

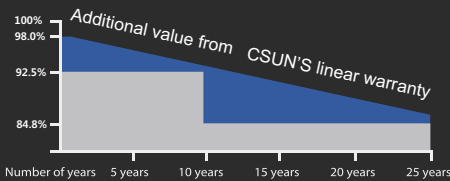
# Mars Series Half cell Modules

The power output shall not be less than 98.0% of the minimum power output stated in the product datasheet in the first year of the product's life cycle.

The loss of power output shall not exceed 0.55% per year thereafter, ending with 84.80% in the 25th year.

■ CSUN    ■ Standard warranty

CSUN's **NEW** linear performance warranty



# CSUN415-108M

High efficiency PERC tech for esthetic applications

Module Fire Performance: Type 1 (UL 1703)

Fire Resistance Rating: Class C (IEC 61730)

CSUN400-108M

CSUN405-108M

CSUN410-108M

CSUN415-108M

## 21.2%

Module efficiency

## 415W

Highest power output

## 12 Year

Material & workmanship warranty

## 25 Year

Linear power output warranty



Industry leading conversion efficiency



Certificated to withstand wind (2400Pa) and snow load (5400Pa)



Positive tolerance offer



Excellent performance under weak light condition



Passed salt mist & ammonia corrosion, blowing sand and hail testing



Good temperature coefficient enables better output in hot climates



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## Electrical Characteristics at Standard Test Conditions (STC)

Module Type	CSUN400-108M	CSUN405-108M	CSUN410-108M	CSUN415-108M
Maximum Power(Pmpp)[W]	400	405	410	415
Positive Power Tolerance[W]	0~5	0~5	0~5	0~5
Open Circuit Voltage(Voc)[V]	37.10	31.23	37.58	37.77
Short Circuit Current(Isc) [A]	13.80	12.97	13.94	14.03
Maximum Power Voltage(Vmpp)[V]	30.98	34.75	31.44	31.60
Maximum Power Current(Imp)[A]	12.91	12.97	13.04	13.13
Module Efficiency	20.5%	20.7%	21.0%	21.2%

Electrical data relates to standard test conditions(STC): irradiance 1000W/m<sup>2</sup>; AM1.5; cell temperature 25°C measuring uncertainty of power is within ±3%. Certified in accordance with IEC61215, IEC61730-1/2 and UL1703.

## Electrical Characteristics at Nominal Operating Cell Temperature(NOCT)

Module Type	CSUN400-108M	CSUN405-108M	CSUN410-108M	CSUN415-108M
Maximum Power(Pmpp)[W]	307	311	315	319
Open Circuit Voltage(Voc)[V]	34.25	34.46	34.69	34.87
Short Circuit Current(Isc) [A]	11.64	11.70	11.76	11.84
Maximum Power Voltage(Vmpp)[V]	28.25	28.46	28.66	28.81
Maximum Power Current(Imp)[A]	10.88	10.93	10.99	11.07

Electrical data relates to nominal operating cell temperature(NOCT): irradiance 800W/m<sup>2</sup>; wind speed 1m/s; cell temperature 45°C ambient temperature 20°C measuring uncertainty of power is within ±3%.

## Temperature Characteristics

Voltage Temperature Coefficient	-0.266%/°C
Current Temperature Coefficient	+0.046%/°C
Power Temperature Coefficient	-0.35%/°C

## Maximum Ratings

Maximum System Voltage(V)	1000/1500
Series Fuse Rating(A)	25
Reverse Current Overload(A)	25

## Mechanical Characteristics

Dimensions	1724×1134×30mm - frame thickness upon request
Weight	21.5kg
Frame	Anodized aluminum profile-black frame upon request
Front Glass	Toughened low iron glass,3.2mm
Cell Encapsulation	EVA(Ethylene-Vinyl-Acetate)
Back Sheet	Composite film-black back sheet upon request
Cell	108(6×18) monocrystalline solar semi-cells (182×91 )
Junction Box	Rated current≥25A, IP≥65, TUV&UL
Cable	Length 300mm,1×4mm <sup>2</sup>
Connector	MC4/compatible with MC4

