CLAIMS

1. A sensing structure for a compressive-type pressure sensor, the sensing structure comprising:

an elastic micropatterned substrate defining a plurality of 3-dimensional microstructures, each microstructure comprising a tip portion pointing away from the substrate in a first direction; and

a conductive film on the elastic micropatterned substrate such that the 3-dimensional microstructures are substantially covered by the conductive film, wherein the conductive film comprises cracks in areas on 3-dimensional microstructures;

wherein the conductive film is free from cracks at the tip portions of the 3-dimensional microstructures.

2. The sensing structure of claim 1, wherein the cracks comprise substantially annular cracks in areas on the 3-dimensional microstructures.

3. The sensing structure of claims 1 or 2, further comprising:

electrodes configured to be disposed on the conductive film covered tip portions of the 3-dimensional microstructures for measuring a resistance of a conductive path comprising portions of the conductive film in the areas on the 3-dimensional microstructures when a load is applied to the sensor for deforming the 3-dimensional microstructures in a second direction substantially opposite to the first direction.

4. The sensing structure of claim 3, wherein the electrodes are formed on an electrode substrate.

5. The sensing structure of claim 3 or 4, wherein the electrodes comprise flexible electrodes.

6. The sensing structure of claim 5, wherein the flexible electrodes are formed on a flexible electrode substrate.

7. A method of fabricating a sensing structure for a compressive-type pressure sensor, the method comprising the steps of:

providing an elastic micropatterned substrate defining a plurality of 3-dimensional microstructures, each microstructure comprising a tip portion pointing away from the substrate in a first direction;

forming a conductive film on the elastic micropatterned substrate such that the 3-dimensional microstructures are substantially covered by the conductive film; and

forming cracks in the conductive film in areas on 3-dimensional microstructures;

wherein the method comprises providing a soft cushioning material between a rigid substrate and the conductive film covered 3-dimensional microstructures during the applying of the load.

8. The method of claim 7, wherein forming the cracks comprises providing a rigid substrate on the conductive film covered 3-dimensional microstructures and applying a load to the 3-dimensional microstructures via the rigid substrate.

9. The method of claims 7 or 8, wherein forming the cracks comprises forming substantially annular cracks in areas on the 3-dimensional microstructures.

10. The method of any one of claims 7 to 9, wherein forming the cracks comprises leaving the conductive film free from cracks at the tip portions of the 3-dimensional microstructures.

11. The method of any one of claims 7 to 10, further comprising:

disposing electrodes on the conductive film covered tip portions of the 3-dimensional microstructures for measuring a resistance of a conductive path comprising portions of the conductive film in the areas on the 3-dimensional microstructures when a load is applied to the sensor for deforming the 3-dimensional microstructures in a second direction substantially opposite to the first direction.

12. The method of claim 11, comprising forming the electrodes on an electrode substrate.

13. The method of claims 11 or 12, wherein the electrodes comprise flexible electrodes.

14. The method of claim 13, comprising forming the flexible electrodes on a flexible electrode substrate.