



## VDS-S144/FNH

# 410-390w

144-CELL HALF CUT MONOCRYSTALLINE SOLAR MOUDLE

### Product Advantages



#### High Efficiency

Module efficiency leading in industry, up to 20.4%



#### High Reliability

Passed 3\*IECstandard test



#### Low Hot-spot Risk

1/2 current, reducing the hot spot temperature



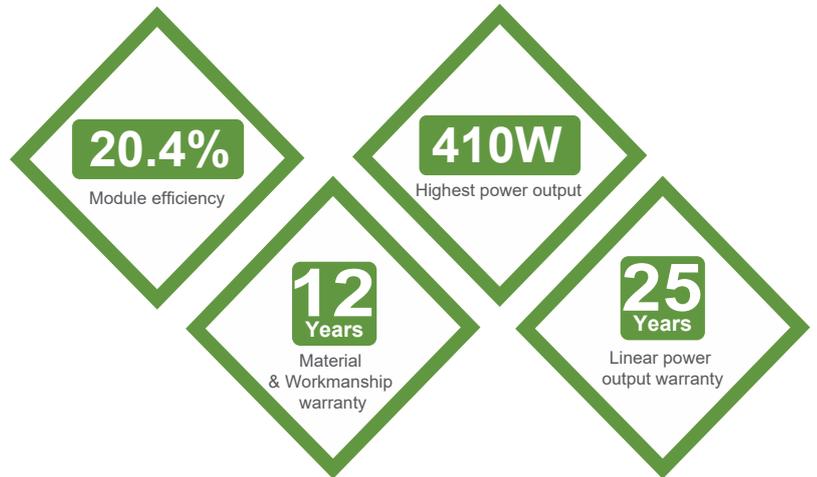
#### Low NMOT

As low as 43°C , improving the power generation efficiency

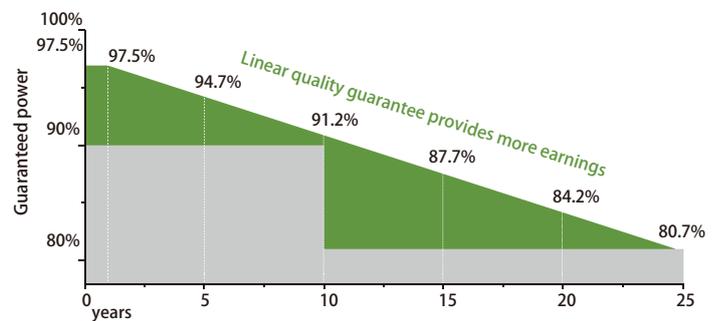


#### Half Cell, MBB Technology

Series-then-parallel cell connection design, more reliable soldering technology



### Product Guarantee



### Product Certification



# VDS-S144/FNH

## Electrical Characteristics

STC	410	405	400	395	390
Maximum Power at STC (Pmax)	410 W	405 W	400 W	395 W	390 W
Optimum Operating Voltage (Vmp)	42.2 V	42.0 V	41.8 V	41.6 V	41.4 V
Optimum Operating Current (Imp)	9.72 A	9.65 A	9.57 A	9.50 A	9.43 A
Open Circuit Voltage (Voc)	49.4 V	49.2 V	49.0 V	48.8 V	48.6 V
Short Circuit Current (Isc)	10.31 A	10.24 A	10.17 A	10.10 A	10.03 A
Module Efficiency	20.4%	20.1%	19.9%	19.6%	19.4%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1000/1500 V DC (IEC)				
Maximum Series Fuse Rating	20 A				
Power Tolerance	0/+5W				

STC: Irradiance 1000 W/m<sup>2</sup>, module temperature 25 °C, AM=1.5; Tolerances of Pmax, Voc and Isc are all within +/- 5%.

