but it is not limited to such a TFT particularly. It is also possible to manufacture an organic TFT in which an active layer is made of an organic material. Materials for the active layer of an organic TFT can be a material having considerable amount of carbon when it is combined with other materials, or a material containing an isotope of carbon element except diamond. As representative materials of the active layer of an organic TFT, C_{60}, C_{70}, thiophene polymer, thiophene substitution derivatives, poly (thienylene vinylene) and the like can be exemplified.

[0092] Also, the present invention can be applied to various manufacturing methods of semiconductor device. Particularly, when a plastic substrate is used for the transfer body and the support member, weight reduction can be realized.

[0093] When a liquid crystal display device is manufactured, it is preferable that the support member is used as a counter substrate and bonded to the layer to be peeled using a sealing member as a bonding layer. In this case, the element provided to the layer to be peeled has a pixel electrode. A liquid crystal material is filled into a space between the pixel electrode and the counter substrate. In addition, an order for manufacturing the liquid crystal display device is not particularly limited. For example, the counter substrate as the support member is bonded to the layer to be peeled which is provided to the substrate, a liquid crystal material is injected therebetween, and then the substrate is peeled and the plastic substrate as the transfer body is bonded to the layer to be peeled. Alternatively, after the pixel electrode is formed, the substrate is peeled, the plastic substrate as a first transfer body is boned to the layer to be peeled, and then the counter substrate as a second transfer body is bonded thereto.

[0094] Also, when a light emitting device represented by a device having a light emitting element in which a layer containing an organic compound serves as a light emitting layer is manufactured, it is preferable that the support member is used as a sealing member. Thus, a light emitting element is completely shielded from external so as to prevent entrance of a substance such as moisture or oxygen for promoting deterioration of an organic compound layer from external. In addition, when the light emitting device represented by the device having a light emitting element in which a layer containing an organic compound serves as a light emitting layer is manufactured, as in the case of the support member, it is preferable that the transfer body sufficiently prevents entrance of a substance such as moisture or oxygen for promoting deterioration of an organic compound layer from external. In addition, an order for manufacturing the light emitting device is not particularly limited. For example, after the light emitting element is formed, a plastic substrate as the support member is bonded to the layer to be peeled which is provided to a substrate, the substrate is peeled, and a plastic substrate as the transfer body is bonded to the layer to be peeled. Alternatively, after the light emitting element is formed, the substrate is peeled, a plastic substrate as a first transfer body is boned to the layer to be peeled, and then a plastic substrate as a second transfer body is bonded thereto. In addition, when it is important to suppress the deterioration occurring due to transmission of moisture or oxygen, a thin film is formed in contact with the layer to be peeled after peeling to repair a crack caused at peeling. When a film having thermal conductivity, specifically, an aluminum nitride or an aluminum oxynitride is used as the thin film which is in contact with the layer to be peeled, in addition to an effect for radiating heat generated in the element to suppress the deterioration thereof, an effect for preventing deformation or degradation of, the transfer body, specifically, a plastic substrate can be obtained. In addition, the film having thermal conductivity has an effect for preventing mixing of an impurity such as moisture or oxygen from external.

[0095] The present invention made by the above constitutions will be described in more detail through the following embodiments. [Embodiment 1]

[0096] Here, an example of laser processing apparatus applicable to the present invention will be described.

[0097] Crystallization of amorphous silicon by laser annealing is conducted through a melting-solidification process. More specifically, the case where it is divided into two stages, that is, a stage of generation of crystal nucleus and a stage of crystal growth from the nucleus is considered. However, in the case of laser annealing using a pulse laser beam, a generation position of crystal nucleus and a generation density thereof cannot be controlled but left to natural generation. Thus, a crystal grain is formed at an arbitrary position within the surface of a glass substrate and only a small size of about 0.2 μm to 0.5 μm is obtained. A large number of defects are caused in a crystal boundary. This is considered to be a factor limiting the field effect mobility of a TFT.

[0098] It is considered that a method of conducting crystallization with melting-solidification by continuous oscillation laser scanning is a method similar to a zone melting method. However, according to the method, a large beam size cannot be obtained. In addition, it is obvious that much time is required for achieving crystallization over the entire surface of a large area substrate.

[0099] In this embodiment, a laser processing apparatus for conducting laser beam irradiation with a state in which an irradiation position is substantially aligned with a position in which a TFT is produced, over the entire surface of a large area substrate for crystallization, so that a crystalline semiconductor film having a large grain size can be formed at high throughput will be described below.

[0100] As a laser irradiation apparatus of Embodiment 1, the following apparatus may be used. The laser irradiation apparatus includes a first movable mirror for deflecting a laser beam in a main scanning direction and a second movable mirror for receiving the laser beam deflected in the main scanning direction and conducting scanning in a sub scanning direction, which is a long shape. The second movable mirror has means for scanning a laser beam in the sub scanning direction at a rotation angle about the axis of the long shape direction as a center to irradiate the laser beam to an object to be processed which is placed on a stage.

[0101] Also, as another laser irradiation apparatus, the following apparatus may be used. That is, the laser irradiation apparatus includes a first laser beam scanning system and a second laser beam scanning system. The first laser beam scanning system has a first movable mirror for deflecting a laser beam in a first main scanning direction and a long second movable mirror for receiving the laser beam deflected in the first main scanning direction and conducting