

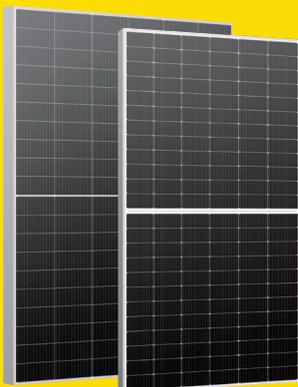


The **WISE** Choice

## EASTMAN WORLD

---

Welcome to Eastman World - Your Global Partner in Energy Solutions!



## *SOLAR PANELS*

---

**P-TYPE : ES450MP | ES550MP | ES585MP**

**N-TYPE : ES565TP - ES585TP | ES565TP BF - ES585TP BF**

# Eastman Introduction

**Founded in 2006**

Established in 2006, Eastman Auto & Power Limited is a well-known name in the field of solar energy, energy storage, and power electronics, boasting a USD 300 million revenue and a dedicated workforce of over 3,000 professionals. Building on the group's decades-long success and maintaining the trust of our partners, Mr. Jagdish Rai Singal ventured into the future of energy with Eastman Auto & Power Limited. Today, the business spans over 25 countries across Asia, Africa, Middle East, and Europe and provides the world with cutting-edge products that have set new benchmarks in their respective segments. Driven by innovation, we continually set industry standards, ensuring uninterrupted power supply for residential, commercial, and industrial applications.

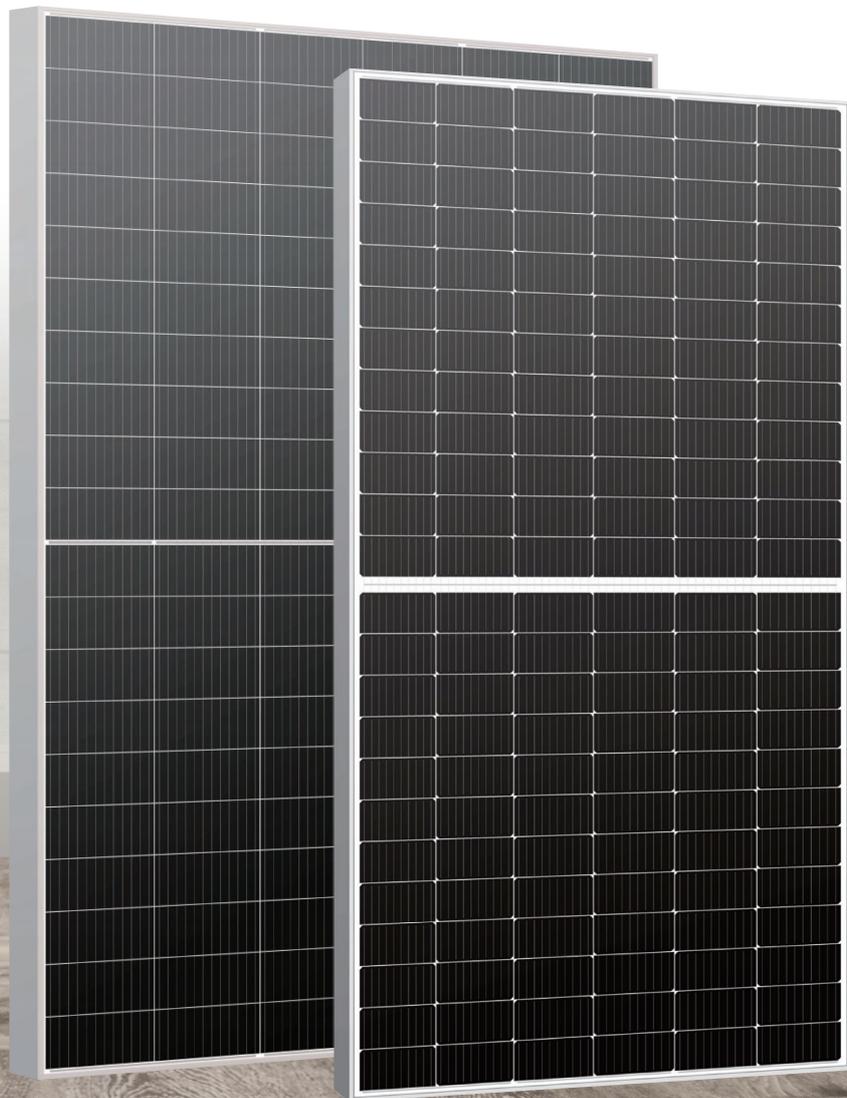
Our global solar distribution business provides reliable and high-quality solar solutions, including solar inverters, solar panels, solar batteries (carbon, gel, lithium, and tubular), solar pump inverters, solar charge controllers, and more. Our products offer a range of solutions to help you make the switch to clean energy. With us as your unwavering partners, we forge a sustainable future, amplifying global excellence through transformative products and services.





The **WISE** Choice

# **SOLAR** PANELS





# SOLAR PANEL P-TYPE 450W

Monocrystalline Module

Half-cell Module

## Introduction

Introducing our P-TYPE Monocrystalline Module, an advanced solar panel that offers higher output power compared to traditional modules. With its advanced technology, this module boasts an impressive efficiency of up to 20.9%, ensuring maximum energy conversion from sunlight.