NMOT	410	405	400	395	390
Maximum Power at NMOT (Pmax)	308.1 W	304.6 W	300.8 W	297.3 W	293.8 W
Optimum Operating Voltage (Vmp)	38.8 V	38.7 V	38.5 V	38.3 V	38.1 V
Optimum Operating Current (Imp)	7.93 A	7.88 A	7.82 A	7.76 A	7.71 A
Open Circuit Voltage (Voc)	46.3 V	46.1 V	45.9 V	45.7 V	45.5 V
Short Circuit Current (Isc)	8.33 A	8.27 A	8.21 A	8.16 A	8.10 A

NMOT: Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM=1.5, wind speed 1 m/s;

## Temperature Characteristics

Nominal Module Operating Temperature(NMOT)	42±2°C
Temperature Coefficient of Pmax	-0.37 %/°C
Temperature Coefficient of Voc	-0.304%/°C
Temperature Coefficient of Isc	0.050 %/°C

## Mechanical Characteristics

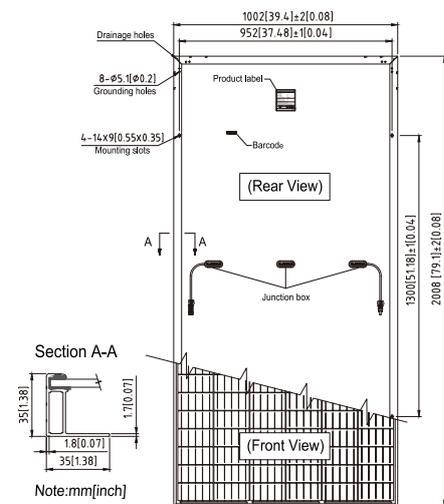
Solar Cell	Monocrystalline 158.75mm
No. of Cells	144 (6 × 24)
Dimensions	2008 × 1002 × 40mm
Weight	23 kgs
Front Glass	3.2 mm tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm <sup>2</sup> , symmetrical lengths (-) 1400mm and (+) 1400 mm
Connectors	MC4 compatible(1000V)

## Packing Configuration

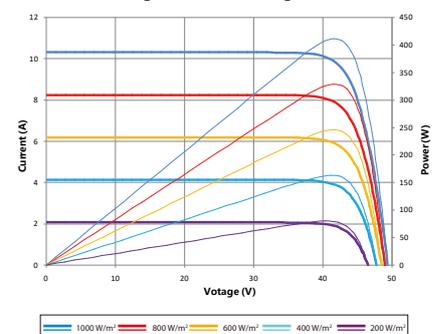
Container	20' GP	40' HC
Pieces per pallet	26	28
Pallets per container	10	22
Pieces per container	260	616

## Company Profile

The management of Vendato Solar has been active in the solar market in Europe for more than 10 years. We developed solar projects across Europe. Our references are in Germany, Spain, Italy, Bulgaria and other European countries. For the implementation of our projects, we are constantly improving the technology of PV modules we have made and carry out recurring tests. The quality control is especially important for us and we also have random tests for the PV modules in Germany. Our products have the currently valid test standards and certificates for the pv market.



Current-Voltage & Power-Voltage Curve (410S)





