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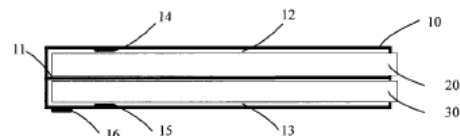
[22] Date of Application: April 8, 2008 [21] Application Number: 200820079806.4 [73] Patent Owner: Putian Information Technology Research Institute Co., Ltd. Address: 100080, No. 6, Bei Er Street, Haidian District, Beijing City, China [72] Inventors: Yang Guangmin, Cao Huiyang	[74] Patent Agency: Beijing Deqi Intellectual Property Agency Co., Ltd. Patent Attorneys: Wang Qi, Wang Chenghua Scope of Patent Claims: 2 pages; Detailed Explanation: 5 pages; Drawings Attached: 1 page
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[54] Title of New Utility Model

Flash Memory Card Connector

[57] Abstract

This new utility model discloses a flash memory card connector, including a rectangular slot, and further comprising: two positioning bumps, located on both sides inside the aforementioned slot, forming a first sub-slot with the upper inner surface of the aforementioned slot and forming a second sub-slot with the lower inner surface of the aforementioned slot; a first metal contact, located on the upper inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted flash memory card; a second metal contact, located on the lower inner surface of the aforementioned slot,



corresponding to the metal contacts of the inserted flash memory card; and a welding point, located on the outer surface of the aforementioned slot, connected to the aforementioned metal contacts. This new utility model's flash memory card connector can insert two flash memory cards simultaneously, thereby increasing the continuously accessible storage capacity of terminal devices without changing the storage capacity of the flash memory cards.

1. Flash Memory Card Connector, comprising a rectangular slot, characterized by further including: two positioning bumps, located on both sides inside the aforementioned slot, forming a first sub-slot with the upper inner surface of the aforementioned slot and forming a second sub-slot with the lower inner surface of the aforementioned slot; a first metal contact, located on the upper inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted first flash memory card; a second metal contact, located on the lower inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted second flash memory card; and a welding point, located on the outer surface of the aforementioned slot, connected to the aforementioned metal contacts.
2. Flash Memory Card Connector according to Claim 1, wherein the insertion openings of the aforementioned first sub-slot and the aforementioned second sub-slot are located on the same side of the aforementioned rectangular slot.
3. Flash Memory Card Connector according to Claim 1, wherein the aforementioned first metal contact includes more than one metal terminal, and the number of the aforementioned metal terminals is the same as the number of metal terminals included on the aforementioned first flash memory card, with the positions of the aforementioned metal terminals corresponding to the positions of the metal terminals included on the aforementioned first flash memory card.
4. Flash Memory Card Connector according to Claim 1, wherein the aforementioned second metal contact includes more than one metal terminal, and the number of the aforementioned metal terminals is the same as the number of metal terminals included on the aforementioned second flash memory card, with the positions of the aforementioned metal terminals corresponding to the positions of the metal terminals included on the aforementioned second flash memory card.
5. Flash Memory Card Connector according to Claim 1, wherein the aforementioned positioning bumps are located in the middle of both sides inside the aforementioned slot, and the sizes of the aforementioned first sub-slot and the aforementioned second sub-slot are the same.
6. Flash Memory Card Connector according to Claim 5, wherein the type of flash memory card corresponding to the aforementioned first metal contact and the aforementioned second metal contact is the same.

7. Flash Memory Card Connector according to any one of Claims 1 to 6, wherein the aforementioned flash memory cards include: Compact Flash (CF) cards, Memory Stick (MS), Secure Digital (SD) cards, and Multimedia Cards (MMC).

Flash Memory Card Connector

Technical Field

This new utility model relates to the technical field of flash memory cards, specifically to a flash memory card connector.

Background Technology

With the development of storage technology, flash memory cards, which are characterized by their small size and portability, have become increasingly widely used, facilitating users' data storage operations. Currently, flash memory card connectors mainly provide single-card connectors that only offer one slot for a flash memory card. When using terminal devices equipped with single-card connectors, users can only insert one flash memory card at a time. When the storage space of that flash memory card is full, it is necessary to replace it with another flash memory card, meaning the user must remove the full card and insert one with available storage space.