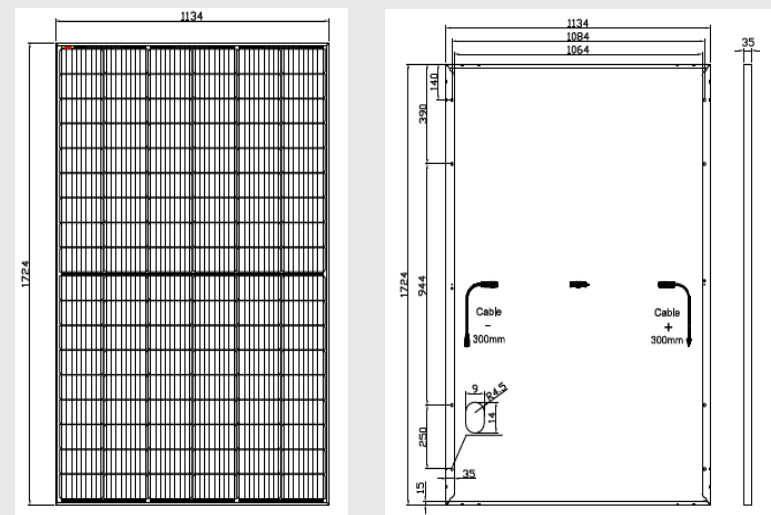
## Packaging

Container 20'	216pcs.
Container 40' HC	936pcs.

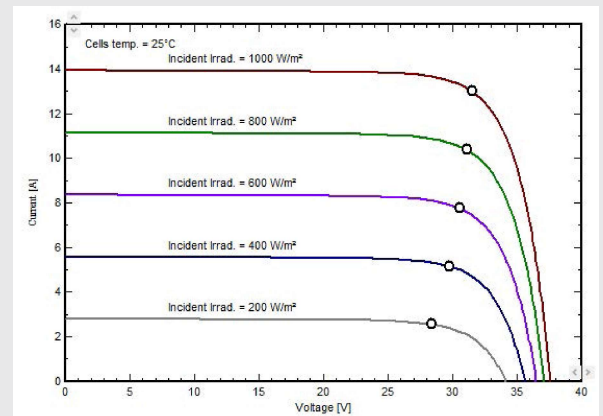
## System Design

Temp.Range	-40°F to +185°F(-40°C to +85°C)
Hail	Max. diameter of 0.98"(25mm)with impact speed of 51.2mph(23m/s)
Max.Capacity	Wind 2400Pa, snow 5400Pa-7200Pa upon request
Application Class	A
Safety Class	II

## Dimensions



## I-V Curves



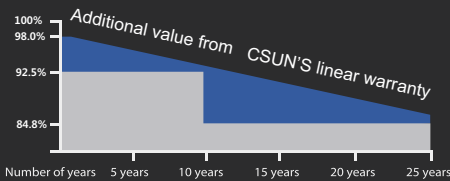
# Mars Series Half cell Modules

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■ CSUN    ■ Standard warranty

CSUN's NEW linear performance warranty



# CSUN460-144M

High efficiency PERC tech for esthetic applications

Module Fire Performance: Type 1 (UL 1703)

Fire Resistance Rating: Class C (IEC 61730)

CSUN425-144M

CSUN430-144M

CSUN435-144M

CSUN440-144M

CSUN445-144M

CSUN450-144M

CSUN455-144M

CSUN460-144M

## 21.16%

Module efficiency

## 460W

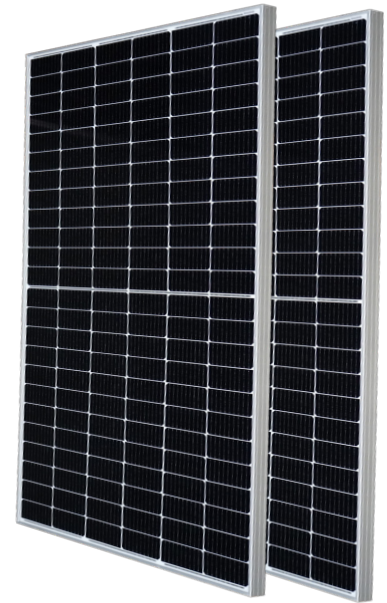
Highest power output

## 12 Year

Material & workmanship warranty

## 25 Year

Linear power output warranty



Industry leading conversion efficiency



Certificated to withstand wind (2400Pa) and snow load (5400Pa)



