

Description

This invention generally relates to the packaging of integrated circuits prior to mounting on a printed circuit board as specified in the preamble of claim 1, for example as disclosed in US-A-4,562,924. More specifically, this invention relates to the packaging of moulded carriers used for testing and transporting of these integrated circuits during assembly of a printed circuit incorporating the integrated circuit.

Many methods are known for forming the electrical interconnections between an integrated circuit and the supporting substrate. Tape automated bonding (TAB) is one commonly-known method for forming these electrical interconnections. A TAB tape is provided which is made up of many identical electrical lead configurations sequentially patterned along the tape.

The electrical lead pattern comprises many individual long, slender leads attached to, and extending radially inwards from, a perimeter of the TAB tape material. The integrated circuit is provided within the centre of the TAB tape and gang-bonded to each of the electrical leads. After bonding between the integrated circuit and electrical leads is complete, the integrated circuit is excised from the TAB tape. The integrated circuit is subsequently mounted on an appropriate printed substrate, if this has not already been done, and accordingly bonded to the substrate.

The integrity of the individual integrated circuit assemblies must be maintained throughout processing, but particularly during the period after the integrated circuit has been bonded to the electrical leads but not yet excised from the TAB tape. During this period, the TAB tape, integrated circuit and patterned slender electrical leads must be maintained in a substantially planar manner to ensure the integrity of the assembly for subsequent attachment of the integrated circuit to an appropriate substrate. Therefore, generally, a carrier ring or other device which fits around the perimeter of the TAB tape to retain the integrated circuit and electrical leads is utilized. The carrier is typically formed from a moulded plastics or other material which is relatively inexpensive, yet durable. After moulding, the carrier assembly having the integrated circuit and leads is fed into an assembly machine which then excises the integrated circuit and leads from the carrier and mounts the integrated circuit onto an appropriate printed circuit.

During assembly and transport, these carrier assemblies are generally stacked vertically or horizontally and individually fed into the assembly machine. However, this method results in several disadvantages. Firstly, complex packaging and feed systems are required to handle the individual carrier units, since the individual units are not amenable to use with conventional tape and reel packaging methods. Secondly, it is expensive to package each unit individually.

Lastly, there is added waste and bulk as a result of the individual packaging for each unit.

It is desirable therefore to provide a means for packaging these carrier assemblies which is amenable to the automatic feed handling systems used to attach the integrated circuit within the carrier unit to a printed circuit board, wherein the carrier assemblies would be provided in a continuous manner. It is also desirable that the method for packaging be simplistic in design and relatively inexpensive. Lastly, it is desirable that the packaging method not generate undue waste.

A package for carriers of integrated circuits according to the present invention is characterised by the features specified in the characterising portion of claim 1 and a method for packaging carriers of integrated circuits according to the present invention is characterised by the features as specified in the characterising portion of claim 6.

It is an object of the present invention to provide means for packaging a plurality of carrier assemblies, each having an integrated circuit which has been bonded to the electrical leads within a lead frame.

It is a further object of this invention that such packaging means provide a flexible and continuous chain of these carrier assemblies.

In accordance with a preferred embodiment of this invention, these and other objects and advantages are accomplished as follows.

A package has been prepared for moulded carriers, each supporting an integrated circuit which has been previously bonded to the electrical leads of a TAB tape. The packaging means used flexibly and sequentially connects a plurality of the carriers together, so as to form a flexible and continuous chain of the carriers. The packaging means preferably comprises a flexible conductive tape which is continuously provided on parallel ends, or edges, and on the top and bottom surface of each carrier, so as to link the carriers together.

An inventive feature of this invention is that the flexible chain of carriers permits the carriers to be fed continuously into subsequent test and assembly machines utilized to attach the integrated circuit to a printed circuit board. In addition, the cost associated with this means of packaging, instead of conventional individual packaging units, is relatively inexpensive. Further, this means for packaging generates lesser amounts of waste.

Other objects and advantages of this invention will be better appreciated from a detailed description thereof, which follows.

