Firmato digitalmente da
Carmine Antonio Speranza
CN = Carmine Antonio Speranza
C = IT

PROGETTO PER LA REALIZZAZIONE DI UN PARCO FOTOVOLTAICO
E DELLE RELATIVE OPERE DI CONNESSIONE ALLA RTN

POTENZA NOMINALE 20 MW

REGIONE BASILICATA

PROVINCIA di POTENZA

COMUNE di POTENZA

Località "Case Brescia"

| Scala: | Formato Stampa: | PROGETTO DEFINITIVO |
|---|---|---|
| - | Personalizzato | |

ELABORATO

| A.12.b.3 | Schema funzionale pannello fotovoltaico |
|---|---|

Progettazione:

DESIGN STUDIO RSV Ingegneria | Architettura | Topografia

R.S.V. Design Studio S.r.l.

Piazza Carmine, 5 | 84077 Torre Orsaia (SA)
P.IVA 05885970656
Tel./fax: +39 0974 985490 | e-mail: info@rsv-ds.it

ORDINE DEGLI INGEGNERI Dott. Ing. SPERANZA CARMINE ANTONIO N. 7218 SEZ. A Civile ed Ambientale PROVINCIA DI SALERNO

ORDINE DEGLI INGEGNERI QUIRINO VASSALLI INGEGNERE Civile ed Ambientale N. 1438 PROVINCIA DELLA BASILICATA

Committenza:

ITS Potenza

ITS POTENZA S.r.l.

Via Vincenzo Verrastro, 15a | 85100 Potenza (PZ)
P.IVA 02054900762
Indirizzo pec: its.potenza.srl@pec.it

| Catalogazione Elaborato | A12b3_ITS_PTZ02_Schema funzionale pannello fotovoltaico.qgz |
|---|---|
| | A12b3_ITS_PTZ02_Schema funzionale pannello fotovoltaico.pdf |

| Data: | Motivo della revisione: | Redatto: | Controllato: | Approvato: |
|---|---|---|---|---|
| Giugno 2023 | Prima emissione | RU | RSV | ITS Potenza |
| | | | | |
| | | | | |

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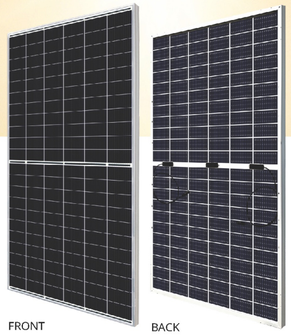
CanadianSolar

# BiHiKu7

## BIFACIAL MONO PERC

## 640 W ~ 670 W

## CS7N-640|645|650|655|660|665|670MB-AG




### MORE POWER

- Module power up to 670 W
  Module efficiency up to 21.6 %
- Up to 8.9 % lower LCOE
  Up to 4.6 % lower system cost
- Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- Compatible with mainstream trackers, cost effective product for utility power plant
- Better shading tolerance

### MORE RELIABLE

- 40 °C lower hot spot temperature, greatly reduce module failure rate
- Minimizes micro-crack impacts
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa*

* For detailed information, please refer to the Installation Manual.

**12 Years** Enhanced Product Warranty on Materials and Workmanship*

**30 Years** Linear Power Performance Warranty*

1st year power degradation no more than 2%
Subsequent annual power degradation no more than 0.45%

*According to the applicable Canadian Solar Limited Warranty Statement.

### MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001 : 2015 / Quality management system
ISO 14001 : 2015 / Standards for environmental management system
ISO 45001 : 2018 / International standards for occupational health & safety
IEC62941 : 2019 / Photovoltaic module manufacturing quality system

### PRODUCT CERTIFICATES*

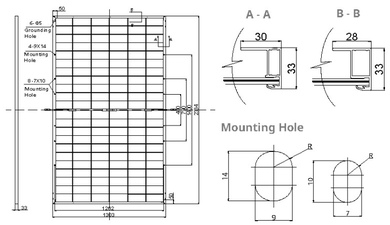
IEC 61215 / IEC 61730 / CE / INMETRO / MCS / UKCA
CEC listed (US California) / FSEC (US Florida)
UL 61730 / IEC 61701 / IEC 62716 / IEC 60068-2-68
Take-e-way

* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

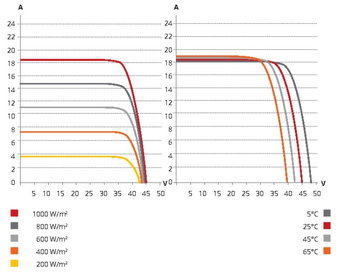
**CSI Solar Co., Ltd.** is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 22 years, it has successfully delivered over 88 GW of premium-quality solar modules across the world.

**CSI Solar Co., Ltd.**
199 Lushan Road, SND, Suzhou, Jiangsu, China, 215129, www.csisolar.com, support@csisolar.com

### ENGINEERING DRAWING (mm)




### CS7N-650MB-AG / I-V CURVES




### ELECTRICAL DATA | STC*

| | | Nominal Max. Power (Pmax) | Opt. Operating Voltage (Vmp) | Opt. Operating Current (Imp) | Open Circuit Voltage (Voc) | Short Circuit Current (Isc) | Module Efficiency |
|---|---|---|---|---|---|---|---|
| CS7N-640MB-AG | | 640 W | 37.5 V | 17.07 A | 44.6 V | 18.31 A | 20.6% |
| Bifacial Gain** | 5% | 672 W | 37.5 V | 17.92 A | 44.6 V | 19.23 A | 21.6% |
| | 10% | 704 W | 37.5 V | 18.78 A | 44.6 V | 20.14 A | 22.7% |
| | 20% | 768 W | 37.5 V | 20.48 A | 44.6 V | 21.97 A | 24.7% |
| CS7N-645MB-AG | | 645 W | 37.7 V | 17.11 A | 44.8 V | 18.35 A | 20.8% |
| Bifacial Gain** | 5% | 677 W | 37.7 V | 17.97 A | 44.8 V | 19.27 A | 21.8% |
| | 10% | 710 W | 37.7 V | 18.84 A | 44.8 V | 20.19 A | 22.9% |
| | 20% | 774 W | 37.7 V | 20.53 A | 44.8 V | 22.02 A | 24.9% |
| CS7N-650MB-AG | | 650 W | 37.9 V | 17.16 A | 45.0 V | 18.39 A | 20.9% |
| Bifacial Gain** | 5% | 683 W | 37.9 V | 18.03 A | 45.0 V | 19.31 A | 22.0% |
| | 10% | 715 W | 37.9 V | 18.88 A | 45.0 V | 20.23 A | 23.0% |
| | 20% | 780 W | 37.9 V | 20.59 A | 45.0 V | 22.07 A | 25.1% |
| CS7N-655MB-AG | | 655 W | 38.1 V | 17.20 A | 45.2 V | 18.43 A | 21.1% |
| Bifacial Gain** | 5% | 688 W | 38.1 V | 18.06 A | 45.2 V | 19.35 A | 22.1% |
| | 10% | 721 W | 38.1 V | 18.93 A | 45.2 V | 20.27 A | 23.2% |
| | 20% | 786 W | 38.1 V | 20.64 A | 45.2 V | 22.12 A | 25.3% |
| CS7N-660MB-AG | | 660 W | 38.3 V | 17.24 A | 45.4 V | 18.47 A | 21.2% |
| Bifacial Gain** | 5% | 693 W | 38.3 V | 18.10 A | 45.4 V | 19.39 A | 22.3% |
| | 10% | 726 W | 38.3 V | 18.96 A | 45.4 V | 20.32 A | 23.4% |
| | 20% | 792 W | 38.3 V | 20.69 A | 45.4 V | 22.16 A | 25.5% |
| CS7N-665MB-AG | | 665 W | 38.5 V | 17.28 A | 45.6 V | 18.51 A | 21.4% |
| Bifacial Gain** | 5% | 698 W | 38.5 V | 18.14 A | 45.6 V | 19.44 A | 22.5% |
| | 10% | 732 W | 38.5 V | 19.02 A | 45.6 V | 20.36 A | 23.6% |
| | 20% | 798 W | 38.5 V | 20.74 A | 45.6 V | 22.21 A | 25.7% |
| CS7N-670MB-AG | | 670 W | 38.7 V | 17.32 A | 45.8 V | 18.55 A | 21.6% |
| Bifacial Gain** | 5% | 704 W | 38.7 V | 18.20 A | 45.8 V | 19.48 A | 22.7% |
| | 10% | 737 W | 38.7 V | 19.05 A | 45.8 V | 20.41 A | 23.7% |
| | 20% | 804 W | 38.7 V | 20.78 A | 45.8 V | 22.26 A | 25.9% |

