CLAIMS

1. A probe card (30) for a testing apparatus of electronic devices, comprising at least one support plate (33), as well as a flexible membrane (32) and a plurality of contact probes (35) in contact with a first face (F1) thereof at a central portion (32A) of said flexible membrane (32), said contact probes (35) being apt to abut onto a plurality of contact pads (34A) of a device under test (34') integrated on a semiconductor wafer (34) and being apt to carry high frequency signals, further comprising at least one contact area (36) wherein first contact pads (36A) are formed on said support plate (33) and second contact pads (36B) are formed on said flexible membrane (32) at a peripheral portion (32C) of said central portion (32A), said flexible membrane (32) being apt to come in pressing contact onto said support plate (33) at said contact area (36), the probe card (30) further comprising at least one pressing element (37) in pressing contact on said peripheral portion (32C) of said flexible membrane (32) at said contact area (36) so as to put in pressing contact said second contact pads (36B) onto said first contact pads (36A) providing an electrical and mechanical contact between the flexible membrane (32) and the support plate (33), said pressing element (37) comprising at least one flexible head (38) apt to abut onto said peripheral portion (32C) of said flexible membrane (32) at a first face (F1) thereof, said flexible head (38) being apt to squeeze under tightening conditions of said pressing element (37) and characterized in that said flexible head (38) has at least one contact face (38C) arranged at said first contact pads (36A) formed on said flexible membrane (32) in a direction (Z) which is orthogonal to a reference plane (π), being a plane of said semiconductor wafer (34) comprising at least one device under test (34') and being shaped so as to further comprise at least one inclined face (38F) with respect to said reference plane (π) so as to stretch said flexible membrane (32) in a first direction (S1) during said tightening and to cause a local sliding of said first contact pads (36A) and second contact pads (36B) of said contact area (36) on each other.

2. The probe card (30) according to claim 1, characterized in that said pressing element (37) further comprises a supporting body (39), associated with said flexible head (38), said supporting body (39) being equipped with at least one step (39H) for an abutment of said flexible head (38) under tightening conditions.

3. The probe card (30) according to claim 2, characterized in that said supporting body (39) further comprises at least one projection (39S) which is apt to abut onto said support plate (33) under tightening conditions of said pressing element (37) and equipped with an opening (39S1) at conductive tracks formed on said support plate (33).

4. The probe card (30) according to claim 1, characterized in that said inclined face (38F) of said flexible head (38) forms with said reference plane (π) an angle (α) with values comprised between 15° and 75°.

5. The probe card (30) according to claim 1, characterized in that said inclined face (38F) of said flexible head (38) forms with said reference plane (π) an angle (α) with a value of 45°.

6. The probe card (30) according to claim 1, characterized in that said flexible head (38) is made of a silicon rubber or of an elastomer.

7. The probe card (30) according to claim 1, characterized in that said pressing element (37) is associated with a guide (45) fastened to said support plate (33) acting as a counter-pressor for said pressing element (37).

8. The probe card (30) according to claim 7, characterized in that it further comprises a tightening pin (45S) arranged between said guide (45) and a supporting body (39) associated with said flexible head (38).

9. The probe card (30) according to claim 1, characterized in that said flexible membrane (32) further comprises at least one pair of wings (32L) formed projecting from a body portion (32') thereof at said first contact pads (36A) and comprising respective housing slots (32S) of alignment pins (44) to retain said flexible membrane (32), said housing slots (32S) having an elongated shape along said first direction (S1) so as to allow a movement of said alignment pins (44) in a second direction (S1') being opposite to said first direction (S1).

10. The probe card (30) according to claim 1, characterized in that said flexible membrane (32) is made of dielectric materials.

11. The probe card (30) according to claim 10, characterized in that said flexible membrane (32) is made of polyamide.

12. The probe card (30) according to claim 1, characterized in that said flexible membrane (32) has a thickness comprised between 10

and 100 μm.

13. The probe card (30) according to claim 12, characterized in that said flexible membrane (32) has a thickness equal to 50 μm.

14. The probe card (30) according to claim 1, characterized in that said contact probes (35) have a height of less than 200 μm.

15. The probe card (30) according to claim 1, characterized in that said support plate (33) is a printed circuit board apt to connect to said testing apparatus.

16. The probe card (30) according to claim 1, characterized in that said flexible membrane (32) comprises conductive tracks (43) extending from said central portion (32A) towards said peripheral portion (32C) at an intermediate portion (32B) of said flexible membrane (32), said conductive tracks connecting said contact probes (35) to said contact pads (36A, 36B) of said contact area (36).

17. The probe card (30) according to claim 16, characterized in that said conductive tracks (43) are formed at a first face (F1) of said flexible membrane (32) and/or at a second and opposed face (F2) of said flexible membrane (32) and/or they are embedded in said flexible membrane (32) possibly on several levels.

18. The probe card (30) according to claim 17, characterized in that said flexible membrane (32) comprises conductive vias for connection between said first and second faces (F1, F2) suited to the passage of said conductive tracks (43) formed on said flexible membrane (32).

19. The probe card (30) according to claim 1, characterized in that said support plate (33) is equipped with openings (33S) for the passage of said flexible membrane (32).

20. The probe card (30) according to claim 1, characterized in that said contact probes (35) are T-shaped.