The invention and how it may be performed are hereinafter particularly described with reference to the accompanying drawing, which is a perspective view of a packaging means for use with a carrier of an integrated circuit in accordance with a preferred embodiment of the present invention.

A package is provided for testing and transporting moulded carriers, each of which supports an integrated circuit which has been previously bonded to the electrical leads of a TAB tape. The package provides a flexible and continuous chain of the carriers, which permits the carriers to be fed continuously into subsequent test and assembly machines utilized to attach the integrated circuit to a printed circuit board.

As shown in the accompanying drawing an integrated circuit 10 is bonded to electrical leads 12. The electrical leads 12 are integral with and provided by a TAB tape. The integrated circuit 10 and electrical leads 12 are maintained in a substantially planar manner by a moulded carrier 14 in the form of an annular ring. The moulded carrier 14 is formed from a moulded plastics material after the integrated circuit 10 has been bonded to the electrical leads 12. The carrier 14 may be formed from any material which is durable, electrically dielectric and relatively inexpensive, such as a plastics material.

The individual carriers 14 are connected to one another by means of a flexible tape 16 which is provided on parallel ends 18, or the edges, of each carrier 14. The flexible tape 16 is also provided on the top and bottom surface of the carrier 14 along the edges 18. The tape 16 adheres to the surface of the carrier 14 where it is provided.

The carriers 14 are spaced a predetermined distance apart from each other, so that a gap 20 exists between each carrier 14. The size of the gap 20 is determined by the requirements of the subsequent processing machines and tolerances. Theoretically, the gap 20 could be quite large, however, for practical purposes it is desirable that the gap 20 be one to two times the thickness of the carrier 14. With a gap 20 of this preferred dimension, the chain of carriers 14 is still flexible, yet is not unduly cumbersome. If the gap 20 is too large, the flexible tape 16 may become entangled or tear, whilst if the gap 20 is too small, there may not be enough flexibility between the carriers 14, which may hinder subsequent processing of the carriers 14 and integrated circuits 10.

As shown in the accompanying drawing, the flexible tape 16 links an indefinite number of carriers 14 together. At the gap 20, the flexible tape 16 forms a flexible link 22 between carriers 14. The link 22 is formed by the oppositely disposed tapes 16 provided on the top and bottom surfaces of the carrier 14 along the edges 18 of the carrier 14. The flexible links 22 permit the carriers 14 and integrated circuits 10 to fold over one another or to be hinged to one another in a manner similar to a chain. This allows the carriers 14 to be transported, stored and dispensed from a protective container having the carriers 14 layered within the container, similar to the manner in which continuously-fed ammunition is stored. The carriers 14 may then be continuously fed, instead of individually fed, into an assembly machine, such as a trim and form

machine. In practice, after assembly or test at a particular machine, the integrated circuit 10 would be excised from the carrier 14. The carrier 14 having the flexible tape 16 could then be discarded.

It is preferred that the tape 16 be formed from a material which does not deteriorate with age, does not cause damage to the integrated circuit and other components through out-gassing, does not generate an electrostatic discharge, and protects the components from electrostatic discharge generated elsewhere by being electrically conductive or at least conductive to static electricity. A preferred material for the flexible tape is a metallized polyester with an acrylic adhesive backing. The preferred metal is aluminium or nickel, although a conductive PVC or polystyrene may also be used on an acrylic adhesive. It is preferred that the acrylic adhesive be pressure-sensitive for ease in applying the tape to the carriers, however, it is foreseeable that the adhesive may be heat-sensitive and applied by exposing it to an appropriate temperature.

It is also foreseeable that the tape 16 could be provided only at the gap 20 region. Therefore, it would not need to run the entire length of the edges of the carrier 14. The tape 16 would be provided on the carrier 14 near the gap 20 in an amount sufficient to ensure good adherence between the tape 16 and carrier 14. This variation would consume less amounts of the tape 16, however, it may prove more difficult to produce than the continuously-provided tape 16 shown in the figure.

