

CLAIMS

1. A method comprising:
providing, on a substrate, a first stack for an energy storage device and a second
5 stack for the energy storage device with a groove therebetween, the first stack and the
second stack each, respectively, comprising:
a first electrode layer on the substrate;
an electrolyte layer on the first electrode layer; and
a second electrode layer on the electrolyte layer;
10 depositing a first material within the groove; and
depositing a second material over the first stack, the first material and the second
stack to electrically connect the second electrode layer of the first stack to the second
electrode layer of the second stack, via the second material,
wherein the first material prevents the second material from contacting the first
15 electrode layer of the first and second stacks and the electrolyte layer of the first and
second stacks, to electrically insulate the first electrode layer of the first and second
stacks and the electrolyte layer of the first and second stacks from the second material.
2. The method according to claim 1, wherein the groove is a first groove and the
20 method comprises forming a second groove through the first material and depositing
the second material in the second groove.
3. The method according to claim 1 or claim 2, wherein depositing the second
material comprises depositing the second material using a non-inkjet-printing method.
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4. The method according to any one of claims 1 to 3, wherein depositing the first
material comprises depositing the first material in a non-vacuum environment and
depositing the second material comprises depositing the second material in a vacuum.
- 30 5. The method according to claim 4, wherein the non-vacuum environment is at
least one of: an inert environment or a dry-room environment.

6. The method according to any one of claims 1 to 5, comprising:
depositing a first layer of the second material over the first stack and the second stack before depositing the first material within the groove; and
subsequently depositing the second material over the first stack, the first material and the second stack, as a second layer of the second material.
7. The method according to claim 6, wherein depositing the first layer of the second material comprises depositing the first layer of the second material in a vacuum and depositing the first material comprises depositing the first material in a non-vacuum environment.
8. The method according to any one of claims 1 to 7, wherein the first stack is on a first portion of the substrate, the second stack is on a second portion of the substrate and depositing the second material comprises depositing a portion of the second material on a third portion of the substrate, between the first and second portions of the substrate.
9. The method according to any one of claims 1 to 8, wherein the first stack and the second stack each, respectively, comprise a first surface on the substrate and a second surface opposite to the first surface, and depositing the second material over the first stack, the first material and the second stack comprises depositing the second material to cover substantially all of the second surface of at least one of the first or second stacks.
10. The method according to any one of claims 1 to 9, comprising:
depositing a combined stack comprising the first stack and the second stack; and
forming the groove through the combined stack to form the first stack and the second stack with the groove therebetween.
11. The method according to claim 10, wherein a width of the groove is substantially constant through the combined stack.

12. The method according to any one of claims 1 to 11, comprising, after depositing the second material, separating a first portion of the substrate on which the first stack is arranged from a second portion of the substrate on which the second stack is arranged, the separating comprising cutting through the second material within the groove.
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13. The method according to any one of claims 1 to 12, comprising, after depositing the second material, forming a further groove through the first stack to expose the first electrode layer of the first stack within the second groove.
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14. The method according to claim 13, wherein forming the further groove comprises forming the further groove through the first stack and through the substrate.
15. An energy storage device formed by the method according to any one of claims 1 to 14.
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16. An intermediate structure for an energy storage device, the intermediate structure comprising:
- a substrate;
 - a first stack for the energy storage device on the substrate;
 - 20 a second stack for the energy storage device on the substrate, the first stack and the second stack each, respectively, comprising:
 - a first electrode layer on the substrate;
 - an electrolyte layer on the first electrode layer; and
 - a second electrode layer on the electrolyte layer;
 - 25 a first material between the first stack and the second stack; and
 - a second material over the first stack, the first material and the second stack to electrically connect the second electrode layer of the first stack to the second electrode layer of the second stack, via the second material,
 - 30 wherein the first material prevents the second material from contacting the first electrode layer of the first and second stacks and the electrolyte layer of the first and second stacks, to electrically insulate the first electrode layer of the first and second stacks and the electrolyte layer of the first and second stacks from the second material.

17. The intermediate structure according to claim 16, wherein the first stack is on a first portion of the substrate, the second stack is on a second portion of the substrate and a portion of the second material is on a third portion of the substrate, between the
5 first portion of the substrate and the second portion of the substrate.

18. The intermediate structure according to claim 16 or claim 17, wherein the first stack and the second stack each, respectively, comprise a first surface on the substrate and a second surface opposite to the first surface, and the second material overlaps
10 substantially all of the second surface of at least one of the first or second stacks.

19. The intermediate structure according to any one of claims 16 to 18, wherein the second electrode layer comprises lithium.

15 20. The intermediate structure according to any one of claims 19 to 19, wherein the second material comprises copper.