As users' requirements for the storage capacity of flash memory cards continue to rise, although the storage capacity of a single flash memory card can be increased, under current conditions, a single flash memory card cannot adequately meet users' storage needs. For example, professional digital cameras and digital camcorders that use flash memory cards as a storage medium require high-capacity flash memory cards. If a terminal device employs a single-card connector, once the storage capacity of one card is exhausted, it necessitates replacing it with another card, resulting in temporary interruptions in shooting. For applications such as digital photography and videography, the continuity of images can be severely impacted, or ongoing shots may be forced to stop.

In existing terminal devices, two single-card connectors can be set up to allow simultaneous insertion of two flash memory cards, thereby increasing the total storage capacity of the terminal device and avoiding issues related to card replacement. However, the larger size of two single-card connectors occupies more space within the terminal device; on one hand, this is not advantageous for the assembly of the terminal devices, and on the other hand, it increases the overall size of the terminal device, making it less convenient for use.

Content of New Utility Model

This new utility model proposes a flash memory card connector that allows for the simultaneous insertion of two flash memory cards, thereby increasing the accessible storage capacity of terminal devices while maintaining the storage capacity of each flash memory card.

A flash memory card connector, comprising: a rectangular slot, further comprising:

Two positioning bumps, located on both sides inside the aforementioned slot, forming a first sub-slot with the upper inner surface of the aforementioned slot and forming a second sub-slot with the lower inner surface of the aforementioned slot;

A first metal contact, located on the upper inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted flash memory card;

A second metal contact, located on the lower inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted flash memory card;

A welding point, located on the outer surface of the aforementioned slot, connected to the aforementioned metal contacts.

From the above proposal, it can be seen that the flash memory card connector in this new utility model embodiment can insert two flash memory cards simultaneously, which increases the accessible storage capacity of terminal devices without changing the storage capacity of the flash memory cards.

Furthermore, when using this new utility model embodiment, terminal devices can utilize another flash memory card in the flash memory card connector when one flash memory card's storage is full, allowing for the continuous replacement of the full card during normal operation, thus expanding the storage space of the terminal device.

In addition, compared to two separate single-card connectors, the flash memory card connector in this new utility model embodiment occupies less space, which facilitates the assembly of terminal devices and reduces the overall size of the terminal devices.

Explanation of the Attached Figures

Fig. 1 is a left side view of the flash memory card connector in this new utility model embodiment.

Fig. 2 is a front view of the flash memory card connector in this new utility model embodiment.

Fig. 3 is a schematic diagram of the structure of a flash memory card.

Specific Implementation Methods

To make the objectives, technical solutions, and advantages of this new utility model clearer, the following provides a more detailed description based on the embodiment of this new utility model.

In the flash memory card connector of this new utility model embodiment, it includes a rectangular slot, further comprising: two positioning bumps located on both sides of the slot; these positioning bumps form a first sub-slot with the upper inner surface of the slot and a second sub-slot with the lower inner surface of the slot; a first metal contact is located on the upper inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted flash memory card; a second metal contact is located on the lower inner surface of the aforementioned slot, corresponding to the metal contacts of the inserted flash memory card; and a welding point is located on the outer surface of the aforementioned slot, connected to the aforementioned metal contacts.

The following explains this new utility model in conjunction with a specific embodiment.

Fig. 1 shows the left side view of the flash memory card connector in this new utility model embodiment. As shown in Fig. 1, the flash memory card connector in this embodiment includes a rectangular slot 10, positioning bumps 11, a first metal contact 14, a second metal contact 15, and a welding point 16. Fig. 1 also illustrates a first flash memory card 20 and a second flash memory card 30. Here, the positioning bumps 11 can determine the position of the flash memory cards within the slot, forming a first sub-slot 12 and a second sub-slot 13 with the rectangular slot 10. The first flash memory card 20 is inserted into the first sub-slot 12, while the second flash memory card 30 is inserted into the second sub-slot 13, and the insertion openings of the first sub-slot 12 and the second sub-slot 13 are located on the same side of the slot 10.

