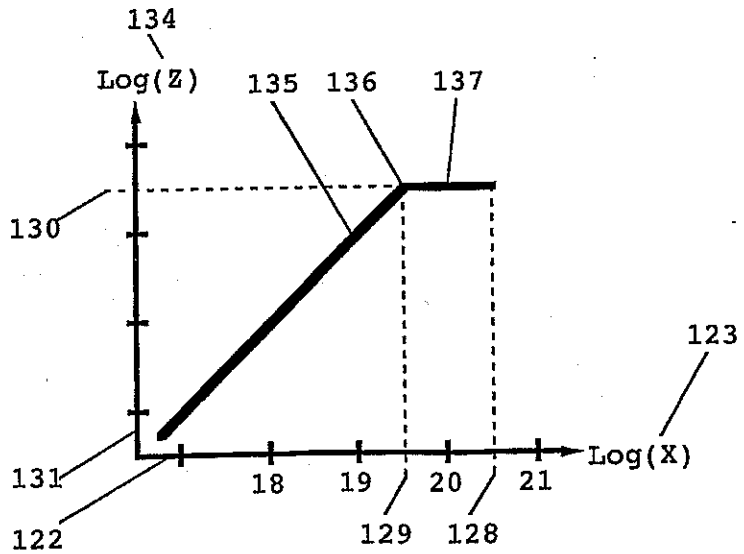
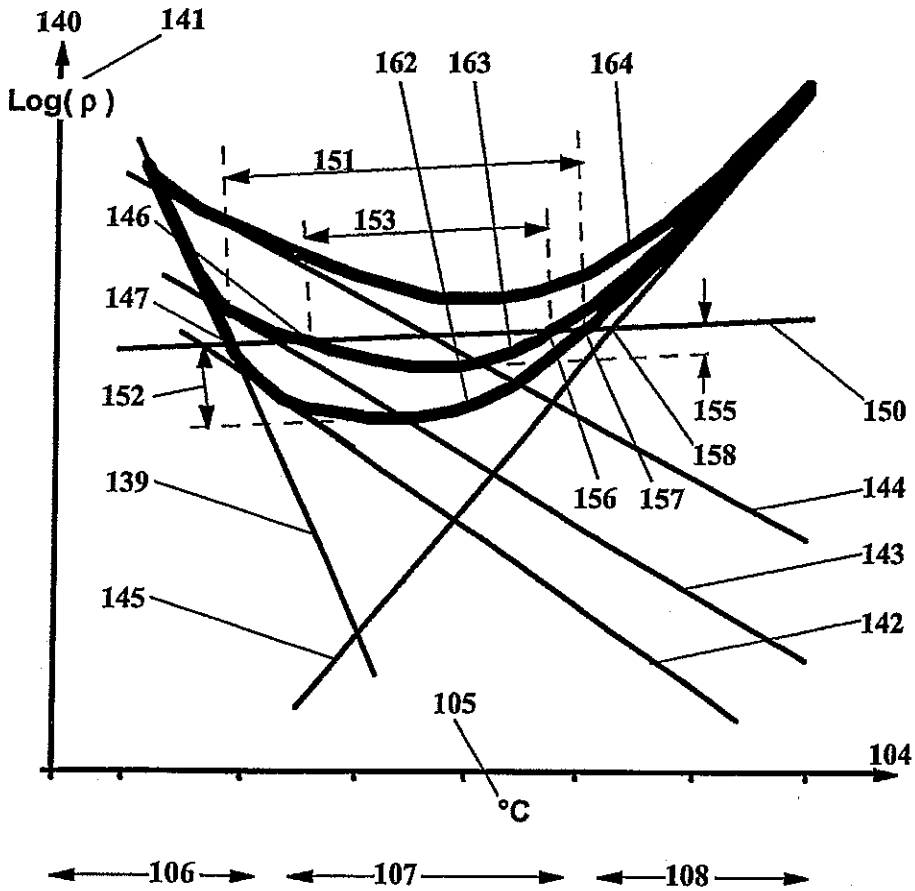

134
Log(Z)
135
136
137
130
123
131
Log(X)
18
19
20
21
122
129
128

FIG. 1A-B

Figure 2A


140
141
Log(ρ)
162
163
164
151
153
146
147
152
155
150
158
139
156
157
144
143
145
142
105
104
°C
106
107
108

