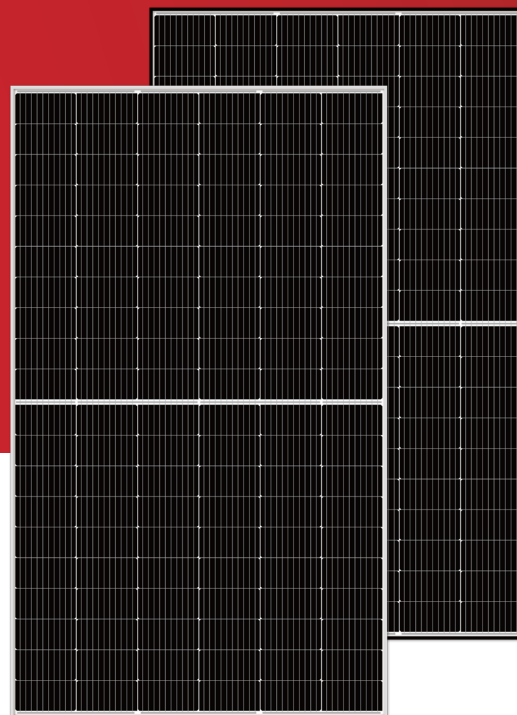




# Zosma™ S Pro

## 445-465W

High efficiency bifacial dual glass mono module



Bifacial technology enables additional energy harvesting from rear side (up to 30%)



Excellent low irradiance performance



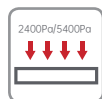
Better light trapping and current collection to improve module power output and reliability



Industry-leading, lowest thermal coefficient



Optimized electrical design and lower operating current for reduced hot spot loss and better temperature



Certified to withstand 2400 Pa of wind load and 5400 Pa of snow load



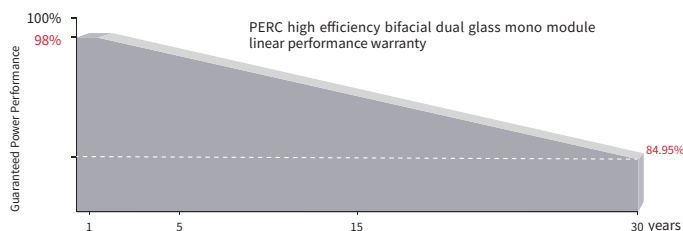
100% triple EL test, which greatly reduces the hidden cracks rate

### WARRANTY INSURANCE



\* Optional performance warranty insurance. Please contact our local sales staff for more information.

### LINEAR PERFORMANCE WARRANTY



**15** years

Product quality & process guarantee

**30** years

Linear power guarantee

**0.45** %

Annual degradation over 30 years

### COMPREHENSIVE CERTIFICATES



IEC61215/IEC61730/IEC61701/IEC62716/  
IEC62804/IEC60068/UL61730

ISO 9001: Quality Management System

ISO 14001: Environmental Management System Standard

ISO 45001: International Occupational Health and Safety Assessment System Standard

SA 8000: 2014 Social Accountability Management System

\* Different markets have different certification requirements. Also, the products are under rapid innovation. Please confirm the certification status with regional sales representatives.

## ELECTRICAL CHARACTERISTICS

Model of modules	SS-BG445-60MDH		SS-BG450-60MDH		SS-BG455-60MDH		SS-BG460-60MDH		SS-BG465-60MDH	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum power — $P_{mp}$ (W)	445	332	450	336	455	339	460	343	465	346
Open-circuit voltage — $V_{oc}$ (V)	41.27	38.96	41.46	39.14	41.65	39.32	41.78	39.44	41.92	39.57
Short-circuit current — $I_{sc}$ (A)	13.42	10.84	13.47	10.88	13.54	10.94	13.63	11.01	13.73	11.09
Maximum power voltage — $V_{mp}$ (V)	34.46	32.26	34.62	32.41	34.78	32.56	34.89	32.66	35.02	32.78
Maximum power current — $I_{mp}$ (A)	12.92	10.28	13.01	10.35	13.09	10.42	13.19	10.50	13.28	10.57
Module efficiency — $\eta_m$ (%)	20.6		20.9		21.1		21.3		21.6	

**STC** (Standard Testing Conditions): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25 °C, Spectra at AM1.5

**NOCT** (Nominal Operating Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/s

## ELECTRICAL CHARACTERISTICS WITH DIFFERENT POWER BIN (REFERENCE TO 13.5% IRRADIANCE RATIO)

Peak power ( $P_{max}$ ) (W)	487	493	498	504	509
Open circuit voltage ( $V_{oc}$ ) (V)	41.27	41.46	41.65	41.78	41.94
Short circuit current ( $I_{sc}$ ) (A)	14.69	14.74	14.82	14.87	14.95
MPP voltage — $V_{mp}$ (V)	34.46	34.62	34.78	34.89	35.04
MPP current — $I_{mp}$ (A)	14.14	14.24	14.33	14.44	14.52

## STRUCTURAL CHARACTERISTICS

Module dimensions (L*W*H)	1903 x 1134 x 30 mm
Weight	26.3 kg
Cell	120 cells, PERC monocrystalline
Front Glass	2.0mm, anti-reflection coating
Back Glass	2.0mm, heat strengthened glass
Frame	Anodized aluminum alloy (Silver/Black)
Junction box	IP68, 3 bypass diodes
Output wire	4.0 mm <sup>2</sup>
Wire length	300mm/1200mm/customized length
Connector	MC4 Compatible
Packaging specification	36 pcs/Pallet; 864 pcs/40'HQ

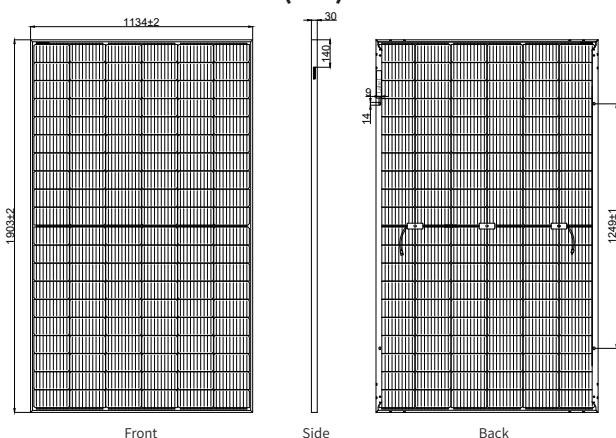
## OPERATING PARAMETERS

Power selection (W)	(0,+5)
Maximum system voltage (V)	1500
Maximum rated fuse current (A)	30
Current operating temperature (°C)	-40~+85 °C
Mechanical load	5400 Pa * / 2400 Pa ∞

## TEMPERATURE PERFORMANCE RATINGS

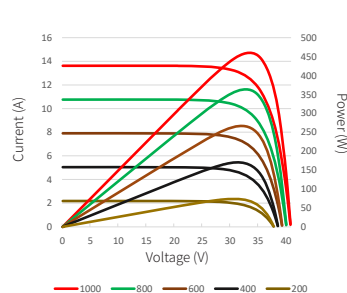
Temperature coefficient ( $P_{max}$ )	-0.33 %/°C
Temperature coefficient ( $V_{oc}$ )	-0.26 %/°C
Temperature coefficient ( $I_{sc}$ )	+0.06 %/°C
Nominal operating cell temperature	43±2 °C

## MODULE DIMENSIONS (MM)



\* The unmarked tolerance is ±1 mm  
Length shown in mm

Current-Voltage & Power-Voltage Curves (465W)



Temperature Dependence of  $I_{sc}$ ,  $V_{oc}$ ,  $P_{max}$

