CLAIMS

1. A contact unit (40) for an electronic or electrochemical device such as a battery (1), intended to provide the electrical contact with an external conductive element, said electronic or electrochemical device comprising a contact surface (51) defining an electrical connection area (50), characterized in that the contact unit (40) comprises a first layer (41), intended to be disposed on at least the electrical connection area (50), this first layer (41) comprising a material filled with graphite.

2. The contact unit (40) according to claim 1, comprising a second layer (42, 42’) consisting of a metal foil or comprising metallic copper, disposed on a first layer of material filled with electrically conductive particles.

3. The contact unit (40) according to claim 2, comprising a third layer (43) comprising pure tin and/or pure zinc and/or a tin-metal alloy, disposed on the second layer (42, 42’).

4. The contact unit (40) according to claim 3, wherein the metal of the tin-metal alloy is selected from zinc, lead, palladium, gold, copper and a mixture thereof.

5. The contact unit (40) according to claim 3 or claim 4, comprising a fourth layer (44) of pure tin or a fourth layer of an alloy comprising silver, palladium and copper, disposed on the third layer (43).

6. The contact unit according to any one of claims 2 to 5, characterized in that the metal foil is selected from

aluminum foils, copper foils, titanium foils, molybdenum foils, stainless steel foils and foils comprising metallic copper.

7. An electronic or electrochemical device including at least one contact unit (40) according to any one of claims 1 to 6.

8. The electronic or electrochemical device according to claim 7, wherein said electronic or electrochemical device is selected from a group consisting of a capacitor, a battery (1) and a lithium-ion battery.

9. A method for manufacturing at least one contact unit (40) of an electronic or electrochemical device such as a battery (1), comprising:
a. providing an electronic or electrochemical device, said electronic or electrochemical device comprising a contact surface (51) defining an electrical connection area (50),
b. depositing on at least the electrical connection area (50), preferably on at least the contact surface (51), a first layer (41) comprising a graphite.

10. The method according to claim 9, further comprising, after step b), when said first layer is formed from polymer resin and/or a material obtained by a sol-gel process filled with graphite, a drying step followed by a step of polymerizing said polymer resin and/or of said material obtained by a sol-gel process.

11. The method according to claim 9, further comprising, after step b),

c. depositing, on the first layer (41), a metal foil, or an ink, preferably by dipping, including copper in the form of organocopper compounds or particles, preferably copper nanoparticles, and

d. heat treating at least the second layer deposited in order to obtain a conductive layer (42, 42’).

12. The method according to claim 10, further comprising, after the polymerization step,

c. depositing, on the first layer (41), a metal foil, or an ink, preferably by dipping, including copper in the form of organocopper compounds or particles, preferably copper nanoparticles, and

d. heat treating at least the second layer deposited in order to obtain a conductive layer (42, 42’).

13. The method according to claim 11, wherein the method further comprises, after step d), on at least the electrical connection area (50) of the electronic or electrochemical device, coated with the first and the second layer, a step e) of depositing pure tin and/or zinc and/or a tin-metal alloy wherein the metal is selected from zinc, lead, palladium, gold, copper and a mixture thereof.

14. The method according to claim 13, wherein the method further comprises, after step e), on at least the electrical connection area (50) of the electronic or electrochemical device, coated with the first, with the second layer and with the third layer, a step f) of depositing a layer of pure tin by electrodeposition or of a layer of an alloy comprising silver, palladium and copper.

15. The method according to any one of claims 11 to 14, characterized in that the metal foil is selected from aluminum foils, copper foils, titanium foils, molybdenum foils, stainless steel foils and foils comprising metallic copper.