



Phono® Solar

Dual Glass Bifacial Module

640-650 Watt

KEY FEATURES

Our solar cells offer high conversion efficiency to ensure the highest quality

Our high performing modules have an industry low tolerance of 0 ~ +5W

The modules can withstand high wind-pressure, snow loads and extreme temperatures

Passed IEC 5400 Pa mechanical loading test
PID Resistance Available

QUALITY & SAFETY

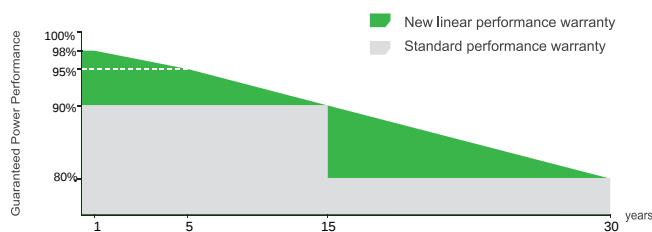
Industry leading power output warranty

(15 years/90%, 30 years/80%)

25-year warranty on materials & workmanship

Fire Rating: Class 1

Premium Performance Warranty



* Based on customer requirements and contract terms

ISO9001:2015; ISO14001:2015; OH SAS18001 certified factory

IEC61215; IEC61730 certified products



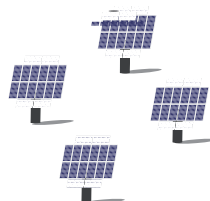
APPLICATIONS



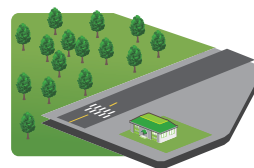
On-grid residential roof-tops



On-grid commercial/
industrial roof-tops

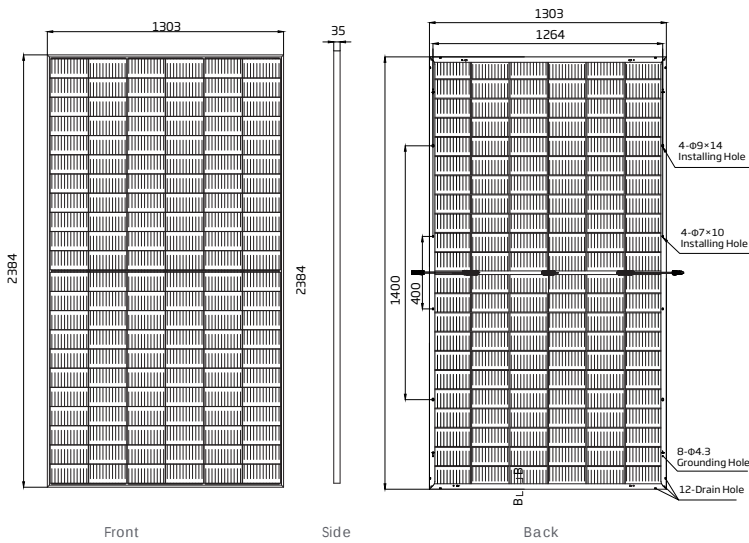


Solar power plants



Off-grid systems

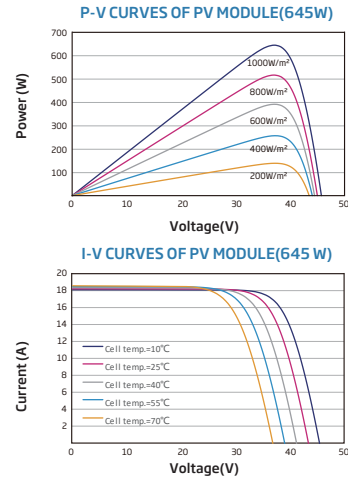
Engineering Drawings



Packaging Configuration

Standard packaging	31pcs/pallet
Module quantity per 40' container	558pcs/40HQ

Electrical Performance & Temperature Dependence



Mechanical Characteristics

Cell Type	Mono-crystalline
No.of cells	132 (2 $\times$ 66)
Dimensions	2384 $\times$ 1303 $\times$ 35mm
Weight	38.50kg
Front Glass	2.0mm, Anti-Reflection Coating
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1 $\times$ 4.0mm / UL 12AWG Length:400mm/1100mm or Customized Length

SPECIFICATIONS

Module Type	TKA640M-132-BF	TKA645M-132-BFD	TKA650M-132-BF
Maximum Power at STC(Pmax)	640Wp	645Wp	650Wp
Maximum Power Voltage (Vmp)	37.30V	37.50V	37.70V
Maximum Power Current (Imp)	17.19A	17.23A	17.27A
Open-circuit Voltage (Voc)	45.10V	45.30V	45.50V
Short-circuit Current (Isc)	18.26A	18.31A	18.35A
Module Efficiency(%)	20.60%	20.76%	20.92%
Operating Temperature(°C)	-40°C~+85°C		
Maximum system voltage	1500V DC		
Maximum series fuse rating	35A		
Power tolerance	0~+5W		
Temperature coefficients of Pmax	-0.35%/°C		
Temperature coefficients of Voc	-0.28%/°C		
Temperature coefficients of Isc	0.048%/°C		
Nominal operating cell temperature (NOCT)	45 $\pm$ 2°C		

BIFACIAL OUTPUT-REARSIDE POWER GAIN

5%	672Wp	677Wp	682Wp
15%	736Wp	741Wp	747Wp
25%	800Wp	806Wp	812Wp

STC: Irradiance 1000W/m²



Module Temperature 25°C



AM=1.5

The company reserves the final right for explanation on any of the information presented hereby.