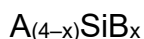


CLAIMS

1. Method for forming a metal layer for electromagnetic shielding and thermal management of active components, comprising the following steps
 - (i) providing at least one active component, said active component having a front side comprising at least one chip encased by a layer of molding compound, a back side and side walls;
 - (ii) forming on the back side a protective layer selected from a layer formed by lamination of an adhesive tape, a UV peelable tape and a layer of temporary ink;
 - (iii) forming on the front side and optionally on the side walls an adhesion promotion layer;
 - (iv) forming at least one metal layer on the adhesion promotion layer
or
forming at least one metal layer on the adhesion promotion layer by wet chemical metal plating processes,
 - (v) heating of the at least one metal plated layer to a temperature of between 100°C and 300°C,
wherein the protective layer is removed after step (iv) or (v).
2. Method of claim 1, wherein the back side of the active component comprises electrical interconnects or I/Os with optional solder balls.
3. Method of claim 1, wherein forming an adhesion promotion layer applied according to step (iii) comprises
 - iiia. depositing on the layer of molding compound a layer of silane based adhesion promoter.

4. Method according to claim 3, wherein the silane based adhesion promoter is an organosilane compound selected from the group represented by the formula

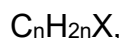


wherein

each A is independently a hydrolyzable group,

x is 1 to 3, and

each B is independently selected from the group consisting of C₁-C₂₀ alkyl, aryl, amino aryl and a functional group represented by the formula



wherein

n is from 0 to 15, and

X is selected from the group consisting of amino, amido, hydroxy, alkoxy, halo, mercapto, carboxy, carboxy ester, carboxamide, thiocarboxamide, acyl, vinyl, allyl, styryl, epoxy, epoxycyclohexyl, glycidoxo, isocyanato, thiocyanato, thioisocyanato, ureido, thioureido, guanidino, thioglycidoxo, acryloxy, methacryloxy groups; or X is a residue of a carboxy ester; or X is Si(OR)₃, and wherein R is a C₁-C₅ alkyl group.

5. Method according to claim 4 wherein the hydrolyzable group A is selected from the group consisting of -OH, -OR¹ and wherein R¹ is C₁-C₅ alkyl, -(CH₂)_yOR² and wherein y is 1, 2 or 3 and R² is H or C₁-C₅ alkyl, -OCOR³ and wherein R³ is H or C₁-C₅ alkyl.
6. Method according to claim 3, wherein the layer of silane based adhesion promoter has a thickness of between 5 to 100 nm.

7. Method of claim 1, wherein forming a metal layer according to step (iv) comprises
 - iva. contacting the substrate with a noble metal colloid or a noble metal ion containing solution; and then
 - ivb. contacting the substrate with at least one electroless metal plating solution.
8. Method of claim 1, wherein forming a metal layer according to step (iv) comprises
 - iva. contacting the substrate with a noble metal colloid or a noble metal ion containing solution; next
 - ivb. contacting the substrate with at least one electroless metal plating solution; and then
 - ivc. contacting the substrate with at least one electrolytic metal plating solution.
9. Method for electromagnetic shielding, comprising carrying out the method according to claim 1, wherein the overall thickness of the metal layers ranges between 1 and 100 μm .
10. Method for thermal management, comprising carrying out the method according to claim 1, wherein the overall thickness of the metal layers ranges between 20 to 300 μm .
11. Method according to claim 7, wherein the electroless metal plating according to step ivb comprises both electroless nickel plating resulting in a nickel layer having a thickness of between 0.5 and 20 μm and electroless copper plating resulting in a copper layer having a thickness of between 0.5 and 20 μm .
12. Method according to claim 8, wherein the electrolytic metal plating according to step ivc comprises electrolytic nickel plating resulting in a nickel layer having a

thickness of between 0.5 and 300 μm and electrolytic copper plating resulting in a copper layer having a thickness of between 0.5 and 300 μm .

13. Method according to claim 8, wherein the electroless metal plating according to step ivb comprises both electroless nickel plating resulting in a nickel layer having a thickness of between 0.5 and 20 μm and electroless copper plating resulting in a copper layer having a thickness of between 0.5 and 20 μm .
14. Method according to claim 1, wherein the at least one active component in step (i) is selected from pre-diced strips, singulated chips with solder balls, and singulated chips without solder balls.
15. Method according to claim 1, wherein the adhesion promotion layer comprises one or more than one organic compound.
16. Method according to claim 1, wherein the adhesion promotion layer does not contain iron, nickel and zinc.
17. Method according to claim 1, wherein the active component is fully diced after the protective layer is removed.