Positive tolerance offer



Excellent performance under weak light condition



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Email: sales@chinasunergy.com



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## Electrical Characteristics at Standard Test Conditions (STC)

Module Type	CSUN425-144M	CSUN430-144M	CSUN435-144M	CSUN440-144M	CSUN445-144M	CSUN450-144M	CSUN455-144M	CSUN460-144M
Maximum Power(Pmpp)[W]	425	430	435	440	445	450	455	460
Positive Power Tolerance[W]	0~5	0~5	0~5	0~5	0~5	0~5	0~5	0~5
Open Circuit Voltage(Voc)[V]	48.3	48.5	48.7	48.9	49.1	49.3	49.5	49.7
Short Circuit Current(Isc) [A]	11.22	11.30	11.37	11.44	11.52	11.59	11.66	11.73
Maximum Power Voltage(Vmpp)[V]	40.4	40.6	40.8	41.0	41.2	41.4	41.6	41.8
Maximum Power Current(Imp)[A]	10.52	10.60	10.67	10.74	10.81	10.88	10.94	11.01
Module Efficiency	19.55%	19.78%	20.01%	20.24%	20.47%	20.70%	20.93%	21.16%

Electrical data relates to standard test conditions(STC): irradiance 1000W/m<sup>2</sup>; AM1.5; cell temperature 25°C measuring uncertainty of power is within ±3%. Certified in accordance with IEC61215, IEC61730-1/2 and UL1703.

## Electrical Characteristics at Nominal Operating Cell Temperature(NOCT)

Module Type	CSUN425-144M	CSUN430-144M	CSUN435-144M	CSUN440-144M	CSUN445-144M	CSUN450-144M	CSUN455-144M	CSUN460-144M
Maximum Power(Pmpp)[W]	315	319	323	326	330	334	337	341
Open Circuit Voltage(Voc)[V]	45.0	45.2	45.3	45.5	45.7	45.9	46.1	46.3
Short Circuit Current(Isc) [A]	9.08	9.14	9.20	9.25	9.32	9.38	9.43	9.49
Maximum Power Voltage(Vmpp)[V]	37.4	37.6	37.7	37.9	38.1	38.3	38.5	38.7
Maximum Power Current(Imp)[A]	8.43	8.49	8.55	8.60	8.66	8.71	8.76	8.82

Electrical data relates to nominal operating cell temperature(NOCT): irradiance 800W/m<sup>2</sup>; wind speed 1m/s; cell temperature 45°C ambient temperature 20°C measuring uncertainty of power is within ±3%.

## Temperature Characteristics

Voltage Temperature Coefficient	-0.286%/°C
Current Temperature Coefficient	+0.057%/°C
Power Temperature Coefficient	-0.370%/°C

## Maximum Ratings

Maximum System Voltage(V)	1000/1500
Series Fuse Rating(A)	25
Reverse Current Overload(A)	25

## Mechanical Characteristics

Dimensions	2094×1038×35mm - frame thickness upon request
Weight	23.5kg
Frame	Anodized aluminum profile-black frame upon request
Front Glass	Toughened low iron glass,3.2mm
Cell Encapsulation	EVA(Ethylene-Vinyl-Acetate)
Back Sheet	Composite film-black back sheet upon request
Cell	144(6×24) monocrystalline solar semi-cells (166×83 )
Junction Box	Rated current≥13A, IP≥65, TUV&UL
Cable	Length 0.3 m,1×4mm <sup>2</sup>
Connector	MC4/compatible with MC4

