

## HiMAX 5N

# 460-490W

## SP490M-60H

N-type TOPCon Ultra Black Solar Module

### 10-30% Additional Power Generation

30 years lifespan brings 10-30% additional power generation comparing with conventional P-type module.

### ZERO LID (Light Induced Degradation)

N-type solar cell has no LID naturally which can increase power generation.

### Higher Reliability

Adopted SunEvo latest S-TOPCo 2.0 technology, No polysilicon wrap around, Full electrical isolation, Zero leakage current; Much Safer for roof.

### Better Weak Illumination Response

Higher power output even under low-light environments like on cloudy or foggy days.

### Better Temperature Coefficient

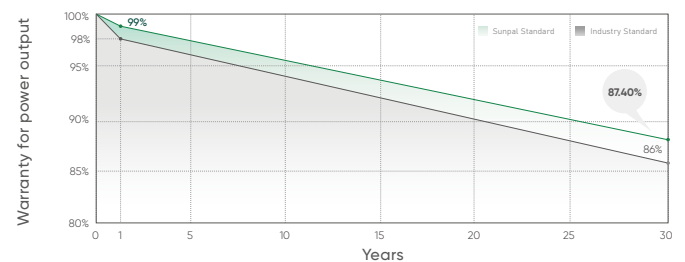
Higher power generation under working conditions, thanks to passivating contact cell technology.

### Quality Management System and Product Certification

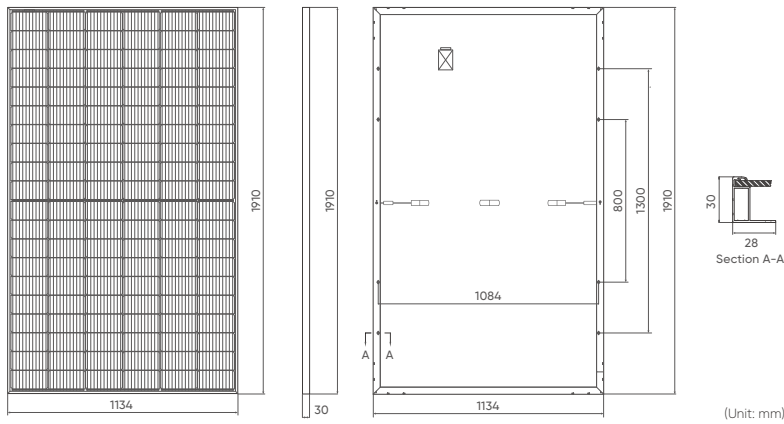
IEC61215/61730, IEC62804(PID), IEC61701(Salt),  
IEC62716 (Ammonia), IEC60068-2-68(Sand),  
ISO 9001:2015/quality management system.  
ISO 14001:2015/environmental management system.  
ISO 45001:2018/occupation health safety management system.  
ISO 50001:2011/energy management system.  
IEC TS 62941-2016/PV industry quality management system.

### Quality Guarantee

**25 YEAR** Materials Warranty      **30 YEAR** Power Warranty



## Drawings



## Mechanical Characteristics

Solar Cells	N-type Mono
No. of Cells	120 (6×20)
Dimensions	1910 × 1134 × 30mm
Weight	23.0kg
Glass	3.2mm coated tempered glass
Frame	Anodized aluminium alloy
Junction Box	Ip68 rated (3 by pass diodes)
Output Cables	4mm <sup>2</sup> , 300mm (+) / 300mm (-), Length can be customized
Connectors	Mc4 compatible
Mechanical load test	5400Pa
Packaging	36pcs/box, 216pcs/20'GP, 864pcs/40'HQ

## Electrical Parameters (STC\*)

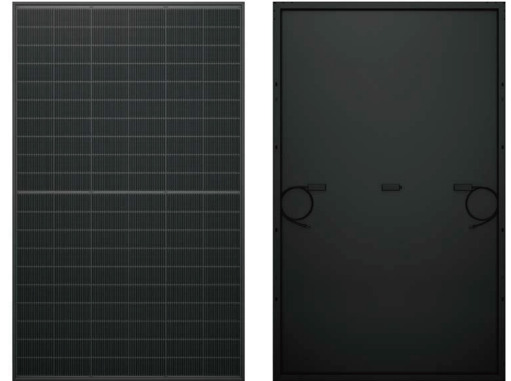
Module Type: SP490M-60H	460	465	470	475	480	485	490
Maximum power (Pmax/W)	460	465	470	475	480	485	490
Open Circuit Voltage (Voc/V)	42.42	42.63	42.85	43.06	43.27	43.48	43.69
Short Circuit Current (Isc/A)	13.91	13.98	14.05	14.12	14.19	14.26	14.33
Voltage at Maximum power (Vmpp/V)	35.44	35.63	35.82	36.01	36.20	36.39	36.58
Current Maximum Power (Impp/A)	12.98	13.05	13.12	13.19	13.26	13.33	13.40
MODULE EFFICIENCY (%)	21.24	21.47	21.70	21.93	22.16	22.39	22.62

## Electrical Parameters (NMOT\*)

	345	349	353	357	361	369	373
Maximum power (Pmax)	345	349	353	357	361	369	373
Open Circuit Voltage (Voc/V)	40.45	40.63	40.81	40.99	41.17	41.53	41.71
Short Circuit Current (Isc/A)	11.20	11.26	11.32	11.38	11.44	11.56	11.62
Voltage at Maximum power (Vmpp/V)	32.61	32.80	32.99	33.18	33.36	33.73	33.91
Current Maximum Power (Impp/A)	10.58	10.64	10.70	10.76	10.82	10.94	11.00

- Standard Test Conditions [STC]: irradiance 1000W/m<sup>2</sup>; AM 1.5; ambient temperature 25°C according to EN 60904-3;
- Nominal Module Operating Temperature (NMOT): irradiance 800W/m<sup>2</sup>; wind speed 1m/s, ambient temperature 20°C.
- Tolerance of Pm: 0/+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

## Product Image



## Operating Characteristics

Operating Module Temperature	-40°C to +85°C
Maximum System Voltage	1500 DC (IEC)
Maximum Series Fuse Rating	25A
Power Tolerance	0/+5W

## Temperature Characteristics

Nominal Operating Temperature (NMOT)	45±2°C
Temperature Coefficient of Pmax	-0.29%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	+0.046%/°C

## I-V Curve