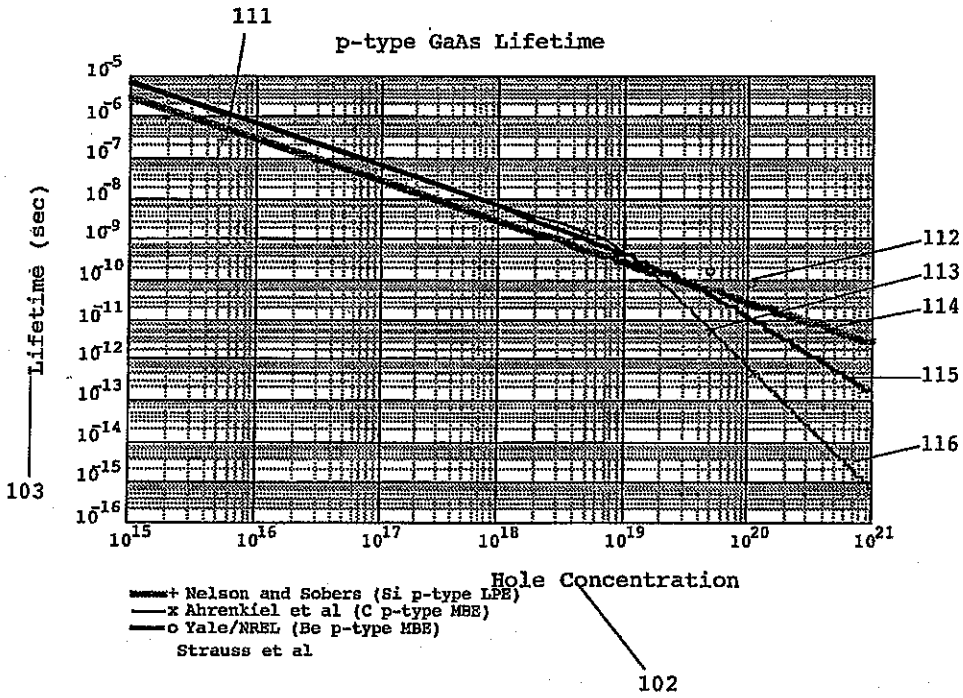

111
p-type GaAs Lifetime
Lifetime (sec)
103
112
113
114
115
116
Hole Concentration
102
+ Nelson and Sobers (Si p-type LPE)
x Ahrenkiel et al (C p-type MBE)
o Yale/NREL (Be p-type MBE)
Strauss et al

FIG. 2B

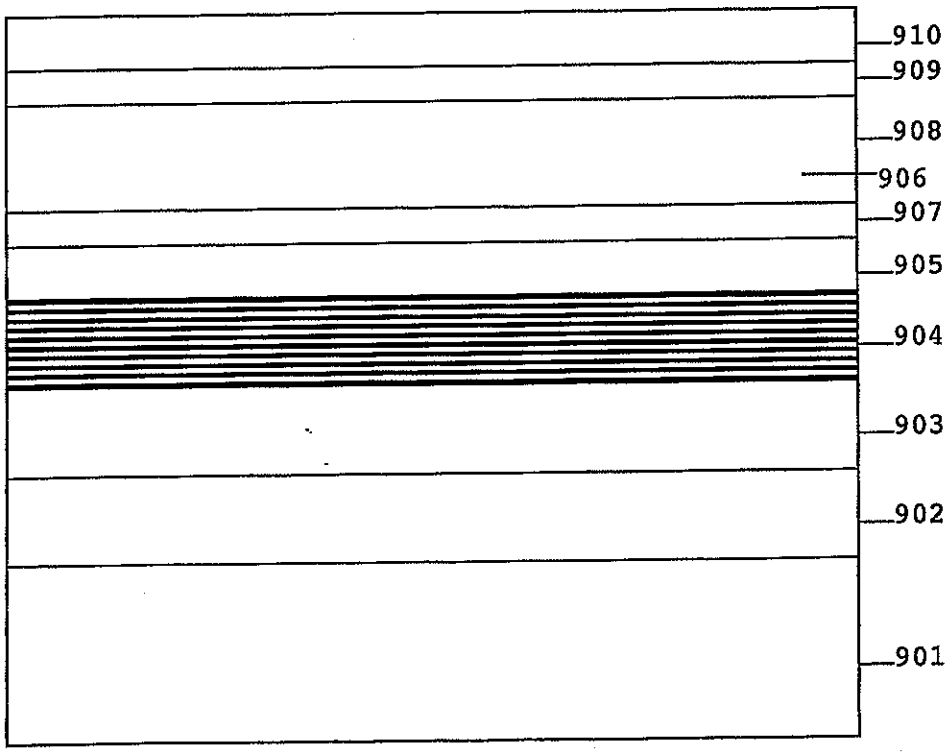
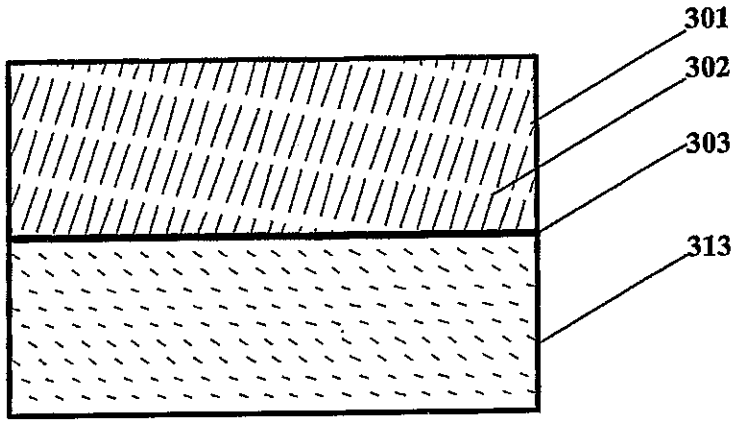