The first metal contact 14 is located on the upper inner surface of 10, corresponding to the metal contacts of the inserted first flash memory card 20, thereby providing an electrical connection between the first flash memory card and slot 10. The second metal contact 15 is located on the lower inner surface of 10, corresponding to the metal contacts of the inserted second flash memory card 30, thus providing an electrical connection between the second flash memory card and slot 10.

The welding point 16 is located on the outer surface of 10, connecting to the first metal contact 14 and the second metal contact 15, thereby providing electrical connectivity between the aforementioned slot and the external environment.

Fig. 2 shows the front view of the flash memory card connector in this new utility model embodiment. As shown in Fig. 2, the positioning bumps 11 are respectively located at the center of both sides of slot 10, allowing the first sub-slot 12 and the second sub-slot 13 to have equal space size, enabling the simultaneous insertion of two flash memory cards of the same volume.

The first metal contact 14 and the second metal contact 15 both include more than one metal terminal, which correspond to the metal terminals on the first flash memory card 20 and the second flash memory card 30 inserted into slot 10, respectively. Taking the first flash memory card as an example, as shown in Fig. 3, we will explain the metal terminals included in the first metal contact 14.

Fig. 3 shows the external structure of a flash memory card. As illustrated in Fig. 3, this flash memory card has 13 metal terminals for electrical connection with external devices. Correspondingly, the first metal contact 14 also includes 13 metal terminals, and the positions of the metal terminals on the first metal contact 14 correspond one-to-one with the positions of the metal terminals on the flash memory card. Thus, when the flash memory card shown in Fig. 3 is inserted into the first sub-slot, the metal terminals of the flash memory card make contact with the metal terminals on the first metal contact 14, thereby providing electrical connectivity between the flash memory card and slot 10 through the first metal contact 14.

In this embodiment, the types of flash memory cards corresponding to the first metal contact 14 and the second metal contact 15 are the same, meaning that the second metal contact 15 also includes 13 metal terminals, and the positions of these 13 metal terminals correspond to the positions of the metal terminals on the flash memory card shown in Fig. 3.

When applying this embodiment, it is possible to set up status indicators for the two flash memory cards within terminal devices that include the flash memory card connector. For example, indicators can show the free storage capacity of the flash memory cards. When the storage space of one of the flash memory cards is full, the user can be informed via the status indicator that the flash memory card is full and can replace the full flash memory card. During this replacement process, the terminal device can continue to operate using the other flash memory card, greatly facilitating the user's experience with the terminal device.

It can be seen that the flash memory card connector in this embodiment allows for the simultaneous insertion of two flash memory cards, thereby increasing the accessible storage capacity of terminal devices while maintaining the storage capacity of each flash memory card. Furthermore, when using this embodiment, the terminal device can utilize another flash memory card in the connector when one flash memory card's storage becomes full, allowing for continuous expansion of the terminal device's storage space during normal operation.

In addition, compared to two separate single-card connectors, the flash memory card connector in this embodiment occupies less space, which makes assembly of the terminal devices easier and reduces the overall size of the terminal devices.

In the aforementioned embodiment, the first metal contact 14 and the second metal contact 15 correspond to the flash memory card shown in Fig. 3. When applying this new utility model, different metal terminals can be set for the first metal contact 14 and the second metal contact 15 to accommodate various types of flash memory cards, such as Compact Flash Cards (CF), Memory Sticks (MS), Secure Digital Memory Cards (SD), and Multimedia Cards (MMC), among others.

When the two metal contacts in the flash memory card connector correspond to different types of flash memory cards, the flash memory card connector can simultaneously insert two different types of flash memory cards. For example, the flash memory card connector in this new utility model can simultaneously insert an SD card and an MMC card.

The above is merely a preferred embodiment of this new utility model and should not be construed as limiting the utility model itself. Any modifications, equivalents, substitutions, or improvements made within the spirit and principles of this new utility model should be included within the protective scope of this new utility model.