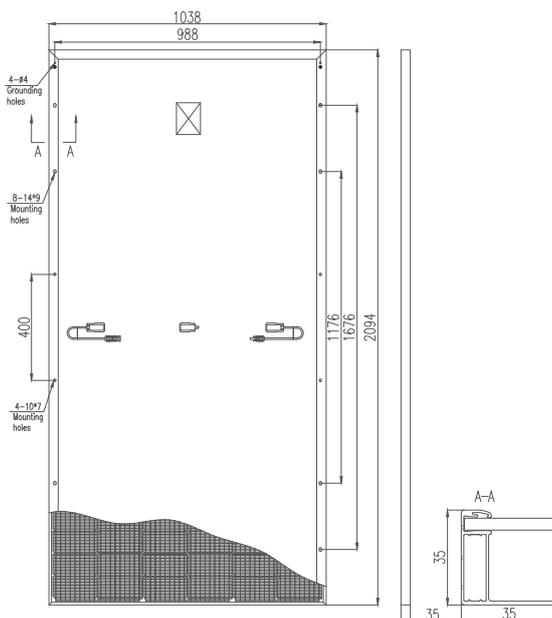
## Product Features

- Higher output power
- Module efficiency up to 20.9%
- Lower temperature coefficient
- Lower LCOE (Levelized Cost Of Energy)
- High Power output lead to lower BOS cost
- Salt Mist Corrosion Protect
- Ammonia Resistance
- Excellent Potential Induced Degradation Resistance
- Excellent Wind Load 2400Pa & Snow Load 5400Pa Under Certain Installation Method

## System & Product Certificates

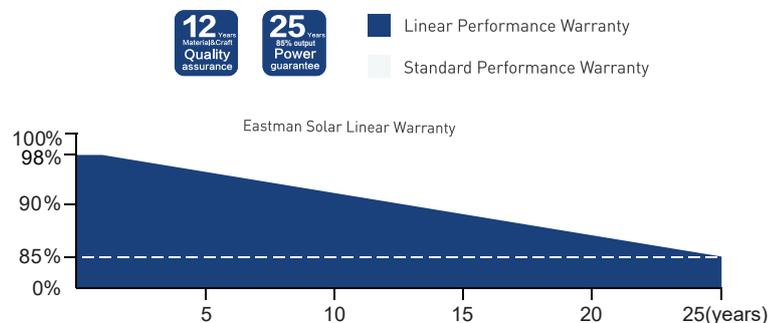
- ISO9001:2015 Quality Management system
- ISO14001:2015 Environmental Management System
- ISO45001:2018 Occupational Health and Safety Management System

## Module Structure Drawing

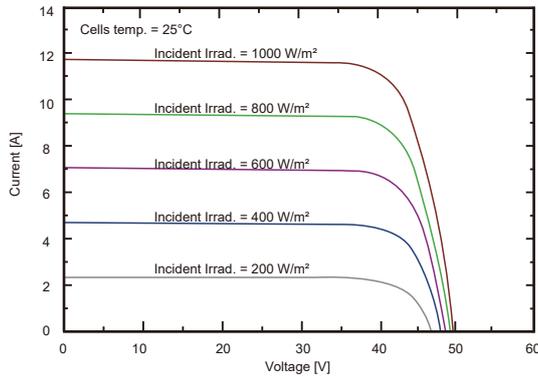


\*400mm mounting holes are only suitable for 6005-T6 aluminum frame

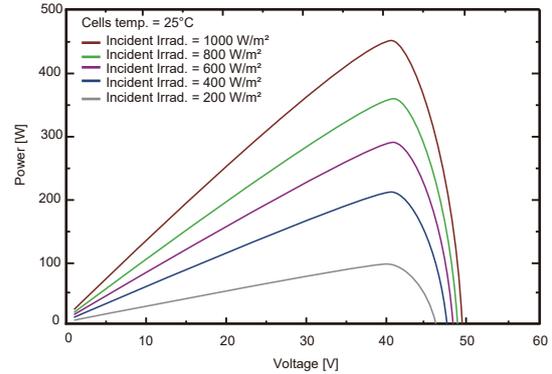
## Performance Warranty



## I-V Curves



## P-V Curves



## Product Specifications

Model	ES450MP
<b>Electrical Characteristics(STC*)</b>	
Power Output(Wp)	450
Max Power Tolerance(W)	0-5
Module Efficiency(%)	20.7
Voltage Mpp-Vmpp(V)	41.47
Current Mpp-Impp(A)	10.85
Voltage Open Circuit-Voc(V)	49.51
Short Circuit Current-Isc(A)	11.78
<b>Electrical Characteristics(NMOT*)</b>	
Power Output(Wp)	345.71
Voltage Mpp-Vmpp(V)	37.80
Current Mpp-Impp(A)	9.14
Voltage Open Circuit-Voc(V)	45.71
Short Circuit Current-Isc(A)	10.02
<b>Mechanical Data</b>	
Dimension Of Module	2094*1038*35mm
Weight	24kg
Glass	High transmission glass 3.2mm
Cables	4mm <sup>2</sup> /300mm or Customized Length
Junction Box	IP68,3 Bypass-Diode
Connector	MC4 compatible
<b>Packaging Configuration</b>	
Container	40'HQ
Pieces Per Pallet	31
Pallets Per Container	620
Pieces Per Container	682 or (31+31+4)x11=726
<b>Working Conditions</b>	
Max System Voltage(VDC)	1500V
Max Series Fuse Rating	20A
Maximum Load Capacity	Snow 5400Pa/Wind 2400Pa
Operating Temperature	-40°C~+85°C
Safety Class	II
<b>Temperature Ratings</b>	
Temperature Coefficients of Isc(%/°C)	0.046
Temperature Coefficients of Voc(%/°C)	-0.266
Temperature Coefficients of Pmpp(%/°C)	-0.354
NMOT	45±2°C

