SOLAR PANEL

Product Catalog

For Solar Energy Storage System

2026

NingBo Vodloon New Energy Co. , Ltd.

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COMPANY PROFILE

Vodloon New Energy Co., Ltd. is a dynamic enterprise at the forefront of designing, developing, manufacturing, and selling industrial, commercial, and residential energy storage systems. By integrating key technologies across the industrial chain—from integrated battery packs (PACKs) and precision-engineered battery management systems (BMS) to smart power conversion systems (PCS) and adaptive energy management system (EMS) solutions—we achieve seamless innovation collaboration between upstream and downstream partners, delivering end-to-end system control capabilities to global clients.

Guided by a customer-centric philosophy, Vodloon New Energy focuses its expertise on four strategic pillars: residential energy storage systems, smart grid networks, industrial and commercial energy clusters, and modular containerized storage solutions. Our solutions go beyond hardware by integrating AI-powered energy management platforms that enable optimized operations, predictive maintenance, and full lifecycle sustainability for next-generation power ecosystems.

Product Directory

01

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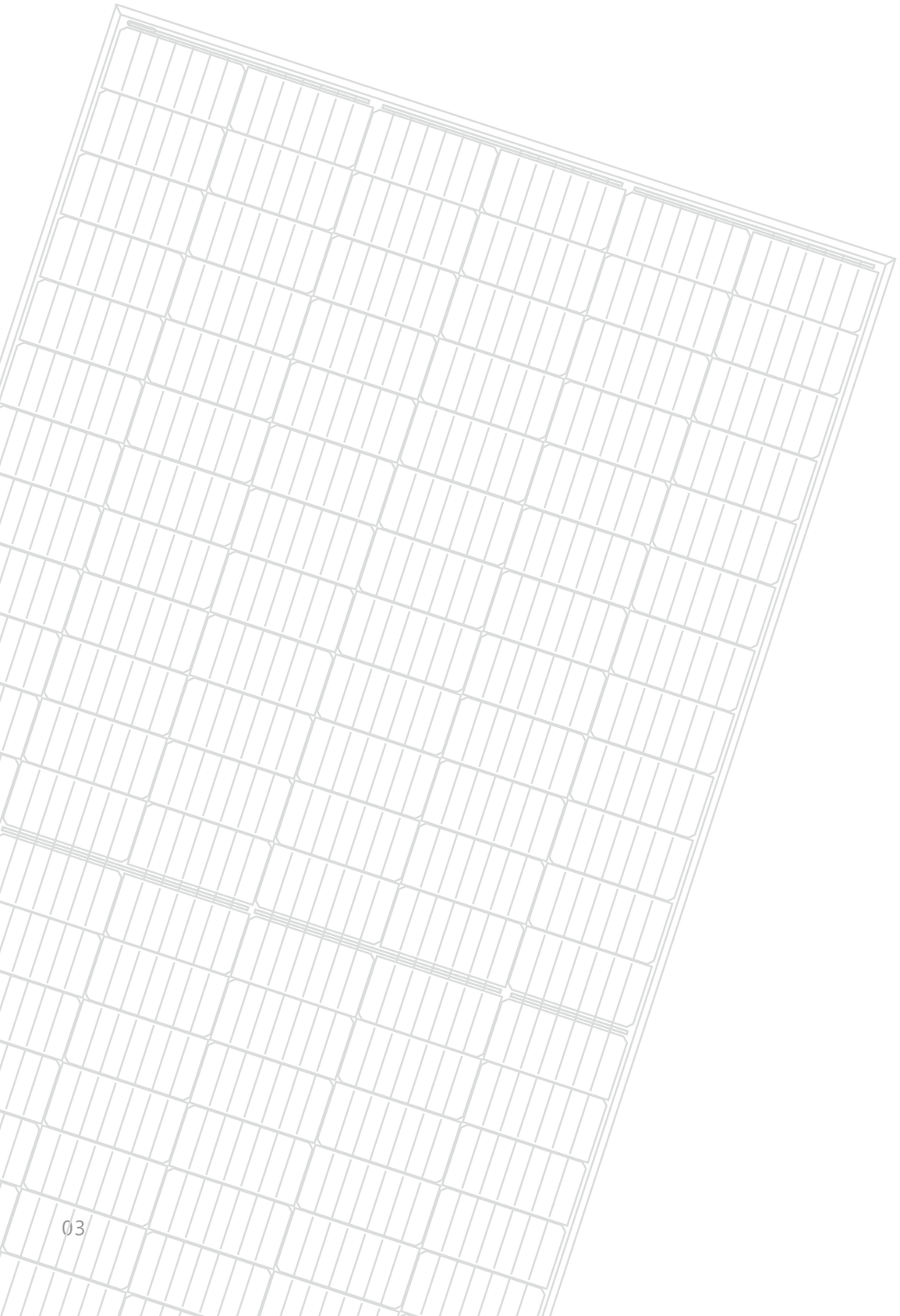
VDL-M21 132N-Topcon-(710W-725W) 33 - 34

Certification

- ISO9001, ISO14001, OHSAS18001 system
- Germany Nord Laboratory which is highest stardard in EU Market
- CEC certificate for electrical and mechanical products approved by Australia
- MCS certificate for electrical and mechanical products approved in UK
- IDCOL certificate aprroval by Bangadesh market
- INMETRO certificate for Brazil
- All the QC control system and certificate approval make isola's solar panels more reliable in the market

Warranty

- 12-year warranty on product materials and processing technology
- Power output warranty: 12 years: 90%, 30 years: 80%



01

SOLAR PANEL

Solar Energy Storage System

Provide users with a one-stop photovoltaic energy storage solution

PRODUCTION PROCESS





Material Incoming Quality Control → Component Performance Check Before Production → Cell Check & Sorting → Automatic Soldering Of Cells → Fully Automated Manufacturing Of Panels → Visual & El Inspection Before Lamination → High Voltage Insulation Test → Flash Test According To Stc → Visual & El Inspection Before Packing













MATERIAL ADVANTAGE

BRAND-KNOWN RAW MATERIALS TO ENSURE MAXIMUM INNER QUALITY

Glass

Anti-reflective coating to increase the module efficiency up to 2%
Light transmittance improvement above 3%
Self–cleaning function



Back Sheet

Low moisture permeability against snail trail defect
Excellent electric insulation for high system voltage up to 1500V
Outstanding weatherproof performance