Advantages of this method for packaging the carriers 14 are many. The packaging permits the carriers 14 to be fed continuously into subsequent assembly machines utilized to attach the integrated circuit to a printed circuit board. In addition, the costs associated with this means of packaging, instead of conventional individual packaging units, are relatively inexpensive. Also, a high packing density of the carriers 14 is obtained and less refuse is generated.

While the invention has been described in terms of a preferred embodiment using TAB tape technology, it is apparent that other forms could be adopted by one skilled in the art, such as the use of a different tape material or such as the use of integrated circuits which have been previously wire-bonded to an electrical lead frame. Accordingly, the scope of the invention is to be limited only by the following claims.

Claims

1. A package for carriers of integrated circuits comprising a plurality of integrated circuits (10), each of said integrated circuits (10) having a plurality of electrical leads (12) attached to and extending outwardly from said integrated circuit (10); a plurality of carriers (14), each of said carriers (14) retaining an individual integrated circuit (10); and a

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- flexible connection means (16) for flexibly and sequentially connecting said carriers (14) to one another so as to form a flexible chain of said carriers (14), characterised in that each carrier (14) rigidly retains in a substantially planar direction all of said electrical leads (12) attached to and extending outwardly from said integrated circuit (10); and in that said flexible connection means (16) connects said carriers (14) to one another so that said connected carriers can be folded over one another in a stacked configuration.
2. A package according to claim 1, wherein said flexible connection means comprises an adhesive tape (16).
 3. A package according to claim 1 or 2, wherein said flexible connection means (16) comprises an electrically conductive material.
 4. A package according to claim 1, wherein said flexible connection means comprises adhesive tape adhered to a sufficient region of at least two of said carriers for flexibly and sequentially connecting said carriers together to form said flexible chain of said carriers.
 5. A package according to claim 1, wherein each of said carriers (14) has at least two parallel edges (18); and said flexible connection means comprises adhesive tape (16) adhered to said parallel edges (18) of at least two of said carriers (14) for flexibly and sequentially connecting said carriers (14) together to form said flexible chain of said carriers (14).
 6. A method for packaging carriers of integrated circuits comprising the following steps: providing a plurality of integrated circuits (10), each having a plurality of electrical leads (12) attached to and extending outwardly from said integrated circuit (10); retaining said integrated circuits (10) in a substantially planar manner in a carrier (14); and connecting each of said carriers (14) to another of said carriers (14) by means of a flexible link (22), characterised in that all of said electrical leads of each integrated circuit are rigidly retained in a substantially planar direction in a respective carrier (14), each flexible link (22) is formed from a material (16) of sufficient thinness and flexibility to allow said link (22) to be doubled back on itself, and the spacing (20) of each connected carrier (14) from the adjacent connected carrier (14) is such that said carriers (14) are flexibly and sequentially connected to one another to form a chain in which said connected carriers (14) can be folded over one another in a stacked configuration to form a package.
 7. A method for packaging carriers of integrated circuits according to claim 6, wherein said flexible link (22) used in said connecting step comprises an adhesive tape (16).
 8. A method for packaging carriers of integrated circuits according to claim 6, wherein said flexible link (22) used in said connecting step comprises an electrically-conductive tape (16).
 9. A package according to claim 1, wherein each of said carriers (14) has top and bottom surfaces and each of said surfaces has first and second opposed edges; and said flexible connection means comprises first, second, third and fourth strips of adhesive tape (16), said first strip of adhesive tape (16) has a portion thereof adhered to a portion of the top surface near said first edge of each carrier (14) and a portion thereof extending across a gap (20) between adjacent carriers (14), said second strip of adhesive tape (16) has a portion thereof adhered to a portion of the bottom surface near said first edge of each carrier (14) and a portion thereof extending across said gap (20) between adjacent carriers (14), said first and second strips are secured together for a distance along said portions extending across said gap (20) between adjacent carriers (14) to form a first flexible link (22), said third strip of adhesive tape (16) has a portion thereof adhered to a portion of the top surface near said second edge of each carrier (14) and a portion thereof extending across said gap (20) between adjacent carriers (14), said fourth strip of adhesive tape (16) has a portion thereof adhered to a portion of the bottom surface near said second edge of each carrier (14) and a portion thereof extending across said gap (20) between adjacent carriers (14), and said third and fourth strips are secured together for a distance along said portions extending across said gap (20) between adjacent carriers (14) to form a second flexible link (22).
 10. A package according to claim 9, wherein said first, second, third and fourth strips of adhesive tape (16) are all electrically conductive.
 11. A package according to claim 9, wherein said adhesive tape (16) has adhesive on only one side thereof.
 12. A package according to claim 9, wherein said adhesive tape (16) has adhesive on only one side thereof, and has an electrically-conductive surface on the other side thereof.
 13. A package according to claim 9, wherein all of the carriers (14) are of substantially equal thickness,