## VDS-S120/FNH

# 345-325w

120-CELL HALF CUT MONOCRYSTALLINE SOLAR MOUDLE

### Product Advantages



#### High Efficiency

Module efficiency leading in industry, up to 20.4%



#### High Reliability

Passed 3\*IECstandard test



#### Low Hot-spot Risk

1/2 current, reducing the hot spot temperature



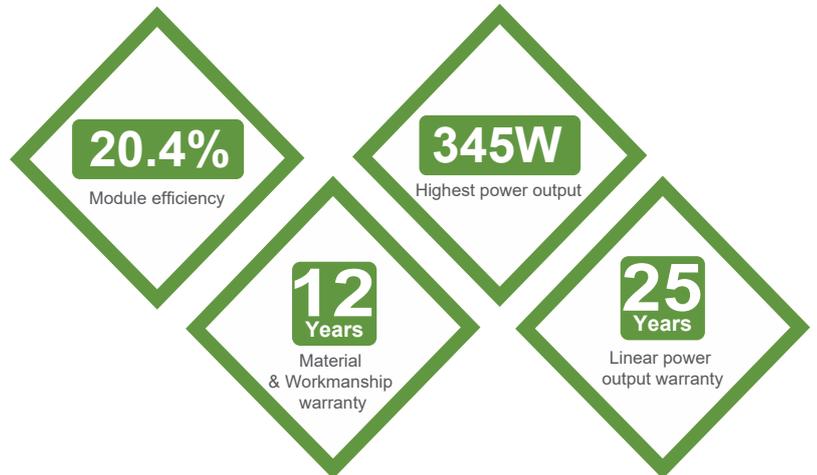
#### Low NMOT

As low as 43°C , improving the power generation efficiency

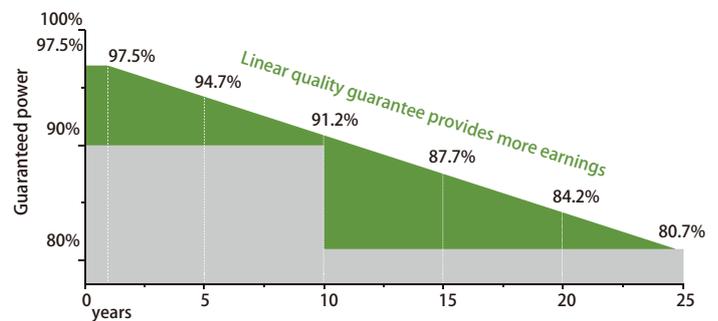


#### Half Cell, MBB Technology

Series-then-parallel cell connection design, more reliable soldering technology



### Product Guarantee



### Product Certification



# VDS-S120/FNH

## Electrical Characteristics

STC	345	340	335	330	325
Maximum Power at STC (Pmax)	345 W	340 W	335 W	330 W	325 W
Optimum Operating Voltage (Vmp)	35.3 V	35.1 V	34.9 V	34.7 V	34.5 V
Optimum Operating Current (Imp)	9.78 A	9.68 A	9.60 A	9.52 A	9.43 A
Open Circuit Voltage (Voc)	41.3 V	41.1 V	40.9 V	40.7 V	40.5 V
Short Circuit Current (Isc)	10.37 A	10.29 A	10.21 A	10.13 A	10.04 A
Module Efficiency	20.4%	20.1%	19.8%	19.5%	19.2%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1000/1500 V DC (IEC)				
Maximum Series Fuse Rating	20 A				
Power Tolerance	0/+5W				

STC: Irradiance 1000 W/m<sup>2</sup>, module temperature 25 °C, AM=1.5; Tolerances of Pmax, Voc and Isc are all within +/- 5%.

NMOT	345	340	335	330	325
Maximum Power at NMOT (Pmax)	259.3 W	255.5 W	252.1 W	248.6 W	244.9 W
Optimum Operating Voltage (Vmp)	32.5 V	32.3 V	32.1 V	31.9 V	31.7 V
Optimum Operating Current (Imp)	7.98 A	7.92 A	7.85 A	7.79 A	7.72 A
Open Circuit Voltage (Voc)	38.7 V	38.5 V	38.3 V	38.1 V	37.9 V
Short Circuit Current (Isc)	8.37 A	8.31 A	8.24 A	8.18 A	8.11 A

NMOT: Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM=1.5, wind speed 1 m/s;

## Temperature Characteristics

Nominal Module Operating Temperature(NMOT)	42±2°C
Temperature Coefficient of Pmax	-0.37 %/°C
Temperature Coefficient of Voc	-0.304 %/°C
Temperature Coefficient of Isc	0.050 %/°C

## Mechanical Characteristics

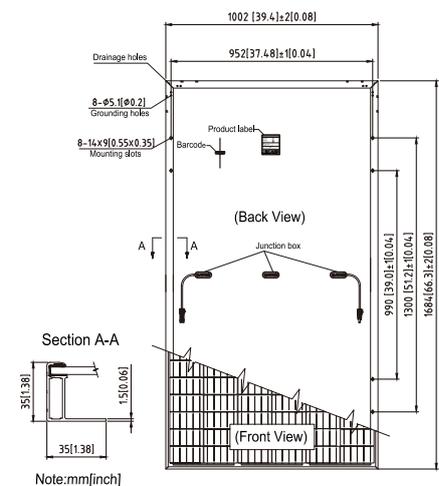
Solar Cell	Monocrystalline 158.75mm
No. of Cells	120 (6 × 20)
Dimensions	1684 × 1002 × 35mm
Weight	19.0 kgs
Front Glass	3.2 mm tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm <sup>2</sup> , symmetrical lengths (-) 1200mm and (+) 1200 mm
Connectors	MC4 compatible(1000V)