Cell

High power efficiency
Stable performance under weak light conditions

Frame

Strong mechanical load resistance up to 5400 Pa
Anodic oxidation layer resistant to chemical corrosion
Silver and black color optional

Eva Film

Light transmittance more than 92%
Snail trail prevention treatment
UV resistance against ageing

Junction Box

IP 67 protection grade
High quality diodes for electric safety
1500V system voltage available

SALES NETWORK



Solar roof project



Solar street light



Solar power station

In order to promote the internationalization of VDL brands, we actively carry out market development in various forms and methods. In order to better"go global",VDL not only participated in well-known photovoltaic exhibitions in various countries, butalso promoted operations through localized talents and target products. After years of efforts, the number of solar panels VDL exported to Europe,South America,and South Asian countries has increased significantly. Atpresent, Spain, Germany, Poland,Sweden, Brazil, Argentina, Chile, Malaysia, the Philippines,Indonesia, Vietnam,Bangladesh, etc have become our main market countries.



Off grid solar home system



Solar panels 3-400W Poly and Mono



Folding panels

Vodloon SOLAR

VDL-M16/144
450-465W

166±1.5×83±1.5mm
Cells 144



Monocrystalline

PERC Half-Cell Module

Max Power Out: 465W
Max Efficiency: 21.39%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

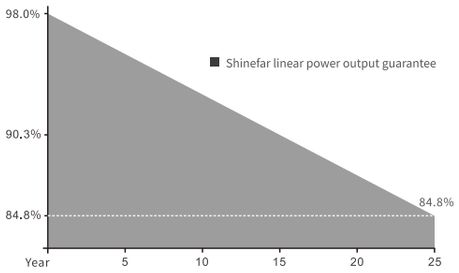
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

- 15-year material & technology warranty
- 25-year linear power output warranty



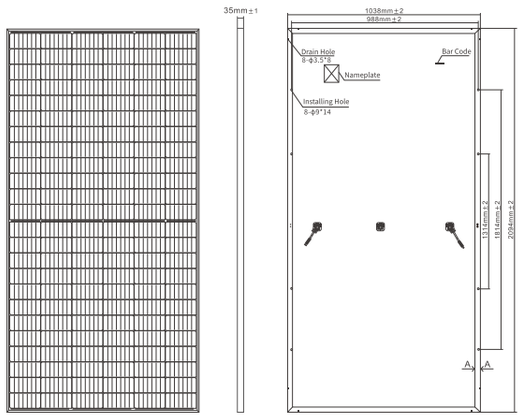
Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

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Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2094×1038×35mm
Weight	22.5kg
Packing	31PCS/Pallet, 748PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

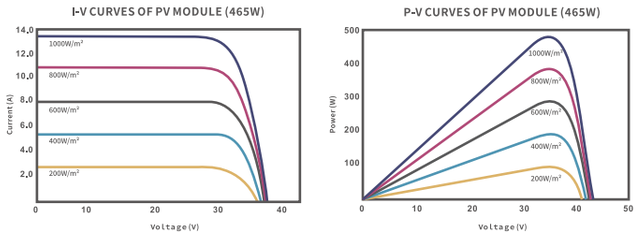
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M16/144450		SF-M16/144455		SF-M16/144460		SF-M16/144465	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	450	333.90	455	337.61	460	341.32	465	345.03
Maximum Power Voltage (Vmp) [V]	41.40	38.88	41.60	39.07	41.80	39.26	42.00	39.45
Maximum Power Current (Imp) [A]	10.87	8.59	10.94	8.64	11.00	8.69	11.07	8.75
Open Circuit Voltage (Voc) [V]	49.98	46.82	50.18	47.02	50.38	47.22	50.58	47.42
Short Circuit Current (Isc) [A]	11.33	8.97	11.39	9.02	11.44	9.06	11.49	9.10
Module Efficiency [%]	20.70		20.93		21.16		21.39	
Cell Type [mm]	Mono 166±1.5×83±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	20A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.06%/°C
Temperature Coefficient of Voc	-0.30%/°C
Temperature Coefficient of Pmax	-0.39%/°C

Curve Diagram



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VDL-M18/144
545-560W

182±1.5×91±1.5mm
Cells 144



Monocrystalline

PERC Half-Cell Module

Max Power Out: 560W
Max Efficiency: 21.68%
Power Tolerance: 0~+5W

SMBB Technology

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance.

Reduced Hot Spot Loss

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

Enhanced Mechanical Load

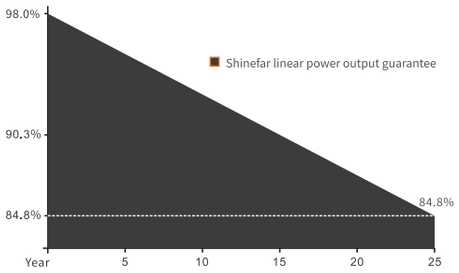
Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

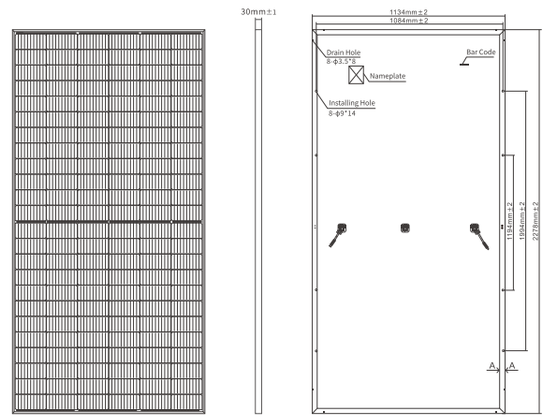
- 15-year material & technology warranty
- 25-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2278×1134×30mm
Weight	26.5kg
Packing	37PCS/Pallet, 740PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

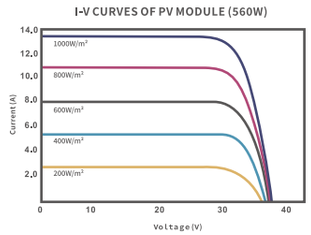
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