and said gap (20) between adjacent carriers (14) is equal to a distance slightly greater than twice the thickness of each carrier (14) so that said carriers (14), when folded over one another, are positioned in substantially superimposed positions, one upon another.

14. A package according to claim 9, wherein said adhesive tape (16) comprises a metallized polyester tape having a backing of acrylic adhesive.

15. A package according to claim 9, wherein said first, second, third and fourth strips of adhesive tape (16) are all formed from continuous lengths of adhesive tape (16) which extend along the lengths of the respective first and second opposed edges of each of said carriers (14) as well as across said gaps (20) between the adjacent carriers (14).

Patentansprüche

1. Eine Packung für Träger integrierter Schaltungen mit einer Vielzahl integrierter Schaltungen (10), wobei jede der integrierten Schaltungen (10) eine Vielzahl elektrischer Leitungen (12) aufweist, die an der integrierten Schaltung (10) befestigt sind und sich nach außen von dieser erstrecken; einer Vielzahl von Trägern (14), wobei jeder der Träger (14) eine individuelle integrierte Schaltung (10) hält; und einem flexiblen Verbindungsmittel (16), um flexibel und sequentiell die Träger (14) miteinander zu verbinden und somit eine flexible Kette der Träger (14) zu bilden, dadurch gekennzeichnet, daß jeder Träger (14) starr in einer im wesentlichen ebenen Richtung alle elektrischen Leitungen (12) hält, die an der integrierten Schaltung (10) befestigt sind und sich nach außen von dieser erstrecken; und daß das flexible Verbindungsmittel (16) die Träger (14) miteinander verbindet, so daß die verbundenen Träger übereinander in einer gestapelten Konfiguration gefaltet werden können.

2. Eine Packung nach Anspruch 1, bei der das flexible Verbindungsmittel ein Haftband (16) umfaßt.

3. Eine Packung nach Anspruch 1 oder 2, bei der das flexible Verbindungsmittel (16) ein elektrisch leitfähiges Material umfaßt.

4. Eine Packung nach Anspruch 1, bei der das flexible Verbindungsmittel ein Haftband umfaßt, das an einem ausreichenden Bereich von wenigstens zwei der Träger haftet, um

flexibel und sequentiell die Träger miteinander zu verbinden und somit die flexible Kette der Träger zu bilden.

5. Eine Packung nach Anspruch 1, bei der jeder der Träger (14) wenigstens zwei parallele Kanten (18) aufweist; und das flexible Verbindungsmittel ein Haftband (16) umfaßt, das an den parallelen Kanten (18) von wenigstens zwei der Träger (14) haftet, um flexibel und sequentiell die Träger (14) miteinander zu verbinden und somit die flexible Kette der Träger (14) zu bilden.

