

FIG. 1

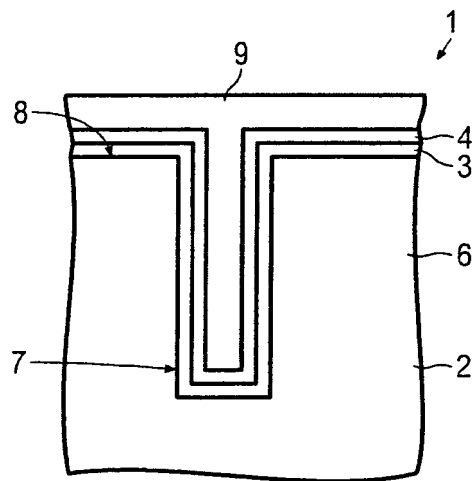
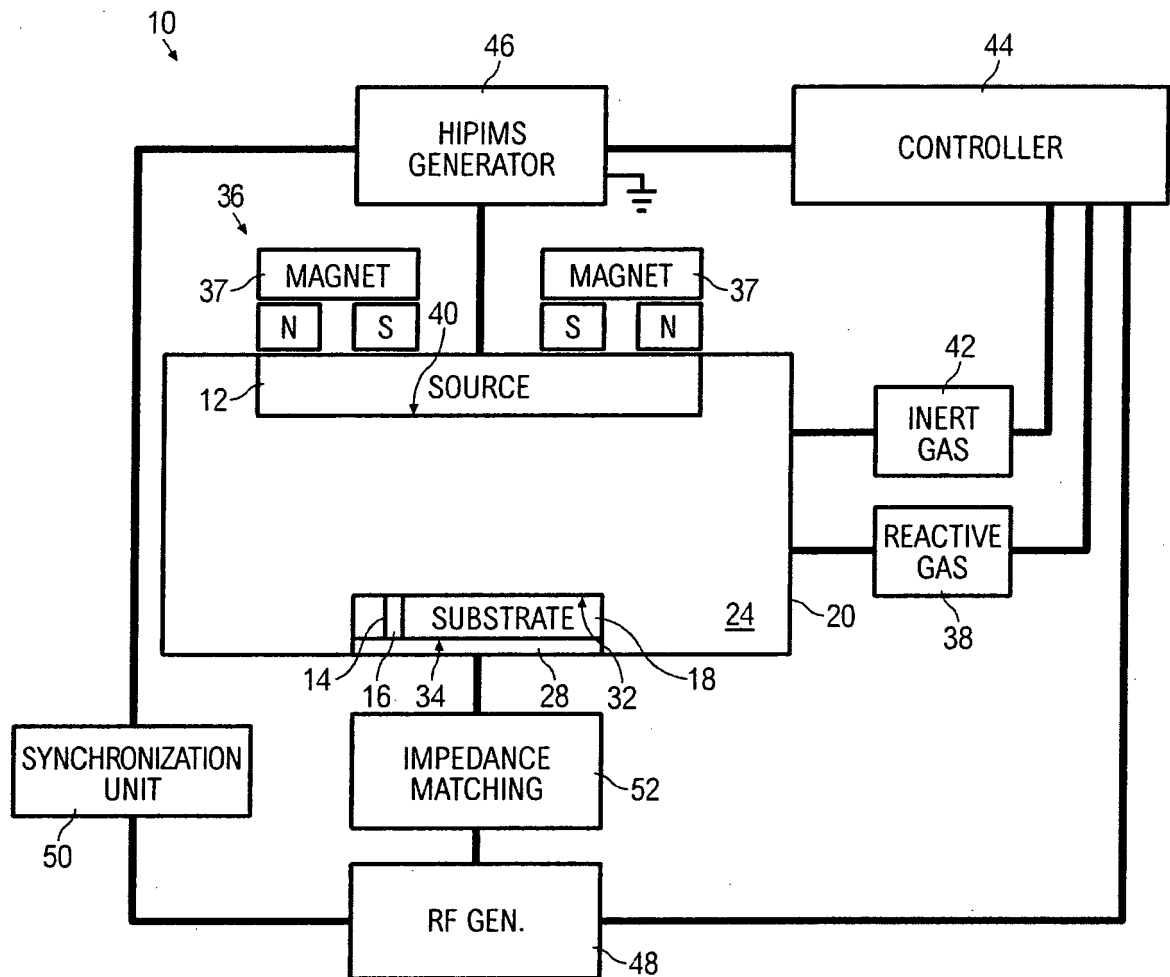
