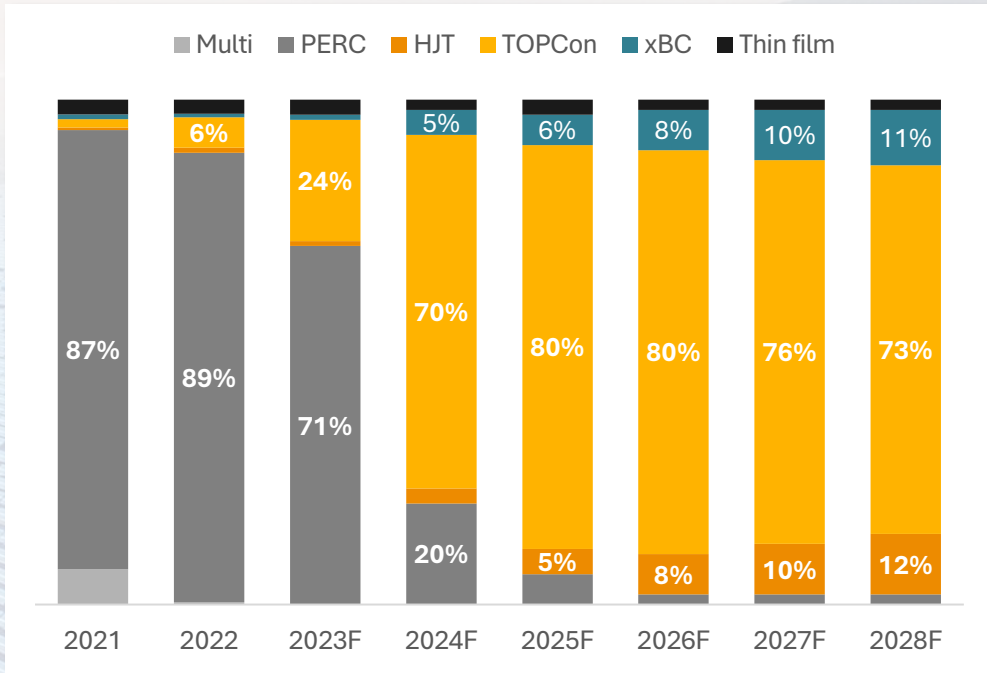


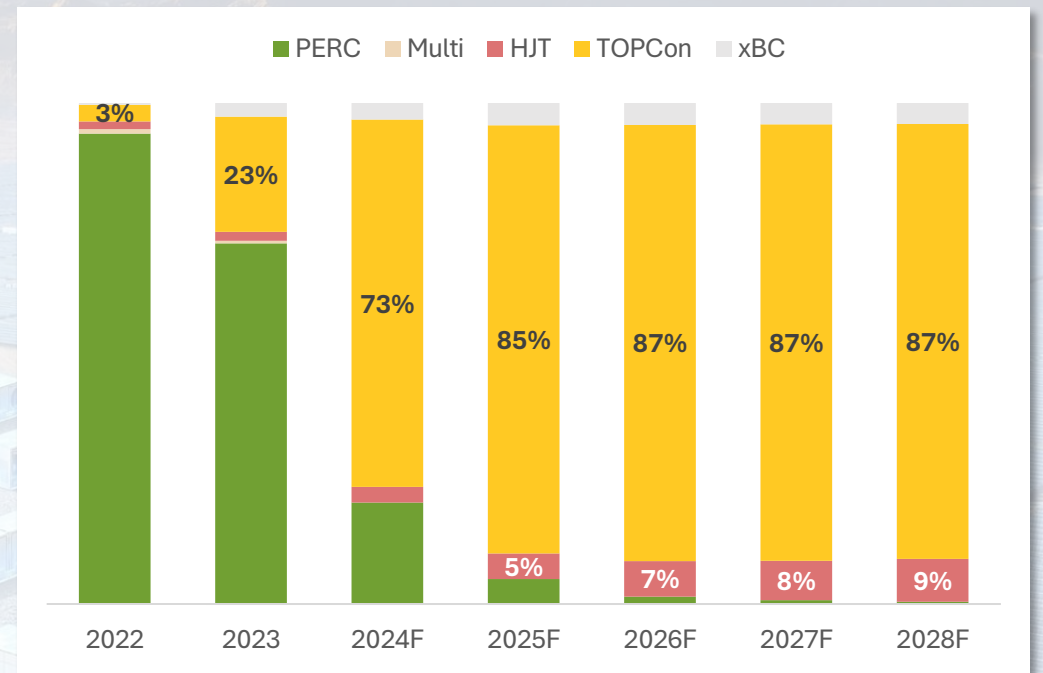
Trinasolar



TECHNOLOGY ROADMAP



Cell technologies market share



Cell technologies global capacity

N-TYPE i-TOPCon TECHNOLOGY ROADMAP

2015-2019

i-TOPCon

- In 2015, Base on Trina Solar's State Key Laboratory of Photovoltaic Science and Technology(PVST) ,i-TOPCon Lab was established.
- Innovative hydrogen passivation
- Wafer size 158.75mm × 158.75 mm
- Cell efficiency 23.07% (JET certificate) 24.58% (ISFH certificate) mass production efficiency 23.2%
- 500 MW mass production line



2019.12 250MW
Tongchuan 'Top Runner' technical leader project

2019.6.30 250MW
Changzhi 'Top Runner' technical leader project

- The first TOPCon Cell World Record in China, 23.5% (2019)

2020-2022

i-TOPCon Plus

- Wafer size: 210mm × 210mm+ 18BB
- 500 MW TOPCon pilot line
- Average production cell efficiency 24.5%
- Cell efficiency 25.15% (ISFH certificate)



Vertex S in Europe

2020.9.30 137MW
Yellow River hydropower in Qinghai

Cell efficiency record

- 25.25% (2022/2, ISFH certificate)
- 25.42%(2022/3, ISFH certificate)
- 25.5%(2022/3, China National Metrology Institute certificate)

2023-2024

i-TOPCon Advanced

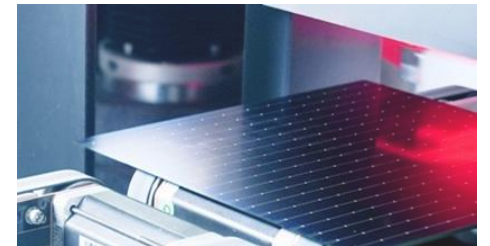
- Selective emitter, Rear planar reflector, Highly low rear TOPCon structure, Laser induced Firing, Edge Recovery Technology
- Large wafer: 210,210R
- Lab efficiency reach 26% (German third-party certificates)
- Comprehensive product portfolio