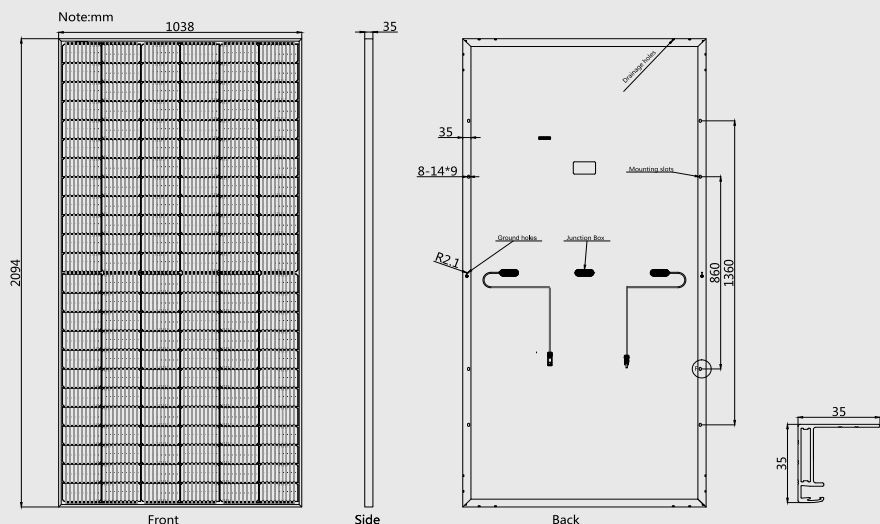
## Packaging

Container 20'	180pcs.
Container 40'	396pcs.
Container 40'HC	737pcs.

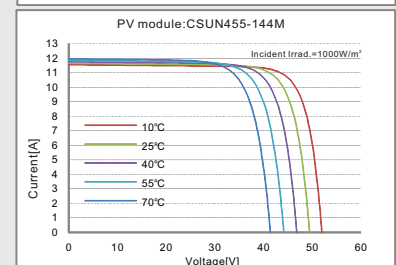
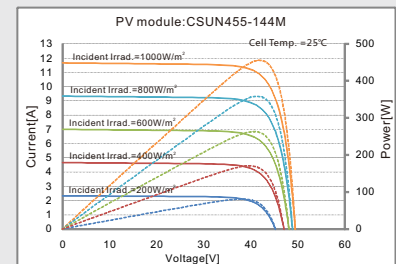
## System Design

Temp.Range	-40°F to +185°F(-40°C to +85°C)
Hail	Max. diameter of 0.98"(25mm)with impact speed of 51.2mph(23m/s)
Max.Capacity	Wind 2400Pa, snow 5400Pa-7200Pa upon request
Application Class	A
Safety Class	II

## Dimensions



## I-V Curves



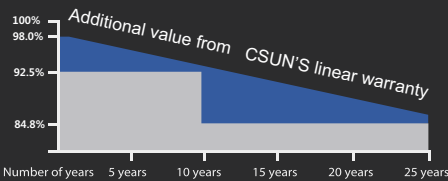
# Mars Series Half cell Modules

The power output shall not be less than 98.0% of the minimum power output stated in the product datasheet in the first year of the product's life cycle.

The loss of power output shall not exceed 0.55% per year thereafter, ending with 84.80% in the 25th year.

■ CSUN    ■ Standard warranty

CSUN's **NEW** linear performance warranty



## CSUN550-144M

High efficiency PERC tech for esthetic applications

Module Fire Performance: Type 1 (UL 1703)

Fire Resistance Rating: Class C (IEC 61730)

CSUN535-144M    CSUN540-144M

CSUN545-144M    CSUN550-144M

### 21.28%

Module efficiency

### 550W

Highest power output

### 12 Year

Material & workmanship warranty

### 25 Year

Linear power output warranty



Industry leading conversion efficiency



Certificated to withstand wind (2400Pa) and snow load (5400Pa)



Positive tolerance offer



Excellent performance under weak light condition



Passed salt mist & ammonia corrosion, blowing sand and hail testing



Good temperature coefficient enables better output in hot climates



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## Electrical Characteristics at Standard Test Conditions (STC)