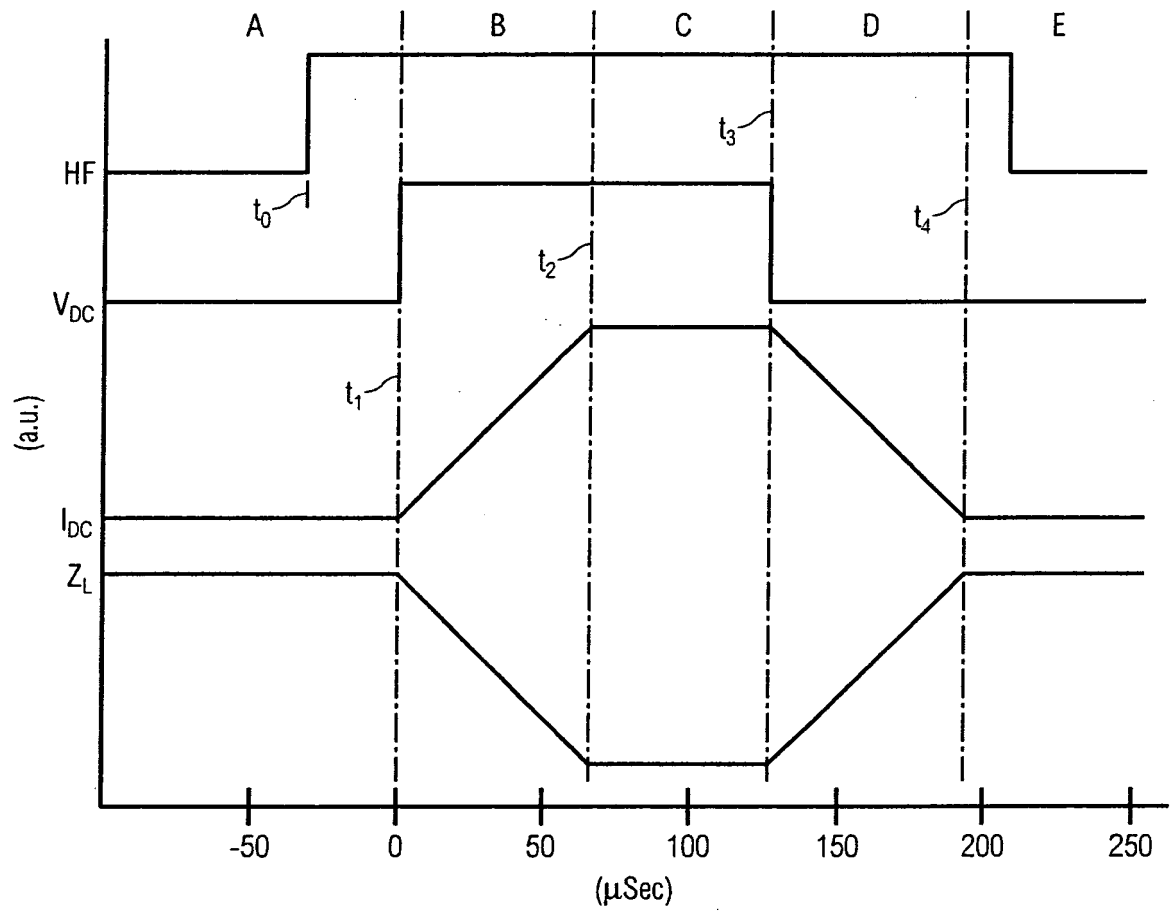