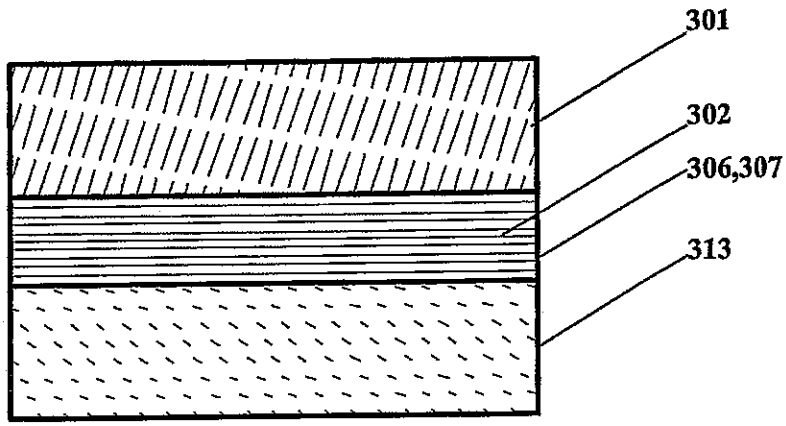
FIG. 2C

Figure 3

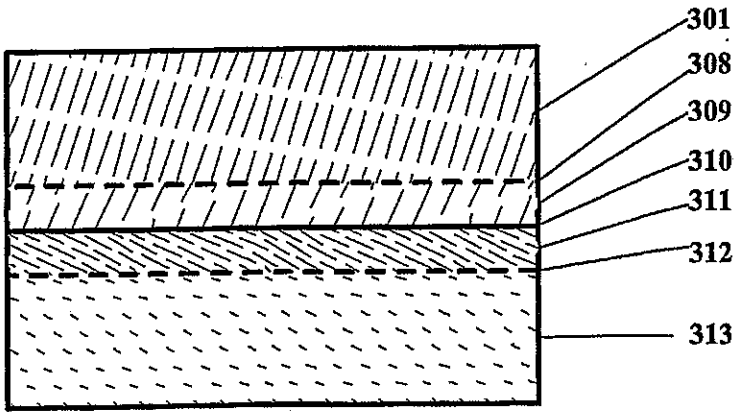
A)



B)



C)



