Fig. 1

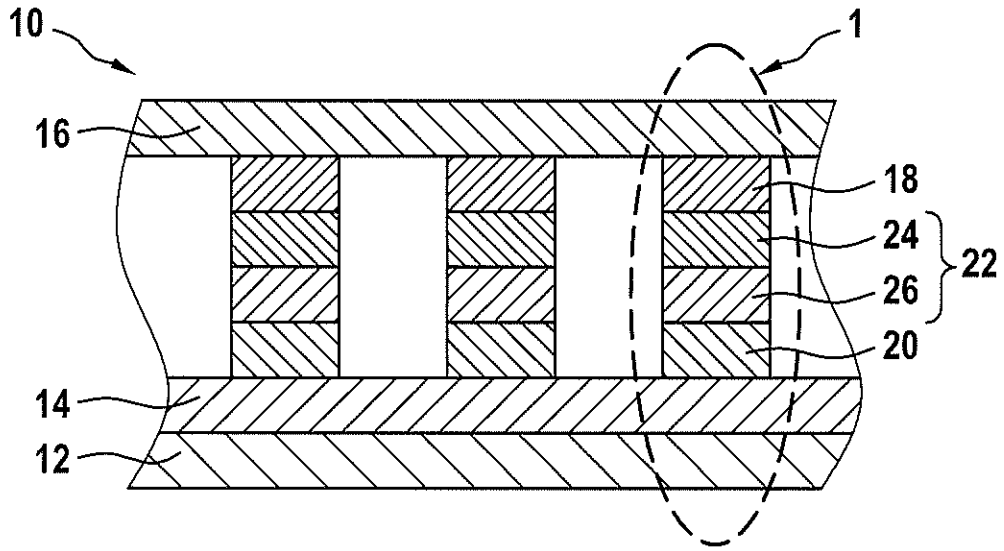


Fig. 2

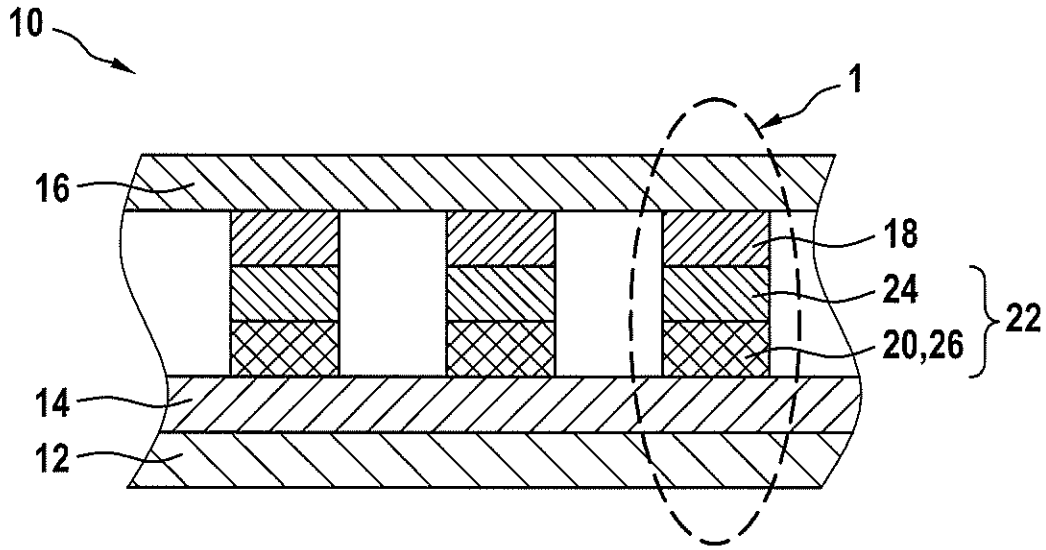


Fig. 3

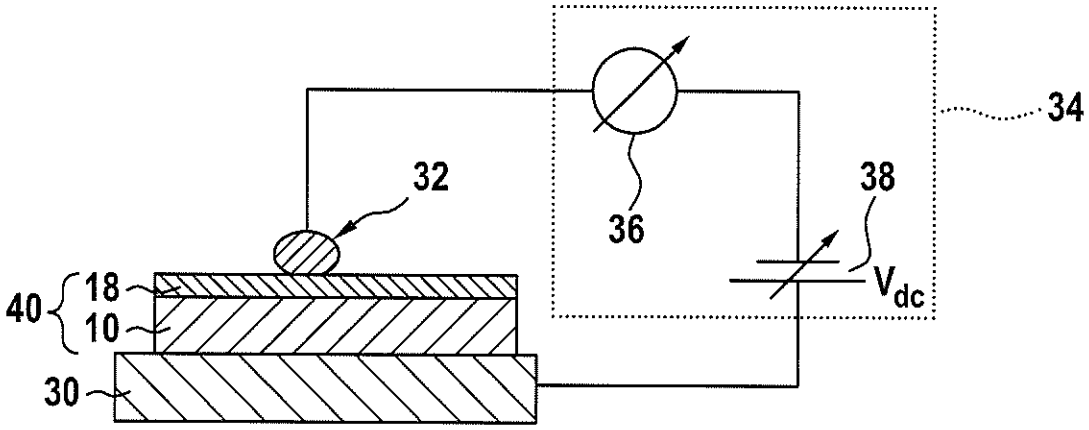


Fig. 4