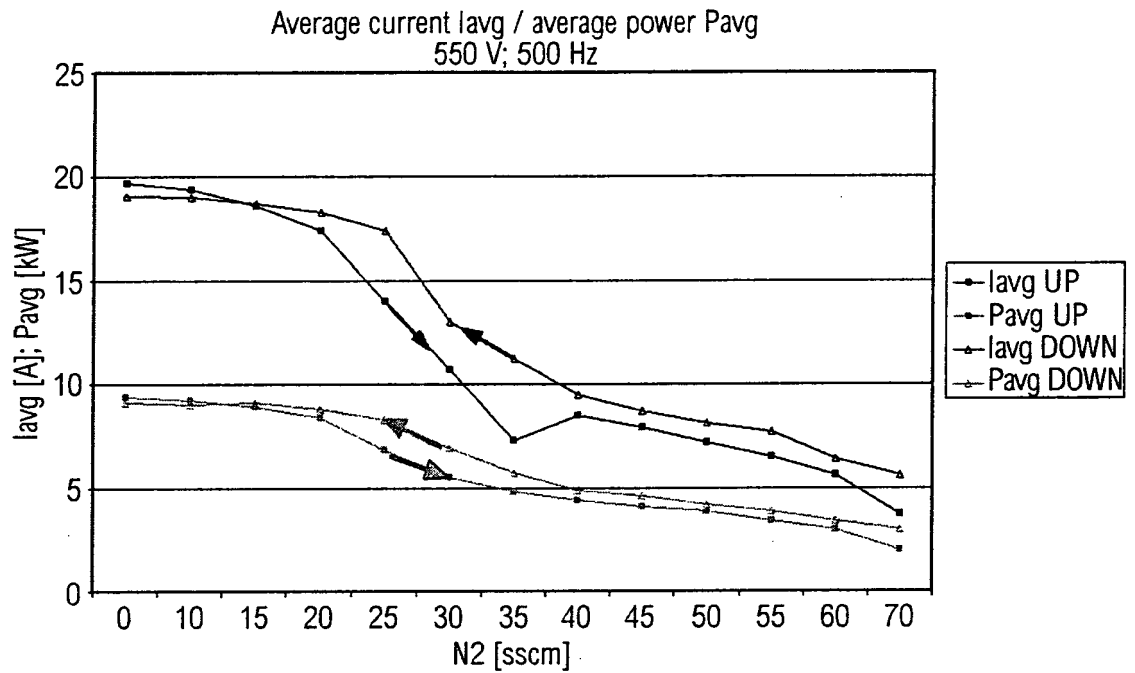
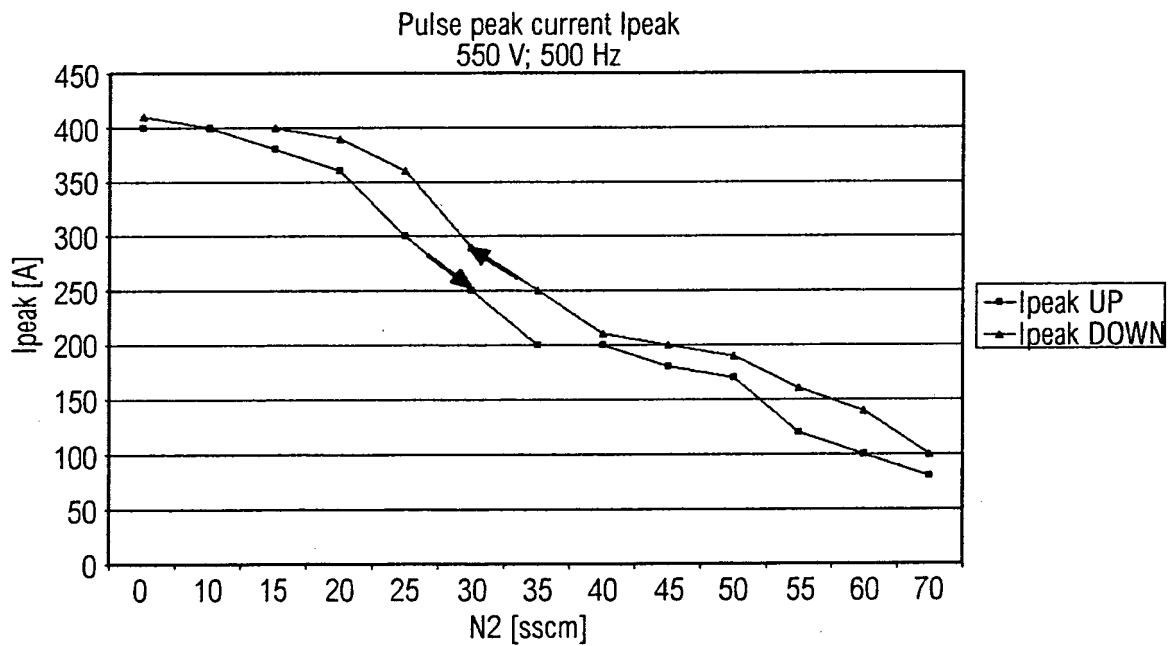