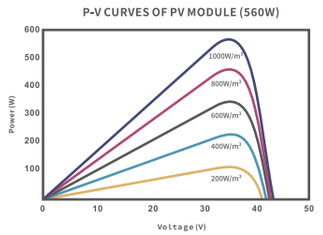
Module Type	SF-M18/144545		SF-M18/144550		SF-M18/144555		SF-M18/144560	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	545	408.21	550	411.95	555	415.70	560	419.44
Maximum Power Voltage (Vmp) [V]	41.79	39.07	41.95	39.22	42.11	39.37	42.27	39.52
Maximum Power Current (Imp) [A]	13.04	10.45	13.11	10.50	13.18	10.56	13.25	10.61
Open Circuit Voltage (Voc) [V]	49.75	46.52	49.90	46.66	50.05	46.80	50.20	46.94
Short Circuit Current (Isc) [A]	14.02	11.23	14.09	11.29	14.17	11.35	14.24	11.41
Module Efficiency [%]	21.10		21.29		21.48		21.68	
Cell Type [mm]	Mono 182±1.5×91±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.06%/°C
Temperature Coefficient of Voc	-0.30%/°C
Temperature Coefficient of Pmax	-0.39%/°C

Curve Diagram





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VDL-M18/144
580-595W

182±1.5×91±1.5mm
Cells 144



Monocrystalline

N-Type Half-Cell Module

Max Power Out: 595W
Max Efficiency: 23.03%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

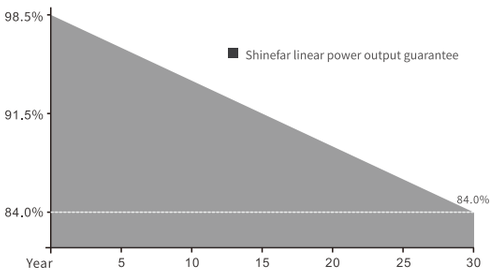
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

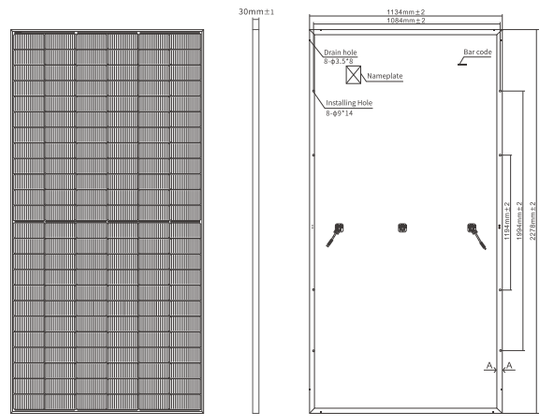
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2278×1134×30mm
Weight	26.5kg
Packing	37PCS/Pallet, 740PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

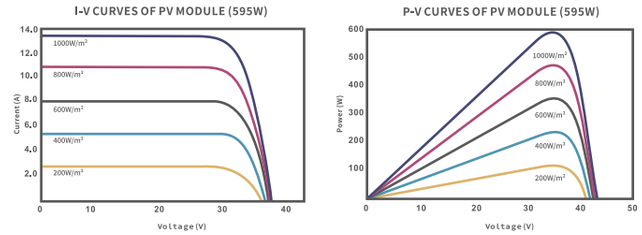
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M18/144580		SF-M18/144585		SF-M18/144590		SF-M18/144595	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	580	434.42	585	438.17	590	441.91	595	445.66
Maximum Power Voltage (Vmp) [V]	42.91	40.12	43.07	40.27	43.23	40.42	43.39	40.57
Maximum Power Current (Imp) [A]	13.52	10.83	13.58	10.88	13.65	10.93	13.71	10.98
Open Circuit Voltage (Voc) [V]	50.80	47.50	50.95	47.64	51.10	47.78	51.25	47.92
Short Circuit Current (Isc) [A]	14.55	11.65	14.62	11.71	14.70	11.77	14.77	11.83
Module Efficiency [%]	22.45		22.65		22.84		23.03	
Cell Type [mm]	Mono 182±1.5×91±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



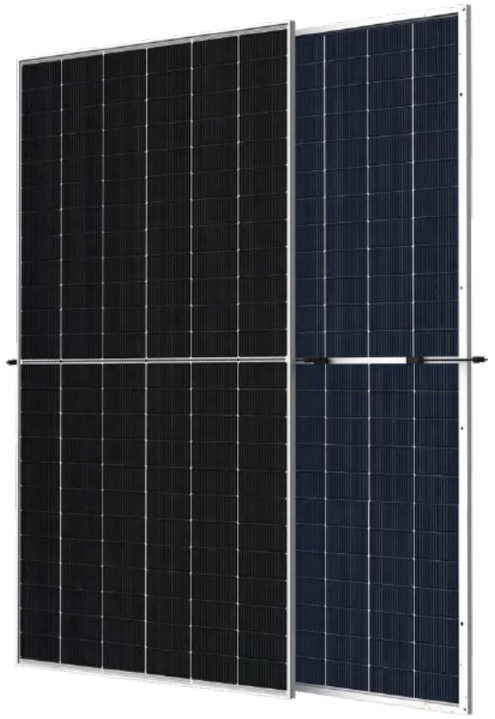
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VDL-M18/G144
580-595W

182±1.5×91±1.5mm
Cells 144



Bifacial Double Glass

N-TYPE Half-Cell Module

Max Power Out: 595W
Max Efficiency: 23.03%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

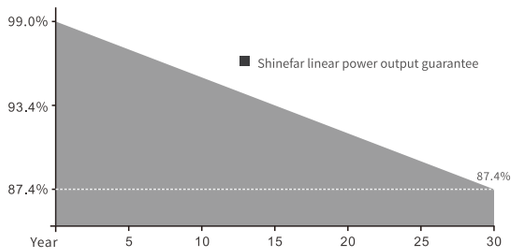
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