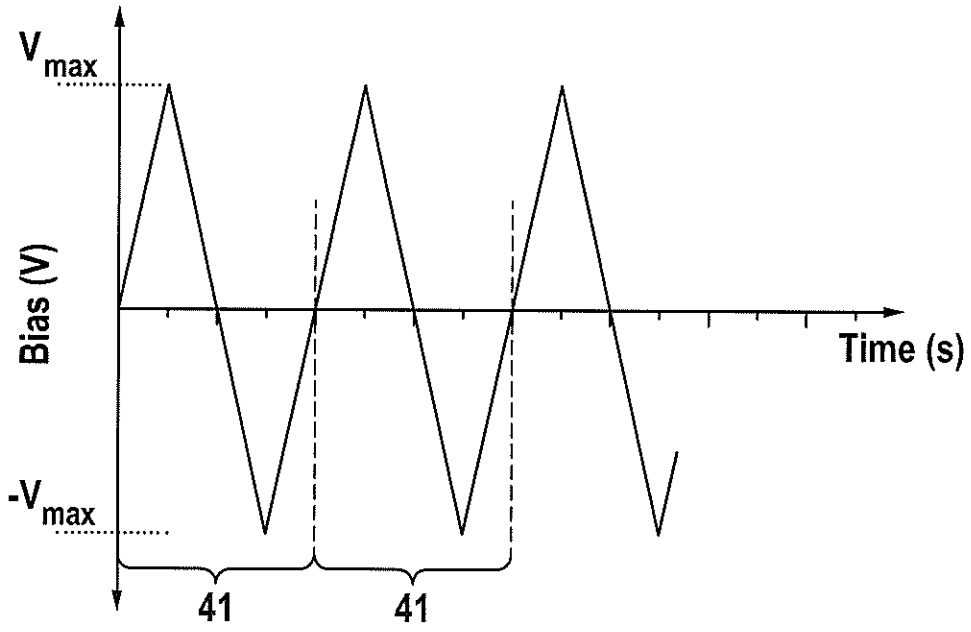


Fig. 5

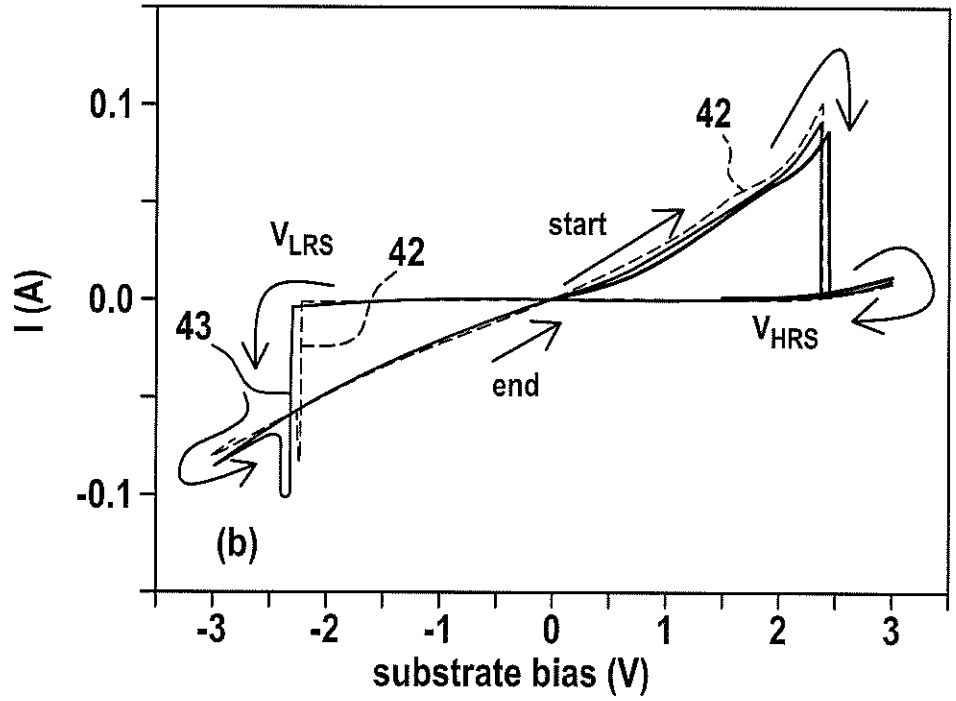


Fig. 6a

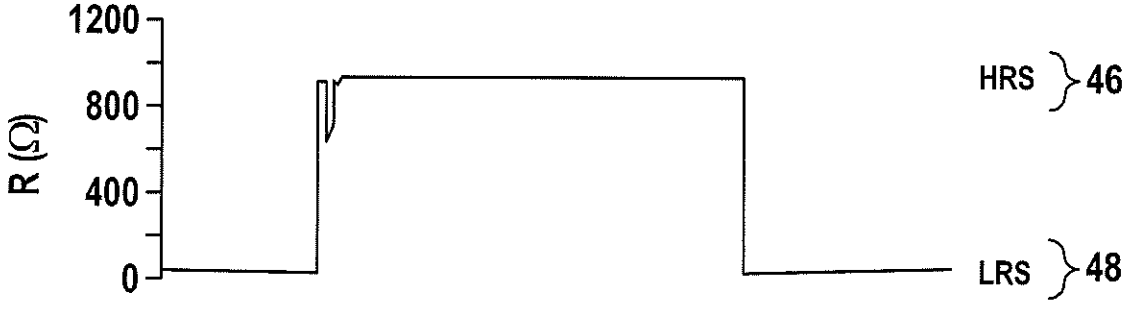


Fig. 6b

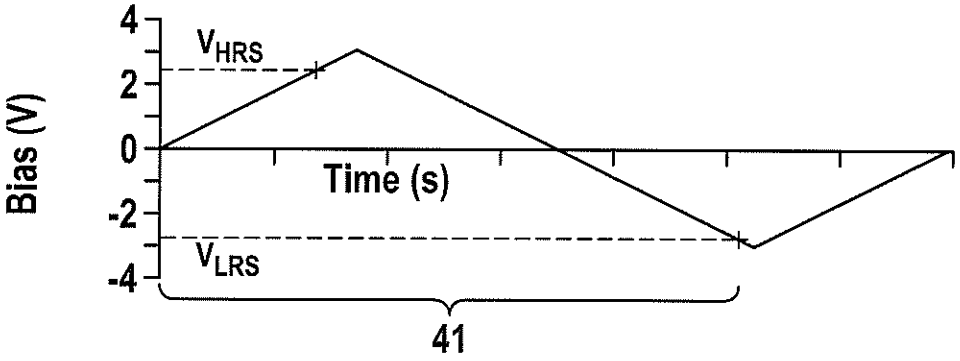