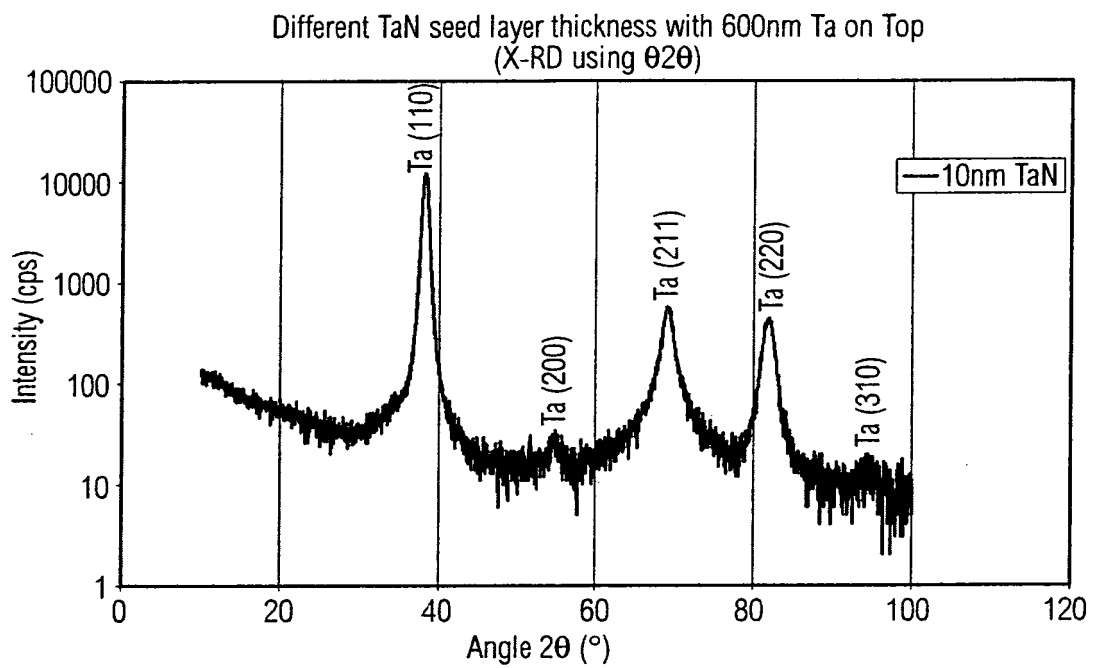
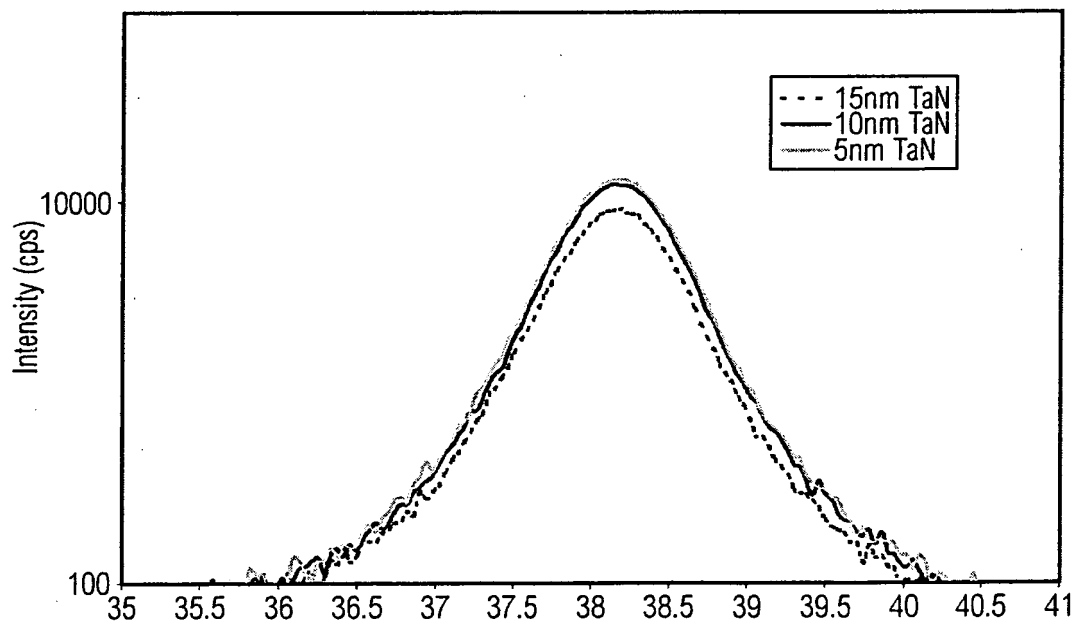


