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(12) **United States Patent**  
**Chiu et al.**

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(54) **STACKED SOLID-STATE ELECTROLYTIC CAPACITOR WITH MULTI-DIRECTIONAL PRODUCT LEAD FRAME STRUCTURE**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 274 days.

This patent is subject to a terminal disclaimer.

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See application file for complete search history.

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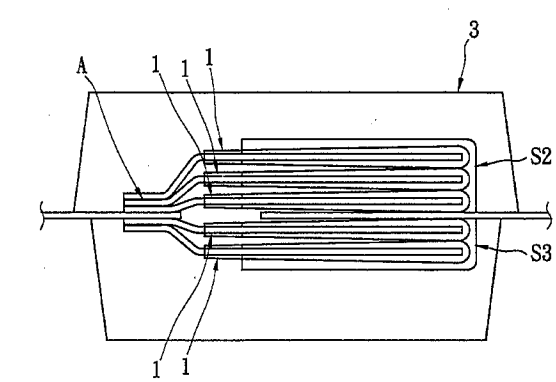
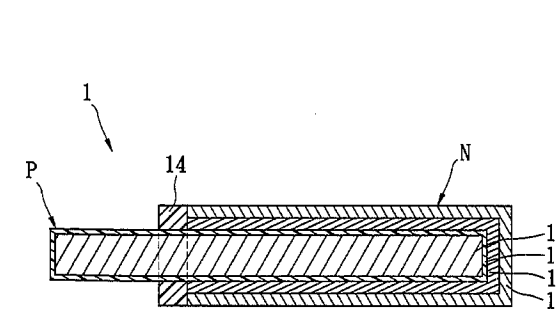
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(57) **ABSTRACT**

A stacked solid state solid electrolytic capacitor includes a plurality of capacitor units, a substrate unit and a package unit. The substrate unit includes a positive guiding substrate and a negative guiding substrate. The positive guiding substrate has a positive exposed end integrally extended therefrom along a first predetermined direction. The negative guiding substrate has a first negative exposed end integrally extended therefrom along a second predetermined direction, a second negative exposed end integrally extended therefrom along a third predetermined direction, and a third negative exposed end integrally extended therefrom along a fourth predetermined direction. The first, the second, the third and the fourth predetermined directions are different. The capacitor units are stacked on top of one another and disposed on the negative guiding substrate. The package unit encloses the capacitor units, one part of the positive and one part of the negative guiding substrate.

**14 Claims, 11 Drawing Sheets**



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If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.