6. Ein Verfahren zum Packen von Trägern integrierter Schaltungen, welches die folgenden Schritte umfaßt: daß eine Vielzahl integrierter Schaltungen (10) vorgesehen wird, die jeweils eine Vielzahl elektrischer Leitungen (12) aufweisen, welche an der integrierten Schaltung (10) befestigt sind und sich nach außen von dieser erstrecken; daß die integrierten Schaltungen (10) auf eine im wesentlichen ebenen Weise in einem Träger (14) gehalten werden; und daß jeder der Träger (14) mit einem anderen der Träger (14) mittels einer flexiblen Verbindung (22) verbunden wird, dadurch gekennzeichnet, daß alle elektrischen Leitungen jeder integrierten Schaltung starr in einer im wesentlichen ebenen Richtung in einem jeweiligen Träger (14) gehalten werden, jede flexible Verbindung (22) aus einem Material (16) ausreichender Dünne und Flexibilität gebildet wird, um der Verbindung (22) zu gestatten, auf sich selbst umgeschlagen zu werden, und die Beabstandung (20) jedes verbundenen Trägers (14) von dem benachbarten verbundenen Träger (14) derart ist, daß die Träger (14) flexibel und sequentiell miteinander verbunden werden, um eine Kette zu bilden, in der die verbundenen Träger (14) übereinander in einer gestapelten Konfiguration gefaltet werden können, um eine Packung zu bilden.

7. Ein Verfahren zum Packen von Trägern integrierter Schaltungen nach Anspruch 6, bei dem die flexible Verbindung (22), die im Verbindungsschritt verwendet wird, ein Haftband (16) umfaßt.

8. Ein Verfahren zum Packen von Trägern integrierter Schaltungen nach Anspruch 6, bei dem die flexible Verbindung (22), die im Verbindungsschritt verwendet wird, ein elektrisch leitfähiges Band (16) umfaßt.

9. Eine Packung nach Anspruch 1, bei der jeder der Träger (14) oberste und unterste Flächen und jede der Flächen erste und zweite gegenüberliegende Kanten aufweist; und das



flexible Verbindungsmittel erste, zweite, dritte und vierte Streifen eines Haftbandes (16) umfaßt; wobei ein Bereich des ersten Streifens des Haftbandes (16) an einem Bereich der obersten Fläche nahe der ersten Kante jedes Trägers (14) haftet und ein Bereich davon sich über eine Lücke (20) zwischen benachbarten Trägern (14) erstreckt, ein Bereich des zweiten Streifens des Haftbandes (16) an einem Bereich der untersten Fläche nahe der ersten Kante jedes Trägers (14) haftet und ein Bereich davon sich über die Lücke (20) zwischen benachbarten Trägern (14) erstreckt, die ersten und zweiten Streifen aneinander befestigt sind für eine Entfernung entlang der sich über die Lücke (20) zwischen benachbarten Trägern (14) erstreckenden Bereiche, um eine erste flexible Verbindung (22) zu bilden, ein Bereich des dritten Streifens des Haftbandes (16) an einem Bereich der obersten Fläche nahe der zweiten Kante jedes Trägers (14) haftet und ein Bereich davon sich über die Lücke (20) zwischen benachbarten Trägern (14) erstreckt, ein Bereich des vierten Streifens des Haftbandes (16) an einem Bereich der untersten Fläche nahe der zweiten Kante jedes Trägers (14) haftet und ein Bereich davon sich über die Lücke (20) zwischen benachbarten Trägern (14) erstreckt, und die dritten und vierten Streifen aneinander befestigt sind für eine Entfernung entlang der sich über die Lücke (20) zwischen benachbarten Trägern (14) erstreckenden Bereiche, um eine zweite flexible Verbindung (22) zu bilden.

10. Eine Packung nach Anspruch 9, bei der die ersten, zweiten, dritten und vierten Streifen des Haftbandes (16) alle elektrisch leitfähig sind.

11. Eine Packung nach Anspruch 9, bei der das Haftband (16) ein Haftmittel auf lediglich der einen Seite davon aufweist.

12. Eine Packung nach Anspruch 9, bei der das Haftband (16) ein Haftmittel auf lediglich der einen Seite davon und eine elektrisch leitfähige Fläche auf der anderen Seite davon aufweist.

