

Listing of Embodiments

A. A method for making an electronic assembly, including:

applying a protective layer including an organosulfur compound to at least a portion of a patterned conductive interconnect circuit, wherein the patterned conductive interconnect circuit is electrically connected to a conductive layer on a substrate, and wherein the conductive layer comprises nanowires; and

engaging an electrical contact of an electronic component with the protective layer to electrically connect the electronic component with the conductive layer, wherein one of the following conditions applies: (a) the protective layer is sufficiently thin to allow an electrical signal to propagate across the protective layer to the patterned conductive interconnect circuit; (b) the electrical contact penetrates the protective layer and directly engages the patterned conductive interconnect circuit; or (c) the electrical contact engages a layer of a conductive material applied to the patterned conductive interconnect circuit.

B. The method of embodiment A, wherein the organosulfur compound is selected from at least one of alkyl thiols and aryl thiols.

C. The method of any of embodiments A-B, wherein the organosulfur compound is an alkyl thiol.

D. The method of any of embodiments A-C, wherein the patterned conductive layer is transparent.

E. A method, including:

coating a substrate with a conductive layer including nanowires;

applying a pattern of a conductive interconnect material on the conductive layer to generate on the substrate one or more first regions of exposed conductive layer and one or more second regions of conductive interconnect material;

hardening or curing the conductive interconnect material to form a patterned interconnect circuit;

applying on at least a portion of the patterned interconnect circuit a protective layer forming composition including an organosulfur compound;

overcoating the patterned interconnect circuit and the protective layer forming composition with a liquid strippable polymer layer-forming composition;

hardening or curing the strippable polymer layer-forming composition to form a strippable polymer layer;

peeling the strippable polymer layer from the substrate; and

removing the exposed conductive layer from the substrate in the one or more first regions of the substrate to form a patterned conductive layer on the substrate, wherein the patterned conductive layer is at least partially overlain by the patterned interconnect

circuit, and the patterned interconnect circuit is at least partially overlain by the protective layer.

F. The method of embodiment E, further including drying the protective layer-forming composition to form a protective layer prior to overcoating with the strippable polymer layer forming composition.

G. A method, including:

coating a substrate with a conductive layer including nanowires;

applying a pattern on the conductive layer with a conductive interconnect material to generate on the substrate one or more first regions of exposed conductive layer and one or more second regions of conductive interconnect material;

hardening or curing the conductive interconnect material to form a patterned interconnect circuit;

overcoating the pattern with a liquid strippable polymer layer-forming composition, wherein the strippable polymer layer-forming composition includes an organosulfur compound;

hardening or curing the strippable polymer layer-forming composition to form a strippable polymer layer;

peeling the strippable polymer layer from the substrate; and

removing the exposed conductive layer from the substrate in the one or more first regions of the substrate to form a patterned conductive layer on the substrate, wherein the patterned conductive layer is at least partially overlain by the patterned interconnect circuit, and the patterned interconnect circuit is at least partially overlain by a protective layer including the organosulfur compound.

H. An electronic assembly made according to any of the embodiments A-G.

I. An electronic assembly, including:

a substrate including thereon a pattern of conductive nanowires, wherein the conductive nanowires are electrically connected to a conductive interconnect circuit, and wherein at least a portion of the conductive interconnect circuit is overlain by a protective layer including an organosulfur compound; and

an electrical contact of an electronic component in contact with the protective layer to electrically connect the electrical contact of the electronic component with the conductive interconnect circuit, wherein one of the following conditions applies: (a) the protective layer is sufficiently thin to allow an electrical signal to propagate across the protective layer to the conductive interconnect circuit; (b) the electrical contact penetrates the protective layer and directly engages the conductive interconnect circuit; or (c) the electrical contact engages a layer of a conductive material applied to the conductive interconnect circuit.

- J. The electronic assembly of embodiment I, further including a conductive layer between the substrate and the electronic component.
- K. The electronic assembly of embodiment J, wherein the conductive layer includes a conductive adhesive.
- L. The electronic assembly of any of embodiments I-K, wherein the electronic component comprises a flexible circuit.
- M. The electronic assembly of any of embodiments I-L, wherein the organosulfur compound is selected from at least one of alkyl thiols and aryl thiols.
- N. The electronic assembly of any of embodiments I-M, wherein the organosulfur compound is an alkyl thiol.
- O. A touch screen display including:
a liquid crystal display; and
an electronic assembly including:
a glass substrate on the liquid crystal display, wherein the glass substrate comprises thereon a pattern of conductive nanowires, wherein the conductive nanowires are electrically connected to a patterned conductive interconnect circuit, and wherein at least a portion of the patterned conductive interconnect circuit is overlain by a protective layer including an organosulfur compound; and
an electrical contact of a flexible circuit in contact with the protective layer to electrically connect the electrical contact of the flexible circuit with the patterned conductive interconnect circuit, wherein one of the following conditions applies: (a) the protective layer is sufficiently thin to allow an electrical signal to propagate across the protective layer to the patterned conductive interconnect circuit; (b) the electrical contact penetrates the protective layer and directly engages the patterned conductive interconnect circuit; or (c) the electrical contact engages a layer of a conductive material applied to the patterned conductive interconnect circuit; and
a flexible transparent surface overlying the electronic assembly.
- P. The display of embodiment O, further including a conductive layer between the substrate and the flexible circuit.
- Q. The display of embodiment P, wherein the conductive layer includes a conductive adhesive.
- R. The display of any of embodiments O-Q, wherein the organosulfur compound is selected from at least one of alkyl thiols and aryl thiols.
- S. The display of any of embodiments O-R, wherein the organosulfur compound is an alkyl thiol.