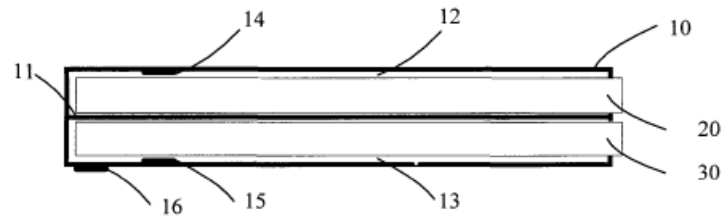


Fig. 1

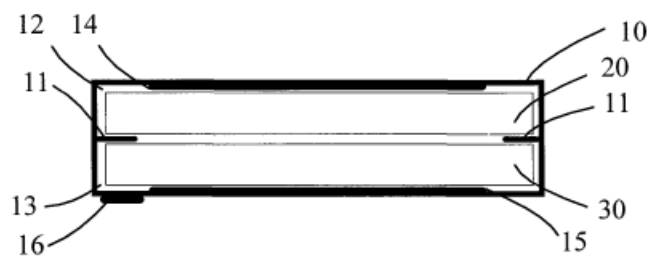


Fig. 2

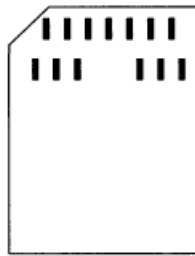


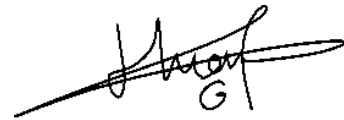
Fig. 3

Declaration of Dr. Huang Gao

1. I, Dr. Huang Gao, hereby certify that I am a professional translator fluent in both Chinese and English and I am competent to translate from Chinese into English.
2. I hereby certify that I prepared the foregoing translation of CN201174439Y and that it is, to the best of my knowledge and belief, a true and accurate English translation of this Chinese document.
3. I acknowledge that willful false statements and the like are punishable by fine and/or imprisonment.
4. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true.
5. I declare under penalty of perjury that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

Executed on: 11/24/2025

Signed:

A handwritten signature in black ink, appearing to be 'Huang Gao', written over a horizontal line.

Dr. Huang Gao

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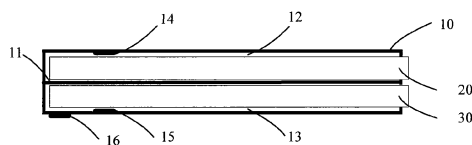
权利要求书 2 页 说明书 5 页 附图 1 页

[54] 实用新型名称

闪存卡连接器

[57] 摘要

本实用新型公开了一种闪存卡连接器，包括矩形插槽，还包括：两个定位凸条，分别位于所述插槽内部两侧，与所述插槽的上内表面形成第一子插槽，与所述插槽的下内表面形成第二子插槽；第一金属触点，位于所述插槽的上内表面，与插入后的闪存卡的金属触点对应；第二金属触点，位于所述插槽的下内表面，与插入后的闪存卡的金属触点对应；焊接点，位于所述插槽的外表面，与所述金属触点相连。本实用新型中闪存卡连接器，能够同时插入两个闪存卡，从而在闪存卡的存储容量不变的情况下，提高了终端设备的可以连续访问的存储容量。



1、一种闪存卡连接器，包括矩形插槽，其特征在于，还包括：

两个定位凸条，分别位于所述插槽内部两侧，与所述插槽的上内表面形成第一子插槽，与所述插槽的下内表面形成第二子插槽；

第一金属触点，位于所述插槽的上内表面，与插入后的第一闪存卡的金属触点对应；

第二金属触点，位于所述插槽的下内表面，与插入后的第二闪存卡的金属触点对应；

焊接点，位于所述插槽的外表面，与所述金属触点相连。

2、根据权利要求1所述的闪存卡连接器，其特征在于，所述第一子插槽和所述第二子插槽的插入口位于所述矩形插槽的同一侧。

3、根据权利要求1所述的闪存卡连接器，其特征在于，所述第一金属触点包括一个以上金属端子，所述金属端子的数量与所述第一闪存卡上金属触点包括的金属端子的数量相同，所述金属端子的位置分别与所述第一闪存卡上金属触点包括的金属端子的位置对应。

