

distribution of surface concentration. The position and the length of this zone is controlled by the reaction rate between BBr_3 and O_2 . This rate is enhanced by increasing the concentration of reactants or the temperature of reaction. This is observed to cause earlier formation of B_2O_3 in the furnace tube and results in a shift in the position of the zone of uniform sheet resistance towards the gas inlet of the tube. To a lesser extent the uniformity of diffusion is also affected by total N_2 carrier gas velocity and the spacing of wafers.

A nonuniform diffusion degrades the electrical parameters of a device due essentially to variation in surface concentration and concentration profile in the base region.

ACKNOWLEDGMENT

The authors wish to thank A. Avakian for his constant encouragement throughout the development of the study

summarized in this paper. They also wish to thank Dr. C. Chan for helpful discussion. Excellent technical assistance of E. Gavel in this work is gratefully acknowledged.

REFERENCES

- [1] J. C. Irvin, "Resistivity of bulk silicon and of diffused layers in silicon," *Bell Sys. Tech. J.*, vol. 41, pp. 387-410, 1962.
- [2] I. M. Mackintosh, "The diffusion of phosphorus in silicon," *J. Electrochem. Soc.*, vol. 109, pp. 392-401, 1962.
- [3] M. S. R. Heynes, "Boron diffusion into silicon using diborane," *J. Electrochem. Tech.*, vol. 5, pp. 25-29, 1967.
- [4] M. C. Duffy, D. W. Foy, and W. J. Armstrong, "Diborane for boron diffusion into silicon," *J. Electrochem. Tech.*, vol. 5, pp. 29-33, 1967.
- [5] E. M. Milkova, "Gas flow influence on the uniformity of diffused dopant distribution in silicon," *SCP and Solid State Tech.*, vol. 10, pp. 34-36, 1967.
- [6] K. M. Busen, W. A. FitzGibbons, and W. K. Tsang, "Ellipsometric investigation of boron-rich layers on silicon," *J. Electrochem. Soc.*, vol. 115, pp. 291-294, 1968.

Correction

Arctic Ice Type Identification by Radar

JOHN W. ROUSE, JR., MEMBER, IEEE

On page 610 of the above paper,¹ Table I should have read as follows:

TABLE I
SURFACE ROUGHNESS FACTOR

Ice Type	S
Multiyear Ice	
Line 92 (A)	9.2
Line 92 (C)	20.2
Line 94	17.9
First-Year Ice	
Line 91	70.7
Line 92	52.3
Line 94	84.6
Smooth First-Year Ice	
Line 91	119.5
Open Water	
Line 91	546.9
Pressure Ridge	
Line 94	16.2

Fig. 9, on the same page, should have agreed with this revised table.