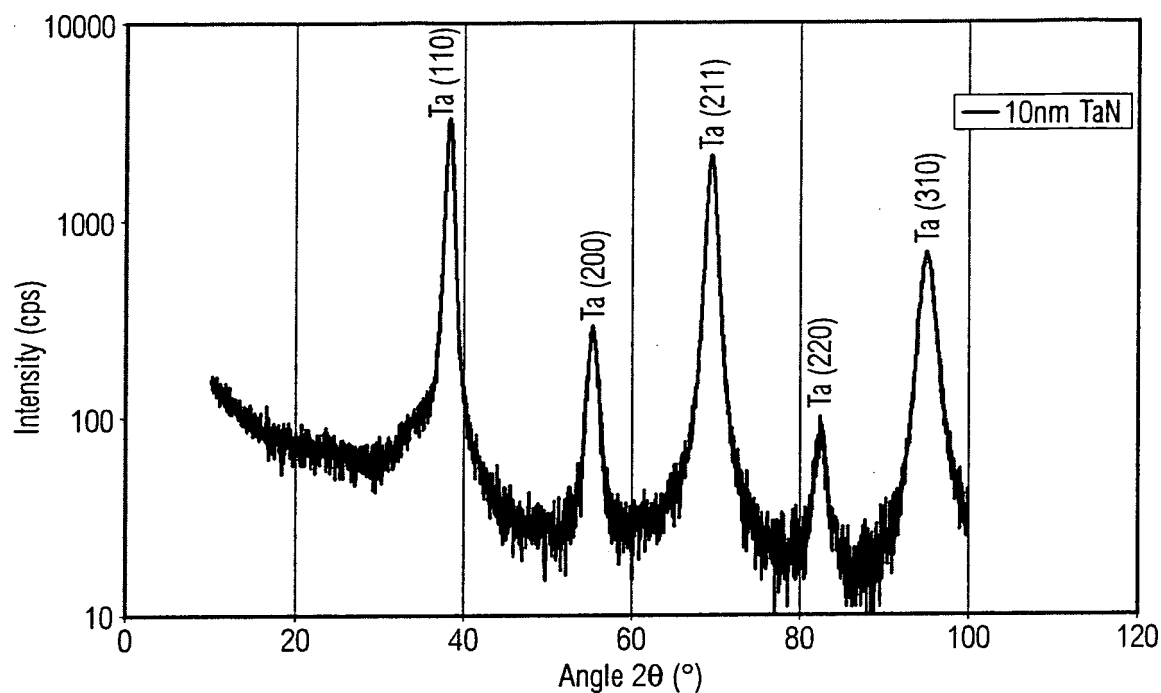
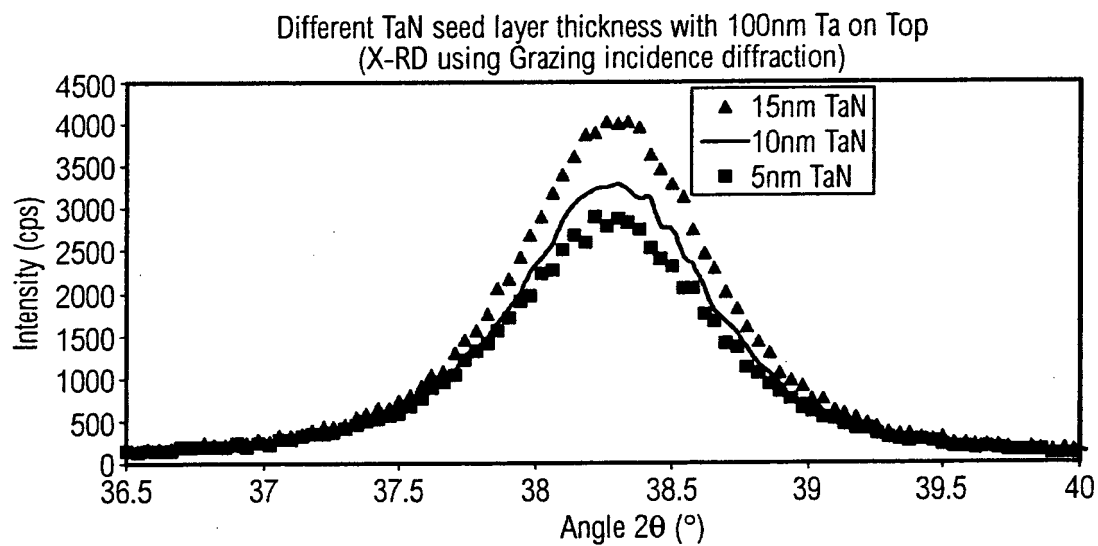
FIG. 2