13. Eine Packung nach Anspruch 9, bei der alle Träger (14) im wesentlichen die gleiche Dicke aufweisen und die Lücke (20) zwischen benachbarten Trägern (14) gleich einer Entfernung ist, die geringfügig größer als das Zweifache der Dicke jedes Trägers (14) ist, so daß die Träger (14), wenn sie übereinander gefaltet sind, in im wesentlichen übereinanderliegenden Positionen, einer auf dem anderen, positioniert sind.

14. Eine Packung nach Anspruch 9, bei der das Haftband (16) ein metallisiertes Polyesterband mit einer Unterlage aus Acryl-Haftmittel umfaßt.

15. Eine Packung nach Anspruch 9, bei der die ersten, zweiten, dritten und vierten Streifen des Haftbandes (16) alle aus kontinuierlichen Längen des Haftbandes (16) gebildet sind, die sich sowohl entlang der Längen der jeweiligen ersten und zweiten gegenüberliegenden Kanten jedes der Träger (14) als auch über die Lücken (20) zwischen den benachbarten Trägern (14) erstrecken.

Revendications

1. Boîtier pour supports de circuits intégrés comprenant une pluralité de circuits intégrés (10), chacun desdits circuits intégrés (10) ayant une pluralité de conducteurs électriques (12) fixés audit circuit intégré (10) et s'étendant à l'extérieur de celui-ci; une pluralité de supports (14), chacun desdits supports (14) retenant un circuit intégré individuel (10); et un moyen de connexion flexible (16) pour connecter de manière flexible et séquentielle lesdits supports (14) les uns avec les autres de manière à former une chaîne flexible desdits supports (14), caractérisé en ce que chaque support (14) retient de manière rigide dans une direction sensiblement plane tous lesdits conducteurs électriques (12) fixés audit circuit intégré (10) et s'étendant à l'extérieur de celui-ci; et en ce que le moyen de connexion flexible (16) connecte lesdits supports (14) les uns aux autres de telle sorte que les supports connectés peuvent être repliés les uns sur les autres dans une configuration empilée.

2. Boîtier selon la revendication 1, dans lequel ledit moyen de connexion flexible comprend une bande adhésive (16).

3. Boîtier selon la revendication 1 ou 2, dans lequel ledit moyen de connexion flexible (16) comprend un matériau conducteur électriquement.

4. Boîtier selon la revendication 1, dans lequel ledit moyen de connexion flexible comprend une bande adhésive qui adhère à une région suffisante d'au moins deux desdits supports pour connecter de manière flexible et séquentielle lesdits supports ensemble afin de former ladite chaîne flexible desdits supports.

