

What are N-Topcon solar cells?

The appeal of n-TOPCon solar cells is in the incorporation of rear passivating contacts consisting of n-type polycrystalline silicon (poly-Si) and interfacial  $\text{SiO}_2$  films, which provide low recombination current density ( $J_0$ ) and contact resistivity ( $\rho_c$ ) simultaneously.

How efficient are Topcon solar cells?

Due to the potential for high theoretical limit efficiency as high as 28.7% and low cost, TOPCon solar cells have become one of the prospective technologies in the photovoltaic (PV) market. At present, the highest efficiency for n-TOPCon has achieved 26.4% on an area of 330.15 cm<sup>2</sup> at JinkoSolar.

How bifacial N-Topcon devices improve solar cell efficiency?

241.3 cm<sup>2</sup> -large bifacial n-TOPCon devices with 23.01% certified efficiency demonstrated. Using  $\geq 150$  nm of poly-Si and polished rear side improves the solar cell efficiency. 1-cell glass-glass laminates of the devices pass damp heat and thermal cycling tests. Roadmap to 25.5% efficiency presented.

How to improve conversion efficiency of N-Topcon solar cells?

Improving the conversion efficiency of n-TOPCon solar cell is still a hot topic. The selective poly-Si based passivating contacts (Poly-SEs) are ideal candidates for reducing the parasitic absorption and contact resistivity of n-type silicon solar cells and for providing better current collection.

What are the parameters of N-Topcon solar cells?

I - V parameters of n-TOPCon solar cells with 150 nm thick poly-Si in the passivating contact at the rear and different rear surface morphologies. Averages and standard deviations were obtained by measurements on 7-14 devices per group. Parameters of the best solar cell are also shown.

How are N-Topcon Solar Cells fabricated?

1-cell laminates of the n-TOPCon solar cells with a t<sub>poly</sub> of 150 nm and polished rear surface were fabricated in a glass-glass configuration, using SmartWire Connection Technology (SWCT) foils by Meyer Burger, PO8110 encapsulant by 3M, and glass without ARC.



# 192R-N-Type 16BB Mono TOPCon Bifacial Solar Cell Ronma Solar

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