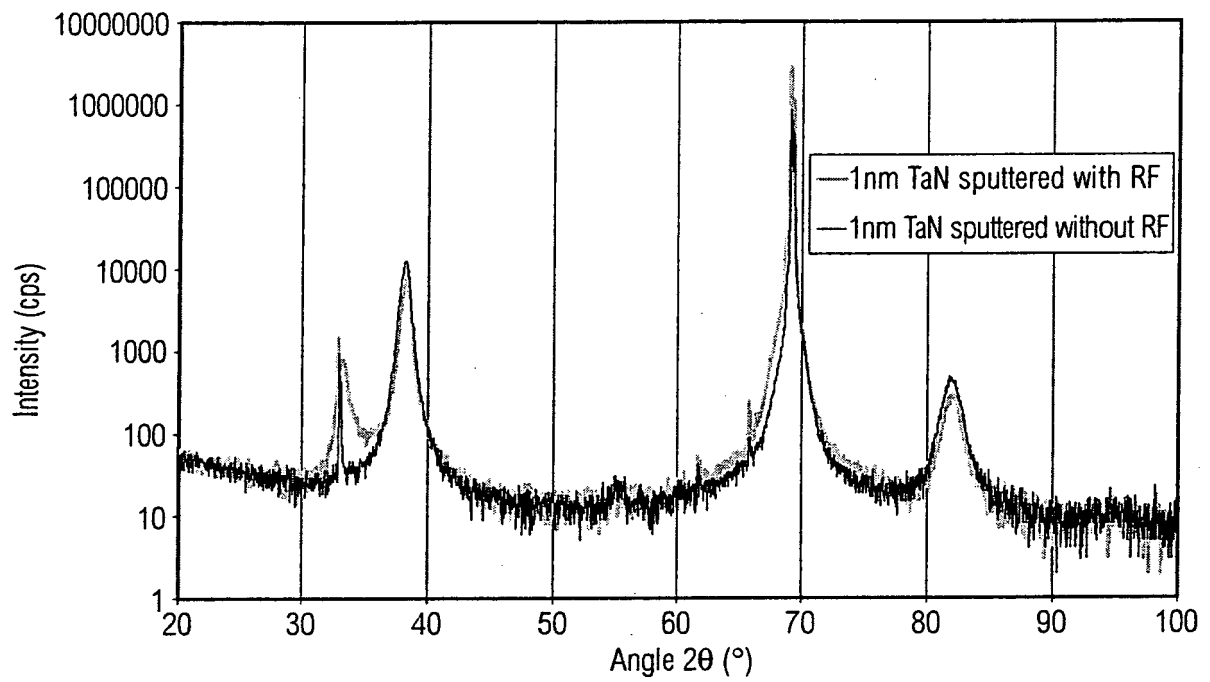
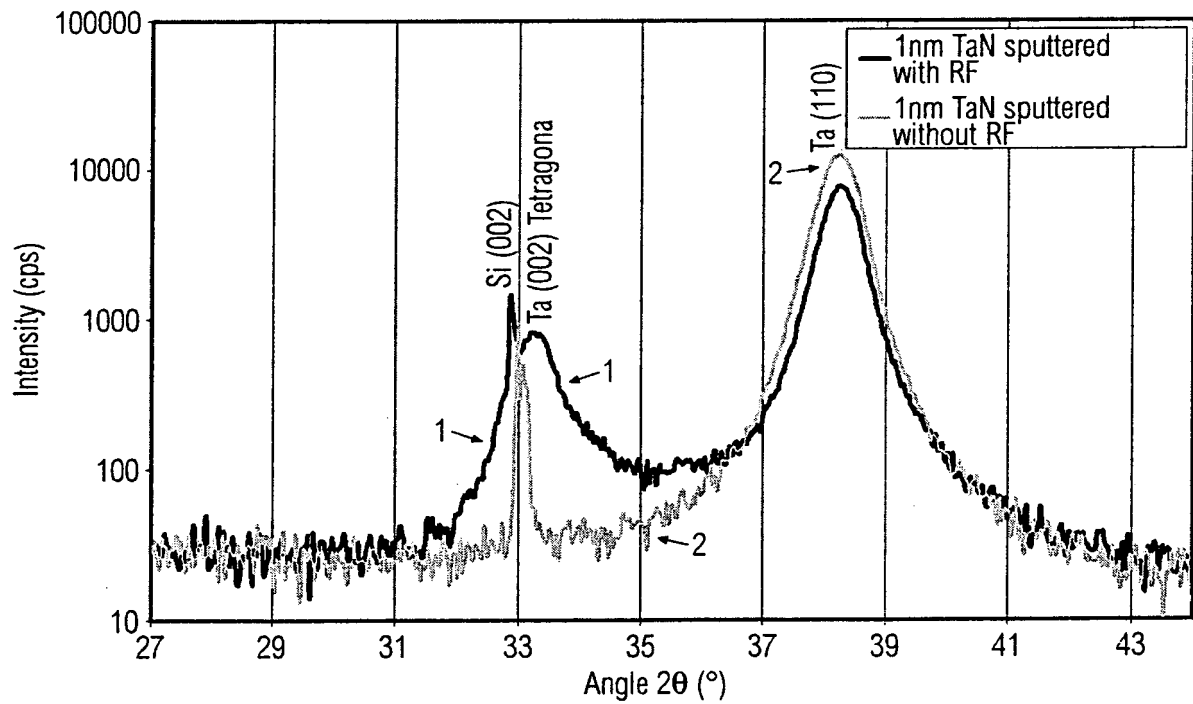
**FIG. 3**

