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## Investigated properties of Low temperature curing Ag Paste for Silicon Hetero-junction Solar Cell

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In this study, we applied the low temperature curing Ag paste to replace PVD System. The electrode formation of low temperature curing Ag paste for silicon Hetero-junction solar cells is important for improving device characteristics such as adhesion, contact resistance, fill factor and conversion efficiency. The low temperature curing Ag paste is composed various additives such as solvent, various organic materials, polymer, and binder. it depends on the curing temperature conditions. The adhesion of the low temperature curing Ag paste was decided by scratch test. The specific contact resistance was measured using the transmission line method. All of the Ag electrodes were experimented at various curing temperatures within the temperature range of 160°C-240°C, at 20°C intervals. The curing time was also changed by varying the conditions of 10-50min. In the optimum curing temperature 200°C and for 20 min, the measured contact resistance is 19.61 m $\Omega$ /cm<sup>2</sup>. Over temperature 240°C, confirmed bad contact characteristic. We obtained photovoltaic parameter of the industrial size such as Fill Factor (FF), current density (Jsc), open-circuit voltage (Voc) and convert efficiency of up to 76.2%, 38.1 mA/cm<sup>2</sup>, 646 mV and 18.3%. respectively.

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