US 20240215173A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0215173 A1**

Ortiz et al. (43) **Pub. Date: Jun. 27, 2024**

(54) **FLEXIBLE INTERCONNECT CIRCUITS FOR BATTERY PACKS**

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(21) Appl. No.: **18/595,910**

(22) Filed: **Mar. 5, 2024**

Related U.S. Application Data

(63) Continuation of application No. 18/300,828, filed on Apr. 14, 2023, now Pat. No. 11,950,377.

(60) Provisional application No. 63/363,032, filed on Apr. 15, 2022.

Publication Classification

(51) **Int. Cl.**

H05K 3/46	(2006.01)
H05K 1/02	(2006.01)
H05K 1/11	(2006.01)

(52) **U.S. Cl.**

CPC ***H05K 3/46*** (2013.01); ***H05K 1/0201*** (2013.01); ***H05K 1/118*** (2013.01); *H05K 2201/10037* (2013.01)

(57) **ABSTRACT**

Provided are flexible interconnect circuits comprising signal circuit elements. For example, a signal circuit element can be formed from the same metal sheet as a signal trace, thereby being monolithic with the signal circuit element. This integration of signal circuit elements into a flexible interconnect circuit reduces the number of additional operations and components (e.g., attaching external circuit elements). In some examples, a flexible interconnect circuit is used in a battery pack for interconnecting batteries while providing external terminals on the same side of the pack. Specifically, a flexible interconnect circuit comprises an interconnecting conductive layer (for connecting to batteries) and a return conductive layer, both extending between the first and second circuit edges. Each of these conductive layers comprises a corresponding external terminal at the first edge, while these layers are interconnected at the second edge. Otherwise, these layers are isolated from each other between the circuit edges.