

Tier1

BloombergNEF

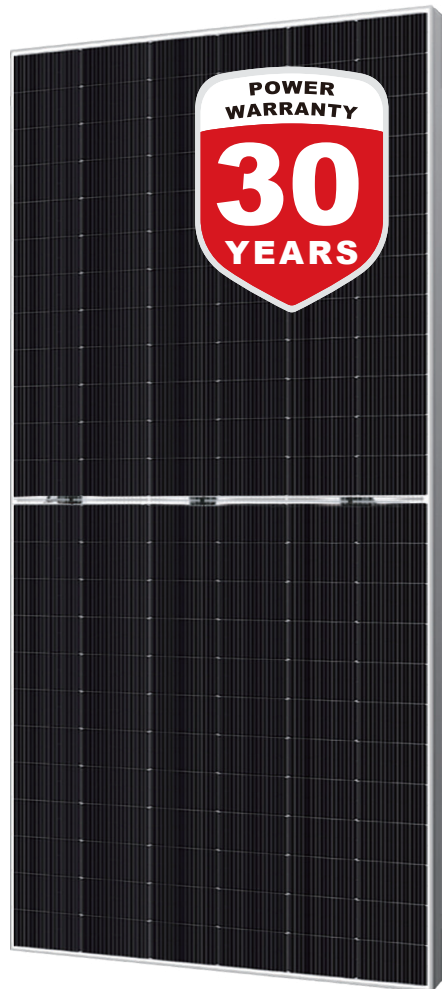


# 191.6RL TOPCON BIFACIAL

SPDGxxx-N144RL10

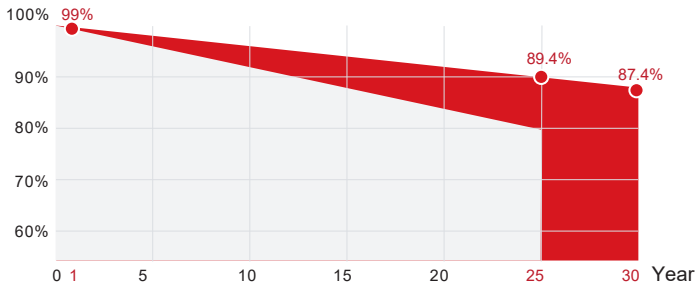
590~610W

- Double glass
- Silver frame
- Bifacial Transparent



25 Yr quality guarantee | 30 Yr power warranty

■ SUNPRO TOPCon module (Additional value from 30-year warranty)  
 ■ Common module



\*SUNPRO Standard tiered warranty



## WARRANTY & GUARANTEE

Linear output power guarantee  
 25 years: 89.4% power output  
 30 years: 87.4% power output



## WITHSTAND STRONG

Snow load 5400Pa  
 Wind load 2400Pa



## PID RESISTANCE

Power positive tolerance: 0~+5W.  
 The attenuation probability of PID phenomenon is minimized through battery production technology optimization and material control



## R&D AND PRODUCTION

Advanced production line. Bifaciality>80%, effectively improves backside power generation. The leading solar cell cutting process and multi busbar design with SUNPRO Technology.



## HIGH EFFICIENCY

N-type, Components have better reliability and lower LID/LETID attenuation. Efficiency can reach 22.56%. Excellent low light performance. Higher power output under the conditions of haze, overcast, etc.

## Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m<sup>2</sup>, Cells Temperature 25°C)

### Typical type

	590W	595W	600W	605W	610W
Max power(Pmax)	590	595	600	605	610
Max power voltage(Vmp)	43.32	43.53	43.74	43.94	44.14
Max power current(Imp)	13.62	13.67	13.72	13.77	13.82
Open circuit voltage(Voc)	51.12	51.33	51.54	51.74	51.94
Short circuit current(Isc)	14.50	14.55	14.60	14.66	14.71
Module Efficiency(%)	21.82	22.01	22.19	22.38	22.56
Max system voltage	DC 1500V (TÜV)				
Maximum Series Fuse Rating	30A				