Module Type	CSUN535-144M	CSUN540-144M	CSUN545-144M	CSUN550-144M
Maximum Power(Pmpp)[W]	535	540	545	550
Positive Power Tolerance[W]	0~5	0~5	0~5	0~5
Open Circuit Voltage(Voc)[V]	49.35	49.50	49.65	49.80
Short Circuit Current(Isc) [A]	13.78	13.85	13.92	13.98
Maximum Power Voltage(Vmpp)[V]	41.50	41.65	41.80	41.95
Maximum Power Current(Imp)[A]	12.90	12.97	13.04	13.12
Module Efficiency	20.70%	20.89%	21.09%	21.28%

Electrical data relates to standard test conditions(STC): irradiance 1000W/m<sup>2</sup>; AM1.5; cell temperature 25°C measuring uncertainty of power is within ±3%. Certified in accordance with IEC61215, IEC61730-1/2 and UL1703.

## Electrical Characteristics at Nominal Operating Cell Temperature(NOCT)

Module Type	CSUN535-144M	CSUN540-144M	CSUN545-144M	CSUN550-144M
Maximum Power(Pmpp)[W]	399	403	406	410
Open Circuit Voltage(Voc)[V]	45.85	45.99	46.12	46.26
Short Circuit Current(Isc) [A]	11.13	11.19	11.25	11.30
Maximum Power Voltage(Vmpp)[V]	38.43	38.57	38.71	38.85
Maximum Power Current(Imp)[A]	10.38	10.44	10.50	10.56

Electrical data relates to nominal operating cell temperature(NOCT): irradiance 800W/m<sup>2</sup>; wind speed 1m/s; cell temperature 45°C ambient temperature 20°C measuring uncertainty of power is within ±3%.

## Temperature Characteristics

Voltage Temperature Coefficient	-0.28%/°C
Current Temperature Coefficient	+0.048%/°C
Power Temperature Coefficient	-0.35%/°C

## Maximum Ratings

Maximum System Voltage(V)	1000/1500
Series Fuse Rating(A)	25
Reverse Current Overload(A)	25

## Mechanical Characteristics

Dimensions	2279×1134×35mm - frame thickness upon request
Weight	29.1kg
Frame	Anodized aluminum profile-black frame upon request
Front Glass	Toughened low iron glass,3.2mm
Cell Encapsulation	EVA(Ethylene-Vinyl-Acetate)
Back Sheet	Composite film-black back sheet upon request
Cell	144(6×24) monocrystalline solar semi-cells (182×91 )
Junction Box	Rated current≥25A, IP≥65, TUV&UL
Cable	Length 300mm,1×4mm <sup>2</sup>
Connector	MC4/compatible with MC4

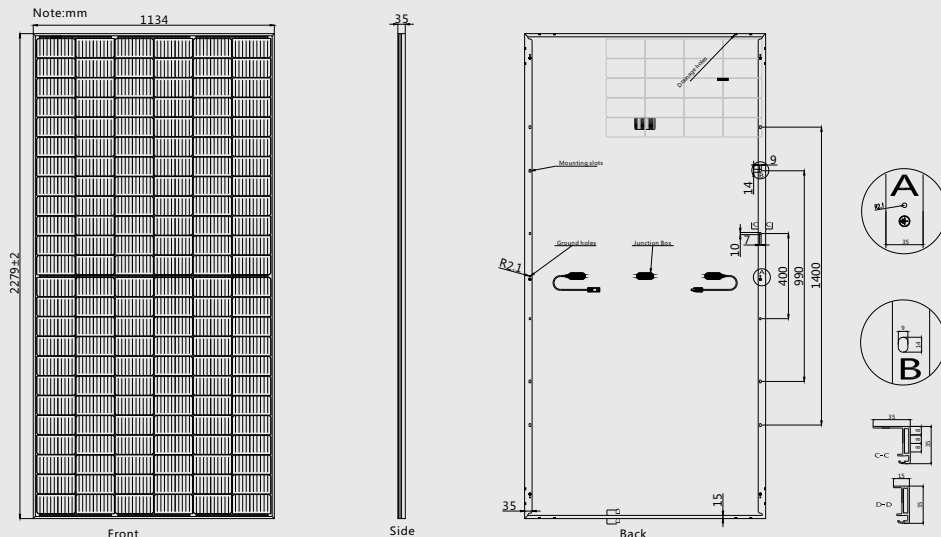
## Packaging

Container 20'	180pcs.
Container 40'	360pcs.
Container 40' HC	620pcs.

