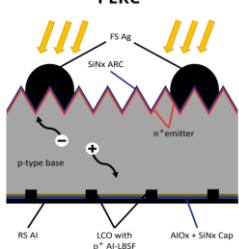
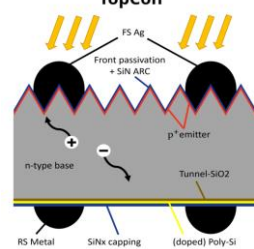
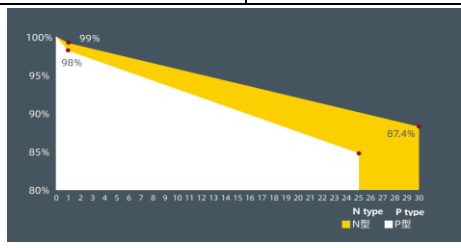
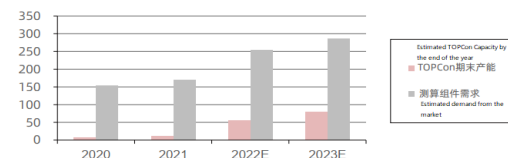




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PERC VS TOPCon

COMPARISON	P TYPE	N TYPE
Technology	<p>PERC(Passivated emitter and rear cell)</p> 	<p>TOPCon(Tunnel oxide passivated contact)</p> 
Current efficiency rate of solar cells	23.20%	24.80%
Estimated efficiency rate of solar cells by 2023	23.20%	26.80%
Maximum efficiency rate in theory	24.50%	28.70%
<p>TOPCon provides higher efficiency</p> <p>With the same panel dimension, TOPCon panel provides 5% higher power output than Mono PERC panel (for instance, in size of 1722*1134*30mm, PERC panel can reach up to 410Wp, whilst TOPCon panel can reach up to 430Wp)</p>		
Power loss	<p>2% within the 1st year, 0.45% annual degradation in the following years</p> 	<p>1% within the 1st year, 0.4% annual degradation in the following years</p>
Temperature coefficient	-0.35%	-0.32%
<p>TOPCon provides better performance</p> <p>During its life year, TOPCon panel harvest 3.5~5% more energy yield than Mono PERC panel on per watt</p>		
Cost Analyze	Current cost of N-type wafer is 6%~8% more than P-type wafer, estimated to reach similar or equivalent cost by the end of 2022.	
Estimated Supply and Demand	<p>Currently 30GW+ total annual capacity of TOPCon panel in whole China, estimated to reach 50GW+ by the end of 2022, there's 178GW+ scheduled/on-going capacity for the next years</p> 	
Estimated Market Share of Different Technologies	<p>PERC is now taking the major market share, TOPCon will lead the future</p> 