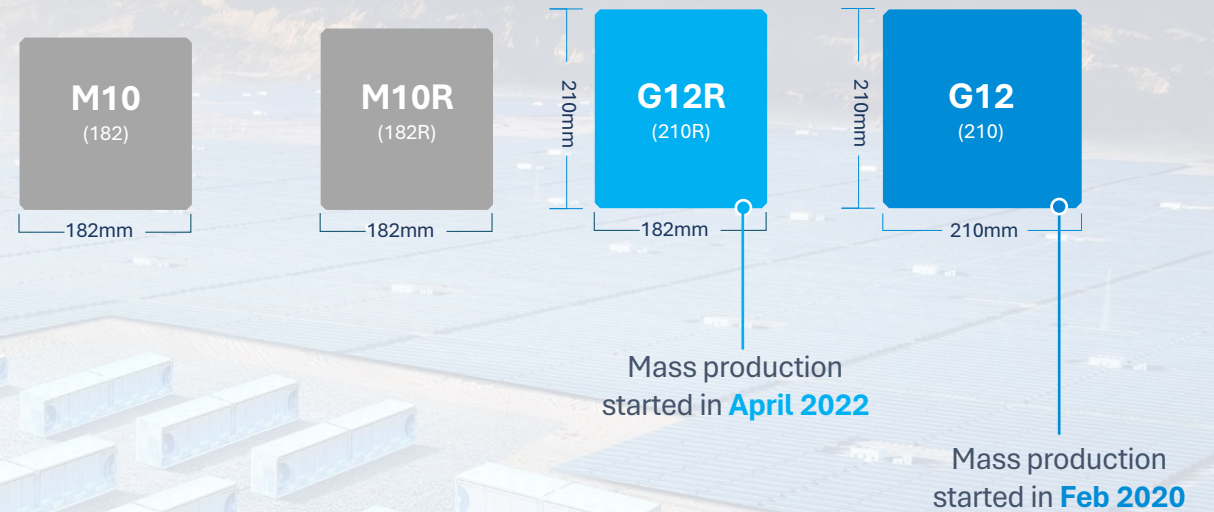
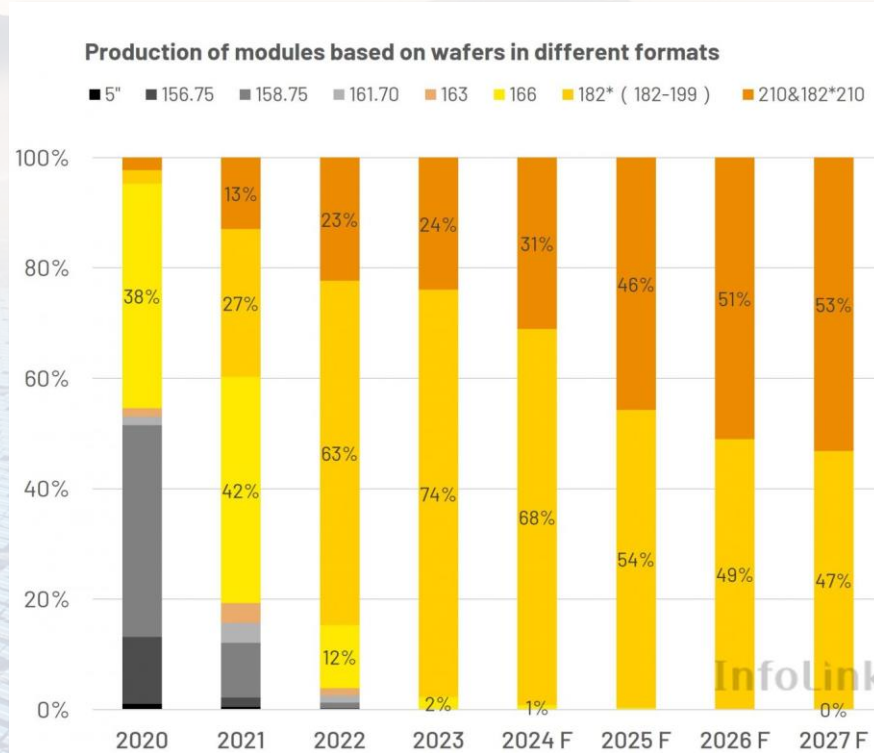
2025+

i-TOPCon Ultra & Tandem

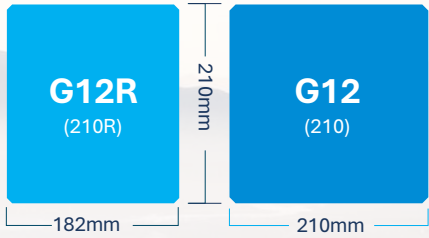
- i-TOPCon cell efficiency can be improved by more than 1%, and module power can be improved by more than 30W
- i-TOPCon + Perovskite Tandem Cell: Efficiency > 30%



WAFER SIZE ROADMAP



PRODUCT PORTFOLIO



G12R

Vertex S⁺ 9R

Power output
460W

Efficiency
23.0%

Dimensions
1.762 * 1.134 m

Isc
10.81A

Voc
53.8V

Vertex S⁺ 18R

Power output
510W

Efficiency
22.9%

Dimensions
1.961 * 1.134 m

Isc
15.93A

Voc
40.6V

Vertex N 19R

Power output
630W

Efficiency
23.2%

Dimensions
2.382 * 1.134 m

Isc
16.35A

Voc
48.9V

Vertex N 21

G12

Power output
720W

Efficiency
23.2%

Dimensions
2.384 * 1.303 m

Isc
18.49A

Voc
49.4V

TrinaSolar