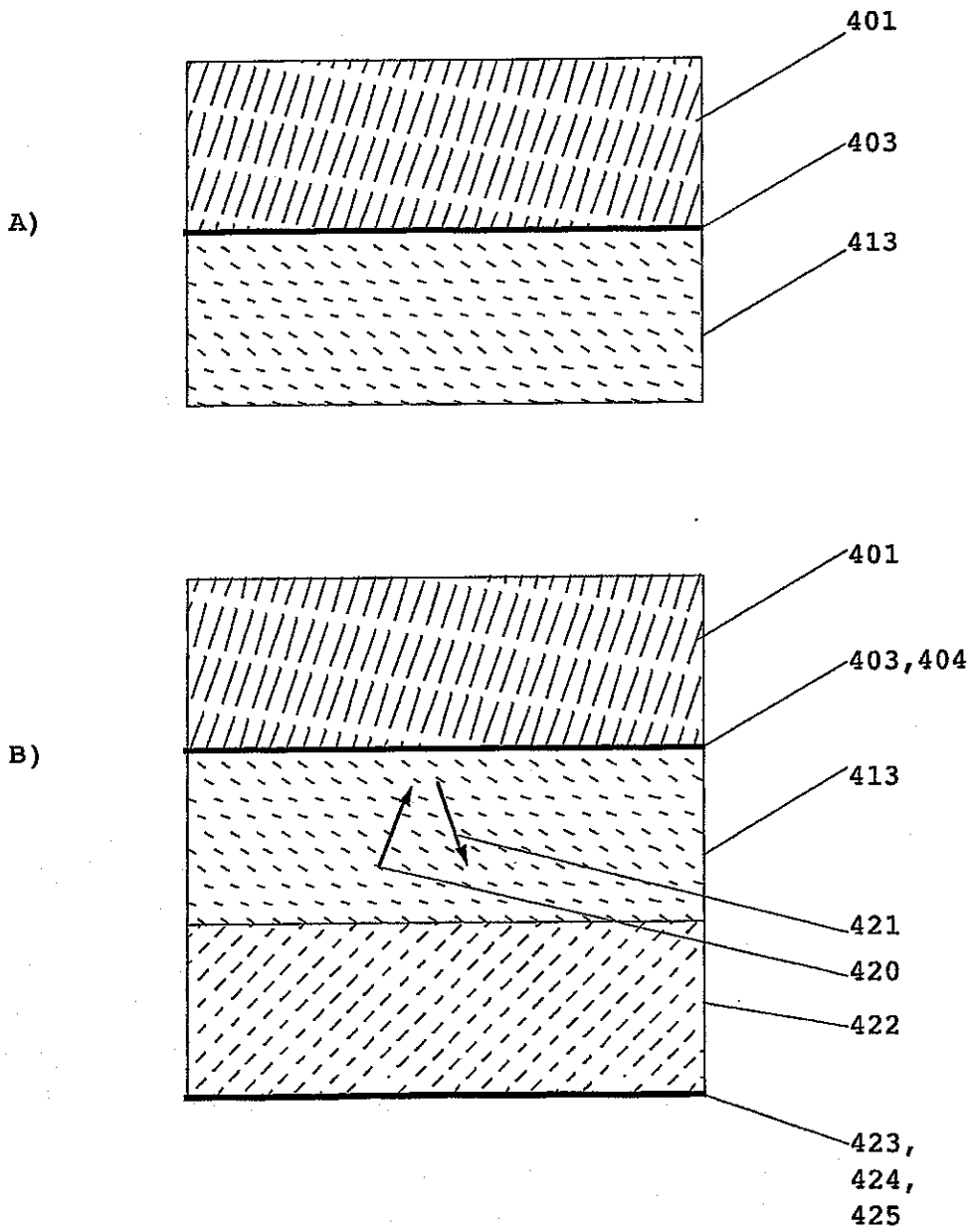


FIG. 4A-B

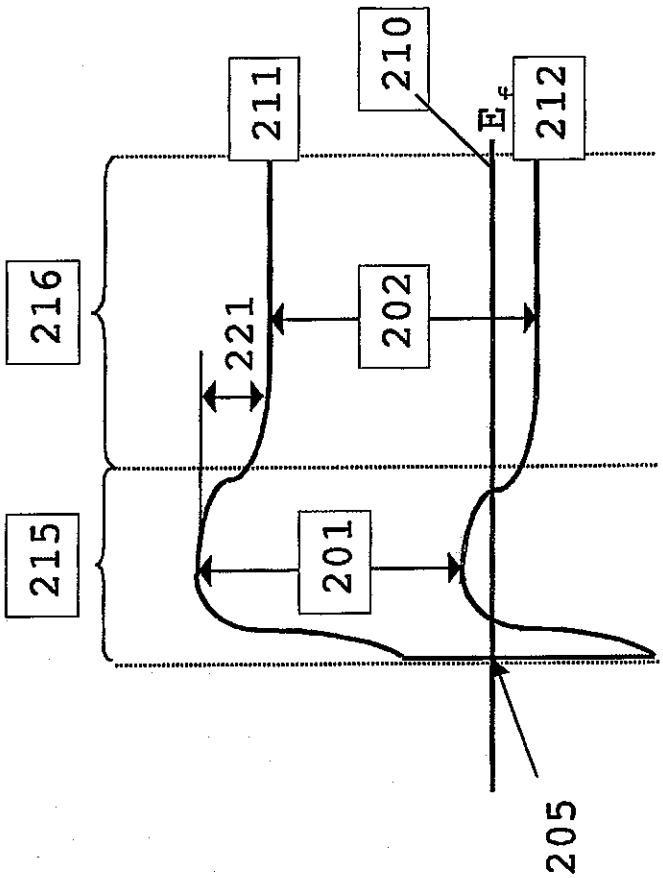
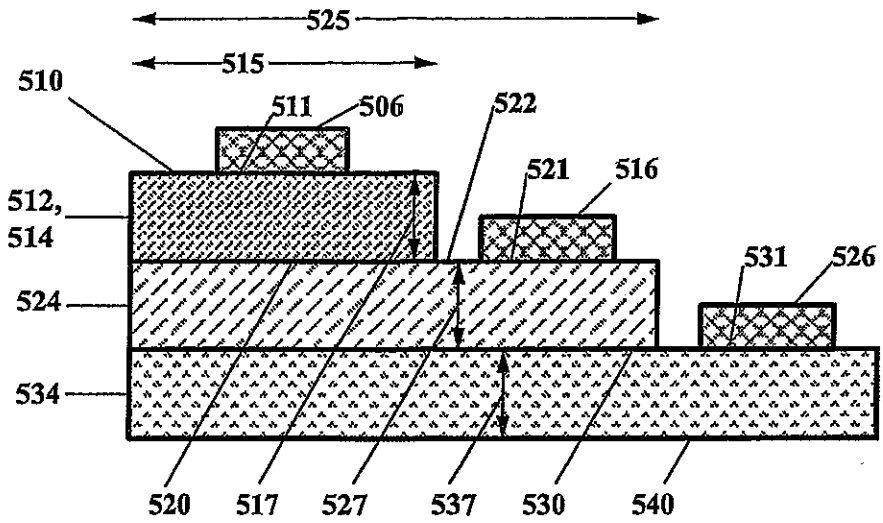


