CLAIMS

1. A microbattery, comprising:

a microbattery structure formed in a stack, the stack comprising multiple surfaces fashioned using multiple layers, the multiple layers including a substrate layer and a cover plate layer, a face side of the multiple surfaces being a surface of the substrate layer, a second side of the multiple surfaces being a surface of the cover plate layer, the face and second sides on opposite sides of the stack, and side surfaces of the multiple surfaces being opposite edges of the stack spanning between the surfaces of the first and second layers;

a first terminal on the face side and coupled to an anode of a battery in the microbattery structure;

a second terminal on the face side and coupled to a cathode of the battery in the microbattery structure; and

a metal-containing film covering the side surfaces, at least a portion of the second surface adjacent the edges, and a portion of the face layer of the stack but not covering the first or second terminals.

2. The microbattery of claim 1, wherein the metal-containing film comprises solder.

3. The microbattery of claim 1, wherein:

the stack comprises layers of the substrate, a polymer, and the cover plate, and the second side is completely covered by the metal-containing film;

the stack has a length between the face and second sides and the layers are parallel along the length;

the metal-containing film comprises a metal;

a solder film covers surfaces of the metal-containing film; and

the substrate on the face side has part of its surface not covered by the metal-containing film or the solder film, the part comprising the first and second terminals.

4. The microbattery of claim 1, wherein:

the stack comprises layers of the substrate, a polymer, and the cover plate, and the second side is completely covered by the metal containing film;

the stack has a length between the face and second sides and the layers are parallel along the length;

the metal-containing film comprises a metal;

a solder film covers surfaces of the metal-containing film;

a polymer covers surfaces of the solder film;

the substrate on the face side is at least partly covered with adhesive, and the part covered with adhesive on the face side comprises the first and second terminals coupled to through-vias that extend through the substrate layer;

a polymer film covers surfaces of the solder film and a surface of the adhesive opposite a surface of the adhesive that covers the substrate; and

openings are formed in the polymer film to uncover at least a portion of corresponding terminals.

5. The microbattery of claim 4, wherein the openings are filled with a conductor.

6. The microbattery of claim 1, wherein:

the stack comprises layers of the substrate, a polymer, and the cover plate, and the second side is completely covered by the metal-containing film;

the stack has a length between the two sides and the layers are parallel along the length;

the metal-containing film comprises solder; and

the metal-containing film covers the portion of the substrate and a rest of the substrate has a surface not covered by the metal-containing film and including the first and second terminals.

7. The microbattery of claim 1, wherein a thickness of the microbattery ranges in thickness from 0.01 mm to 1 mm.

8. The microbattery of claim 1, wherein the metal-containing film covering the portion of the face side, but not the first or second terminals, covers parts of the first side adjacent the edges.

9. The microbattery of claim 8, wherein the metal-containing film covering the portion of the face side, but not the first or second terminals, is contiguous around corners of the side surfaces from the side surfaces to the parts of the face side that are covered and that are adjacent the edges.

10. The microbattery of claim 1, wherein the metal-containing film covering the at least a portion of the second side adjacent the edges is contiguous around corners of the second side from the side surfaces to the parts of the second side that are covered and that are adjacent the edges.

11. The microbattery of claim 1, wherein the second side has a part, not covered by the metal-containing film, that comprises adhesive.

12. The microbattery of claim 11, herein the metal-containing film covering the portion of the face side, but not the first and second terminals, covers parts of the first side adjacent the edges, wherein the face side has a part, not covered by the metal-containing film, that comprises adhesive and contains the first or second terminals.