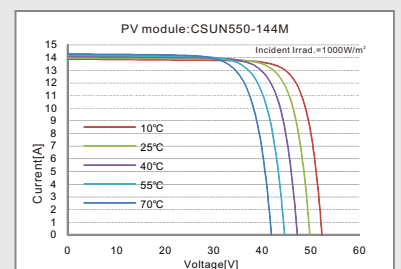
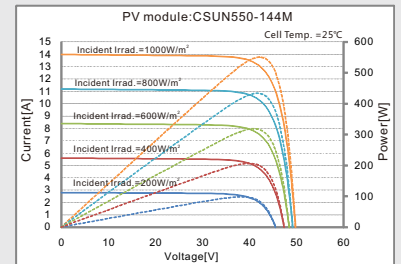
## System Design

Temp.Range	-40°F to +185°F(-40°C to +85°C)
Hail	Max. diameter of 0.98"(25mm)with impact speed of 51.2mph(23m/s)
Max.Capacity	Wind 2400Pa, snow 5400Pa-7200Pa upon request
Application Class	A
Safety Class	II

## Dimensions



## I-V Curves



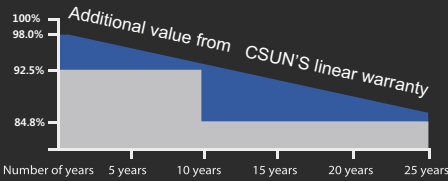
# Mars Series Half cell Modules

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■ CSUN    ■ Standard warranty

CSUN's **NEW** linear performance warranty



# CSUN670-132M

High efficiency PERC tech for esthetic applications

Module Fire Performance: Type 1 (UL 1703)

Fire Resistance Rating: Class C (IEC 61730)

CSUN645-132M    CSUN650-132M

CSUN655-132M    CSUN660-132M

CSUN665-132M    CSUN670-132M

## 21.60%

Module efficiency

## 670W

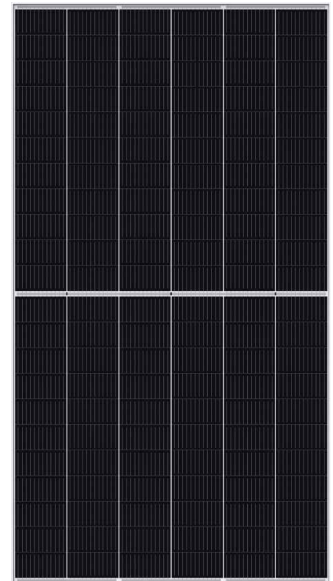
Highest power output

## 12 Year

Material & workmanship warranty

## 25 Year

Linear power output warranty



Industry leading conversion efficiency



Certificated to withstand wind (2400Pa) and snow load (5400Pa)



Positive tolerance offer



Excellent performance under weak light condition



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## Electrical Characteristics at Standard Test Conditions (STC)

Module Type	CSUN645-132M	CSUN650-132M	CSUN655-132M	CSUN660-132M	CSUN665-132M	CSUN670-132M
Maximum Power(Pmpp)[W]	645	650	655	660	665	670
Positive Power Tolerance[W]	0~5	0~5	0~5	0~5	0~5	0~5
Open Circuit Voltage(Voc)[V]	45.08	45.27	45.46	45.65	45.84	46.00
Short Circuit Current(Isc) [A]	18.38	18.43	18.46	18.50	18.55	18.65
Maximum Power Voltage(Vmpp)[V]	37.24	37.42	37.61	37.80	37.98	38.40
Maximum Power Current(Imp)[A]	17.32	17.37	17.42	17.46	17.51	17.45
Module Efficiency	20.76%	20.92%	21.09%	21.25%	21.41%	21.60%

Electrical data relates to standard test conditions(STC): irradiance 1000W/m<sup>2</sup>; AM1.5; cell temperature 25°C measuring uncertainty of power is within ±3%. Certified in accordance with IEC61215, IEC61730-1/2 and UL1703.