4、根据权利要求1所述的闪存卡连接器，其特征在于，所述第二金属触点包括一个以上金属端子，所述金属端子的数量与所述第二闪存卡上金属触点包括的金属端子的数量相同，所述金属端子的位置分别与所述第二闪存卡上金属触点包括的金属端子的位置对应。

5、根据权利要求1所述的闪存卡连接器，其特征在于，所述定位凸条位于所述插槽内部两侧的中部，所述第一子插槽与所述第二子插槽的空间大小相同。

6、根据权利要求5所述的闪存卡连接器，其特征在于，所述第一金属触点与所述第二金属触点对应的闪存卡的类型相同。

7、根据权利要求1至6任意一项所述的闪存卡连接器，其特征在于，所述闪存卡包括：压缩闪存CF卡、记忆棒MS、安全数码SD卡和多媒体卡

MMC。

闪存卡连接器

技术领域

本实用新型涉及闪存卡技术领域，特别是一种闪存卡连接器。

背景技术

随着存储技术的发展，具有体积小，携带方便等特点的闪存卡，即移动存储卡得到了越来越广泛的应用，方便了用户对数据的存储操作。

目前，闪存卡连接器主要是仅提供一个闪存卡插槽的单卡连接器。用户在使用具有单卡连接器的终端设备时，每次只能插入一块闪存卡。当该闪存卡的存储空间已满时，需要更换另外一块闪存卡，即退出存储空间已满的闪存卡，插入存储空间未满的闪存卡。

随着用户对闪存卡存储容量的要求越来越高，虽然可以提高单块闪存卡的存储容量，但是在目前的条件下，单块闪存卡不能很好的满足用户的存储需要。例如，专业数码相机以及利用闪存卡作为存储介质的数码摄像机等终端设备都需要大容量的闪存卡。如果终端设备采用单卡连接器的话，在一块卡的存储容量用完之后，需要更换另外一块闪存卡，从而导致拍摄暂时停止。对于数码摄像、摄影等的应用来说，影像的连续性会受到严重影响，或者正在进行的抓拍会被迫中断。

现有的终端设备中可以设置两个单卡连接器，使终端设备可以同时插入两块闪存卡，从而提高终端设备总的存储容量，避免更换闪存卡带来的影响。但是，由于两个单卡连接器的体积较大，同时设置两个单卡连接器会占用终端设备较多的空间，一方面不利用终端设备的装配，另一方面增大了终端设备的体积，不利于终端设备的使用。

实用新型内容

本实用新型提出了一种闪存卡连接器，能够同时插入两个闪存卡，从而在闪存卡的存储容量不变的情况下，提高了终端设备的可以连续访问的存储容量。

一种闪存卡连接器，包括：矩形插槽，还包括：

两个定位凸条，分别位于所述插槽内部两侧，与所述插槽的上内表面形成第一子插槽，与所述插槽的下内表面形成第二子插槽；

第一金属触点，位于所述插槽的上内表面，与插入后的闪存卡的金属触点对应；

第二金属触点，位于所述插槽的下内表面，与插入后的闪存卡的金属触点对应；

焊接点，位于所述插槽的外表面，与所述金属触点相连。

从上述方案中可以看出，由于本实用新型实施例中的闪存卡连接器可以同时插入两块闪存卡，从而在闪存卡的存储容量不变的情况下，提高了终端设备可以访问的存储容量。进一步的，当使用本实用新型实施例时，终端设备可以在一块闪存卡存储已满时，使用闪存卡连接器中的另外一块闪存卡，同时更换存储已满的闪存卡，从而在正常使用终端设备的情况下，可以不断扩展终端设备的存储空间。

另外，与两个独立的单卡连接器相比，本实用新型实施例中的闪存卡连接器占用的空间小，从而一方面方便了终端设备的装配，另一方面减小了终端设备的体积。

附图说明

图1为本实用新型实施例中闪存卡连接器的左侧视图。

图2为本实用新型实施例中闪存卡连接器的正视图。

图3为一种闪存卡的结构示意图。

具体实施方式

为使本实用新型的目的、技术方案和优点更加清楚，以下根据实施例对本实用新型进一步详细说明。

在本实用新型实施例中的闪存卡连接器包括矩形插槽，还包括：分别位于插槽两侧的两个定位凸条，该定位凸条与插槽的上内表面形成第一子插槽，与插槽的下内表面形成第二子插槽；位于所述插槽的上内表面的第一金属触点，与插入后的闪存卡的金属触点对应；位于所述插槽的下内表面的第二金属触点，与插入后的闪存卡的金属触点对应；位于所述插槽的外表面的焊接点，与所述金属触点相连。

