

Converting $\langle 100 \rangle$ and $\langle 111 \rangle$ Ingots to $\langle 110 \rangle$ Ingots

Virginia Semiconductor, Inc.

1501 Powhatan Street, Fredericksburg, VA 22401

(540) 373-2900, FAX (540) 371-0371

www.vriginiasemi.com, tech@virginiasemi.com

A Overview

This paper contains a copy of the United States Patent for Converting $\langle 100 \rangle$ and $\langle 111 \rangle$ Ingots to $\langle 110 \rangle$ Ingots. A new ingot of a desired orientation formed from an original ingot of a different orientation by cutting the new ingot from within the original ingot. In one aspect, to form a $\langle 110 \rangle$ ingot from a $\langle 100 \rangle$ ingot, a $\{110\}$ flat is formed on the $\langle 100 \rangle$ ingot. The flat is used as a reference for cutting the $\langle 100 \rangle$ ingot. The $\langle 100 \rangle$ ingot is cut into sections by cutting in a plane perpendicular to the $\langle 100 \rangle$ ingot's longitudinal axis and to the flat. A $\langle 110 \rangle$ ingot can be formed by grinding a section of the $\langle 100 \rangle$ ingot to form a new cylinder. The new cylinder has a longitudinal axis which is perpendicular to the $\langle 100 \rangle$ ingot's longitudinal axis and to the flat. The resulting cylinder is a $\langle 110 \rangle$ ingot.[1]

B The Patent

United States Patent [19]

[11] Patent Number: **6,159,285**

Toombs et al.

[45] Date of Patent: **Dec. 12, 2000**

[54] CONVERTING <100> AND <111> INGOTS TO <110> INGOTS

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[75] Inventors: Marshall P. Toombs, Spotsylvania;
Thomas G. Digges, Jr., Fredericksburg,
both of Va.

Primary Examiner—Felisa Hiteshew
Attorney, Agent, or Firm—Fish & Richardson P.C.

[73] Assignee: Virginia Semiconductor, Inc.,
Fredericksburg, Va.

[57] ABSTRACT

[21] Appl. No.: 09/306,669

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Related U.S. Application Data

[60] Provisional application No. 60/084,521, May 7, 1998.

[51] Int. Cl.⁷ B24B 5/00

[52] U.S. Cl. 117/35; 117/41; 117/902

[58] Field of Search 117/35, 41, 902

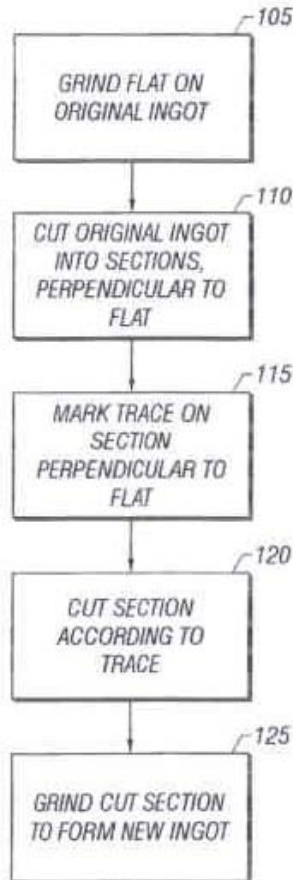
A new ingot of a desired orientation formed from an original ingot of a different orientation by cutting the new ingot from within the original ingot. In one aspect, to form a <110> ingot from a <100> ingot, a {110} flat is formed on the <100> ingot. The flat is used as a reference for cutting the <100> ingot. The <100> ingot is cut into sections by cutting in a plane perpendicular to the <100> ingot's longitudinal axis and to the flat. A <110> ingot can be formed by grinding a section of the <100> ingot to form a new cylinder. The new cylinder has a longitudinal axis which is perpendicular to the <100> ingot's longitudinal axis and to the flat. The resulting cylinder is a <110> ingot.

[56] References Cited

U.S. PATENT DOCUMENTS

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25 Claims, 3 Drawing Sheets



C References

- [1] The United States Patent Office, Patent Number: 6,159,285, Dec. 12, 2000.