5. Boîtier selon la revendication 1, dans lequel chacun desdits supports (14) a au moins deux bords



- parallèles (18); et ledit moyen de connexion flexible comprend une bande adhésive (16) qui adhère auxdits bords parallèles (18) d'au moins deux desdits supports (14) pour connecter de manière flexible et séquentielle lesdits supports (14) ensemble afin de former ladite chaîne flexible desdits supports (14). 5
6. Procédé pour encapsuler des supports de circuits intégrés comprenant les étapes suivantes: fourniture d'une pluralité de circuits intégrés (10), ayant chacun une pluralité de conducteurs électriques (12) fixés audit circuit intégré (10) et s'étendant à l'extérieur de celui-ci; retenue desdits circuits intégrés (10) d'une manière sensiblement plane dans un support (14); et connexion de chacun desdits supports (14) à un autre desdits supports (14) au moyen d'une liaison flexible (22), caractérisé en ce que tous lesdits conducteurs électriques de chaque circuit intégré sont retenus de manière rigide dans une direction sensiblement plane dans un support respectif (14), chaque liaison flexible (22) est formée en un matériau (16) de finesse et de flexibilité suffisantes pour permettre à ladite liaison (22) d'être doublée sur elle-même, et l'espacement (20) entre chaque support connecté (14) et le support connecté adjacent (14) est tel que lesdits supports (14) sont connectés de manière flexible et séquentielle les uns aux autres pour former une chaîne dans laquelle lesdits supports connectés (14) peuvent être repliés les uns sur les autres dans une configuration empilée pour former un boîtier. 10 15 20 25
7. Procédé pour encapsuler des supports de circuits intégrés conforme à la revendication 6, dans lequel ladite liaison flexible (22) utilisée dans ladite étape de connexion comprend une bande adhésive (16). 30 35
8. Procédé pour encapsuler des supports de circuits intégrés selon la revendication 6, dans lequel ladite liaison flexible (22) utilisée dans ladite étape de connexion comprend une bande conductrice électriquement (16). 40 45
9. Boîtier selon la revendication 1, dans lequel chacun desdits supports (14) a des surfaces supérieure et inférieure et chacune desdites surfaces a des premier et second bords opposés; et ledit moyen de connexion flexible comprend des premier, seconde, troisième et quatrième morceaux de bande adhésive (16), ledit premier morceau de bande adhésive (16) a une partie de celui-ci qui adhère à une partie de la surface supérieure proche dudit premier bord de chaque support (14) et une partie de celui-ci s'étendant sur un intervalle (20) entre des supports adjacents (14), ledit second morceau de bande adhésive (16) a une partie de celui-ci qui adhère à une partie de la surface inférieure proche du premier bord de chaque support (14) et une partie de celui-ci s'étendant dans ledit intervalle (20) entre des supports adjacents (14), lesdits premier et second morceaux sont fixés l'un à l'autre sur une certaine distance le long desdites parties s'étendant sur ledit intervalle (20) entre des supports adjacents (14) pour former une première liaison flexible (22), ledit troisième morceau de bande adhésive (16) a une partie de celui-ci qui adhère à une partie de la surface supérieure proche dudit second bord de chaque support (14) et une partie de celui-ci s'étendant sur ledit intervalle (20) entre des supports adjacents (14), ledit quatrième morceau de bande adhésive (16) a une partie de celui-ci qui adhère à une partie de la surface inférieure proche du second bord de chaque support (14) et une partie de celui-ci s'étendant sur l'intervalle (20) entre des supports adjacents (14), et lesdits troisième et quatrième morceaux sont fixés l'un à l'autre sur une distance le long desdites parties s'étendant sur ledit intervalle (20) entre des supports adjacents (14) pour former une seconde liaison flexible (22). 50 55
10. Boîtier selon la revendication 9, dans lequel lesdits premier, second, troisième et quatrième morceaux de bande adhésive (16) sont tous électriquement conducteurs.
11. Boîtier selon la revendication 9, dans lequel ladite bande adhésive (16) comporte de l'adhésif uniquement sur une face de celle-ci.
12. Boîtier selon la revendication 9, dans lequel ladite bande adhésive (16) comporte de l'adhésif uniquement sur une face de celle-ci, et a une surface électriquement conductrice sur l'autre face de celle-ci.
13. Boîtier selon la revendication 9, dans lequel tous les supports (14) ont une épaisseur sensiblement égale, et ledit intervalle (20) entre des supports adjacents (14) est égal à une distance légèrement supérieure à deux fois l'épaisseur de chaque support (14) de telle sorte que lesdits supports (14) lorsqu'ils sont repliés les uns sur les autres, sont disposés dans des positions sensiblement superposées, les uns sur les autres.
14. Boîtier selon la revendication 9, dans lequel ladite bande adhésive (16) comprend une bande de polyester métallisé ayant un verso en adhésif acrylique.
15. Boîtier selon la revendication 9, dans lequel les-



dits premier, second, troisième et quatrième morceaux de bande adhésive (16) sont tous formés à partir de longueurs continues de bande adhésive (16) qui s'étendent le long des longueurs des premier et second bords opposés respectifs de chacun desdits supports (14) ainsi que sur lesdits intervalles (20) entre les supports adjacents (14).

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