Fig. 7

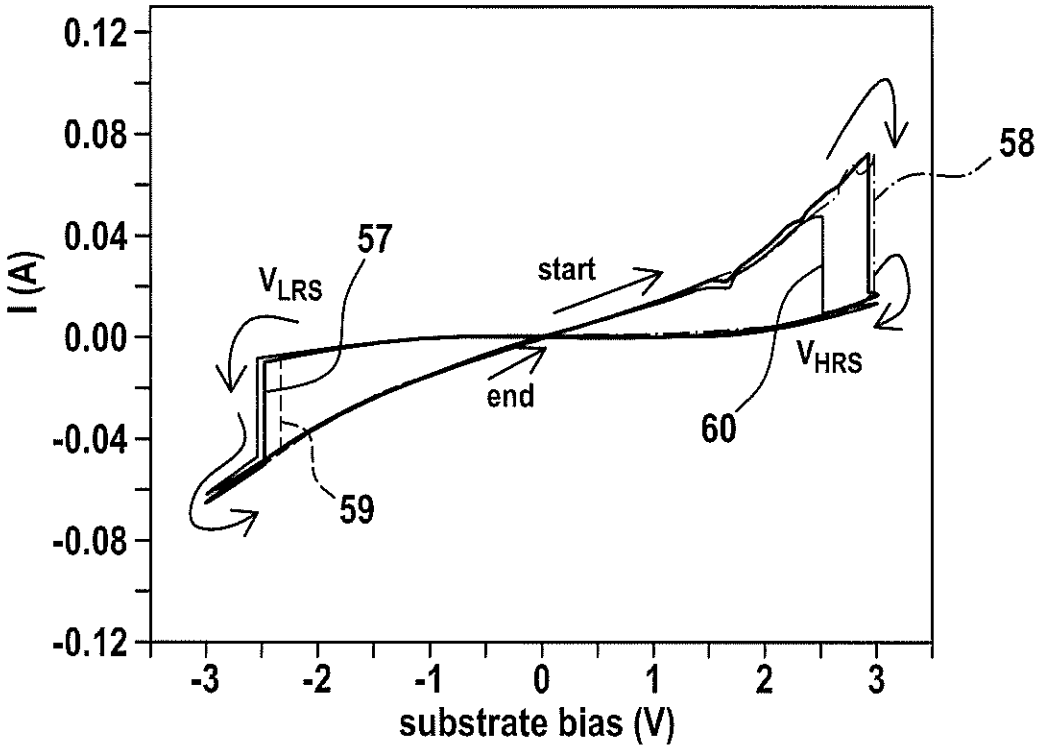

0.12
0.08
0.04
0.00
-0.04
-0.08
-0.12
I (A)
-3
-2
-1
0
1
2
3
substrate bias (V)
58
57
V_{LRS}
start