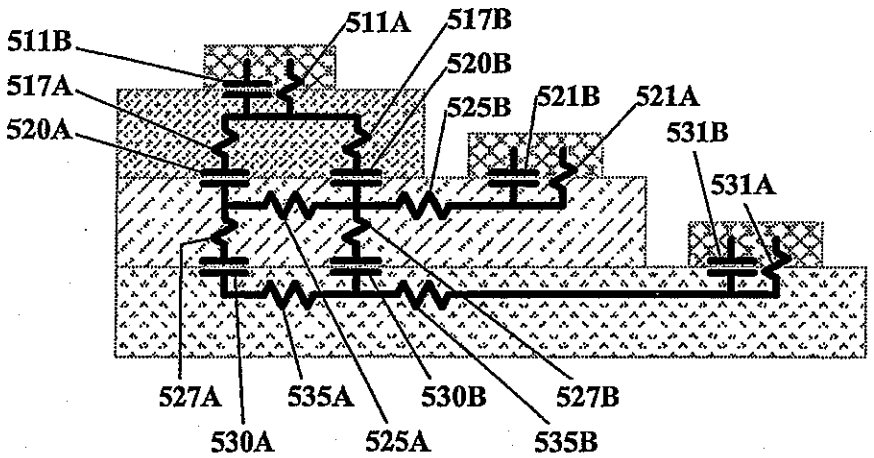
Figure 4C

Figure 5

A)


525
515
510
511
506
522
521
516
512,
514
531
526
524
534
520
517
527
537
530
540

B)


