Claims

1. Use of a board (1) for connecting battery cells (21), which is formed in part from an electrically non-conductive material,
wherein the board (1) has on a first side (2) and on a second side (15) in each case at least one electrically and thermally conductive contacting section (7), and
wherein each contacting section (7) is electrically and thermally conductively connected to each other contacting section (7),
wherein a core (12) made of a thermally conductive material is arranged in the electrically non-conductive material of the board (1),
wherein the at least one contacting section (7) is arranged in each case on the sides of the electrically non-conductive material facing away from the core (12), and
wherein at least one electrically and thermally conductive lead-through element (18) extends through the core (12) and through the electrically non-conductive material arranged on both sides of the core (12), and
wherein the lead-through element (18) is electrically insulated from the core (12) and is electrically conductively connected to the at least one contacting section (7) on the first side (2) and to the at least one contacting section (7) on the second side (15), such that an electrically and thermally conductive connection of the contacting sections (7) on the first side (2) to the contacting sections (7) on the second side (15) is made by the lead-through element (18) and a heat flow can be picked up through the core (12) and dissipated from the board (1).

2. Use according to claim 1,
wherein the core (12) is a plate made of an electrically and thermally conductive material on which the electrically non-conductive material is arranged on both sides.

3. Use according to one of the preceding claims,
wherein an electrically non-conductive material surrounds the lead-through element (18) in the core (12), wherein the electrically non-conductive material surrounding the lead-through element (18) is in a thermally conductive connection with both the core (12) and the lead-through element (18).

4. Use according to one of the preceding claims,
wherein the core (12) is at least in sections led out of an edge of the board (1) or is exposed on the edge; or
the core (12) is completely led out of an edge of the board (1) in the circumferential direction or is exposed completely on the edge.

5. Use according to one of the preceding claims,
wherein the core (12) is thermally conductively connected to a thermally conductive heat dissipation element (13) or in that the core (12) forms a thermally conductive heat dissipation element (13),
wherein the heat dissipating element (13) has a first planar section (14) extending in a plane of the board (1), and
wherein the heat dissipating element (13) has a second planar section (28) extending in another plane oriented at a right angle to the plane of the board (1).

6. Use according to one of the preceding claims,
wherein the core (12) is made of a metal.

7. Use according to claim 6,
wherein the core (12) is made of aluminum.

8. Use according to one of the preceding claims,
wherein on the first side (2) of the board (1), an electrically and thermally conductive connecting section (9) is arranged, which electrically and thermally conductively connects the contacting sections (7) to one another on the first side of the board (1), and
wherein an electrical fuse is assigned to each of the contacting sections (7) on the first side (2) of the board (1) and the connecting section (9) on the first side (2) of the board (1) is connected to each contacting section (7) on the first side (2) of the board (1) via an electrical fuse assigned to this contacting section (7), such that the contacting sections (7) on the first side of the board (1) are electrically secured with respect to the connecting section (9).

9. Use according to Claim 8,
wherein the lead-through elements (18) are arranged such that they electrically and thermally conductively connect the connecting section (9) on the first side of the board (1) to the at least one contacting section (7) on the second side of the board (1), such that each contacting section (7) on the first side (2) is secured against each other contacting section (7) on the first side (2) of the board (1) and against each contacting section (7) on the second side (15) of the board (1) by at least one electrical fuse.

10. Use according to claim 8 or claim 9,
wherein the connecting section (9) is formed as an planar, electrically and thermally conductive layer on the first side (2) of the board (1).

11. Use according to one of claims 8 or 9,
wherein the connecting section (9) is formed as a composite of conductor tracks which are electrically and thermally conductively connected to one another.

12. Use according to one of the preceding claims,
wherein the at least one contacting section (7) is arranged on the second side of the board (1) in an planar, electrically and thermally conductive connecting and contacting region (16) on the second side (15) of the board (1).

13. Use according to Claim 12,
wherein the connecting section (9) on the first side (2) is preferably electrically and thermally conductively connected to the connecting and contacting region on the second side (15) through the electrically non-conductive material.

14. Use according to one of claims 8 to 13,
wherein around each contacting section (7) on the first side (2) of the board (1), a plurality of lead-through elements (18) are arranged uniformly spaced apart from the contacting section (7).

15. Use according to one of the preceding claims,
wherein the at least one lead-through element (18) is arranged on an inner edge of a lead-through recess (11) which passes through the non-conductive material and the core (12).

16. Use according to one of the preceding claims,
wherein the contacting sections (7) on the first side (2) and/or on the second side (15) of the board (1) are elevated with respect to a plane defined by a surface of the first side or the second side of the board (1), respectively.

17. Use according to one of the preceding claims,
wherein the contacting sections (7) have elevated contacting points.

18. Battery (20) comprising battery cells (21), wherein the battery cells (21) are electrically and thermally conductively connected to each other by using a board (1) according to one of the preceding claims.

19. Battery (20) having a cell arrangement (3),
wherein the cell arrangement (3) comprises a plurality of battery cells (21),
wherein the cell arrangement (3) comprises at least two battery sections (22) and
each battery section (22) consists of a plurality of battery cells (21),
wherein the battery cells (21) of the battery sections (22) are aligned such that end terminals of the battery cells (21) of the respective battery section (22) are located in a common first contacting plane and that end terminals of the battery cells (21) of the respective battery section (22) are located in a common second contacting plane,
wherein the battery sections (22) are arranged adjacent to one another,
wherein in each case a first contacting plane of a battery section (22) faces a second contacting plane of an adjacently arranged battery section (22), and
wherein the contacting planes are aligned parallel to one another,
wherein as a contact plate, a board (1) is used according to one of claims 1 to 17,
wherein the at least partially electrically and thermally conductive connecting plate having a first side (2) and a second side (15) is arranged between at least two successive battery sections (22), which has on the first side (2) and on the second side (15) in each case at least one thermally and electrically conductive contacting section (7),
wherein the end terminals facing the first side (2) of this connecting plate are thermally and electrically conductively connected to the at least one contacting section (7) of this first side (2), and

wherein the end terminals facing the second side (15) of this connecting plate being thermally and electrically conductively connected to the at least one contacting section (7) of this second side (15), and

wherein contact sections (7) of the connecting plate are electrically and thermally conductively connected to one another via the connecting plate,

wherein the core (12) is thermally conductively connectable to a heat sink such that a heat flow can be picked up through the core (12) and dissipated from the cell arrangement (3) onto the heat sink.