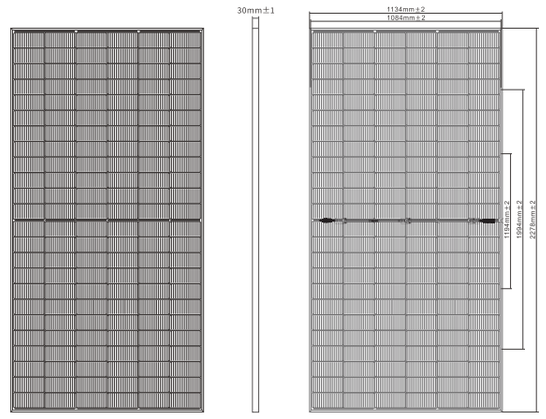
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
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- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2278×1134×30mm
Weight	32.0KGS
Packing	37PCS/Pallet, 740PCS/40hq
Front Glass	High Transparency Solar Glass 2.0mm
Back Glass	Heat Strengthened Glass 2.0mm
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M18/G144580		SF-M18/G144585		SF-M18/G144590		SF-M18/G144595	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	580	434.42	585	438.17	590	441.91	595	445.66
Maximum Power Voltage (Vmp) [V]	42.91	40.12	43.07	40.27	43.23	40.42	43.39	40.57
Maximum Power Current (Imp) [A]	13.52	10.83	13.58	10.88	13.65	10.93	13.71	10.98
Open Circuit Voltage (Voc) [V]	50.80	47.50	50.95	47.64	51.10	47.78	51.25	47.92
Short Circuit Current (Isc) [A]	14.55	11.65	14.62	11.71	14.70	11.77	14.77	11.83
Module Efficiency [%]	22.45		22.65		22.84		23.03	
Cell Type [mm]	Mono 182±1.5×91±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

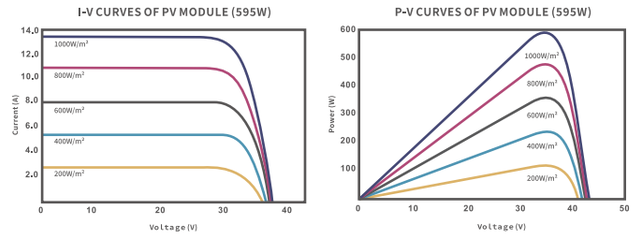
Electrical Characteristics With Different Power Bin (Reference to 10% Irradiance Ratio)

Total Equivalent Power (Pmax) [Wp]	638	644	649	655
Maximum Power Voltage (Vmp) [V]	42.91	43.07	43.23	43.39
Maximum Power Current (Imp) [A]	14.87	14.94	15.01	15.08
Open Circuit Voltage (Voc) [V]	50.80	50.95	51.10	51.25
Short Circuit Current (Isc) [A]	16.00	16.08	16.17	16.25
Irradiance Ratio (Rear/Front)	10%			

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



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Vodloon SOLAR

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VDL-M18/156 600-615W

182±1.5×92.875±1.5mm

Cells 144



Monocrystalline

N-Type Half-Cell Module

Max Power Out: 615W
Max Efficiency: 23.25%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

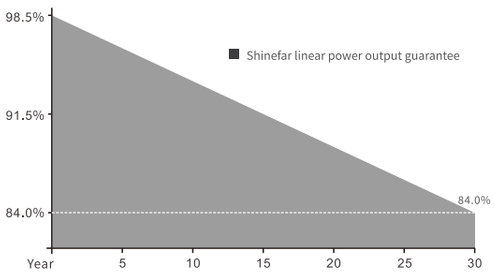
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

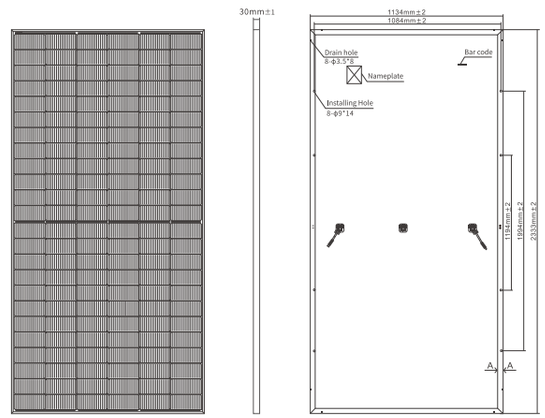
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2333×1134×30mm
Weight	28.5kg
Packing	37PCS/Pallet, 740PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

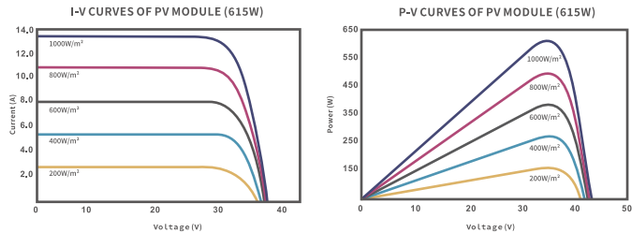
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M18/156600		SF-M18/156605		SF-M18/156610		SF-M18/156615	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	600	450.00	605	453.75	610	457.50	615	461.25
Maximum Power Voltage (Vmp) [V]	43.76	42.01	43.94	42.18	44.11	42.35	44.28	42.52
Maximum Power Current (Imp) [A]	13.71	10.71	13.77	10.76	13.83	10.80	13.89	10.85
Open Circuit Voltage (Voc) [V]	52.40	50.30	52.60	50.50	52.80	50.69	53.00	50.88
Short Circuit Current (Isc) [A]	14.48	11.73	14.53	11.77	14.59	11.82	14.65	11.87
Module Efficiency [%]	22.68		22.87		23.06		23.25	
Cell Type [mm]	Mono 182±1.5×92.875±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



Vodloon

Vodloon SOLAR

www.vodloon.com

VDL-M18/156
605-620W

182±1.5×92.875±1.5mm

Cells 144



Monocrystalline

N-Type Half-Cell Module

Max Power Out: 620W
Max Efficiency: 23.43%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

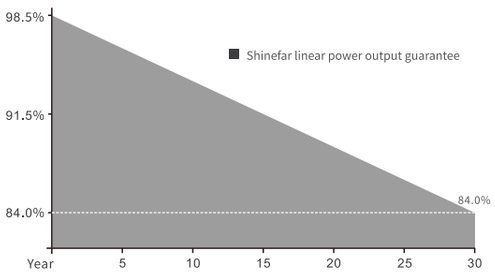
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

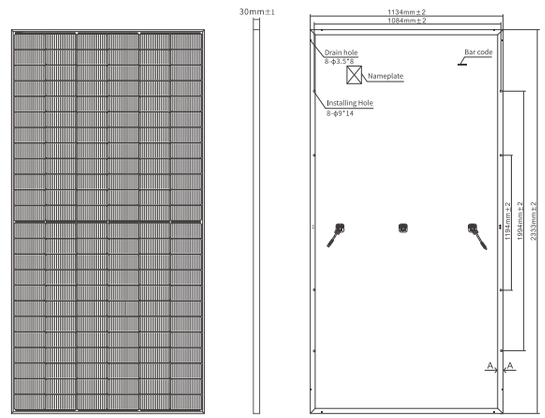
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2333×1134×30mm
Weight	28.5kg
Packing	37PCS/Pallet, 740PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