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.
** Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

### ELECTRICAL DATA | NMOT*

| | Nominal Max. Power (Pmax) | Opt. Operating Voltage (Vmp) | Opt. Operating Current (Imp) | Open Circuit Voltage (Voc) | Short Circuit Current (Isc) |
|---|---|---|---|---|---|
| CS7N-640MB-AG | 480 W | 35.2 V | 13.64 A | 42.2 V | 14.77 A |
| CS7N-645MB-AG | 484 W | 35.3 V | 13.72 A | 42.3 V | 14.80 A |
| CS7N-650MB-AG | 487 W | 35.5 V | 13.74 A | 42.5 V | 14.83 A |
| CS7N-655MB-AG | 491 W | 35.7 V | 13.76 A | 42.7 V | 14.86 A |
| CS7N-660MB-AG | 495 W | 35.9 V | 13.79 A | 42.9 V | 14.89 A |
| CS7N-665MB-AG | 499 W | 36.1 V | 13.83 A | 43.1 V | 14.93 A |
| CS7N-670MB-AG | 502 W | 36.3 V | 13.85 A | 43.3 V | 14.96 A |

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

### MECHANICAL DATA

| Specification | Data |
|---|---|
| Cell Type | Mono-crystalline |
| Cell Arrangement | 132 [2 x (11 x 6)] |
| Dimensions | 2384 × 1303 × 33 mm (93.9 × 51.3 × 1.30 in) |
| Weight | 37.8 kg (83.3 lbs) |
| Front Glass | 2.0 mm heat strengthened glass with anti-reflective coating |
| Back Glass | 2.0 mm heat strengthened glass |
| Frame | Anodized aluminium alloy |
| J-Box | IP68, 3 bypass diodes |
| Cable | 4.0 mm² (IEC), 10 AWG (UL) |
| Cable Length (Including Connector) | 410 mm (16.1 in) (+) / 250 mm (9.8 in) (-) or customized length* |
| Connector | T6 or MC4-EVO2 or MC4-EVO2A |
| Per Pallet | 33 pieces |
| Per Container (40' HQ) | 594 pieces or 495 pieces (only for US & Canada) |

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

### ELECTRICAL DATA

| | |
|---|---|
| Operating Temperature | -40°C ~ +85°C |
| Max. System Voltage | 1500 V (IEC/UL) or 1000 V (IEC/UL) |
| Module Fire Performance | TYPE 29 (UL 61730) or CLASS C (IEC61730) |
| Max. Series Fuse Rating | 35 A |
| Application Classification | Class A |
| Power Tolerance | 0 ~ + 10 W |
| Power Bifaciality* | 70 % |

* Power Bifaciality = $Pmax_{rear}$ / $Pmax_{front}$, both $Pmax_{rear}$ and $Pmax_{front}$ are tested under STC, Bifaciality Tolerance: ± 5 %

### TEMPERATURE CHARACTERISTICS

| Specification | Data |
|---|---|
| Temperature Coefficient (Pmax) | -0.34 % / °C |
| Temperature Coefficient (Voc) | -0.26 % / °C |
| Temperature Coefficient (Isc) | 0.05 % / °C |
| Nominal Module Operating Temperature | 41 ± 3°C |

### PARTNER SECTION

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice.
Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

**CSI Solar Co., Ltd.**
199 Lushan Road, SND, Suzhou, Jiangsu, China, 215129, www.csisolar.com, support@csisolar.com

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