[0004] The terms “about” or “approximately” with reference to a numerical value, property, or characteristic, means +/- five percent of the numerical value, property, characteristic, but also expressly includes any narrow range within the +/- five percent of the numerical value or property or characteristic as well as the exact numerical value. For

CLAIMS:

1. A method for making an electronic assembly, comprising:
applying a protective layer comprising an organosulfur compound to at least a portion of a patterned conductive interconnect circuit, wherein the patterned conductive interconnect circuit is electrically connected to a conductive layer on a substrate, and wherein the conductive layer comprises nanowires; and
engaging an electrical contact of an electronic component with the protective layer to electrically connect the electronic component with the conductive layer, wherein one of the following conditions applies: (a) the protective layer is sufficiently thin to allow an electrical signal to propagate across the protective layer to the patterned conductive interconnect circuit; (b) the electrical contact penetrates the protective layer and directly engages the patterned conductive interconnect circuit; or (c) the electrical contact engages a layer of a conductive material applied to the patterned conductive interconnect circuit.
2. The method of claim 1, wherein the organosulfur compound is selected from at least one of alkyl thiols and aryl thiols.
3. The method of any of claims 1-2, wherein the organosulfur compound is an alkyl thiol.
4. The method of any of claims 1-3, wherein the patterned conductive layer is transparent.
5. A method, comprising:
coating a substrate with a conductive layer comprising nanowires;
applying a pattern of a conductive interconnect material on the conductive layer to generate on the substrate one or more first regions of exposed conductive layer and one or more second regions of conductive interconnect material;
hardening or curing the conductive interconnect material to form a patterned interconnect circuit;
applying on at least a portion of the patterned interconnect circuit a protective layer forming composition comprising an organosulfur compound;
overcoating the patterned interconnect circuit and the protective layer forming composition with a liquid strippable polymer layer-forming composition;

8. An electronic assembly made according to the method of any of claims 1-7.
9. An electronic assembly, comprising:
 - a substrate comprising thereon a pattern of conductive nanowires, wherein the conductive nanowires are electrically connected to a conductive interconnect circuit, and wherein at least a portion of the conductive interconnect circuit is overlain by a protective layer comprising an organosulfur compound; and
 - an electrical contact of an electronic component in contact with the protective layer to electrically connect the electrical contact of the electronic component with the conductive interconnect circuit, wherein one of the following conditions applies: (a) the protective layer is sufficiently thin to allow an electrical signal to propagate across the protective layer to the conductive interconnect circuit; (b) the electrical contact penetrates the protective layer and directly engages the conductive interconnect circuit; or (c) the electrical contact engages a layer of a conductive material applied to the conductive interconnect circuit.
10. The electronic assembly of claim 9, further comprising a conductive layer between the substrate and the electronic component.
11. The electronic assembly of claim 10, wherein the conductive layer comprises a conductive adhesive.
12. The electronic assembly of any of claims 9-11, wherein the electronic component comprises a flexible circuit.
13. The electronic assembly of any of claims 9-12, wherein the organosulfur compound is selected from at least one of alkyl thiols and aryl thiols.
14. The electronic assembly of any of claims 9-13, wherein the organosulfur compound is an alkyl thiol.
15. A touch screen display comprising:
 - a liquid crystal display; and
 - an electronic assembly comprising:
 - a glass substrate on the liquid crystal display, wherein the glass substrate comprises thereon a pattern of conductive nanowires, wherein the conductive nanowires are electrically connected to a patterned conductive interconnect circuit, and wherein at least a

portion of the patterned conductive interconnect circuit is overlain by a protective layer comprising an organosulfur compound; and

an electrical contact of a flexible circuit in contact with the protective layer to electrically connect the electrical contact of the flexible circuit with the patterned conductive interconnect circuit, wherein one of the following conditions applies: (a) the protective layer is sufficiently thin to allow an electrical signal to propagate across the protective layer to the patterned conductive interconnect circuit; (b) the electrical contact penetrates the protective layer and directly engages the patterned conductive interconnect circuit; or (c) the electrical contact engages a layer of a conductive material applied to the patterned conductive interconnect circuit; and

a flexible transparent surface overlying the electronic assembly.

16. The display of claim 15, further comprising a conductive layer between the glass substrate and the flexible circuit.

17. The display of claim 16, wherein the conductive layer comprises a conductive adhesive.

18. The display of any of claims 15-17, wherein the organosulfur compound is selected from at least one of alkyl thiols and aryl thiols.

19. The display of any of claims 15-18, wherein the organosulfur compound is an alkyl thiol.