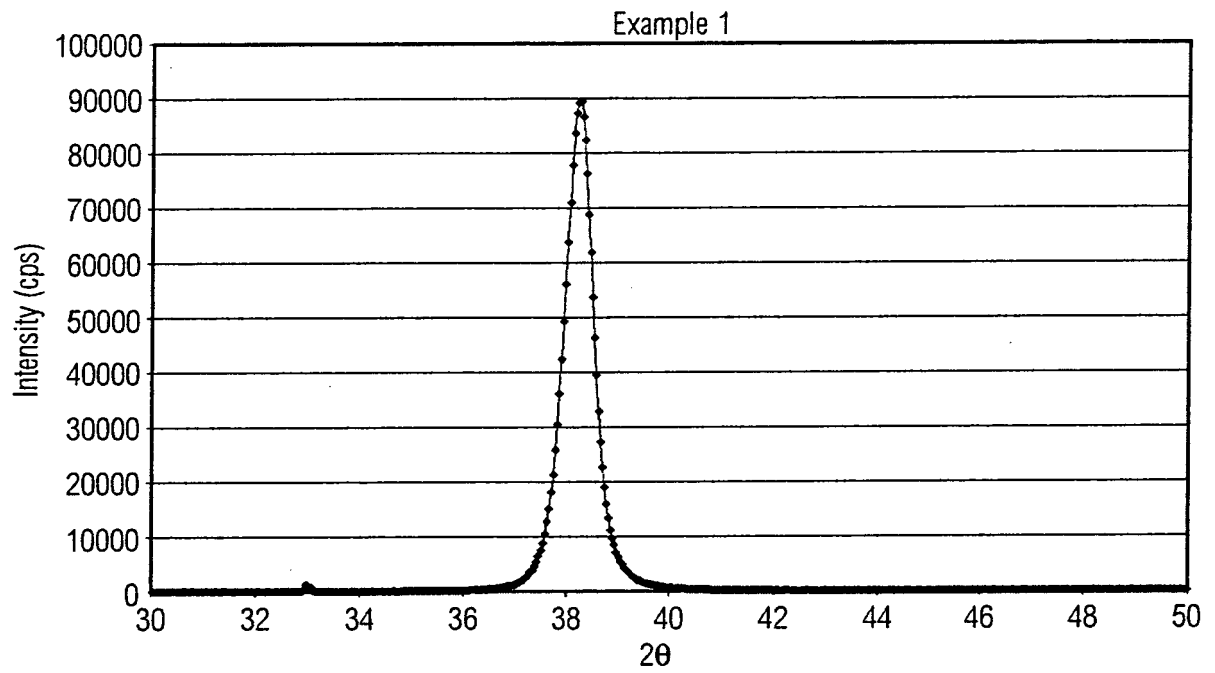
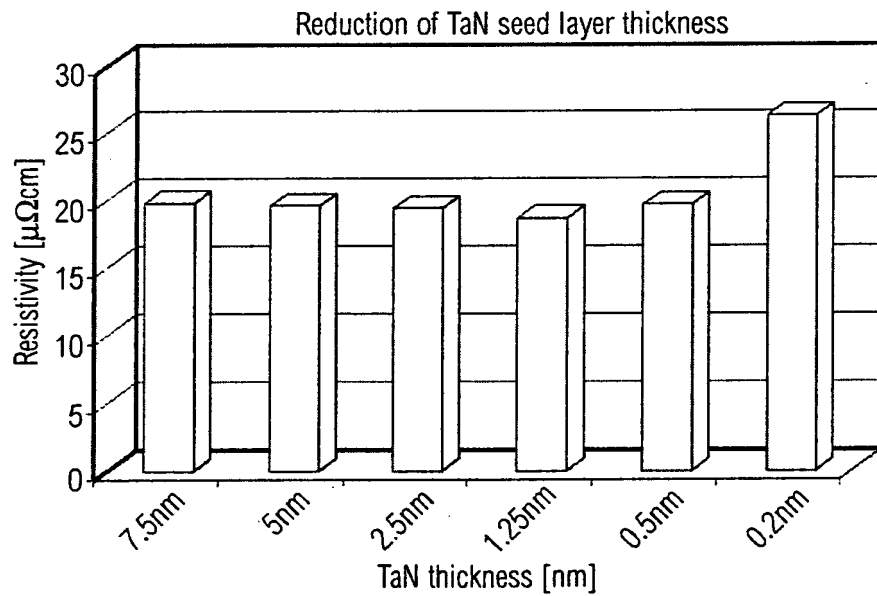
**FIG. 4**

