shape such that the display devices can be readily inserted into, and removed from, the electronic appliance and/or can be carried about anytime. It should be noted, however, that the display devices may also have any of various other shapes or screen sizes as long as the devices can be inserted into, and removed from, the electronic appliances.

[0085] As used herein, the "attached/removed" state refers to a state of the card-type display device to be chosen by the user on the spot. Specifically, the "attached state" herein refers to a situation where the card-type display device is attached to a predetermined position (e.g., a slot) of the electronic appliance and may be used along with the electronic appliance. On the other hand, the "removed state" herein refers to a situation where the card-type display device is detached or removed from the electronic appliance and can be carried about or used by itself.

[0086] A card-type display device **10** according to a specific embodiment of the present invention and an electronic appliance **20**, to which the display device **10** is inserted, will be described with reference to **FIGS. 1A and 1B**. **FIG. 1A** is a block diagram schematically showing a state where the card-type display device **10** is in contact with the electronic appliance **20**. **FIG. 1B** schematically illustrates an exemplary layout for the card-type display device **10**. In **FIG. 1**A, the arrows indicate main signal propagation paths.

[0087] As shown in **FIGS. 1A and 1B**, the card-type display device **10** includes a display section **12**, a driver **13** to drive the display section **12**, a transceiver **11** to transmit or receive a signal to/from the electronic appliance **20**, and a system controller **19** to control the driver **13** and transceiver **11**. At least portion of the transceiver **11** and at least portion of the system controller **19** are located on the same substrate **1** as the display section **12** and driver **13**. In the preferred embodiment illustrated in **FIG. 1**B, the transceiver **11** and system controller **19** are integrated together with the display section **12** and driver **13** on the same substrate **1**. It should be noted, however, that the present invention is not limited to this specific preferred embodiment. Rather, some components of these circuits may be mounted by a method such as chip on glass (COG) technique, for example. The card-type display device **10** typically further includes a housing (not shown), which is used as a protective casing to store the substrate **1** and/or other components of the display device **10**.

[0088] The electronic appliance **20** includes a housing (not shown), into which the card-type display device **10** is fitted, and a transceiver **21** to transmit or receive a signal to/from the transceiver **11** of the card-type display device **10**. Although not mentioned or shown specifically herein, the electronic appliance **20** naturally includes circuits and other components that are needed to perform its intended function. The electronic appliance **20** may be a camera of any of various types including digital still cameras and camcorders, a TV, a PC, a PDA, a cell phone, a game appliance, a car navigator or any other consumer electronic appliance with information processing capability.

[0089] The card-type display device **10** typically has a substantially rectangular shape as shown in **FIG. 1**B and may have approximate dimensions of 85.6 mm×54.0 mm and a thickness of about 3 mm to about 10 mm, for example.

[0090] The display section **12** and the driver **13** to drive the display section **12** may make up a known active-matrix-addressed liquid crystal display, for example. In this preferred embodiment, a liquid crystal display panel is used as the display section **12**. As schematically shown in **FIG. 2**, such a display section **12** includes: gate lines **12***a* and source lines **12***b*; TFTs, each of which has its ON/OFF states controlled by associated one of the gate lines **12***a*; and pixel electrodes, each of which is connected to associated one of the source lines **12***b* by way of associated one of the TFTs. The gate lines **12***a*, source lines **12***b*, TFTs and pixel electrodes are provided on the principal surface of the substrate **1**. Each pair of TFT and pixel electrode will be referred to herein as a "display pixel"**12***c*. Although not shown in **FIG. 2**, the display section **12** further includes: a counter substrate with a counter electrode that is disposed to face the pixel electrodes; and a liquid crystal layer sandwiched between the substrate **1** and the counter substrate. The driver **13** includes a gate line driver and a source line driver. If necessary, the counter substrate may include a color filter layer so as to allow the display section **12** to conduct a display operation in full colors. To cut down the power dissipation, the display section **12** is preferably either a reflective liquid crystal display or a reflective and transmissive liquid crystal display.

[0091] Alternatively, the display section **12** may also be an organic EL display or an electrophoretic display, for example. The switching elements (or active components) do not have to be the TFTs, either. The driver **13** may be made by a known technique in accordance with the configuration of the display section **12**. In the following illustrative preferred embodiment, however, the display section **12** is supposed to include TFTs as the switching elements.

[0092] The substrate **1** may be a glass substrate, for example. On the substrate **1**, the TFTs, electrodes and lines of the display section **12** are formed by known techniques. The semiconductor film included in the TFTs is preferably made of a semiconductor material with a high mobility such as polysilicon. Then, some circuit components of the transceiver **11** and system controller **19** may be made of the same semiconductor film as those of the driver **13**. If portion of the transceiver **11**, portion of the system controller **19**, the display section **12** and the driver **13** are integrated together on the same substrate **1**, then the size and thickness of the card-type display device **10** can be reduced. A continuous grain silicon film as disclosed in Japanese Laid-Open Publication No. 2001-94109 may be used as a semiconductor film having an even higher mobility. By using the continuous grain silicon film, the size, thickness and power dissipation of the display device **10** can be further reduced, the manufacturing process thereof can be simplified, and the manufacturing cost thereof can be cut down.

[0093] In view of the characteristics of the semiconductor film formed on the substrate or cost performance, that portion of the transceiver **11** and that portion of the system controller **19** may be ready-made circuit components, which may be mounted on the substrate **1** by a known technique such as COG. Also, as will be described later, not just these circuits **11**, **12**, **13** and **19** but other additional circuits, including a power supply, a memory and an imager, may be further integrated together or mounted on the substrate **1**.

[0094] In a currently available display device, the area of the display section **12** normally accounts for approximately 60% of the overall area of the display device and the picture