V_{HRS}
end
60
59

Fig. 8

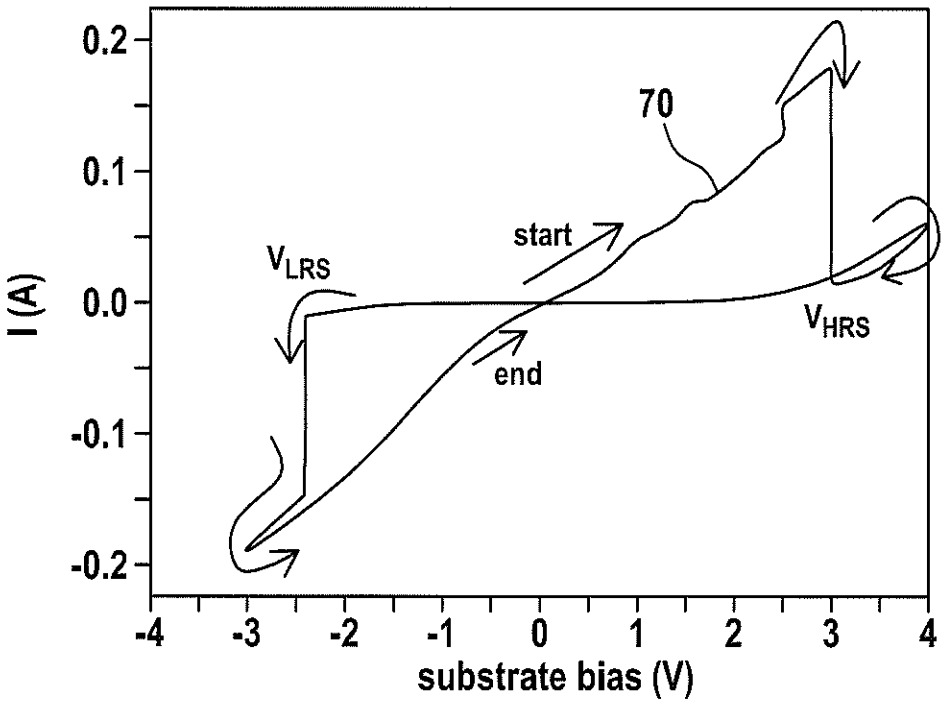

0.2
0.1
0.0
-0.1
-0.2
I (A)
-4
-3
-2
-1
0
1
2
3
4
substrate bias (V)
70
start
V_{LRS}
V_{HRS}
end