\*STC:Irradiance 1000 W/m<sup>2</sup>, Environment Temperature 25°C,Air Mass AM1.5

\*NMOT:Irradiance 800 W/m<sup>2</sup>, Environment Temperature 20°C, Air Mass AM1.5



# SOLAR PANEL P-TYPE 550W

Monocrystalline Module  
Half-cell Module

## Introduction

Introducing our P-TYPE Monocrystalline Module, an advanced solar panel that offers higher output power compared to traditional modules. With its advanced technology, this module boasts an impressive efficiency of up to 21.3%, ensuring maximum energy conversion from sunlight.

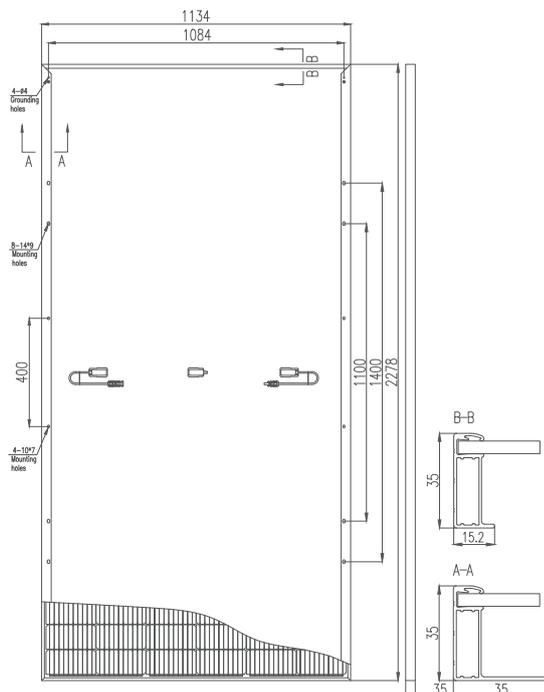
## Product Features

- Higher output power
- Module efficiency up to 21.3%
- Lower temperature coefficient
- Lower LCOE (Levelized Cost Of Energy)
- High Power output lead to lower BOS cost
- Salt Mist Corrosion Protect
- Ammonia Resistance
- Excellent Potential Induced Degradation Resistance
- Excellent Wind Load 2400Pa & Snow Load 5400Pa Under Certain Installation Method

## System & Product Certificates

- ISO9001:2015 Quality Management system
- ISO14001:2015 Environmental Management System
- ISO45001:2018 Occupational Health and Safety Management System

## Module Structure Drawing



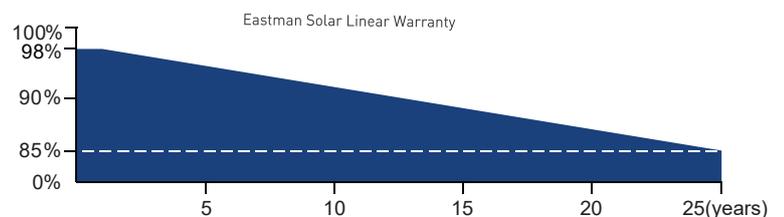
## Performance Warranty

12 Years  
Material & Craft  
Quality  
assurance

25 Years  
85% output  
Power  
guarantee

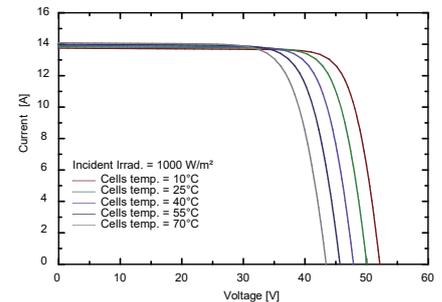
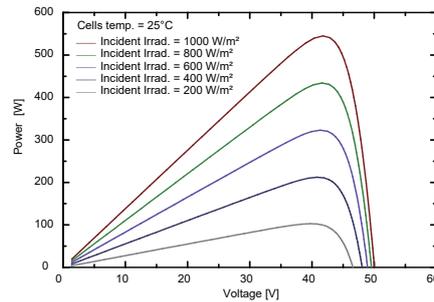
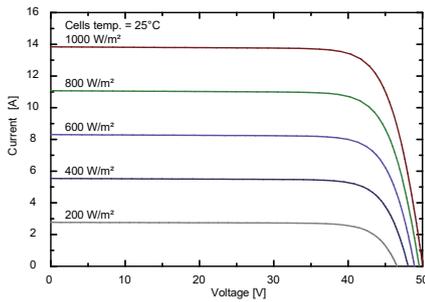
■ Linear Performance Warranty