**FIG. 5****FIG. 6**

**FIG. 7****FIG. 8**

**FIG. 9****FIG. 10**

**FIG. 11****FIG. 12**

**FIG. 13****FIG. 14**

	Sputtering Time [s]	Thickness [nm]	Uset [V]	Pavg [kW]	Frequency [Hz]	Pulse Length [μs]	Pulse Peak Current [A]	RF-Bias [V]	N2-Flow [sccm]	Ar-Flow [sccm]	Ar Backgas Flow [sccm]	Specific Resistivity [μΩcm]
TaN	1-15	0.2-20	550-1000	1-8	250-500	20-200	70-600	0-300	45-100	30-150	5-12	18-28
Ta	80-195	600	550-1000	7.8-18.5	250-500	60-200	300-1250	20-300	0	30-150	5-12	

Table 1

	Sputtering Time [s]	Thickness [nm]	Uset [V]	Pavg [kW]	Frequency [Hz]	Pulse Length [μs]	Pulse Peak Current [A]	RF-Bias [V]	N2-Flow [sccm]	Ar-Flow [sccm]	Ar Backgas Flow [sccm]	Specific Resistivity [μΩcm]
TaN	15	19	550	5.1	500	200	100	50	70	100	12	23
Ta	195	580	550	9.5	500	200	380	200	0	100	12	

Table 2

	Sputtering Time [s]	Thickness [nm]	Uset [V]	Pavg [kW]	Frequency [Hz]	Pulse Length [μs]	Pulse Peak Current [A]	RF-Bias [V]	N2-Flow [sccm]	Ar-Flow [sccm]	Ar Backgas Flow [sccm]	Specific Resistivity [μΩcm]
TaN	2	0.2	550	2.6	250	200	80	0	70	100	12	26
Ta	32	100	550	10	500	200	400	110	0	100	12	

Table 3

FIG. 15