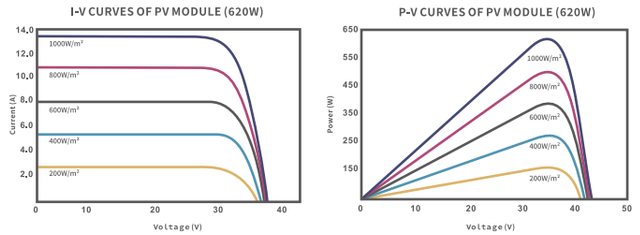
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M18/156605		SF-M18/156610		SF-M18/156615		SF-M18/156620	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	605	453.75	610	457.50	615	461.25	620	465.00
Maximum Power Voltage (Vmp) [V]	43.94	42.18	44.11	42.35	44.28	42.52	44.45	42.68
Maximum Power Current (Imp) [A]	13.77	10.76	13.83	10.80	13.89	10.85	13.95	10.88
Open Circuit Voltage (Voc) [V]	52.60	50.50	52.80	50.69	53.00	50.88	53.23	51.11
Short Circuit Current (Isc) [A]	14.53	11.77	14.59	11.82	14.65	11.87	14.72	11.93
Module Efficiency [%]	22.87		23.06		23.25		23.43	
Cell Type [mm]	Mono 182±1.5×92.875±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



Vodloon

Vodloon SOLAR

www.vodloon.com

VDL-M18/G156 605-620W

182±1.5×92.875±1.5mm

Cells 144



Bifacial Double Glass

N-TYPE Half-Cell Module

Max Power Out: 620W
Max Efficiency: 23.43%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

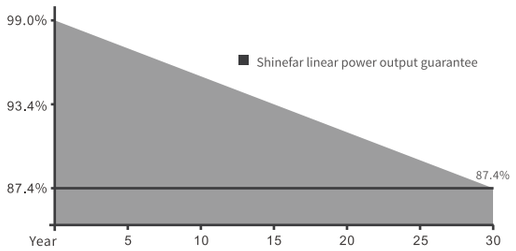
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

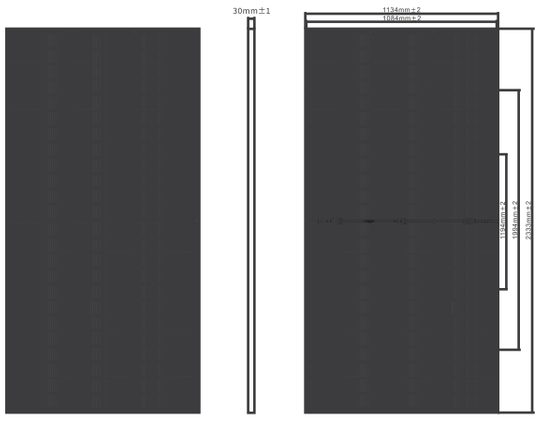
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2333×1134×30mm
Weight	32.5kg
Packing	37PCS/Pallet, 740PCS/40hq
Front Glass	High Transparency Solar Glass 2.0mm
Back Glass	Heat Strengthened Glass 2.0mm
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M18/G156605		SF-M18/G156610		SF-M18/G156615		SF-M18/G156620	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	605	453.75	610	457.50	615	461.25	620	465.00
Maximum Power Voltage (Vmp) [V]	43.94	42.18	44.11	42.35	44.28	42.52	44.45	42.68
Maximum Power Current (Imp) [A]	13.77	10.76	13.83	10.80	13.89	10.85	13.95	10.88
Open Circuit Voltage (Voc) [V]	52.60	50.50	52.80	50.69	53.00	50.88	53.23	51.11
Short Circuit Current (Isc) [A]	14.53	11.77	14.59	11.82	14.65	11.87	14.72	11.93
Module Efficiency [%]	22.87		23.06		23.25		23.43	
Cell Type [mm]	Mono 182±1.5×92.875±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

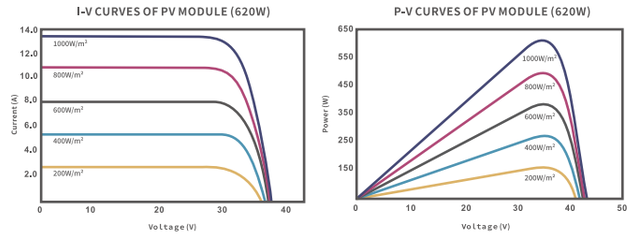
Electrical Characteristics With Different Power Bin (Reference to 10% Irradiance Ratio)

Total Equivalent Power (Pmax) [Wp]	665.5	671	676.5	682
Maximum Power Voltage (Vmp) [V]	43.94	44.11	44.28	44.45
Maximum Power Current (Imp) [A]	15.15	15.21	15.28	15.34
Open Circuit Voltage (Voc) [V]	52.60	52.80	53.00	14.72
Short Circuit Current (Isc) [A]	16.11	16.18	16.26	16.32
Irradiance Ratio (Rear/Front)	10%			

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



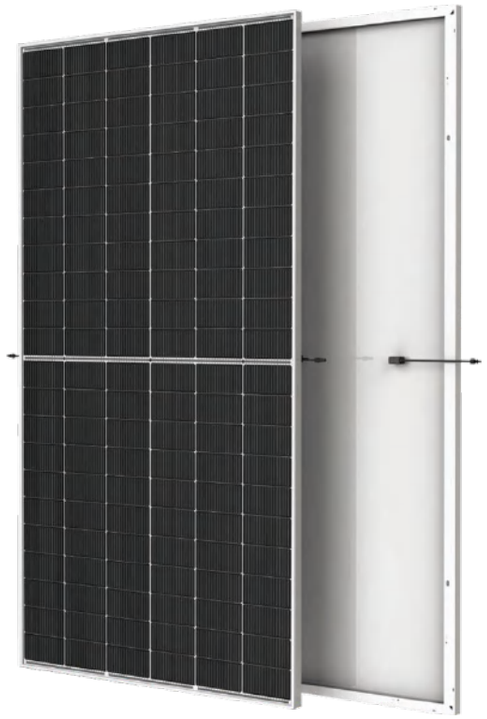
Vodloon

Vodloon SOLAR

www.vodloon.com

VDL-M21/120
615-630W

182±1.5×105±1.5mm
Cells 132



Monocrystalline

N-TYPE Half-Cell Module

Max Power Out: 630W
Max Efficiency: 23.32%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