## Packing Configuration

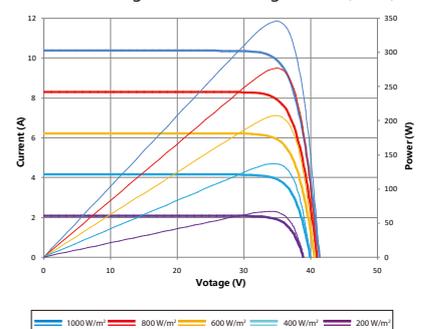
Container	20' GP	40' HC
Pieces per pallet	30	32
Pallets per container	12	26
Pieces per container	360	832

## Company Profile

The management of Vendato Solar has been active in the solar market in Europe for more than 10 years. We developed solar projects across Europe. Our references are in Germany, Spain, Italy, Bulgaria and other European countries. For the implementation of our projects, we are constantly improving the technology of PV modules we have made and carry out recurring tests. The quality control is especially important for us and we also have random tests for the PV modules in Germany. Our products have the currently valid test standards and certificates for the pv market.



Current-Voltage & Power-Voltage Curve (345S)





## Full Black Series VDS-S144/FNHB

# 405-385w

144-CELL HALF CUT MONOCRYSTALLINE SOLAR MOUDLE

### Product Advantages



#### High Efficiency

Module efficiency leading in industry, up to 20.1%



#### High Reliability

Passed 3\*IECstandard test



#### Low Hot-spot Risk

1/2 current, reducing the hot spot temperature



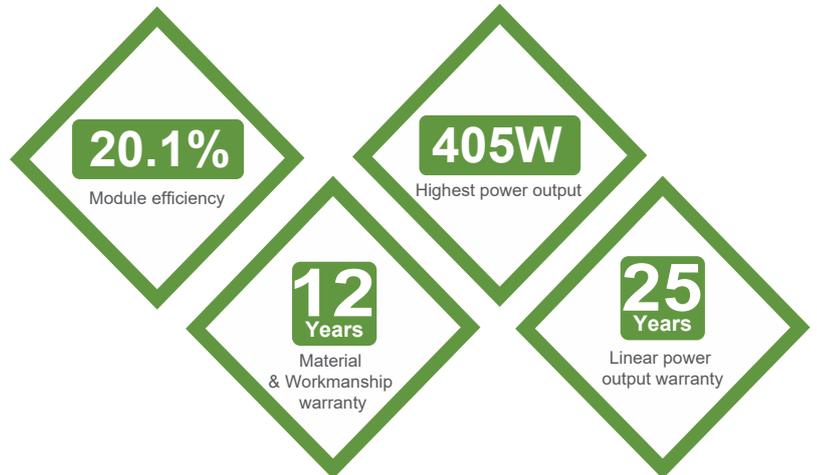
#### Low NMOT

As low as 43°C , improving the power generation efficiency

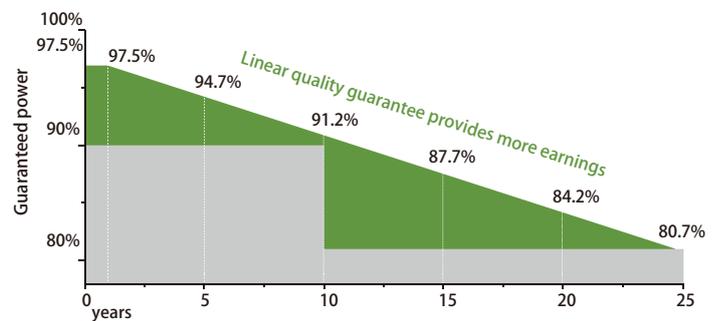


#### Half Cell, MBB Technology

Series-then-parallel cell connection design, more reliable soldering technology



### Product Guarantee



### Product Certification



# VDS-S144/FNHB

## Electrical Characteristics

STC	405	400	395	390	385
Maximum Power at STC (Pmax)	405 W	400 W	395 W	390 W	385 W
Optimum Operating Voltage (Vmp)	42.0 V	41.8 V	41.6 V	41.4 V	41.2 V
Optimum Operating Current (Imp)	9.65 A	9.57 A	9.50 A	9.43 A	9.35 A
Open Circuit Voltage (Voc)	49.2 V	49.0 V	48.8 V	48.6 V	48.4 V
Short Circuit Current (Isc)	10.24 A	10.17 A	10.10 A	10.03 A	9.96 A
Module Efficiency	20.1%	19.9%	19.6%	19.4%	19.1%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1000V DC (IEC)				
Maximum Series Fuse Rating	20 A				
Power Tolerance	0/+5W				

STC: Irradiance 1000 W/m<sup>2</sup>, module temperature 25 °C, AM=1.5; Tolerances of Pmax, Voc and Isc are all within +/- 5%.