511A
517B
511B
520B
517A
525B
521B
521A
520A
531B
531A
527A
535A
530B
527B
530A
525A
535B

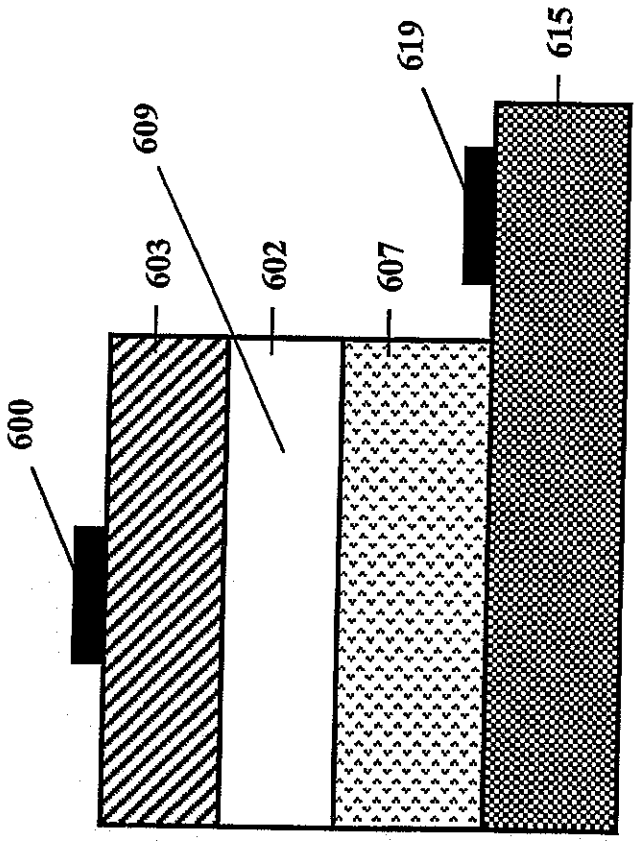


Figure 6A

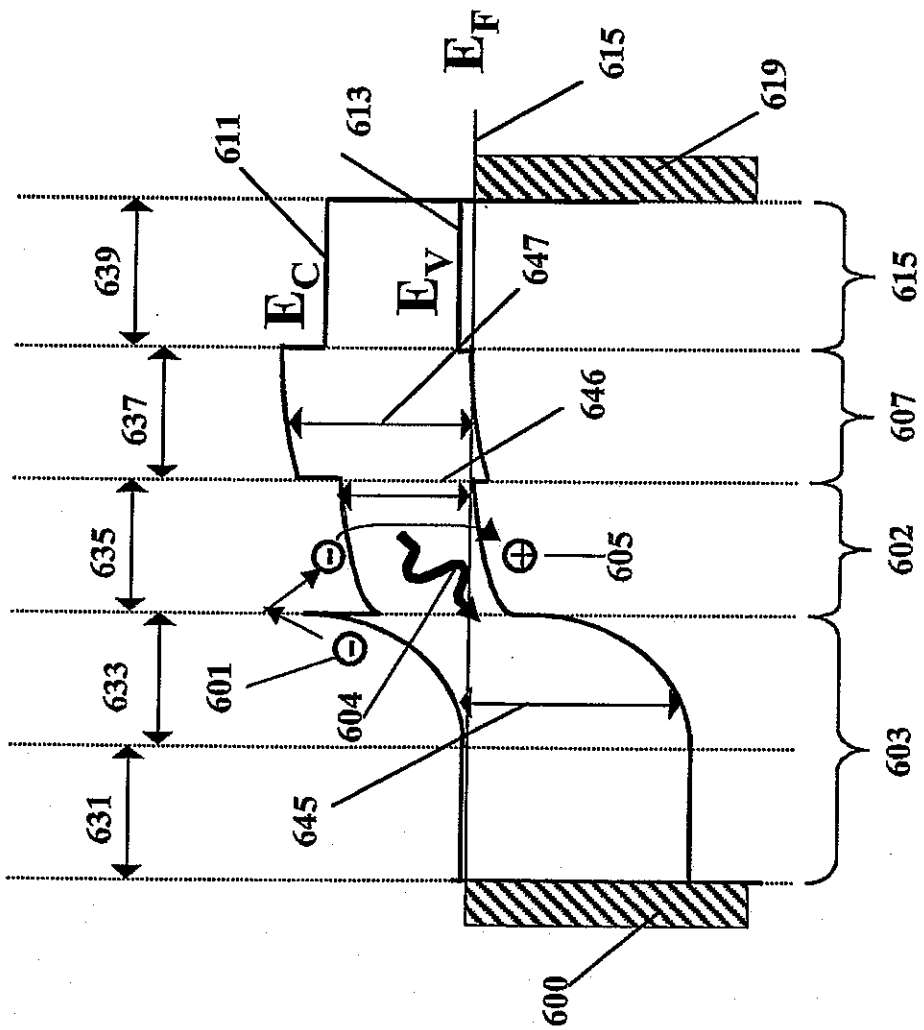

E_F
615
619
611
613
639
E_C
E_V
647
637
646
635
605
633
601
604
645
631
615
607
602
603
600

Figure 6B

