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# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**Macsun Solar Energy Technology Co., Limited**

**MSP285-320S**

**MSP290S**

Also available on the web at

[EnergyPal.com/macsun-solar-energy-technology-co-limited-solar-panels/msp290s](http://EnergyPal.com/macsun-solar-energy-technology-co-limited-solar-panels/msp290s)



## Macsun Solar Energy Technology Co., Limited

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### 72x6"/MSP285S~MSP320S

### POLY CRYSTALLINE MODULE

#### Characteristics & Performance

- > Use of only certified materials at highest quality standards.
- > The process of cell and module production is fully automated with 100% quality control and product traceability.
- > Heavy load mechanical resistance: TÜV certified (5400Pa tested against snow and 2400Pa test against wind)
- > Excellent performances even during low solar radiation
- > Guaranteed positive tolerance 0 to +3% of power for each module



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### Certifications for Incentives

#### Quality, Environment, Health & Safety

- > ISO9001:2008, ISO14001:2004, OHSAS18001:2007
- > Full Member PV Cycle Association AISBL

#### Product Certifications

- > Quality and Robustness: IEC61215:2005
- > Safety: IEC61730 -1/-2, MCS, CEC, UL
- > Resistance to salt corrosion (salt fog): IEC61701:2000
- > Resistance to ammonia fumes: Ammonia Resistance Test

### 25 Year Linear Power Guarantee

#### Commercial

- > 12 years on material and manufacturing defects

#### Performance

- > Power not less than 90% of power peak during the first 12 years
- > Power not less than 80% of power peak during the subsequent 13 years.



### Electrical Characteristics at STC

TYPE		MSP285S	MSP290S	MSP295S	MSP300S	MSP305S	MSP310S	MSP315S	MSP320S
Maximum Power	Pmax(W)	285W	290W	295W	300W	305W	310W	315W	320W
Tolerance Value for Power	%	0~+3%	0~+3%	0~+3%	0~+3%	0~+3%	0~+3%	0~+3%	0~+3%
Maximum Power Voltage	Vmpp(V)	35.32	35.41	35.60	35.90	36.20	36.40	36.60	36.80
Maximum Power Current	Imp(A)	8.07	8.19	8.29	8.36	8.43	8.52	8.61	8.70
Open Circuit Voltage	Voc(V)	44.8	44.8	44.8	44.90	44.92	44.94	44.96	45.02
Short Circuit Current	Isc(A)	8.48	8.63	8.70	8.85	8.95	9.15	9.25	9.34
Module Efficiency	$\eta$	>14.68%	>14.94%	>15.20%	>15.46%	>15.72%	>16.98%	>16.24%	>16.49%

Performance at STC: Irradiance of 1000W/m<sup>2</sup>, Module temperature 77±3.6°F (25±2°C)