NMOT	405	400	395	390	385
Maximum Power at NMOT (Pmax)	304.6 W	300.8 W	297.3 W	293.8 W	290.1 W
Optimum Operating Voltage (Vmp)	38.7 V	38.5 V	38.3 V	38.1 V	37.9 V
Optimum Operating Current (Imp)	7.88 A	7.82 A	7.76 A	7.71 A	7.66 A
Open Circuit Voltage (Voc)	46.1 V	45.9 V	45.7 V	45.5 V	45.3 V
Short Circuit Current (Isc)	8.27 A	8.21 A	8.16 A	8.10 A	8.05 A

NMOT: Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM=1.5, wind speed 1 m/s;

## Temperature Characteristics

Nominal Module Operating Temperature(NMOT)	42±2°C
Temperature Coefficient of Pmax	-0.37 %/°C
Temperature Coefficient of Voc	-0.304%/°C
Temperature Coefficient of Isc	0.050 %/°C

## Mechanical Characteristics

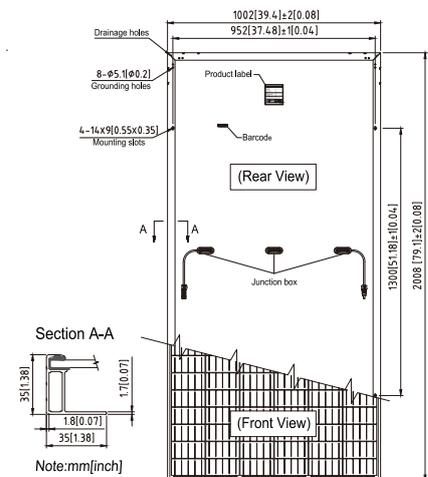
Solar Cell	Monocrystalline 158.75mm
No. of Cells	144 (6 × 24)
Dimensions	2008 × 1002 × 40mm
Weight	23kgs
Front Glass	3.2 mm tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm <sup>2</sup>
Connectors	MC4 compatible(1000V)

## Packing Configuration

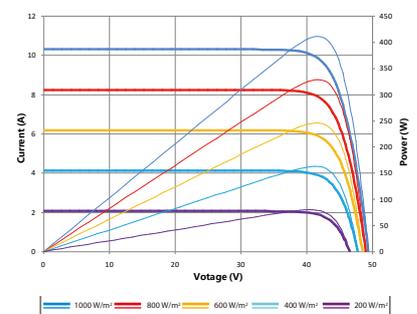
Container	20' GP	40' HC
Pieces per pallet	26	28
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Current-Voltage & Power-Voltage Curve (405S)





Full Black Series  
VDS-S120/FNHB

**340-320w**

120-CELL HALF CUT MONOCRYSTALLINE SOLAR MOUDLE

Product Advantages



**High Efficiency**  
Module efficiency leading in industry, up to 20.1%



**High Reliability**  
Passed 3\*IEC standard test



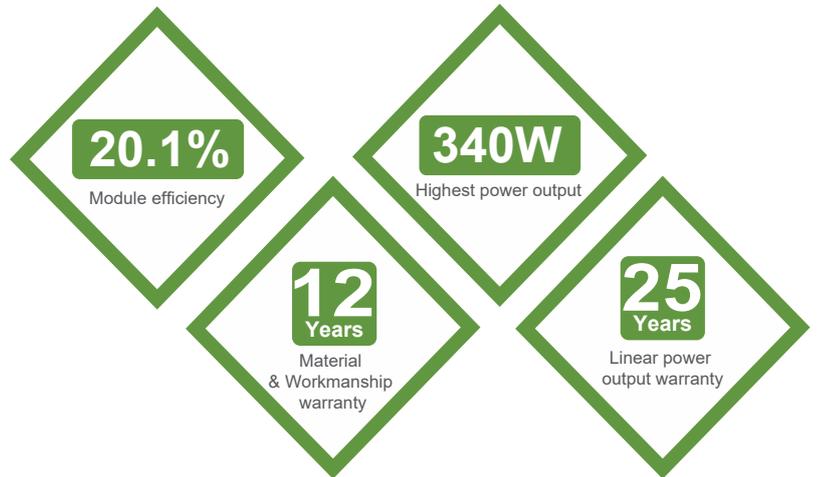
**Low Hot-spot Risk**  
1/2 current, reducing the hot spot temperature