## Electrical Characteristics at Nominal Operating Cell Temperature(NOCT)

Module Type	CSUN645-132M	CSUN650-132M	CSUN655-132M	CSUN660-132M	CSUN665-132M	CSUN670-132M
Maximum Power(Pmpp)[W]	486	490	494	498	501	504
Open Circuit Voltage(Voc)[V]	42.38	42.55	42.73	42.91	43.09	43.27
Short Circuit Current(Isc) [A]	14.81	14.85	14.88	14.91	14.95	14.99
Maximum Power Voltage(Vmpp)[V]	34.71	34.88	35.05	35.23	35.40	35.57
Maximum Power Current(Imp)[A]	14.01	14.05	14.09	14.13	14.17	14.21

Electrical data relates to nominal operating cell temperature(NOCT): irradiance 800W/m<sup>2</sup>; wind speed 1m/s; cell temperature 45°C ambient temperature 20°C measuring uncertainty of power is within ±3%.

## Temperature Characteristics

Voltage Temperature Coefficient	-0.28%/°C
Current Temperature Coefficient	+0.048%/°C
Power Temperature Coefficient	-0.35%/°C

## Maximum Ratings

Maximum System Voltage(V)	1000/1500
Series Fuse Rating(A)	30
Reverse Current Overload(A)	30

## Mechanical Characteristics

Dimensions	2384×1303×35mm - frame thickness upon request
Weight	34.5kg
Frame	Anodized aluminum profile-black frame upon request
Front Glass	Toughened low iron glass,3.2mm
Cell Encapsulation	EVA(Ethylene-Vinyl-Acetate)
Back Sheet	Composite film-black back sheet upon request
Cell	132(6×22) monocrystalline solar semi-cells (210×105 )
Junction Box	Rated current≥30A, IP≥65, TUV&UL
Cable	Length 300mm,1×4mm <sup>2</sup>
Connector	MC4/compatible with MC4

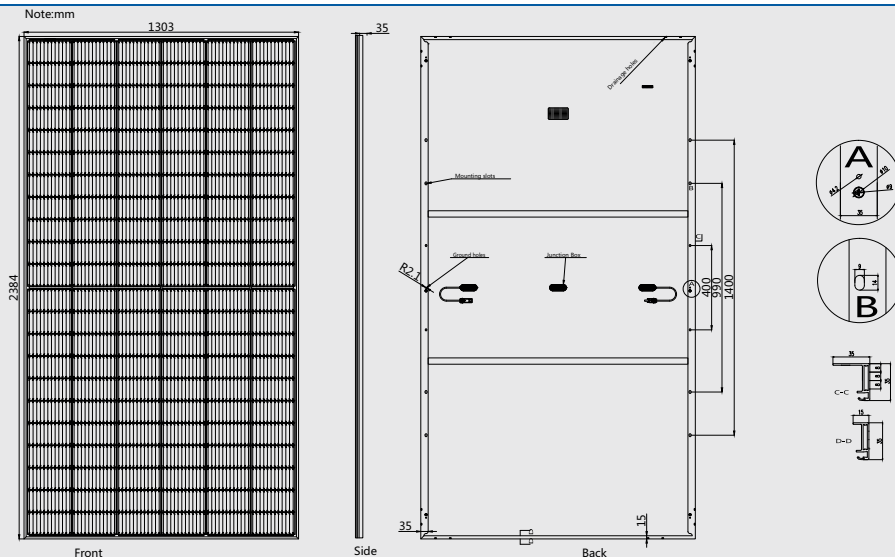
## Packaging

Container 40' HC	558pcs.
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## System Design

Temp.Range	-40°F to +185°F(-40°C to +85°C)
Hail	Max. diameter of 0.98"(25mm)with impact speed of 51.2mph(23m/s)
Max.Capacity	Wind 2400Pa, snow 5400Pa-7200Pa upon request
Application Class	A
Safety Class	II

## Dimensions



## I-V Curves

