CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

The computer-aided simulation of an n-on-p silicon solar cell was carried out to verify the increasing trends of photocurrent or short-circuit current. The experimental results show good agreement with the computations. This can be summarized here as the following.

1. The junction depth should be very shallow and the optimum contact grid geometry should be designed in order to reduce series resistance.

2. The optimum substrate resistivity results in a higher performance.

3. Dead layer adjacent to the top surface of the diffused region should be eliminated.

4. The BSF effect not only contributes to a higher photocurrent but also contributes to a higher open-circuit voltage under the condition that the minority carriers diffusion length in the base region must exceed the base thickness.

5. A greatly increase in photocurrent or short-circuit current can be achieved by improving antireflecting films as well as texturizing techniques to increase the collected carriers through reflection.

6. It should be noted here that a good property of contact, i.e. ohmic contact, is very important in extraction of minority carriers external to the load.