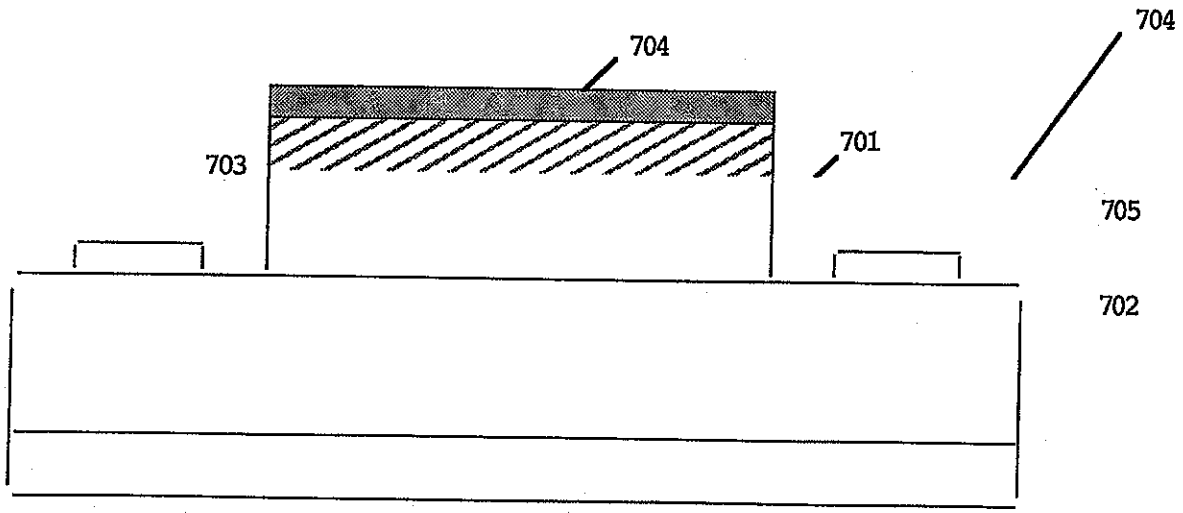


FIG. 7

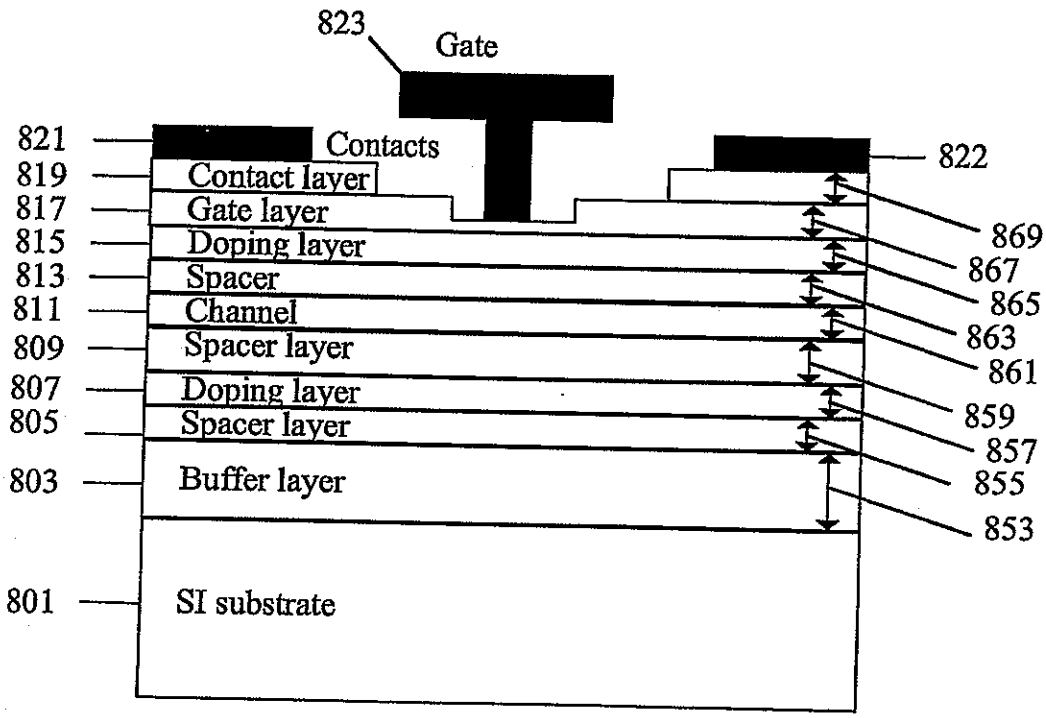

823
Gate
821
Contacts
822
819
Contact layer
817
Gate layer
815
Doping layer
813
Spacer
811
Channel
809
Spacer layer
807
Doping layer
805
Spacer layer
803
Buffer layer
801
SI substrate
869
867
865
863
861
859
