

Comparing SR and SR+ Panels *OPE - 1/29/20 - TMW*

Cells

1. Both the SR and SR+ panels use cells assembled by Merlin in the US. The raw material for the SR cells is imported by Merlin from Taiwan (for which they pay a tariff), the HIT cells for the SR+ are made in Buffalo, NY.
2. Both the SR and SR+ use Merlin's MTAT (**M**erlin **A**dvanced **M**etallization **T**echnology) collection system. MTAT creates a closely spaced, low-profile, copper-based grid structure applied to the front and back of solar cells that: (1) adds many more interconnection points on a cell surface than in a conventional panel such that microscopic cracking has little impact on energy collection; (2) incorporates a 'spring' effect that neutralizes the harmful effects of differential rates of thermal expansion and contraction; and (3) has a dramatically more rugged and reliable cell interconnect system than the conventional busbar approach.
3. The SR uses a monocrystalline cell that is rated up to 21-22% efficiency.
4. The SR+ uses the HIT (**H**eterojunction with **I**ntrinsic **T**hin-layer) cell, made famous in the Panasonic residential panels. The HIT cells, have achieved efficiencies up to 24%.

Layup

1. The SR panels are assembled in Italy at the Solbian company. For their textured surface panels, Solbian uses a chemical compound called ECTFE, a similar grade to ETFE*. The smooth surface has a spray on protective coating to prevent scratches and UV deterioration, but it is not ETFE nor ECTFE.
2. The SR+ panels are assembled in USA with slightly heavier layers, and they incorporate a top layer with ETFE*.

Summary

Both panels use cells assembled by the Merlin company. SR panels are assembled in Italy at Solbian, the SR+ are assembled in CA at Merlin. The SR+ have higher efficiency using the HIT cells.

*(*ETFE resins are resistant to ultraviolet light. An accelerated weathering test (comparable to 30 years' exposure) produced almost no signs of film deterioration.)*

<https://www.proboat.com/2019/11/advances-in-onboard-solar/>

<https://eu-solar.panasonic.net/en/hit-heterojunction-sanyo-panasonic.htm>