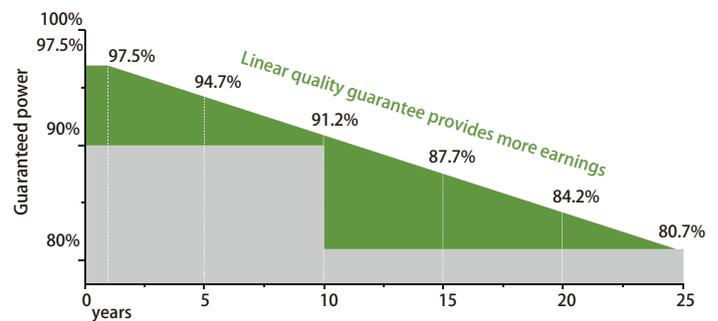
**Low NMOT**  
As low as 43°C , improving the power generation efficiency



**Half Cell, MBB Technology**  
Series-then-parallel cell connection design, more reliable soldering technology



Product Guarantee



Product Certification



# VDS-S120/FNHB

## Electrical Characteristics

STC	340	335	330	325	320
Maximum Power at STC (Pmax)	340 W	335 W	330 W	325 W	320 W
Optimum Operating Voltage (Vmp)	35.1 V	34.9 V	34.7 V	34.5 V	34.3 V
Optimum Operating Current (Imp)	9.68 A	9.60 A	9.52 A	9.43 A	9.33 A
Open Circuit Voltage (Voc)	41.1 V	40.9 V	40.7 V	40.5 V	40.3 V
Short Circuit Current (Isc)	10.29 A	10.21 A	10.13 A	10.04 A	9.93 A
Module Efficiency	20.1%	19.8%	19.5%	19.2%	19.0%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1000V DC (IEC)				
Maximum Series Fuse Rating	20 A				
Power Tolerance	0/+5W				

STC: Irradiance 1000 W/m<sup>2</sup>, module temperature 25 °C, AM=1.5; Tolerances of Pmax, Voc and Isc are all within +/- 5%.

NMOT	340	335	330	325	320
Maximum Power at NMOT (Pmax)	255.5 W	252.1 W	248.6 W	244.9 W	240.9 W
Optimum Operating Voltage (Vmp)	32.3 V	32.1 V	31.9 V	31.7 V	31.5 V
Optimum Operating Current (Imp)	7.92 A	7.85 A	7.79 A	7.72 A	7.64 A
Open Circuit Voltage (Voc)	38.5 V	38.3 V	38.1 V <td 37.9 V	37.8 V	
Short Circuit Current (Isc)	8.31 A	8.24 A	8.18 A	8.11 A	8.02 A

NMOT: Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM=1.5, wind speed 1 m/s;

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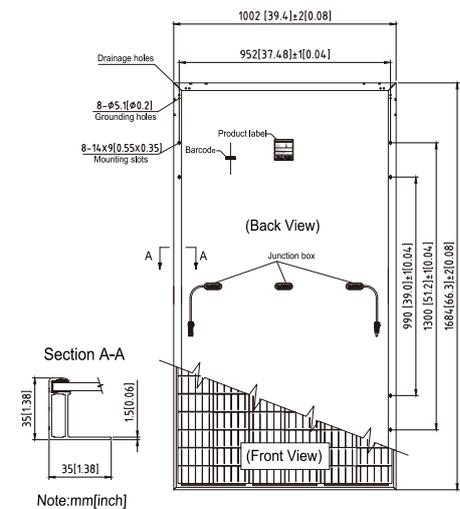
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Weight	19.0 kgs
Front Glass	3.2 mm tempered glass
Frame	Anodized aluminium alloy
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Connectors	MC4 compatible(1000V)

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Container	20' GP	40' HC
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Current-Voltage & Power-Voltage Curve (340S)