857
855
853

FIG. 8A

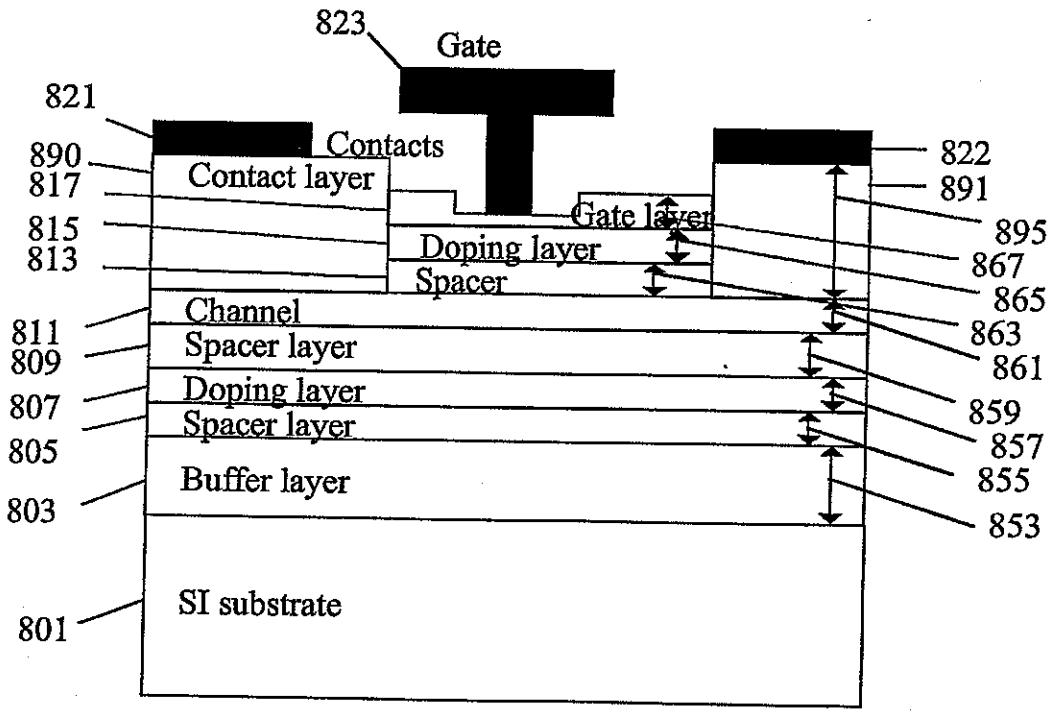

823
Gate
821
Contacts
890
817
Contact layer
815
813
Doping layer
Spacer
Gate layer
822
891
895
867
865
863
861
859
857
855
853
811
Channel
809
Spacer layer
807
Doping layer
805
Spacer layer
803
Buffer layer
801
SI substrate

FIG. 8B