□ Standard Performance Warranty



Note: 400mm hole distance is only applicable when specified by the customer

## Curves

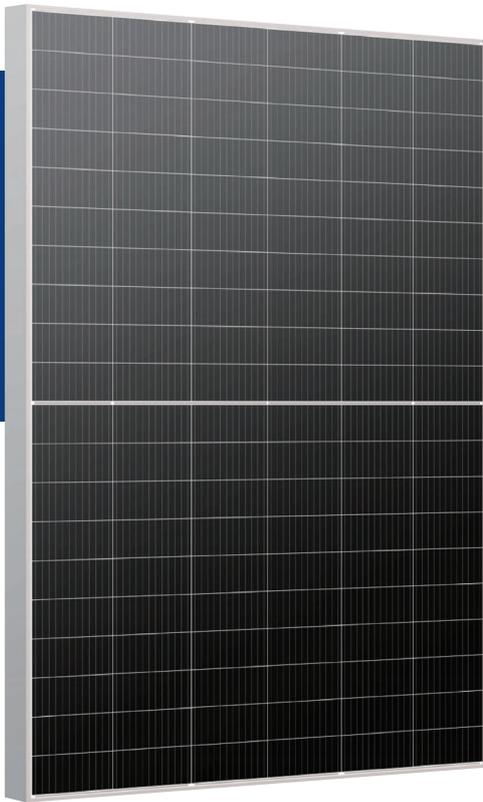


## Product Specifications

Model	ES550MP
<b>Electrical Characteristics(STC*)</b>	
Power Output(Wp)	550
Max Power Tolerance(W)	0-5
Module Efficiency(%)	21.3
Voltage Mpp-Vmpp(V)	42.11
Current Mpp-Impp(A)	13.06
Voltage Open Circuit-Voc(V)	50.28
Short Circuit Current-Isc(A)	13.90
<b>Electrical Characteristics(NMOT*)</b>	
Power Output(Wp)	422.53
Voltage Mpp-Vmpp(V)	38.39
Current Mpp-Impp(A)	11.01
Voltage Open Circuit-Voc(V)	46.42
Short Circuit Current-Isc(A)	11.82
<b>Mechanical Data</b>	
Dimension Of Module	2278*1134*35mm
Weight	27kg
Glass	High transmission glass 3.2mm
Cables	4mm <sup>2</sup> /300mm or Customized Length
Junction Box	IP68,3 bypass diodes
Connector	MC4 compatible
<b>Packaging Configuration</b>	
Container	40'HQ
Pieces Per Pallet	31
Pallets Per Container	20
Pieces Per Container	620
<b>Working Conditions</b>	
Max System Voltage(VDC)	1500V
Max Series Fuse Rating	25A
Maximum Load Capacity	Snow 5400Pa/Wind 2400Pa
Operating Temperature	-40°C~+85°C
Safety Class	II
<b>Temperature Ratings</b>	
Temperature Coefficients of Isc(%/°C)	0.046
Temperature Coefficients of Voc(%/°C)	-0.266
Temperature Coefficients of Pmpp(%/°C)	-0.354
NMOT	45±2°C

\*STC:Irradiance 1000 W/m<sup>2</sup>, Environment Temperature 25°C,Air Mass AM1.5

\*NMOT:Irradiance 800 W/m<sup>2</sup>, Environment Temperature 20°C, Air Mass AM1.5



# SOLAR PANEL P-TYPE 585W

Monocrystalline Module  
Half-cell Module

## Introduction

Introducing our P-TYPE Monocrystalline Module, an advanced solar panel that offers higher output power compared to traditional modules. With its advanced technology, this module boasts an impressive efficiency of up to 21.4%, ensuring maximum energy conversion from sunlight.

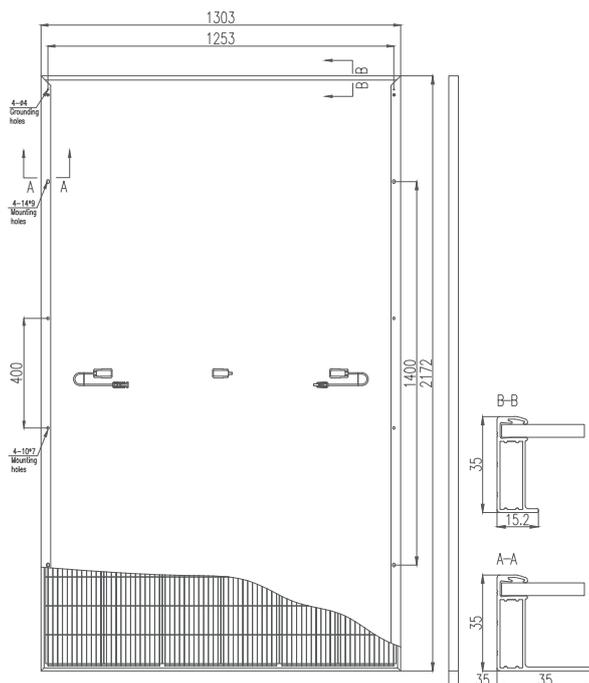
## Product Features

- Higher output power
- Module efficiency up to 21.4%
- Lower temperature coefficient
- Lower LCOE (Levelized Cost Of Energy)
- High Power output lead to lower BOS cost
- Salt Mist Corrosion Protect
- Ammonia Resistance
- Excellent Potential Induced Degradation Resistance
- Excellent Wind Load 2400Pa & Snow Load 5400Pa Under Certain Installation Method