下面结合具体实施例对本实用新型进行说明。

图1示出了本实用新型实施例中闪存卡连接器的左侧视图。

如图1所示，本实施例中的闪存卡连接器包括矩形插槽10，定位凸条11，第一金属触点14和第二金属触点15和焊接点16。在图1中还示出了第一闪存卡20和第二闪存卡30。

其中，定位凸条11能够确定闪存卡在插槽中的位置，与矩形插槽10形成第一子插槽12和第二子插槽13，第一闪存卡20插入第一子插槽12，第二闪存卡30插入第二子插槽13，并且第一子插槽12和第二子插槽13的插入口位于插槽10的同一侧。

第一金属触点14位于10的上内表面，与插入后的第一闪存卡20的金属触点对应，从而提供第一闪存卡与插槽10的电气连接，第二金属触点15位于10的下内表面，与插入后的第二闪存卡30的金属触点对应，从而提供第二闪存卡与插槽10的电气连接。

焊接点16位于10的外表面，与第一金属触点14和第二金属触点15连接，从而提供所述插槽与外部的电气连接。

图2示出了本实用新型实施例中闪存卡连接器的正视图。

如图2所示，定位凸条11分别位于插槽10两侧的中部，从而使第一子

插槽 12 和第二子插槽 13 的空间大小相同,可以同时插入体积相同的两块闪存卡。

第一金属触点 14 和第二金属触点 15 均包括一个以上金属端子,分别与插入插槽 10 的第一闪存卡 20 和第二闪存卡 30 上的金属端子对应。以第一闪存卡为图 3 所示的闪存卡为例,对第一金属触点 14 包括的金属端子进行说明。

图 3 示出了一种闪存卡的外部结构。如图 3 所示,该闪存卡上具有 13 个金属端子,用于闪存卡与外部的电气连接。相应的,第一金属触点 14 同样包括 13 个金属端子,并且第一金属触点 14 上金属端子的位置与该闪存卡上金属端子的位置一一对应。这样一来,在图 3 所示的闪存卡插入第一子插槽时,该闪存卡的金属端子与第一金属触点 14 上的金属端子接触,从而通过第一金属触点 14 提供该闪存卡与插槽 10 的电气连接。

在本实施例中,第一金属触点 14 与第二金属触点 15 对应的闪存卡的类型相同,即第二金属触点 15 也包括 13 个金属端子,并且该 13 个金属端子的位置与图 3 所示闪存卡上金属端子的位置对应。

在应用本实施例时,可以在包括该闪存卡连接器的终端设备中设置两块闪存卡的状态指示。例如,指示闪存卡的空闲存储容量等。当其中一块闪存卡的存储空间已满时,用户可以通过该状态指示获知闪存卡已存满,并且可以更换已存满的闪存卡,在更换过程中,终端设备可以正常使用另外一块闪存卡,从而极大地方便了用户对终端设备的使用。

可见,本实施例中的闪存卡连接器可以同时插入两块闪存卡,从而在闪存卡的存储容量不变的情况下,提高了终端设备可以访问的存储容量。进一步的,当使用本实施例时,终端设备可以在一块闪存卡存储已满时,使用闪存卡连接器中的另外一块闪存卡,同时更换存储已满的闪存卡,从而在正常使用终端设备的情况下,能够不断扩展终端设备的存储空间。