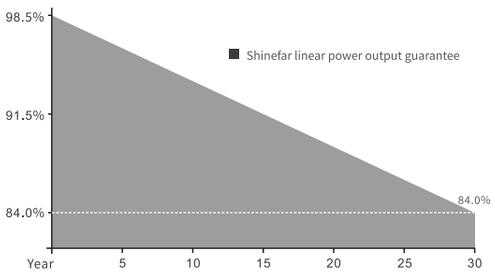
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

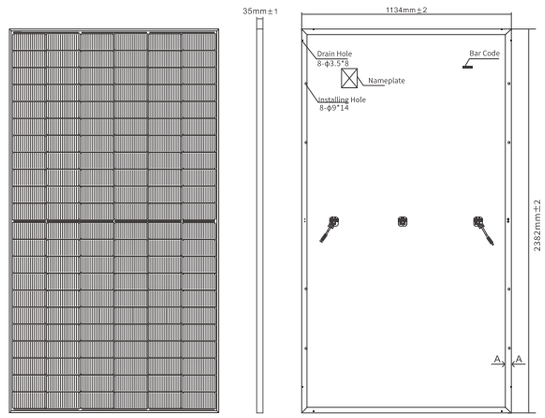
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2382×1134×30mm
Weight	28.5kg
Packing	37PCS/Pallet, 740PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

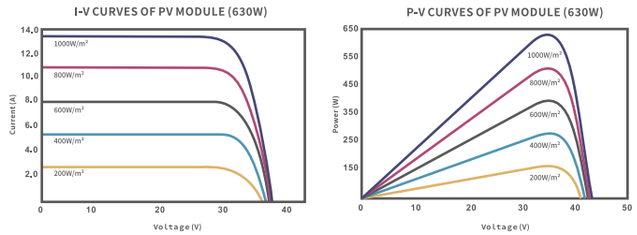
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M21/120615		SF-M21/120620		SF-M21/120625		SF-M21/120630	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	615	462	620	467	625	471	630	475
Maximum Power Voltage (Vmp) [V]	40.98	38.36	41.22	38.59	41.45	38.81	41.68	39.03
Maximum Power Current (Imp) [A]	14.98	12.06	15.03	12.10	15.08	12.14	15.12	12.16
Open Circuit Voltage (Voc) [V]	49.30	46.53	49.60	46.82	49.90	47.10	50.20	47.38
Short Circuit Current (Isc) [A]	15.89	12.84	15.92	12.86	15.95	12.89	15.98	12.91
Module Efficiency [%]	22.77		22.95		23.14		23.32	
Cell Type [mm]	Mono 182±1.5×105±1.5, 132 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram

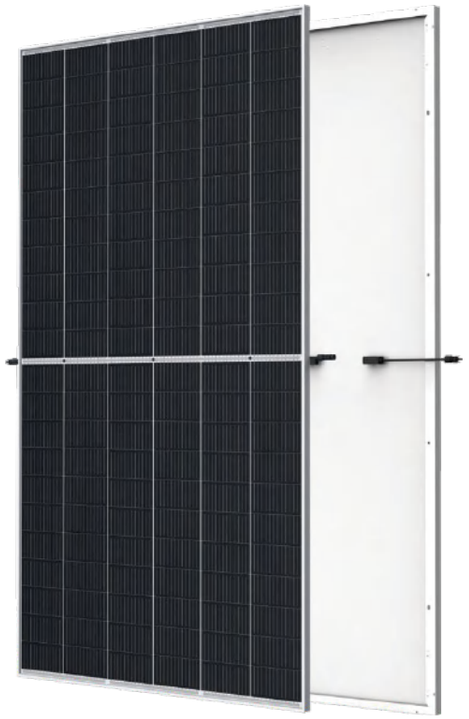


Vodloon

www.vodloon.com

VDL-M21/132
660-675W

210±1.5×105±1.5mm
Cells 132



Monocrystalline

PERC Half-Cell Module

Max Power Out: 675W
Max Efficiency: 21.73%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

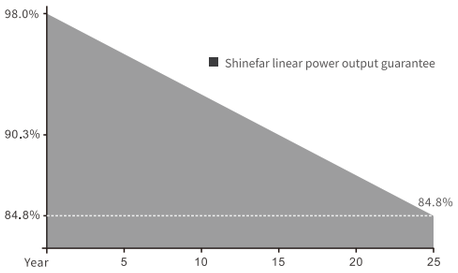
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

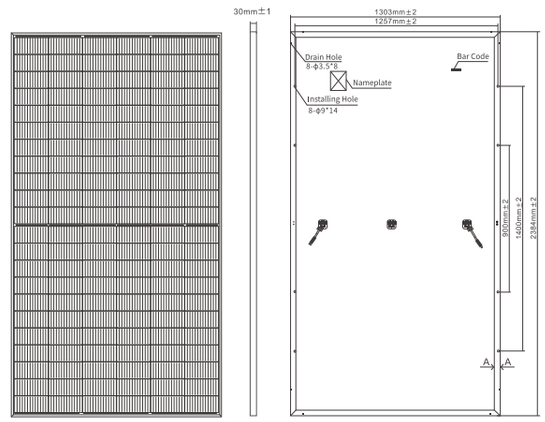
- 15-year material & technology warranty
- 25-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2384×1303×30mm
Weight	34.0kg
Packing	37PCS/Pallet, 666PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

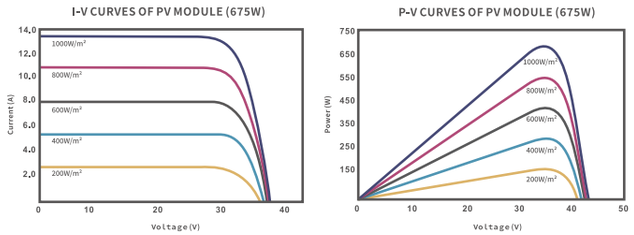
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M21/132660		SF-M21/132665		SF-M21/132670		SF-M21/132675	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	660	500	665	503	670	507	675	511
Maximum Power Voltage (Vmp) [V]	37.80	35.27	38.00	35.45	38.20	35.64	38.40	35.83
Maximum Power Current (Imp) [A]	17.46	14.16	17.50	14.20	17.54	14.23	17.58	14.26
Open Circuit Voltage (Voc) [V]	45.70	43.05	45.90	43.24	46.10	43.43	46.30	43.61
Short Circuit Current (Isc) [A]	18.52	14.88	18.56	14.91	18.59	14.94	18.63	14.97
Module Efficiency [%]	21.25		21.41		21.57		21.73	
Cell Type [mm]	Mono 210±1.5×105±1.5, 132 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	30A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.35%/°C

