Claims

1. A roof-mounted solar module integration device for vehicle, characterized by comprising:

a substrate in which a through-hole is formed, wherein a front side of the substrate is provided with a first trench, and a reverse side of the substrate is provided with a second trench;

a solar module fixed on the front side of the substrate;

a plurality of conductive bands arranged in the first trench, wherein a first end of each of the conductive bands is connected with the solar module, and a second end is led out of the through-hole to the reverse side of the substrate; and

a bypass diode and an anti-reversion diode which are arranged in the second trench and connected with the second ends of the conductive bands.

2. The roof-mounted solar module integration device of claim 1, characterized in that an inner wall of the through-hole is provided with an insulation layer.

3. The roof-mounted solar module integration device of claim 1, characterized in that the solar module is a thin-film cells affixed on the front side of the substrate.

4. The roof-mounted solar module integration device of any one of claims 1-3, characterized in that the substrate is composed of upper and lower layers of glass fibers, with a layer of honeycomb-shaped fibers cladded therebetween.

5. The roof-mounted solar module integration device of claim 4, characterized in that the solar module is provided thereon with a protective layer.

6. The roof-mounted solar module integration device of claim 5, characterized in that the protective layer is a glass fiber protective layer entrained with epoxy resin.

7. The roof-mounted solar module integration device of claim 6, characterized in that the protective layer is provided thereon with a masking paint, wherein the masking paint is disposed exactly opposite the through-hole.

8. A solar power vehicle, characterized by comprising the roof-mounted solar module integration device of any one of claims 1-7, wherein a plurality of substrates are spliced with one another to serve as a roof for the solar power vehicle.

9. A encapsulation method for a solar module for vehicle, characterized by comprising the following steps:

step S100, forming a first trench in a front side of a substrate, forming a second trench in a reverse side of the substrate, and forming a through-hole in the substrate;

step S200, arranging conductive bands in the first trench, and arranging a bypass diode and an anti-reversion diode in the second trench;

step S300, fixing the solar module on the substrate, connecting first ends of the conductive bands to the solar module, and leading second ends of the conductive bands out of the through-hole to the reverse side of the substrate;

step S400, laying a protective layer on the solar module; and

step S500, providing a masking paint on the protective layer.

10. The encapsulation method of claim 9, characterized in that the step S100 further comprises step S110, performing insulation for the through-hole.

11. The encapsulation method of claim 9 or 10, characterized in that the step S500 is followed by:

step S600, performing vacuumization for a gap between the solar module and the protective layer.