另外,与两个独立的单卡连接器相比,本实施例中的闪存卡连接器占用的空间小,从而一方面方便了终端设备的装配,另一方面减小了终端设备的

体积。

在上述实施例中，第一金属触点 14 和第二金属触点 15 与图 3 所示的闪存卡对应。在应用本实用新型时，可以为第一金属触点 14 和第二金属触点 15 设置针对不同类型闪存卡的金属端子，从而使本实用新型实施例中的闪存卡连接器适用于多种类型的闪存卡，如压缩闪存卡（CF 卡，compact flash card）、记忆棒（MS，Memory Stick）、安全数码卡（SD 卡，Secure Digital Memory Card）和，多媒体卡（MMC，Multi Media Card）等。

当闪存卡连接器中的两个金属触点的类型分别对应不同的闪存卡时，该闪存卡连接器可以同时插入两种不同类型的闪存卡，例如本实用新型中的闪存卡连接器可以同时插入 SD 卡和 MMC 卡。

以上所述仅为本实用新型的较佳实施例而已，并不用以限制本实用新型，凡在本实用新型的精神和原则之内，所作的任何修改、等同替换、改进等，均应包含在本实用新型的保护范围之内。

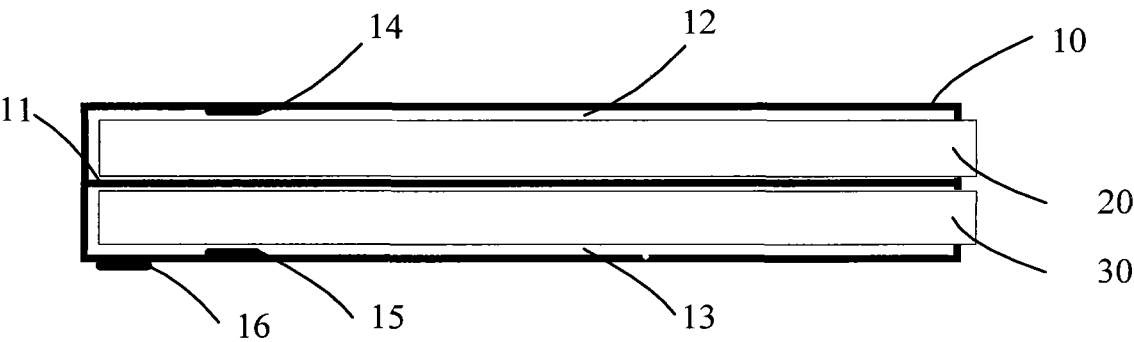


图 1

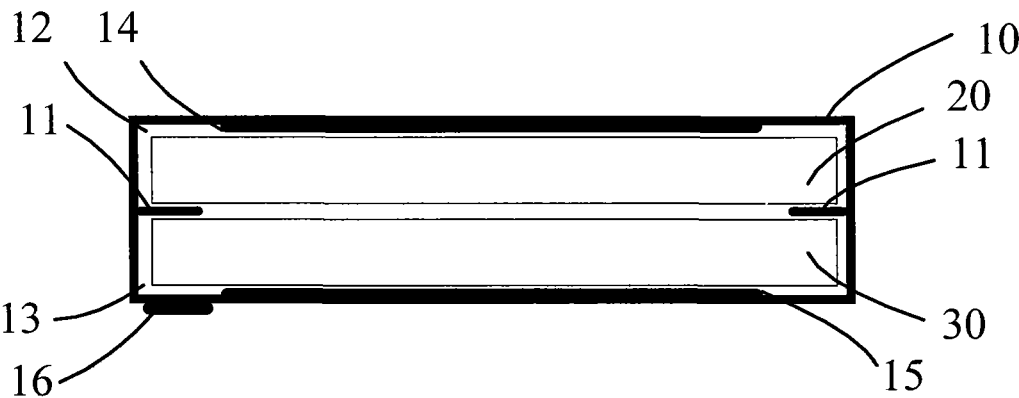


图 2

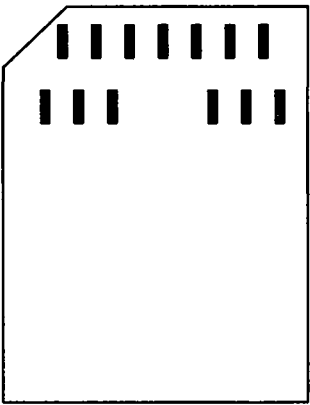


图 3