magnetoresistive-effect layer in accordance with the first through third aspects, the sense current effectively flows from the electrode layer to the multilayer film even if the thickness of the electrode layer is decreased relative to the thickness of the multilayer film. The magnetoresistive-effect device of the sixth through eighth aspects works with a thin electrode layer, thereby reducing a step height formed between the top surface of the electrode layer and the top surface of the multilayer film, improving a step coverage of the upper gap layer formed over the border area between the electrode layer and the multilayer film, and thereby providing sufficient insulation.

[0093] The multilayer films in a GMR (Giant Magnetoresistance) device and an AMR (Anisotropic Magnetoresistance) device offer a good gain in only a central portion thereof, rather than providing the magnetoresistive effect in the entire area thereof. Only the central portion is a substantially working area for exhibiting the magnetoresistive effect. The portion of the multilayer film having the excellent reproduction gain is called a sensitive region, and portions on both sides of the sensitive region are called insensitive regions. The ratios of the sensitive region and the insensitive regions respectively to the entire multilayer film is measured through the micro track profile method. The micro trap profile method has already been discussed.

[0094] Considering that the multilayer film is formed of the sensitive region and the insensitive regions, it is yet another object of the present invention to provide a magnetoresistive-effect device which allows the sense current to predominantly flow into the sensitive region having the substantial magnetoresistive effect. To achieve this object, the electrode layer overlapping the multilayer is set to extend over the insensitive region.

[0095] With the electrode layer extending over the insensitive region, the sense current is allowed to predominantly flow into the sensitive region rather than the insensitive regions. The reproduction output is thus increased.

[0096] However, the electrode layer extends over but must not reach the sensitive region. As will be discussed later, the electrode layer reaching the sensitive region leads to noise generation and reduction in the reproduction output.

BRIEF DESCRIPTION OF THE DRAWINGS

[0097] **FIG. 1** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a first embodiment of the present invention;

[0098] **FIG. 2** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a second embodiment of the present invention;

[0099] **FIG. 3** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a third embodiment of the present invention;

[0100] **FIG. 4** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a fourth embodiment of the present invention;

[0101] **FIG. 5** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a fifth embodiment of the present invention;

[0102] **FIG. 6** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a sixth embodiment of the present invention;

[0103] **FIG. 7** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a seventh embodiment of the present invention;

[0104] **FIG. 8** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of an eighth embodiment of the present invention;

[0105] **FIG. 9** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a ninth embodiment of the present invention;

[0106] **FIG. 10** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a tenth embodiment of the present invention;

[0107] **FIG. 11** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of an eleventh embodiment of the present invention;

[0108] **FIG. 12** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a twelfth embodiment of the present invention;

[0109] **FIG. 13** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a thirteenth embodiment of the present invention;

[0110] **FIG. 14** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a fourteenth embodiment of the present invention;

[0111] **FIG. 15** is a conceptual diagram showing a manufacturing step of the magnetoresistive-effect device of the present invention;

[0112] **FIG. 16** is a conceptual diagram showing a manufacturing step performed subsequent to the step of **FIG. 15**;

[0113] **FIG. 17** is a conceptual diagram showing a manufacturing step performed subsequent to the step of **FIG. 16**;

[0114] **FIG. 18** is a conceptual diagram showing a manufacturing step performed subsequent to the step of **FIG. 17**;

[0115] **FIG. 19** is a conceptual diagram showing a manufacturing step performed subsequent to the step of **FIG. 18**;

[0116] **FIG. 20** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a fifteenth embodiment of the present invention;

[0117] **FIG. 21** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a sixteenth embodiment of the present invention;

[0118] **FIG. 22** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a seventeenth embodiment of the present invention;

[0119] **FIG. 23** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of an eighteenth embodiment of the present invention;

[0120] **FIG. 24** is a partial cross-sectional view showing the construction of a magnetoresistive-effect device of a nineteenth embodiment of the present invention;

[0121] **FIG. 25** is a conceptual diagram showing a manufacturing step of the magnetoresistive-effect device of the present invention;

[0122] **FIG. 26** is a conceptual diagram showing a manufacturing step performed subsequent to the step of **FIG. 25**;