## System & Product Certificates

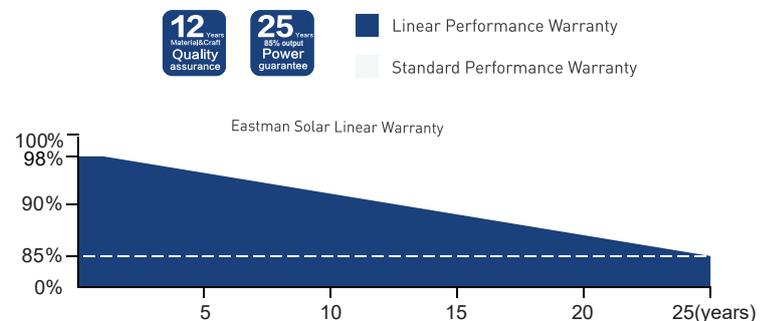
- ISO9001:2015 Quality Management system
- ISO14001:2015 Environmental Management System
- ISO45001:2018 Occupational Health and Safety Management System

## Module Structure Drawing

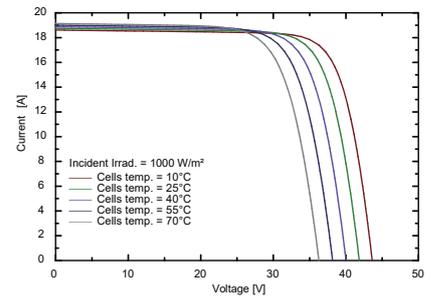
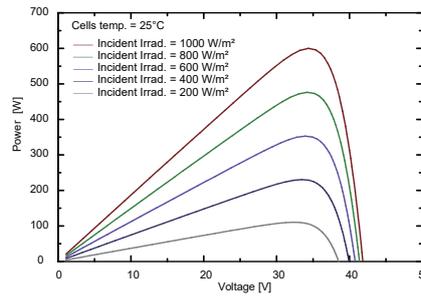
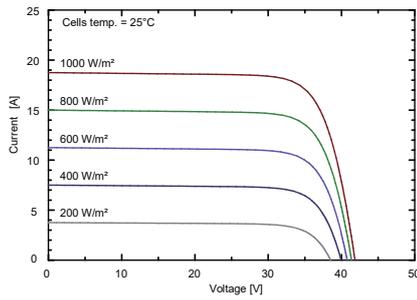


Note: 400mm hole distance is only applicable when specified by the customer

## Performance Warranty



## Curves



## Product Specifications

Model	ES585MP
<b>Electrical Characteristics(STC*)</b>	
Power Output(Wp)	585
Max Power Tolerance(W)	0-5
Module Efficiency(%)	20.7
Voltage Mpp-Vmpp(V)	33.95
Current Mpp-Impp(A)	17.23
Voltage Open Circuit-Voc(V)	41.24
Short Circuit Current-Isc(A)	18.60
<b>Electrical Characteristics(NMOT*)</b>	
Power Output(Wp)	449.42
Voltage Mpp-Vmpp(V)	30.95
Current Mpp-Impp(A)	14.52
Voltage Open Circuit-Voc(V)	38.08
Short Circuit Current-Isc(A)	15.81
<b>Mechanical Data</b>	
Dimension Of Module	2172*1303*35mm
Weight	31kg
Glass	High transmission glass 3.2mm
Cables	4mm <sup>2</sup> /300mm or Customized Length
Junction Box	IP68,3 bypass diodes
Connector	MC4 compatible
<b>Packaging Configuration</b>	
Container	40'HQ
Pieces Per Pallet	31
Pieces Per Container	18
Pieces Per Container	558
<b>Working Conditions</b>	
Max System Voltage(VDC)	1500V
Max Series Fuse Rating	30A
Maximum Load Capacity	Show 5400Pa/Wind 2400Pa
Operating Temperature	-40°C~+85°C
Safety Class	II
<b>Temperature Ratings</b>	
Temperature Coefficients of Isc(%/°C)	0.046
Temperature Coefficients of Voc(%/°C)	-0.266
Temperature Coefficients of Pmpp(%/°C)	-0.354
NMOT	45±2°C

\*STC:Irradiance 1000 W/m<sup>2</sup>, Environment Temperature 25°C,Air Mass AM1.5

\*NMOT:Irradiance 800 W/m<sup>2</sup>, Environment Temperature 20°C, Air Mass AM1.5



# SOLAR PANEL N-TYPE 565W~585W TP

Half-cell Mono Module

## Introduction

Introducing our N-TYPE cutting-edge solar panel: engineered for maximum power output and reliability, even in low-light conditions like cloudy days. Featuring zero Light Induced Degradation (LID) and superior temperature coefficient for consistent performance. Certified to withstand harsh environments, it's your reliable solution for sustainable energy.

