

A Unique Top Surface Design and Printing Technique for Silicon Solar Cells to Boost the Energy Output to boost the energy Output

The Technology

UNSW has developed a patented top surface design for screen printed silicon solar cells.

Conventional screen printed solar cells require metal fingers to be spaced well apart and require heavy doping in the silicon to achieve good ohmic contact between the silicon and the metal. However, high performance cells need to avoid heavily diffused surfaces and preferably sheet resistivities above 100 ohms per square should be used in conjunction with good surface passivation.

UNSW Engineers have developed improved screen printing techniques that facilitate the achievement of narrower screen printed metal lines allowing closer spacing without excessive metal shading losses, while still allowing the use of emitter sheet resistivities approaching 100 ohms per square.

The Transparent Conductor technology overcomes the dependence on uniformly heavily diffused emitters, thereby avoiding the corresponding poor performance to short wavelengths of light. The cell design is known as the semi-conductor finger cell.

Key Benefits

The advantages of UNSW's patented Transparent Conductor technology are:

- Reduced shading loss
- Higher efficiency solar cells
- Use of emitter sheet resistivities approaching 100 ohms per square
- Retrofit to a standard screen print line



UNSW has developed a patented design for solar cells to boost energy output.

The Opportunity

NewSouth Innovations is seeking licensees and collaborative partners for further development of the advanced semi-conductor finger cell design.

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