

## Ohmic resistance losses and their impact on efficiency in case of multicrystalline silicon solar cell

R.M. PUJAHARI<sup>1,\*</sup> and M. C. ADHIKARY<sup>2</sup>

<sup>1</sup>Echelon Institute of Technology, Faridabad, India

<sup>2</sup>Dept. of Applied Physics and Ballistics, F M University, Balasore, India

\*Corresponding author, E-mail: rpujahari@gmail.com

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**Abstract.** Ohmic resistances play vital role in deciding the efficiency of the multicrystalline solar cells . In this paper a detailed analysis of the impact of various ohmic resistances like  $R_3$  (the resistance of emitter between two grid fingers),  $R_5$  (the resistance of the grid finger) and  $R_6$  (the resistance of collection bus) using three dimensional (3D) SS screen printed solar cell for front silver metallization of multicrystalline large area is analysed. For the fabrication of large area (125 mm ×125 mm) high efficiency (>15%) crystalline silicon solar cells are used and analysed. This paper reports the high efficiency of the 3D screen printing to enhance the solar cell efficiency upto 15.6% in the production plant.

**Keywords.** mc-Si silicon solar cell texturization, Screen printing 3D mesh, Telestep profile of Ag- grid fingers, cell LIV and DIV characteristics

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