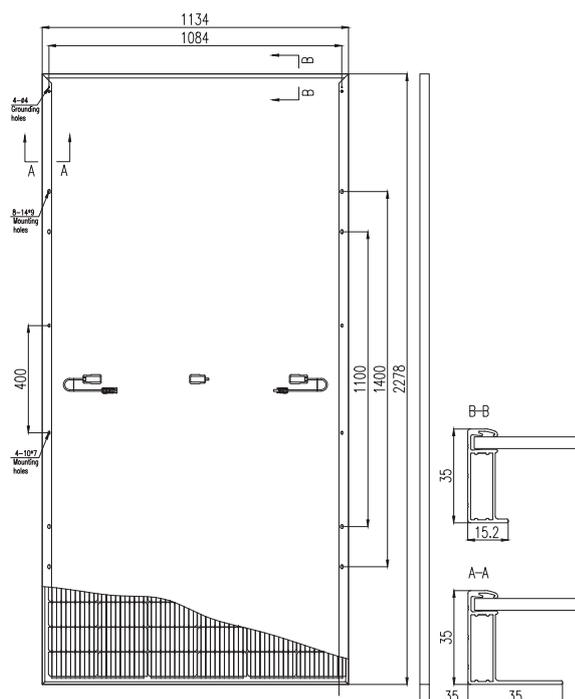
## Product Features

- **High Power Output:** Better light trapping and current collection to improve module power output and reliability
- **Outstanding Low Light Performance:** Higher power output even under low-light environments like on cloudy or foggy days.
- **Zero LID (Light Induced Degradation):** N-type solar cell has no LID naturally which can increase power generation
- **Better Temperature Coefficient:** Higher power generation under working conditions, thanks to passivating contact cell technology
- **PID Resistance:** Excellent Anti-PID performance guarantee via optimized mass-production process and materials control
- **Enhanced Mechanical Load:** Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal)
- **Withstanding Harsh Environment:** Reliable quality leads to a better sustainability even in harsh environment like desert, farm and coastline.

## System & Product Certificates

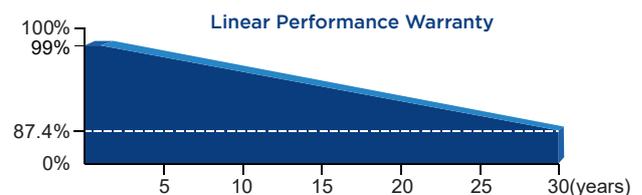
- IEC61215, IEC61730
- ISO9001:2015: Quality Management System
- ISO14001:2015: Environment Management System
- ISO45001:2018: Occupational health and safety management systems

## Module Structure Drawing



Note: 400mm hole distance is only applicable when specified by the customer

## Performance Warranty

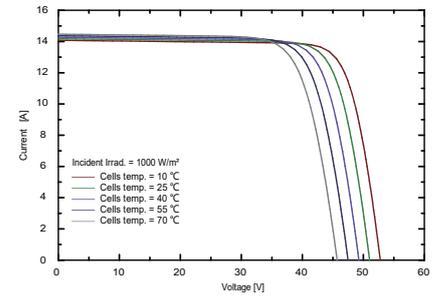
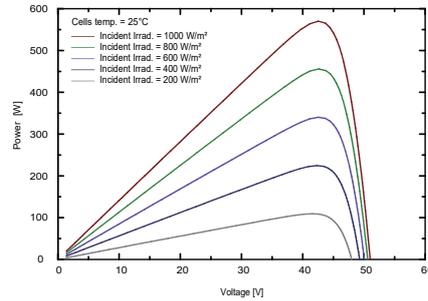
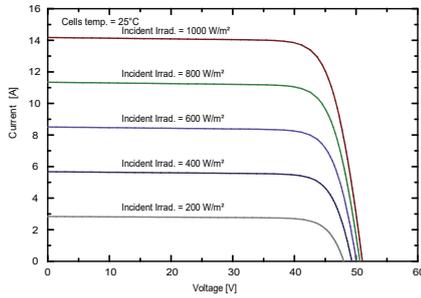


