# Phono Solar

# **TWINPLUS** MODULE SERIES

**HIGH EFFICIENCY MONO-PERC** 

395-415W

### **OUTSTANDING PRODUCT PERFORMANCE**

- Competitive high-temperature performance with ameliorated temperature coefficient
- Minimized power loss in cell connection
- Better performance under shading effect
- Decreased nominal operating cell temperature to 43 ± 2°C
- Higher power generation with multi-busbar and half-cut technology

## TRUSTWORTHY QUALITY AND RELIABILITY

- Guaranteed 0~+5W positive tolerance secures reliable power output
- 5400Pa maximum snow load, 2400Pa maximum wind load
- Optimized electrical design lowers hot spot risk and operating current

#### PID RESISTANT

 Industry-leading cell processing technology and electrical design ensure solid PID resistance

# **MANAGEMENT SYSTEM CERTIFICATES**

IEC 61215, IEC 61730

ISO 9001:2015 / Quality management system

ISO 14001:2015 / Standards for environmental management system

OHSAS 18001:2007 / International standards for occupational health & safety

IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules-guidelines for

increased confidence in PV module design qualification and type approval

























12-year Product Warranty 25-year Linear Performance Warranty







| ELECTRICAL TYPICAL VALUES   |                                 |       |                                 |       |                                 |       |                                 |       |                                 |       |
|-----------------------------|---------------------------------|-------|---------------------------------|-------|---------------------------------|-------|---------------------------------|-------|---------------------------------|-------|
| Model                       | PS395M1-24/TH<br>PS395M1H-24/TH |       | PS400M1-24/TH<br>PS400M1H-24/TH |       | PS405M1-24/TH<br>PS405M1H-24/TH |       | PS410M1-24/TH<br>PS410M1H-24/TH |       | PS415M1-24/TH<br>PS415M1H-24/TH |       |
| Testing Condition           | STC                             | NOCT  |
| Rated Power (Pmpp)          | 395                             | 294   | 400                             | 298   | 405                             | 302   | 410                             | 306   | 415                             | 309   |
| Rated Current (Impp)        | 9.67                            | 7.78  | 9.72                            | 7.82  | 9.77                            | 7.86  | 9.82                            | 7.91  | 9.87                            | 7.95  |
| Rated Voltage (Vmpp)        | 40.85                           | 37.80 | 41.16                           | 38.09 | 41.46                           | 38.36 | 41.76                           | 38.64 | 42.05                           | 38.91 |
| Short Circuit Current (Isc) | 10.29                           | 8.28  | 10.37                           | 8.35  | 10.45                           | 8.41  | 10.53                           | 8.48  | 10.61                           | 8.54  |
| Open Circuit Voltage (Voc)  | 49.41                           | 46.74 | 49.69                           | 47.01 | 49.97                           | 47.27 | 50.25                           | 47.54 | 50.53                           | 47.80 |
| Module Efficency (%)        | 19.65                           |       | 19.90                           |       | 20.15                           |       | 20.40                           |       | 20.65                           |       |

STC(Standard Testing Conditions):Irradiance 1000W/m², AM 1.5, Cell Temperature 25'C

NOCT (Nominal Operation Cell Temperature): Irradiance 800W/m², Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/S

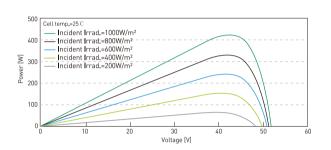
#### **MECHANICAL CHARACTERISTICS** Cell Type Monocrystalline 158.75mm x 79.38mm Length: 2010mm (79.13 inch) Dimension (L×W×H) Width: 1000mm (39.37 inch) Height: 40mm (1.57 inch) Weight 23.5kg (51.8 lbs) Front Glass 3.2mm Toughened Glass Frame Anodized Aluminium Alloy 4mm<sup>2</sup> (IEC), Length:350mm (vertical) Cable 1250mm (horizontal) or Customized Length Junction Box IP 68 Rated

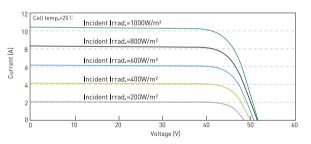
| TEMPERATURE RATINGS             |           |
|---------------------------------|-----------|
| Voltage Temperature Coefficient | -0.30%/'C |
| Current Temperature Coefficient | +0.05%/'C |
| Power Temperature Coefficient   | -0.38%/'C |
| Tolerance                       | 0~+5w     |
| NOCT                            | 43±2'C    |

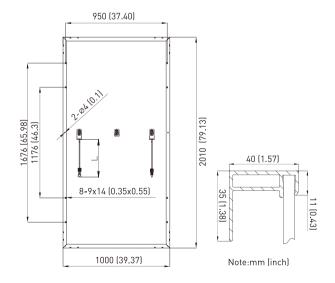
| ABSOLUTE MAXIMUM RATING           |                   |
|-----------------------------------|-------------------|
| Operating Temperature             | From -40 to +85°C |
| Hail Diameter @ 80km/h            | Up to 25mm        |
| Front Side Maximum Static Loading | 5400Pa            |
| Rear Side Maximum Static Loading  | 2400Pa            |
| Maximum Series Fuse Rating        | 20A               |
| PV Module Classification          | II                |
| Fire Rating (IEC 61730)           | С                 |
| Module Fire Performance (UL 1703) | Type 1            |
| Maximum System Voltage            | DC 1000V/1500V    |

| PACKING CONFIGURATION |        |        |
|-----------------------|--------|--------|
| Container             | 20' GP | 40' HQ |
| Pieces/Container      | 230    | 616    |

#### **ELECTRICAL CHARACTERISTICS**









PHONO SOLAR TECHNOLOGY CO.,LTD reserves the right to make necessary adjustments to the information described herein at any time without further notice. The specifications and certificates contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. Please be sure to use the most recent version of data.