### Electrical Characteristics with 15% Rear Side Power Gain

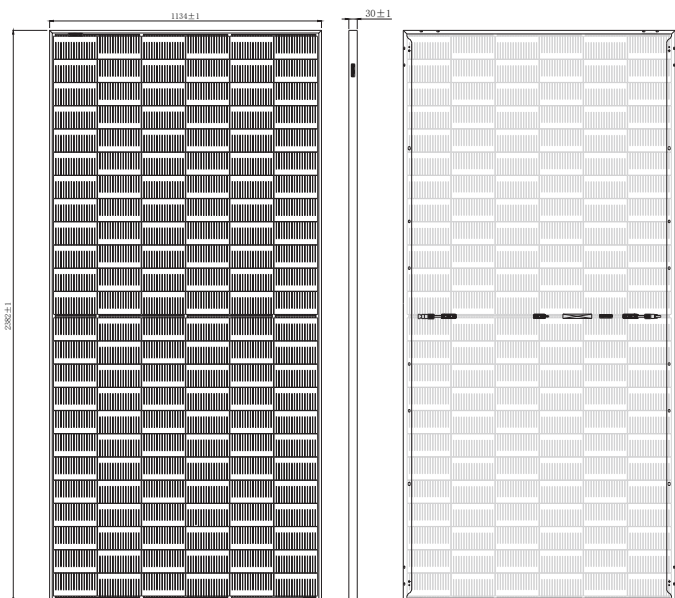
Front power Pmax/W	590W	595W	600W	605W	610W
Total power Pmax/W	678.50	684.25	690	695.75	701.5
Vmp/V(Total)	43.32	43.53	43.74	43.94	44.14
Imp/A(Total)	15.66	15.72	15.78	15.83	15.89
Voc/V(Total)	51.12	51.33	51.54	51.74	51.94
Isc/A(Total)	16.68	16.73	16.79	16.86	16.92

### Electrical parameters at NMOT test conditions

(Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

Typical type	590W	595W	600W	605W	610W
Max power(Pmax)	444.4	448.4	452.4	456.4	460.5
Max power voltage(Vmp)	40.10	40.40	40.60	40.70	41.00
Max power current(Imp)	11.07	11.11	11.15	11.20	11.24
Open circuit voltage(Voc)	48.20	48.40	48.60	48.80	49.10
Short circuit current(Isc)	11.68	11.72	11.76	11.81	11.85

### DIMENSIONS AND STRUCTURE



### Mechanical Data

Dimensions	2382x1134x30mm
Weight	33.7kg
Glass	(F) 2.0mm ultra clear embossed double layer colorless glass (B) 2.0mm semi-tempered glass
Output cables	4mm <sup>2</sup> , symmetrical lengths 1300mm
Connectors	MC4 compatible IP68
Cell type	N type Mono-Crystalline, 182.2mmx95.8mm
Number of cells	144cells ( Half-Cell )

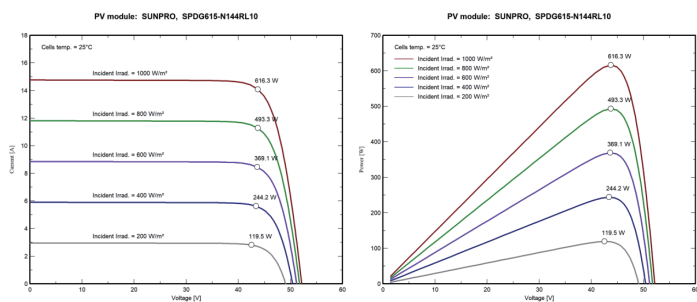
### Temperature Characteristics

Temp.Coeff.of Isc(TK Isc)	0.046%/°C
Temp.Coeff.of Voc(TK Voc)	-0.25%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.30%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	45±2°C

### Packing Configuration

Container	40'HQ
Pieces per pallet	31
Pallets per container	20
Pieces per container	620

### I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



### Tests, Certifications and Warranties

Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TÜV, CE, INMETRO, CEC, UL, WEEE
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+5W
Junction box	IP 68
Warranties	25 years product warranty and 30 years 87.4% of power