Curve Diagram



Vodloon

Vodloon SOLAR

www.vodloon.com

VDL-M21/121
660-675W

210±1.5×105±1.5mm
Cells 132



Monocrystalline

PERC Half-Cell Module

Max Power Out: 675W
Max Efficiency: 21.73%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

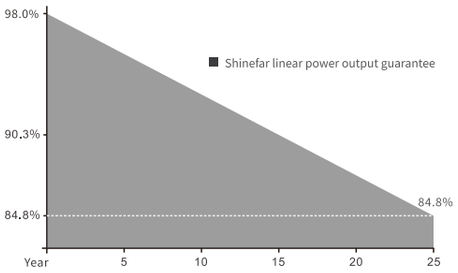
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

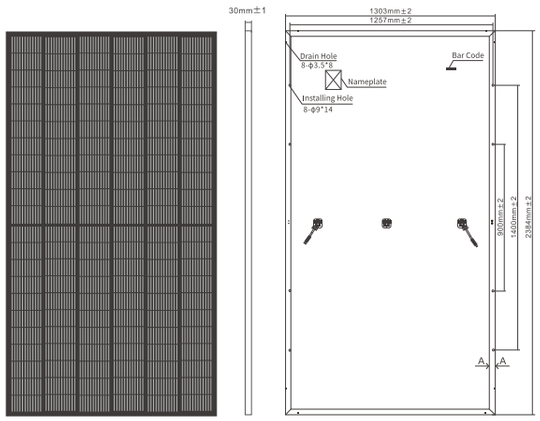
- 15-year material & technology warranty
- 25-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2384×1303×30mm
Weight	34.0kg
Packing	37PCS/Pallet, 666PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	Black
Frame	Black, Anodized Aluminium Alloy
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

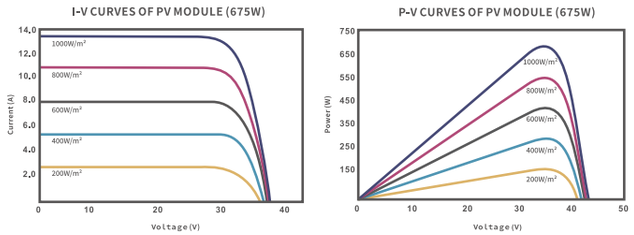
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT:Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M21/132660		SF-M21/132665		SF-M21/132670		SF-M21/132675	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	660	500	665	503	670	507	675	511
Maximum Power Voltage (Vmp) [V]	37.80	35.27	38.00	35.45	38.20	35.64	38.40	35.83
Maximum Power Current (Imp) [A]	17.46	14.16	17.50	14.20	17.54	14.23	17.58	14.26
Open Circuit Voltage (Voc) [V]	45.70	43.05	45.90	43.24	46.10	43.43	46.30	43.61
Short Circuit Current (Isc) [A]	18.52	14.88	18.56	14.91	18.59	14.94	18.63	14.97
Module Efficiency [%]	21.25		21.41		21.57		21.73	
Cell Type [mm]	Mono 210±1.5×105±1.5, 132 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	30A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Pmax	-0.35%/°C

Curve Diagram

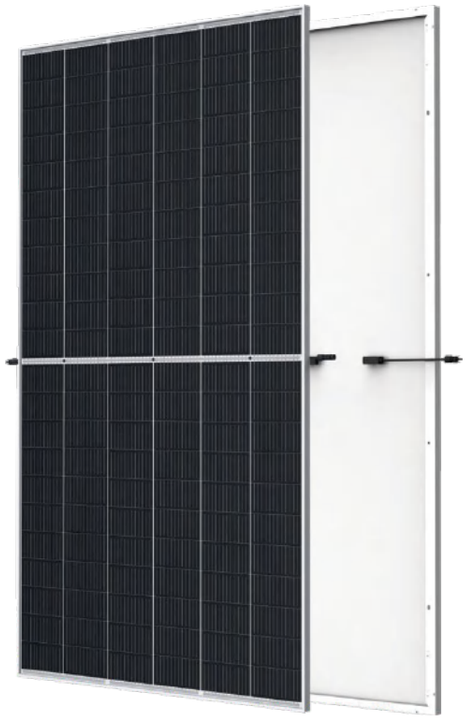


Vodloon

www.vodloon.com

VDL-M21/132
710-725W

210±1.5×105±1.5mm
Cells 132



Monocrystalline

HJT Half-Cell Module

Max Power Out: 725W
Max Efficiency: 23.34%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

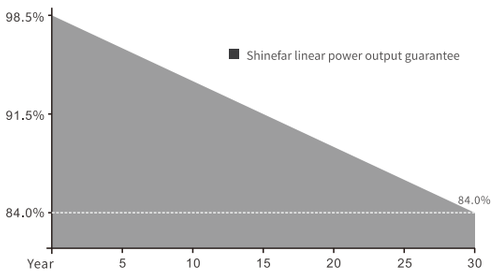
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

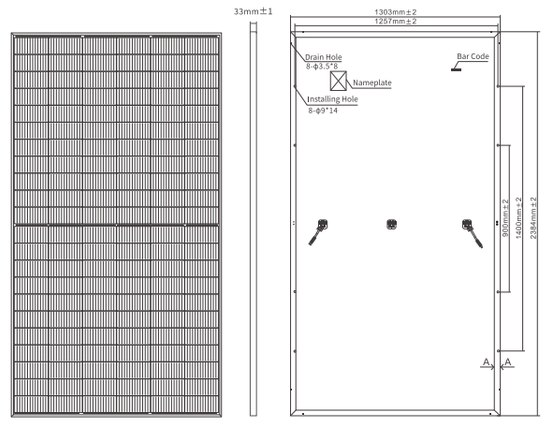
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2384×1303×33mm
Weight	35.0kg
Packing	31PCS/Pallet, 558PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

