Claims

1. A method of forming at least one Metal Germanide contact on a substrate for providing a semiconducting device (100), comprising the steps of

providing a first layer (120) of Germanium (Ge);

providing a second layer of metal; and

reacting the second layer with the first layer with high energy density pulses for obtaining a Germanide metal layer (160A) having a substantially planar interface with the underlying first (Ge) layer, wherein the high energy density pulses are in the range 0.25 to 0.55 J/cm^2 and pulse durations generate a temperature of at least 800^o C.

2. The method according to claim 1, wherein the metal comprises Nickel (Ni).

3. The method according to claim 1, wherein the metal comprises at least one of: Fe, Co, Ni, Pd, Pt, Cu or Yb.

4. The method according to claim 1 wherein the temperature generated is at least 900^o C.

5. The method according to claim 1 wherein the temperature generated is below 1500^o C.

6. The method according to claim 1 wherein the temperature generated is in the range of 930 ^{o} C and 1460 ^{o} C.

7. The method according to claim 1 wherein the pulse length is above 25 nanoseconds.

8. The method according to claim 1 wherein the pulse length is between 50 nanoseconds and 1 microsecond.

9. The method according to claim 8 wherein the pulse length is between 50 nanoseconds and 500 nanoseconds.

10. The method according to claim 1 wherein the first layer is a n-type or p-type wafer (100) having a resistivity greater than 0.001 Ω.cm.

11. The method according to claim 2, wherein the step of providing the second layer of Nickel (Ni) further comprises depositing the Nickel (Ni) material by thermal evaporation.

12. The method according to claim 1, comprising the further step of TLM patterning and dry etching for minimizing leakage currents.

13. The method according to claim 1, wherein the high energy density pulses are provided by a laser source in a laser thermal annealing (LTA) treatment.

14. The method according to claim 13, wherein the LTA treatment is a single-pulse treatment at λ=308 nm, with pulse durations in the range 144 to 165 ns.

15. A semiconductor device manufactured according to the method of claim 1.