

# Benchmark II SPP290-320P60H

## 290-320W MWT Module ( 1500V )

### Poly 60 Cells

# 19.7%

Module efficiency up to 19.7%

## MWT Solar Cell

- New cell structure and different manufacturing process.
- No bus-bar on the front. 3% less shadow and better use of sunlight.
- Effectively avoid the micro crack caused by the pressure between cell edge and ribbon.
- Compatible with other cell types including PERC, HIT, Black Silicon etc.

## Insured by PICC and LLOYD'S

**PICC** **LLOYD'S**

## Comprehensive Qualifications & Certifications

- ★ IEC 61215, IEC 61730, IEC 61701, IEC 62716, IEC 60068-2-68.
- ★ CQC&CGC Top Runner Advanced Technology Certification (4A class)
- ★ ISO 9001: 2015 Quality Management System
- ★ ISO 14001: 2015 Environment Management System
- ★ OHSAS 18001: 2007 Occupation Health Safety Management System
- ★ TUV NORD and UK NQA Quality System Certification



## Benchmark MWT PV Module



### Higher Efficiency

The highest efficiency of the series is up to 19.7%.



### Higher Yield

Higher power generation on the same installation.



### Lower Degradation

At least 98% of the initial effective output at the 1<sup>st</sup> year and 80.2% at the 30<sup>th</sup> year.



### Heat-Resistant

Remain peak performance in hot days thanks to the improved temperature coefficient as low as  $-0.36\%/^{\circ}\text{C}$ .



### Corrosion-Resistant

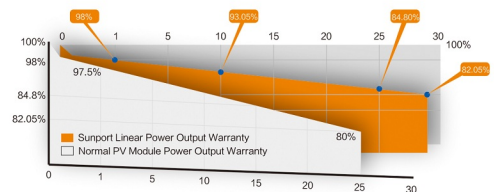
Certified for Ammonia Resistance and Salt Mist Corrosion to maximum severity level 6.



### Anti-PID

Certified for Anti-PID under  $85^{\circ}\text{C}/85\%\text{RH}$ , for 288hrs.

## 30 Years Performance Warranty



## Electrical Characteristics at Standard Test Conditions(STC)

Spec/Model	Unit	SPP290P60H	SPP295P60H	SPP300P60H	SPP305P60H	SPP310P60H	SPP315P60H	SPP320P60H
Max-Power(Pm)	W	290	295	300	305	310	315	320
Power Tolerance	%				0~+3%			
Max-Power Voltage(Vm)	V	31.2	31.4	31.6	31.8	32.0	32.2	32.4
Max-Power Current(I <sub>m</sub> )	A	9.30	9.40	9.50	9.60	9.69	9.79	9.88
Open-Circuit Voltage(Voc)	V	38.6	38.8	39.0	39.2	39.4	39.6	39.8
Short-Circuit Current(Isc)	A	9.82	9.90	9.98	10.06	10.14	10.22	10.30
Module Efficiency(η <sub>m</sub> )	%	17.8	18.1	18.4	18.7	19.1	19.4	19.7

STC:AM=1.5, Irradiation 1000W/m<sup>2</sup>, Module Temperature 25°C

## Electrical Characteristics at Nominal Module Operating Temperature (NMOT)

Spec/Model	Unit	SPP290P60H	SPP295P60H	SPP300P60H	SPP305P60H	SPP310P60H	SPP315P60H	SPP320P60H
Max-Power(Pm)	W	216	220	224	228	232	236	240
Max-Power Voltage(Vm)	V	28.5	28.7	28.9	29.1	29.3	29.5	29.7
Max-Power Current(I <sub>m</sub> )	A	7.58	7.67	7.76	7.84	7.93	8.01	8.09
Open-Circuit Voltage(Voc)	V	35.6	35.7	35.8	35.9	36.0	36.1	36.2
Short-Circuit Current(Isc)	A	7.99	8.07	8.15	8.23	8.31	8.39	8.47

NMOT: Irradiation 800W/m<sup>2</sup>, ambient temperature 20°C, Wind Speed 1m/s

## Temperature Coefficient

Nominal Module Operating Temperature	43 ± 2°C
Temperature coefficient of P <sub>max</sub>	-0.36%/°C
Temperature coefficient of V <sub>oc</sub>	-0.28%/°C
Temperature coefficient of I <sub>sc</sub>	0.06%/°C

## Package

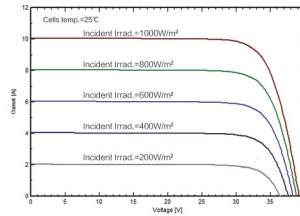
Container Size	Quantity(pcs)	Quantity(pallet)
20' GP	360	12
40' GP	840	28
40' HC	840	28

## Mechanical Property

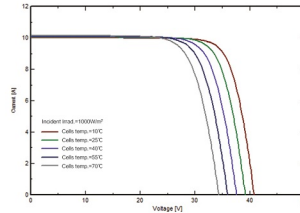
Dimension(L × W × H)	1640mm×922mm×35mm
Weight	18.5kg
Glass Type	High Transmittance Anti-reflective Coated Tempered Glass /3.2mm
Solar Cell	60(10x6)/Poly/6inches
Encapsulant	EVA
Frame	Anodized Aluminum Alloy / Silver
Junction Box	IP65 & IP67
Cable	1000mm / 4mm <sup>2</sup>
Connector	MC4 Compatible

## I-V Curve

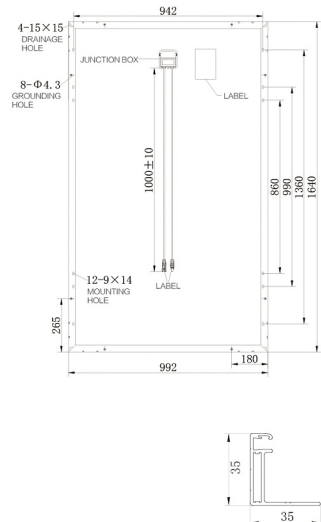
I-V Curve at different irradiation (SPP305P60H)



I-V Curve at different temperature (SPP305P60H)



## Module Size



## Operating Conditions

Max System Voltage	DC1500V(TUV)
Max Fuse Rated Current	15A
Operating Temperature Range	-40°C ~ +85°C
Mechanical Load	5400Pa/2400Pa
Max Allowable Hail Load	φ 25mm hail, from 1m of distance at 23 m/s
Application Class	Class A

