

[0046] FIG. 1D shows a fourth step of peeling the peeled layer 121 from the substrate 122. The peeling method is not limited particularly. Here, the peeling method that utilizes the membrane stress between a metal layer or nitride layer and an oxide layer is used, which is not restricted by annealing temperatures and substrate types. First, a nitride layer or metal layer (not shown) is deposited over the substrate 122 before the state shown in FIG. 1B is obtained. As typical example for the nitride layer or metal layer, it is fine to use a single layer formed of an element selected from Ti, W, Al, Ta, Mo, Cu, Cr, Nd, Fe, Ni, Co, Ru, Rh, Pd, Os, Ir and Pt, an alloy material or compound material having a principal component of these elements, or a laminated layer of these, and alternatively a single layer formed of nitrides of these such as titanium nitride, tungsten nitride, tantalum nitride and molybdenum nitride or a laminated layer of these. Subsequently, an oxide layer (not shown) is deposited over the nitride layer or metal layer. As a typical example for the oxide layer, it is fine to use silicon oxide, silicon oxide nitride and metal oxide materials. In addition, it is fine to deposit the oxide layer by methods including sputtering, plasma CVD and coating. The film thickness of the nitride layer or metal layer and the oxide layer is properly set within the range of 1 to 1000 nm, whereby the membrane stress of both layers can be varied each other. Furthermore, it is acceptable that an insulating layer or a metal layer is disposed between the substrate 122 and the nitride layer or metal layer to enhance the adhesion to the substrate 122. Then, a semiconductor layer is deposited over the oxide layer to obtain the peeled layer 121. Moreover, the peeling method does not generate film removal due to annealing in the fabrication process of the peeled layer even though the membrane stress of the oxide layer is varied from the membrane stress of the nitride layer or metal layer. Besides, the peeling method allows peeling with a relatively small force because the membrane stress of the oxide layer is varied from the membrane stress of the nitride layer or metal layer. In addition, it is also important to pay attention not to generate cracks in peeling the peeled layer 121.

[0047] As described above, the peeled layer 121 deposited over the oxide layer can be separated from the substrate 122. The important point is in that the support 111 returns into the original shape after the first step has been finished by the restoring force at this stage. In accordance with this, the peeled layer 121 bonded beneath the support 111 also curves along the support 111. When the curvature radius of the support 111 after the fourth step is finished is defined as R_f , the curve of the support 111 becomes acuter than that after the third step is finished, that is, it becomes $R_f \leq R_m$, because the support 111 returns into the shape after the first step has been finished. In the meantime, in addition to which the support 111 does not have perfect elasticity in general, the peeled layer 121 is bonded thereto, and thus the curve generally becomes smoother than that after the first step has been finished, that is, it becomes $R_i \leq R_f$. Accordingly, it generally becomes $R_i \leq R_f \leq R_m$.

[0048] FIG. 1E shows the step of bonding the transfer object 112 to the peeled layer 121. As for the shape and thickness of the transfer object 112, they are not defined particularly when the transfer object 112 is fabricated to match the surface topology of the peeled layer 121 having curved in FIG. 1D in consideration of the shape and

thickness of the support 111 and the thickness of the peeled layer 121. It is preferable to have the elasticity as similar to the support 111.

[0049] The bonding direction of the support 111 is not defined particularly in FIG. 1B. However, when a plurality of TFTs are disposed in the peeled layer 121, it is more preferable to bond the support such that the channel length of all the TFTs is arranged in the same direction and the channel direction is arranged in parallel to the direction where the support 111 does not have the curvature in FIG. 1A. It is because the influence upon the TFTs in the peeled layer 121 can be suppressed to the minimum when the support 111 bonded with the peeled layer 121 returns into the original shape by the restoring force after the substrate 122 has been peeled in FIG. 1D.

[0050] When a liquid crystal display device is fabricated, it is fine that the support is formed of an opposite substrate and the sealing material is used as an adhesive to bond the support to the peeled layer. In this case, the devices disposed in the peeled layer have pixel electrodes, and a liquid crystal material is filled between the pixel electrodes and the opposite substrate.

[0051] Furthermore, when a light emitting device is fabricated, which is typified as a device having an organic light emitting diode, the light emitting diode is preferably fully blocked from outside so as to prevent matters from entering from the outside with the use of the support as an encapsulation material, the matters such as water and oxygen facilitate the degradation of an organic compound layer. Moreover, when the light emitting device is fabricated, which is typified as a device having an organic light emitting diode, it is preferable to sufficiently protect not only the support but also the transfer object against matters so as not to enter from outside, the matters such as water and oxygen facilitate the degradation of the organic compound layer. Moreover, when it is considered important to suppress the degradation due to the penetration of water and oxygen, a thin film contacting with the peeled layer is deposited after peeling, whereby cracks generated in peeling are repaired. A film having thermal conductivity is used for the thin film contacting with the peeled layer, specifically an aluminum nitride or aluminum nitride oxide, whereby obtaining advantages to diffuse the heat from the devices and to suppress the degradation of the devices and an advantage to protect the transfer object, specifically a plastic substrate from deformation and degradation in quality. Besides, the film having the thermal conductivity also has an advantage to prevent impurities such as water and oxygen from entering from outside.

[0052] As for the invention formed of the configurations will be described further in detail with the following embodiments.

[0053] EMBODIMENT

[0054] [Embodiment 1]

[0055] In the embodiment, the procedures to fabricate a light emitting device having an organic light emitting diode (OLED) are shown in FIGS. 3A to 3E.

[0056] As shown in FIG. 3A, a first material layer 312 is formed over a substrate 311. As the first material layer 312, it may have compressive stress or may have tensile stress