Claims

What is claimed:

1. A method of making a semiconductor device, comprising:

providing a first insulating film, wherein the first insulating film includes glass fibers, glass fillers, or glass cloth;

laminating a first conductive layer onto a first surface of the first insulating film, wherein the first conductive layer completely covers a surface of the first insulating film, and wherein the first conductive layer is a prefabricated copper foil;

disposing an insulating layer over the first insulating film opposite the first conductive layer;

disposing a semiconductor die over the insulating layer;

pressing the semiconductor die into the insulating layer; and

forming a build-up interconnect structure over the semiconductor die and insulating layer opposite the first conductive layer, wherein the build-up interconnect structure includes a solder bump, and wherein the first conductive layer remains completely covering the surface of the first insulating film after forming the build-up interconnect structure including the solder bump.

2. The method of claim 1, wherein an active surface of the semiconductor die remains exposed from the insulating film after pressing the semiconductor die into the insulating film.

3. The method of claim 1, further including disposing a second insulating film including glass fibers, glass fillers or glass cloth between the first insulating film and insulating layer.

4. The method of claim 3, further including disposing a second conductive layer between the first insulating film and second insulating film.

5. The method of claim 1, further including:

forming the first conductive layer on a temporary transfer film; and

removing the temporary transfer film after laminating the first conductive layer.

6. The method of claim 1, wherein the first conductive layer is comprised of copper for an entire length, width, and thickness of the first conductive layer.

7. The method of claim 6, further including singulating through the first conductive layer, first insulating film, and build-up interconnect structure after forming the build-up interconnect structure, wherein the first conductive layer extends from the first insulating film to an external surface of the semiconductor device after singulation.

8. A method of making a semiconductor device, comprising:

providing a first insulating film, wherein the first insulating film is reinforced;

forming a first conductive layer over the first insulating film, wherein the first conductive layer completely covers a surface of the first insulating film;

forming an insulating layer over the first insulating film opposite the first conductive layer;

disposing a semiconductor die over the insulating layer with an active surface of the semiconductor die oriented away from the insulating layer;

pressing the semiconductor die into the insulating layer; and

singulating the insulating layer, first insulating film, and first conductive layer, wherein the first conductive layer remains completely covering the surface of the first insulating film after singulation.

9. The method of claim 8, further including a second insulating film disposed over the first insulating film with the first conductive layer disposed between the first insulating film and second insulating film, wherein the second insulating film is reinforced.

10. The method of claim 9, further including forming a second conductive layer over the second insulating film opposite the first conductive layer, wherein the second conductive layer completely covers a surface of the first insulating film.

11. The method of claim 8, wherein the insulating film includes glass fibers, glass fillers, or glass cloth.

12. The method of claim 8, further including forming a solder bump over the semiconductor die and insulating layer, wherein the first conductive layer remains completely covering the surface of the first insulating film after forming the solder bump.

13. The method of claim 8, wherein the active surface of the semiconductor die remains exposed from the insulating layer after pressing the semiconductor die into the insulating layer.

14. A method of making a semiconductor device, comprising:

providing a first insulating film including glass fibers, glass fillers, or glass cloth embedded in the first insulating film;

disposing a first conductive layer over a first surface of the first insulating film, wherein the first conductive layer completely covers a footprint of the first insulating film;

disposing a second insulating film including glass fibers, glass fillers or glass cloth over the first insulating film with the first conductive layer between the first insulating film and second insulating film;

disposing a second conductive layer over the second insulating film opposite the first insulating film, wherein the second conductive layer completely covers a footprint of the second insulating film;

disposing an insulating layer over the first insulating film opposite the first conductive layer;

disposing a semiconductor die over the insulating layer;

pressing the semiconductor die into the insulating layer; and

singulating the first insulating film, first conductive layer, second insulating film, second conductive layer, and insulating layer, wherein the first conductive layer remains completely covering the first surface of the first insulating film after singulation, and wherein the second conductive layer remains completely covering the footprint of the second insulating film after singulation.

15. The method of claim 14, further including forming a solder bump over the semiconductor die and insulating layer, wherein the first conductive layer remains completely covering the first surface of the first insulating film after forming the solder bump, and wherein the second conductive layer remains completely covering the footprint of the second insulating film after forming the solder bump.

16. The method of claim 14, wherein the active surface of the semiconductor die remains exposed from the insulating layer after pressing the semiconductor die into the insulating layer.

17. A method of making a semiconductor device, comprising:

providing an insulating film;

forming a conductive layer over the insulating film, wherein the conductive layer completely covers a surface of the insulating film;

pressing a semiconductor die into the insulating film opposite the conductive layer; and

singulating the insulating film and conductive layer, wherein the conductive layer completely covers the surface of the insulating film after singulation.

18. The method of claim 17, wherein the insulating film includes a first reinforced insulating layer, a second reinforced insulating layer, and a third insulating layer, and wherein the semiconductor die is pressed into the third insulating layer.

19. The method of claim 18, wherein the insulating film includes a second conductive layer disposed between the first reinforced insulating layer and second reinforced insulating layer.

20. The method of claim 17, further including forming an interconnect structure over the semiconductor die and insulating film.