CLAIMS

1. An intermediate substrate for manufacturing a semiconductor substrate, successively comprising:
    a. a first semiconductive layer;
    b. a first thermal barrier layer;
    c. a support comprising:
        i. an absorption layer configured to absorb laser radiation in a determined wavelength range, with the temperature of the absorption layer increasing during absorption; and
        ii. a separation layer comprising a separation zone adjacent to the absorption layer and being configured to thermally degrade under the effect of the increase in temperature of the absorption layer, so as to separate at least part of the support from the rest of the intermediate substrate, with the degradation of the separation zone occurring when the absorption layer reaches a threshold temperature;
        iii. a second thermal barrier layer; and
        iv. a support layer, with the support layer being a second semiconductive layer of lower quality than the first semiconductive layer.

2. The intermediate substrate according to Claim 1, further comprising a seed layer adapted for growing the first semiconductive layer, the seed layer preferably comprising graphite, the first semiconductive layer being interposed between the seed layer and the first thermal barrier layer.

3. The intermediate substrate according to any one of Claims 1 and 2, with the separation layer being made up of silicon nitride.

4. The intermediate substrate according to any one of Claims 1 to 3, with the absorption layer being made up of a material selected from among β-SiC type polycrystalline silicon carbide, titanium nitride or zirconium.

5. The intermediate substrate according to any one of Claims 1 to 4, further comprising a monocrystalline semiconductive layer, preferably comprising silicon carbide (SiC) or gallium nitride (GaN), with a first face of the monocrystalline semiconductive layer being adjacent to the first semiconductive layer.

6. The intermediate substrate according to any one of Claims 1 to 5, with the first semiconductive layer being made up of a wide-band semiconductor material, notably of a material selected from among silicon carbide, aluminium nitride and gallium nitride.

7. The intermediate substrate according to any one of Claims 1 to 6, wherein the support layer is made up of a material selected from among silicon carbide and silicon nitride.

8. The intermediate substrate according to any one of Claims 1 to 7, with the thickness of the support layer ranging between 100 and 200 nanometres.

9. The intermediate substrate according to any one of Claims 1 to 8, with the first and/or the second thermal barrier layer having thermal conductivity of less than 25 W/mK, the second thermal barrier layer preferably being made up of titanium dioxide or silicon nitride.

10. The intermediate substrate according to any one of Claims 1 or 3 to 9, further comprising a monocrystalline semiconductive layer disposed on a surface region of the first semiconductive layer, with the first semiconductive layer being located between the first thermal barrier layer and the monocrystalline semiconductive layer.

11. A method for manufacturing an intermediate semiconductor substrate, successively comprising the following steps of:
    a. growing a first electrically semiconductive layer on a seed layer;
    b. growing a first thermal barrier layer on the first semiconductive layer;
    c. growing a support on the first thermal barrier layer comprising an absorption layer configured to absorb laser radiation in a determined wavelength range, with the temperature of the absorption layer increasing during absorption, the support further comprising a separation zone adjacent to the absorption layer and configured to thermally degrade under the effect of the increase in temperature of the absorption layer, so as to separate at least part of the support from the rest of the intermediate substrate;
    d. removing the seed layer;

    with the growing steps being obtained by gas phase deposition onto the previously formed layers.

12. The method for manufacturing an intermediate semiconductor substrate according to Claim 11, with the growth of the support comprising successive steps of:
    a. growing a separation assembly made up of the absorption layer and of a separation layer, with the growth of the separation assembly comprising:
        - growing the absorption layer;
        - growing the separation layer, with the separation layer comprising the separation zone, the separation zone being adjacent to the absorption layer;
    b. growing a second thermal barrier layer on the separation assembly;
    c. growing a support layer on the second thermal barrier layer;

    with the growing steps notably being obtained by gas phase deposition onto the previously formed layers.

13. The method for manufacturing an intermediate semiconductor substrate according to Claim 11, with the growth of the support comprising successive steps of:
    a. growing the absorption layer on the first thermal barrier layer;
    b. growing a support layer on the absorption layer also acting as a second thermal barrier;
    with the separation zone being included in the support layer;

with the growing steps notably being obtained by gas phase deposition onto the previously formed layers.

14. A method for manufacturing a substrate comprising a monocrystalline semiconductive layer on a polycrystalline semiconductor substrate, comprising the implementation of the method for manufacturing an intermediate semiconductor substrate according to any one of Claims 11 to 13, with the first semiconductive layer being polycrystalline, and further comprising successive steps of:
    a. forming a weakened zone in a semiconductor donor substrate by implanting species, so as to delimit a monocrystalline semiconductive layer to be transferred;
    b. bonding the monocrystalline semiconductive layer to be transferred onto a surface region of the first semiconductive layer;
    c. detaching the donor substrate along the weakened zone in order to transfer the monocrystalline semiconductive layer onto the first semiconductive layer.

15. A method for manufacturing an electronic component, comprising successive steps of:

a. implementing the method for manufacturing a substrate according to Claim 14;
b. performing front-end processes in the monocrystalline semiconductive layer in order to form said electronic component.

16. The method for manufacturing an electronic component according to Claim 15, comprising, after completing said front-end processes, a step of applying laser radiation to the intermediate substrate in the determined wavelength range, so as to thermally degrade the separation zone and to separate at least part of the support from the rest of the intermediate substrate.

17. The method for manufacturing an electronic component according to Claim 16, comprising, after applying the laser radiation, a step of removing residual layers located on a face of the first semiconductive layer opposite the monocrystalline semiconductive layer, with the residual layers originating from the step of applying the laser radiation.