12 Years Product Warranty on Materials and Workmanship

30 Years Linear Performance Warranty

0.40% Subsequent Annual Degradation

## Characteristic Curves(570W)



## Product Specifications

Model	ES565TP	ES570TP	ES575TP	ES580TP	ES585TP
<b>Electrical Properties(STC*)</b>					
Power Output(Wp)	565	570	575	580	585
Max Power Tolerance(W)	0-5	0-5	0-5	0-5	0-5
Module Efficiency(%)	21.87	22.07	22.26	22.45	22.65
Voltage Mpp-Vmpp(V)	42.35	42.51	42.69	42.87	43.02
Current Mpp-Impp(A)	13.34	13.41	13.47	13.53	13.60
Voltage Open Circuit-Voc(V)	50.83	51.03	51.23	51.43	51.63
Short Circuit Current-Isc(A)	14.12	14.18	14.24	14.30	14.36
<b>Electrical Properties(NMOT*)</b>					
Power Output(Wp)	427	431	435	439	443
Voltage Mpp-Vmpp(V)	39.79	39.98	40.13	40.28	40.44
Current Mpp-Impp(A)	10.73	10.78	10.84	10.90	10.96
Voltage Open Circuit-Voc(V)	48.45	48.64	48.83	49.02	49.21
Short Circuit Current-Isc(A)	11.40	11.45	11.49	11.54	11.59
<b>Mechanical Properties</b>					
Cell Size	182mm*91mm				
Number of Cells	144 [ 2 x ( 12x 6 ) ]				
Module Dimension	2278*1134*30&2278*1134*35mm				
Weight	27 kg				
Front Glass	High transmission glass 3.2mm				
Frame	Anodized Aluminium Alloy				
Junction Box	IP68 (3 diodes)				
Cable Lenth	TUV 1x4.0mm², (+):300mm/(-):200mm or Customized length				
<b>Operating Properties</b>					
Operating Temperature	-40°C~+85°C				
Maximum System Voltage	1500V DC (IEC)				
Maximum Series Fuse Rating	25A				
Power Tolerance	0~+5W				
<b>Temperature Coefficient</b>					
Temperature Coefficient of Pmax	-0.310%/°C				
Temperature Coefficients of Voc	-0.26%/°C				
Temperature Coefficients of Isc	0.046%/°C				
Nominal Operating cell Temperature(NOCT)	42±2°C				
<b>Packaging Configuration</b>					
Frame	30mm		35mm		
Packing Type	40'HQ		40'HQ		
Piece/Pallet	36		31		
Piece/Container	740		620		

\*STC:Irradiance 1000 W/m2, Environment Temperature 25°C,Air Mass AM1.5

\*NMOT:Irradiance 800 W/m2, Environment Temperature 20°C, Air Mass AM1.5



# SOLAR PANEL N-TYPE

## 565W~585W TP BF

Bifacial Dual Glass Mono Module

### Introduction

Introducing our N-TYPE cutting-edge solar panel: engineered for maximum power output and reliability, even in low-light conditions like cloudy days. Featuring zero Light Induced Degradation (LID) and superior temperature coefficient for consistent performance. Certified to withstand harsh environments, it's your reliable solution for sustainable energy.

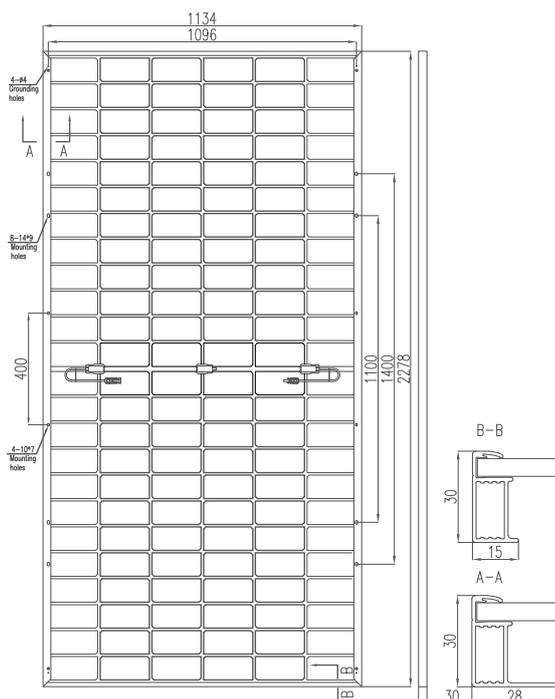
### Product Features

- **10%-30% Additional Power Generation** 30 years lifespan brings 10%-30% additional power generation comparing with conventional P-type module
- **Outstanding Low Light Performance** Higher power output even under low-light environments like on cloudy or foggy days.
- **Zero LID (Light Induced Degradation)** N-type solar cell has no LID naturally which can increase power generation
- **Better Temperature Coefficient** Higher power generation under working conditions, thanks to passivating contact cell technology
- **PID Resistance** Excellent Anti-PID performance guarantee via optimized mass-production process and materials control
- **Enhanced Mechanical Load** Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal)
- **Withstanding Harsh Environment** Reliable quality leads to a better sustainability even in harsh environment like desert, farm and coastline.
- **Lower LCOE** Higher bifaciality, higher power output and lower BOS cost
- **Wider Applicability** More application scenes like BIPV, vertical installation, snowfield, high-humid, windy and dusty area

### System & Product Certificates

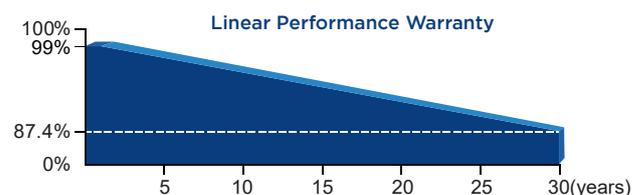
- IEC61215, IEC61730
- ISO9001:2015: Quality Management System
- ISO14001:2015: Environment Management System
- ISO45001:2018: Occupational health and safety management systems

