CLAIMS:

1. An electro-absorption modulated distributed feedback laser chip, characterized in that the electro-absorption modulated distributed feedback laser chip comprises:

a substrate having an upper surface and a lower surface opposite to each other;

a laser-emitting portion located on the upper surface of the substrate and configured to emit a laser;

a modulating portion located on the upper surface of the substrate and configured to modulate the laser emitted by the laser-emitting portion;

a back metal electrode layer located on the lower surface of the substrate;

a ground electrode located on the upper surface of the substrate, disposed near the modulating portion, and electrically connected to the back metal electrode layer;

a signal electrode located on the upper surface of the substrate, disposed near the ground electrode and the modulating portion, and electrically connected to the modulating portion;

a waveguide structure coupled to the laser-emitting portion and the modulating portion; and

a matching resistor formed in an area on the upper surface of the substrate near the modulating portion, and an end of the matching resistor is configured to connect to the signal electrode.

2. The electro-absorption modulated distributed feedback laser chip of claim 1, characterized in that there are a plurality of ground electrodes, and the signal electrode is disposed between the adjacent ground electrodes.

3. The electro-absorption modulated distributed feedback laser chip of claim 1, characterized in that the matching resistor and the ground electrode are located at two sides of the waveguide structure.

4. A laser chip encapsulation structure, characterized in that the laser chip encapsulation structure comprises:

a first substrate;

a first metal electrode layer located on the first substrate;

an electro-absorption modulated distributed feedback laser chip located on the first metal electrode layer, the electro-absorption modulated distributed feedback laser chip comprising:

a substrate having an upper surface and a lower surface opposite to each other;

a laser-emitting portion located on the upper surface of the substrate and configured to emit a laser;

a modulating portion located on the upper surface of the substrate and configured to modulate the laser emitted by the laser-emitting portion;

a back metal electrode layer located on the lower surface of the substrate, wherein the back metal electrode layer is in contact with the first metal electrode layer;

a ground electrode located on the upper surface of the substrate, disposed near the modulating portion, and electrically connected to the back metal electrode layer;

a signal electrode located on the upper surface of the substrate, disposed near the ground electrode and the modulating portion, and electrically connected to the modulating portion;

a waveguide structure coupled to the laser-emitting portion and the modulating portion; and

a matching resistor formed in an area on the upper surface of the substrate near the modulating portion, and an end of the matching resistor is configured to connect to the signal electrode;

a second substrate structure located on the first metal electrode layer and disposed adjacent to the electro-absorption modulated distributed feedback laser chip; and

a plurality of transmission lines disposed on the second substrate structure and connected to the ground electrode and the signal electrode respectively.

5. The laser chip encapsulation structure of claim 4, characterized in that the second substrate structure comprises a second substrate and a second metal electrode layer, the second substrate is

located on the first metal electrode layer, and the second metal electrode layer is located between the first metal electrode layer and the second substrate.

6. The laser chip encapsulation structure of claim 5, characterized in that a thickness of the second substrate is consistent with a thickness of the electro-absorption modulated distributed feedback laser chip.

7. The laser chip encapsulation structure of claim 5, characterized in that the electro-absorption modulated distributed feedback laser chip and the second substrate structure both have longitudinal structures and are arranged side by side.

8. The laser chip encapsulation structure of claim 5, characterized in that the transmission line comprises a signal line, a first ground line, and a second ground line, the signal line is located between the first ground line and the second ground line, the signal line is connected to the signal electrode, and the first ground line and the second ground line are both connected to the ground electrode.

9. The laser chip encapsulation structure of claim 8, characterized in that the signal line is connected to the signal electrode via a gold wire, and the first ground line and the second ground line are connected to the ground electrode via a gold wire.

10. The laser chip encapsulation structure of claim 8, characterized in that at least one of a shape of the signal line, a shape of the first ground line, and a shape of the second ground line is formed in an L-shape.

11. The laser chip encapsulation structure of claim 8, characterized in that the signal line, the first ground line, and the second ground line are all disposed on an upper surface of the second substrate, and the first ground line and the second ground line penetrate the second substrate to connect with the second metal electrode layer.

12. The laser chip encapsulation structure of claim 8, characterized in that the signal line is disposed on an upper surface of the second substrate, and the first ground line and the second

ground line are located on two sides of the second substrate and are both disposed on the second metal electrode layer.

13. The laser chip encapsulation structure of claim 8, characterized in that the second metal electrode layer extends to two sides of the second substrate, the signal line is disposed on an upper surface of the second substrate, and portions of the second metal electrode layer extending to the two opposite sides of the second substrate form the first ground line and the second ground line.

14. The laser chip encapsulation structure of claim 4, wherein another end of the matching resistor has a first pad, the end of the matching resistor has a second pad, the first pad is connected to the first metal electrode layer via a gold wire, and the second pad is connected to the signal electrode via a gold wire.

15. The laser chip encapsulation structure of claim 4, wherein another end of the matching resistor has a first pad, the end of the matching resistor has a second pad, the laser chip encapsulation structure further comprises a matching capacitance, the matching capacitance is located on an upper surface of the first metal electrode layer and disposed adjacent to the electro-absorption modulated distributed feedback laser chip, a first end of the matching capacitance is connected to the first pad via a gold wire, and a second end of the matching capacitance is connected to the first metal electrode layer.

16. The laser chip encapsulation structure of claim 4, wherein the matching resistor and the ground electrode are located at two sides of the waveguide structure.