Fig. 9

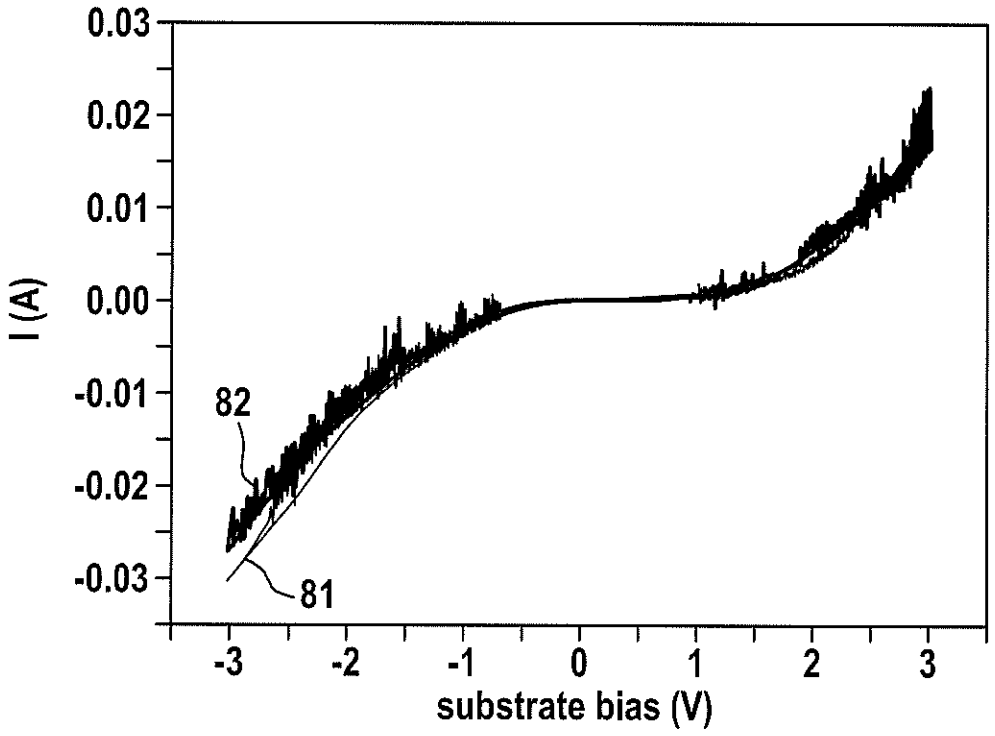
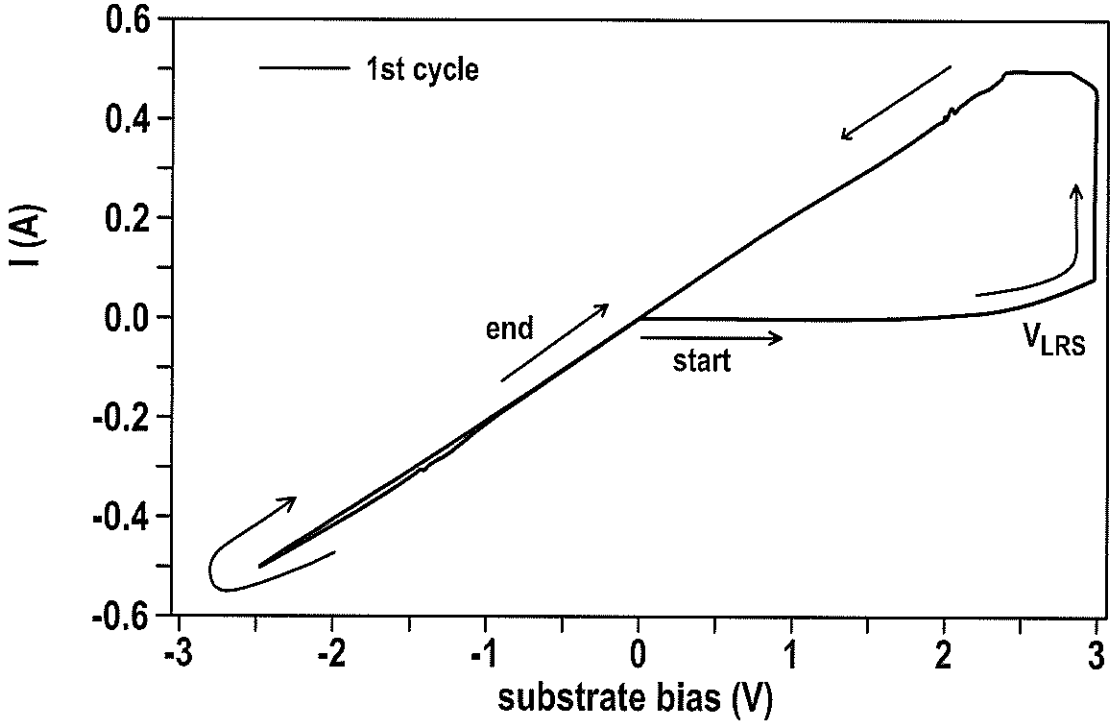

0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
I (A)
82
81
-3
-2
-1
0
1
2
3
substrate bias (V)

Fig. 10


0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
I (A)
1st cycle
end
start
V_{LRS}
-3
-2
-1
0
1
2
3
substrate bias (V)