

PERSPECTIVE FOR LARGE SEMI-INSULATING INDIUM PHOSPHIDE SUBSTRATES

Rowland Ware

M/A-COM, 100 Chelmsford Street, Lowell, Massachusetts 01851. USA.

Abstract

The increasing use of InP for microwave and millimeter wave devices requires an assured supply of good quality 3 inch and 100mm semi-insulating substrates. This paper considers the current availability of such wafers, the raw material situation and the properties of wafers grown by different processes.

It includes a detailed discussion of ingot annealing and the advantages it offers in terms of material uniformity and reduced breakages. It is suggested that the improvement in electrical uniformity is obtained by the redistribution of the defect V_{In-H_4} . Improvements in quality and reduction in price should occur as production volume increases.