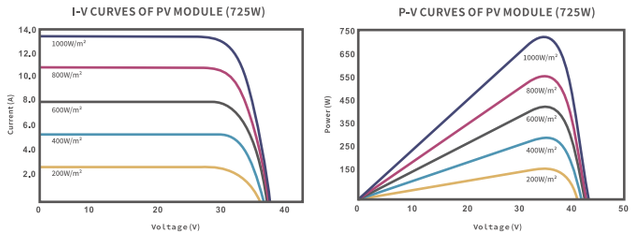
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M21/132710	SF-M21/132715	SF-M21/132720	SF-M21/132725
Testing Condition	STC	STC	STC	STC
Maximum Power (Pmax) [W]	710	715	720	725
Maximum Power Voltage (Vmp) [V]	42.39	42.54	42.58	42.83
Maximum Power Current (Imp) [A]	16.75	16.81	16.87	16.93
Open Circuit Voltage (Voc) [V]	50.44	50.59	50.74	50.88
Short Circuit Current (Isc) [A]	17.55	17.61	17.67	17.73
Module Efficiency [%]	22.86	23.02	23.18	23.34
Cell Type [mm]	Mono 210±1.5×105±1.5,132 Cells			
Operational Temperature [°C]	-40~+85°C			
Maximum System Voltage	1500V DC			
Max Series Fuse Rating	30A			

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



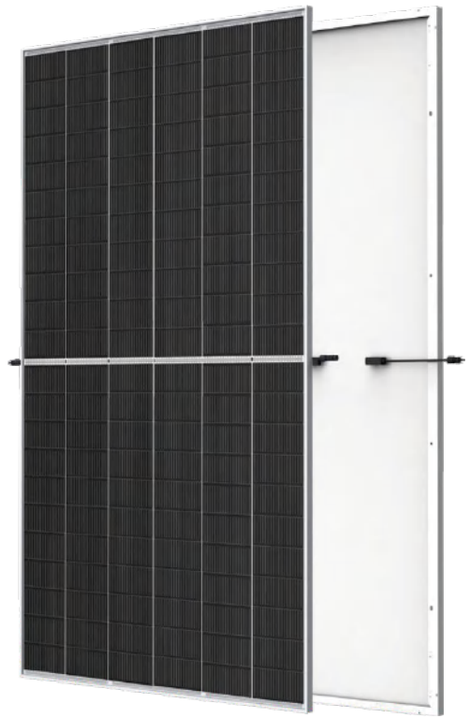
Vodloon

Vodloon SOLAR

www.vodloon.com

VDL-M21/132
710-725W

210±1.5×105±1.5mm
Cells 132



Monocrystalline

N-TYPE Half-Cell Module

Max Power Out: 725W
Max Efficiency: 23.34%
Power Tolerance: 0~+5W

SMBB Technology

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

Reduced Hot Spot Loss

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

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Durability Against Extreme Environmental Conditions

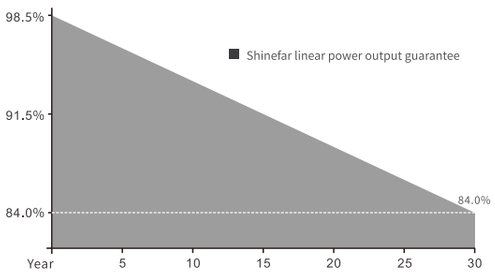
High salt mist and ammonia resistance.

High Energy Generation, Low LCOE

Low Pmax temp coefficient increases energy production

Superior Warranty

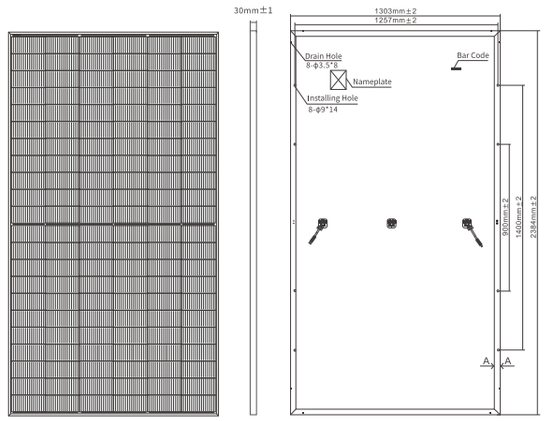
- 15-year material & technology warranty
- 30-year linear power output warranty



Comprehensive Products and System Certificates

- IEC/EN61215-1:2021 & IEC/EN61215-2:2021
- IEC/EN61730-1:2016 & IEC/EN61730-2:2016
- UL61730-1:2017 & UL61730-2:2017
- UL61215-1:2017 & UL61215-2:2017
- IEC 61701:2020-Saltmist
- IEC 62716:2013-Ammonia
- IEC 62804:2020-PID
- IECEE Certificate Body (CB)
- UKCA:EN61730-2018
- ISO9001 & ISO14001 & ISO45001

Engineering Drawings



Front Side Back

Structural Parameter

Dimensions of Module	2384×1303×30mm
Weight	34.0kg
Packing	37PCS/Pallet, 666PCS/40HQ
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm², 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

Electrical Specification

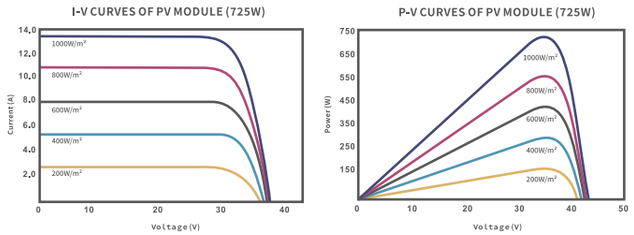
(STC: Irradiance 1000W/m², Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m2, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M21/132710		SF-M21/132715		SF-M21/132720		SF-M21/132725	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	710	533	715	536	720	540	725	544
Maximum Power Voltage (Vmp) [V]	39.80	37.01	40.00	37.20	40.20	37.39	40.40	37.57
Maximum Power Current (Imp) [A]	17.84	14.39	17.88	14.42	17.92	14.44	17.95	14.47
Open Circuit Voltage (Voc) [V]	47.70	45.31	47.90	45.50	48.10	45.69	48.30	45.88
Short Circuit Current (Isc) [A]	18.86	15.22	18.89	15.24	18.92	15.27	19.09	15.41
Module Efficiency [%]	22.86		23.02		23.18		23.34	
Cell Type [mm]	Mono 210±1.5×105±1.5,132 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	30A							

Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

Curve Diagram



Vodloon