### Module Structure Drawing



Note: 400mm hole distance is only applicable when specified by the customer

### Performance Warranty

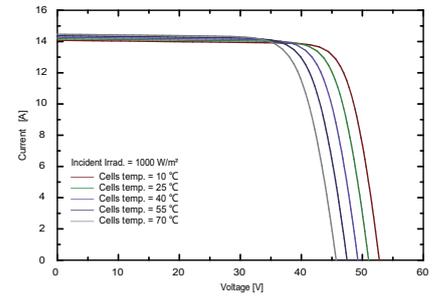
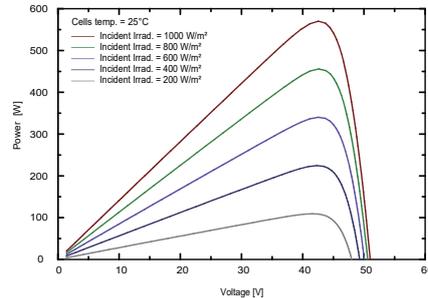
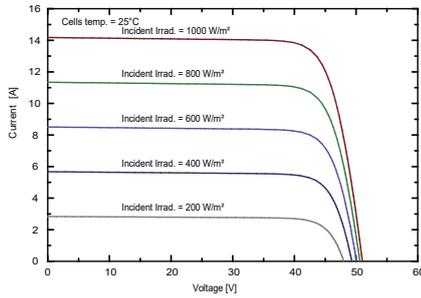


12 Years Product Warranty on Materials and Workmanship

30 Years Linear Performance Warranty

0.40% Subsequent Annual Degradation

## Characteristic Curves(570W)



## Product Specifications

Model	ES565TP BF	ES570TP BF	ES575TP BF	ES580TP BF	ES585TP BF
<b>Electrical Properties(STC*)</b>					
Power Output(Wp)	565	570	575	580	585
Max Power Tolerance(W)	0-5	0-5	0-5	0-5	0-5
Module Efficiency(%)	21.87	22.07	22.26	22.45	22.65
Voltage Mpp-Vmpp(V)	42.35	42.51	42.69	42.87	43.02
Current Mpp-Impp(A)	13.34	13.41	13.47	13.53	13.60
Voltage Open Circuit-Voc(V)	50.83	51.03	51.23	51.43	51.63
Short Circuit Current-Isc(A)	14.12	14.18	14.24	14.30	14.36
<b>Electrical Properties(NMOT*)</b>					
Power Output(Wp)	427	431	435	439	443
Voltage Mpp-Vmpp(V)	39.79	39.98	40.13	40.28	40.44
Current Mpp-Impp(A)	10.73	10.78	10.84	10.90	10.96
Voltage Open Circuit-Voc(V)	48.45	48.64	48.83	49.02	49.21
Short Circuit Current-Isc(A)	11.40	11.45	11.49	11.54	11.59

### With Different Power Generation Gain (regarding 570W as an example)

Power Gain (%)	Power Output (Wp)	Voltage Mpp-Vmpp (V)	Current Mpp-Impp (A)	Voltage Open Circuit-Voc (%)	Short Circuit Current-Isc (A)
10	627	42.51	14.75	51.03	15.60
15	656	42.51	15.42	51.03	16.31
20	684	42.51	16.09	51.03	17.02
25	713	42.51	16.76	51.03	17.73
30	741	42.51	17.43	51.03	18.43

### Mechanical Properties

Cell Size	182mm*91mm
Number of Cells	144 [ 2 x ( 12x 6 ) ]
Module Dimension	2278*1134*30
Weight	32.5 kg
Front Glass	2.0mm, Anti-Reflection Coating
Rear Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 (3 diodes)
Cable Lenth	TUV 1x4.0mm <sup>2</sup> , (+):300mm/ (-):200mm or Customized length

### Operating Properties

Operating Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC (IEC)
Maximum Series Fuse Rating	30A
Power Tolerance	0~+5W
Bifaciality	80±5%

### Packaging Configuration

Frame	30mm
Packing Type	40'HQ
Piece/Pallet	36
Piece/Container	740

### Temperature Coefficient

Temperature Coefficient of Pmax	-0.310%/°C
Temperature Coefficients of Voc	-0.26%/°C
Temperature Coefficients of Isc	0.046%/°C
Nominal Operating cell Temperature(NOCT)	42±2°C

\*STC:Irradiance 1000 W/m<sup>2</sup>, Environment Temperature 25°C,Air Mass AM1.5

\*NMOT:Irradiance 800 W/m<sup>2</sup>, Environment Temperature 20°C, Air Mass AM1.5



[www.eastmanworld.com](http://www.eastmanworld.com)  
[marketing@eastmanworld.com](mailto:marketing@eastmanworld.com)

**AMPS MIDDLE EAST FZ LLC**

#703, 7<sup>TH</sup> Floor, Deira Twin Tower,  
Baniyas Square, Deira, Dubai (UAE)

**EASTMAN AUTO & POWER LTD.**

ASF Towers, 249, Udyog Vihar Phase-4, Gurugram,  
Haryana-122016, India

**GUANGDONG EASTMAN NEW ENERGY CO., LTD**

#1602, Meilan business centre, Intersection of Xixiang Avenue  
and Qianjin Second Road, Bao'an, District, Shenzhen-518102, China

Follow us on »  @eastman\_world  @EastmanWorld  @EastmanWorld