AM 1.5 Power measurement tolerance: ±3%



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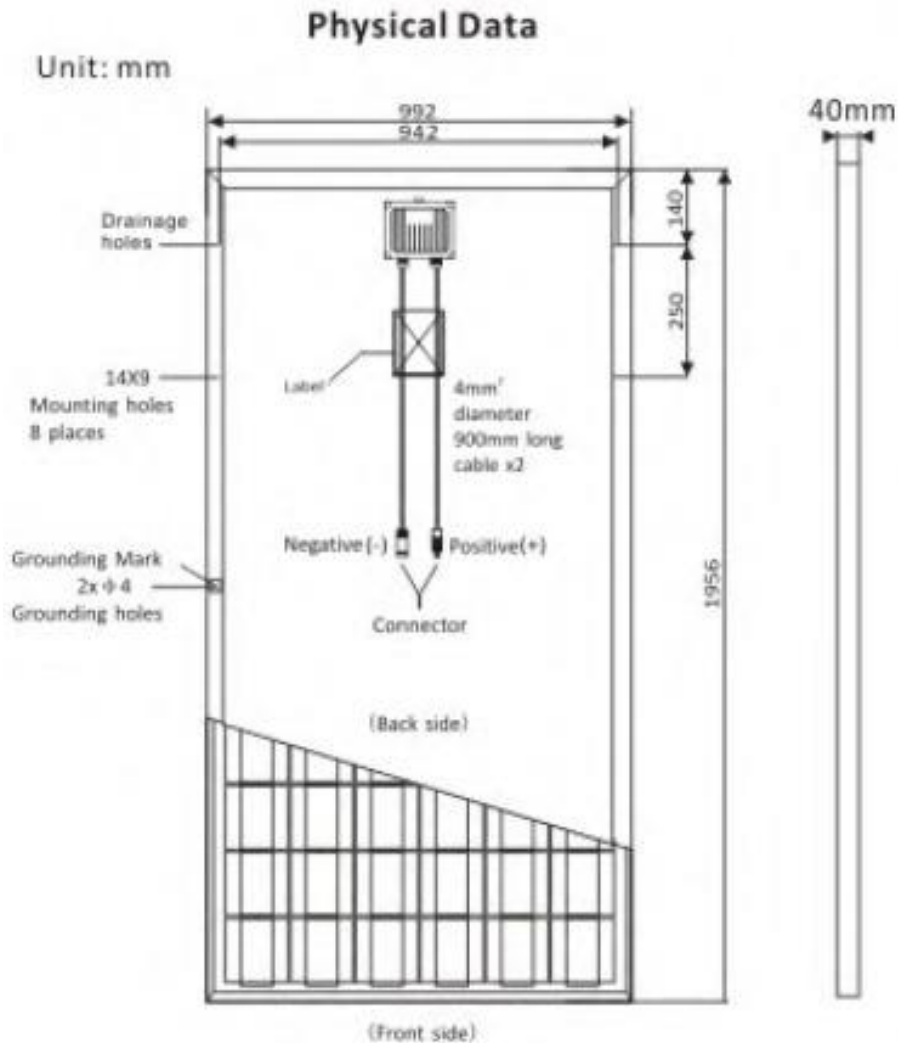
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### Electrical Characteristics at NOCT

TYPE		MSP285S	MSP290S	MSP295S	MSP300S	MSP305S	MSP310S	MSP315S	MSP320S
Maximum Power	Pmax(W)	207.95W	212.95W	216.74W	220.70W	224.13W	227.85W	231.25W	235.91W
Maximum Power Voltage	Vmpp(V)	32.15	32.24	32.35	32.65	32.96	33.13	33.32	33.51
Maximum Power Current	Impp(A)	6.47	6.61	6.70	6.73	6.80	6.87	6.94	7.01
Open Circuit Voltage	Voc(V)	40.60	40.72	41.01	41.38	41.76	42.02	42.29	42.52
Short Circuit Current	Isc(A)	6.91	7.06	7.37	7.42	7.48	7.55	7.68	7.71

Performance at NOCT: Irradiance 800W/m<sup>2</sup>, Ambient temperature 20°C, Wind speed 1m/S

Power measurement tolerance: ±3%





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### Temperature Coefficients(Tc)

Temperature Coefficient of VOC( $\beta$ )	-0.32%/°C
Temperature Coefficient of ISC( $\alpha$ )	+0.034%/°C
Temperature Coefficient of Pmax	-0.40%/°C
Nominal Operating Cell Temperature(NOCT)	45±2°C

### Permissible Operating Conditions

Maximum system voltage	1000VDC
Operating temperature	-40~+85°C
Maximum Surface Load Capacity	Test up to 5400Pa according to IEC61215 (Advanced test)
Resistance Against Hail	Maximum diameter of 1in.(25mm) impact speed of 51.5mph(23m/s)

### Mechanical specifications

Cells	Polycrystalline cell with 3-busbars, 6"(6x12)
Junction box	IP67, combined with 3 by-pass diodes
Front Glass Thickness	4.0mm
Connecting Cable/Connector	MC4 compatible connector/4mm <sup>2</sup> diameter, 900mm length
Frame Dimension	1956x992x40mm
Weight	23KG

### Packing Features

Frame Height	40mm
Qty/Pallet (PCS)	28
Qty/40HC container (PCS)	672

