Catalogo Pannelli Fotovoltaici

Distribuito da Uno Energie

UNO ENERGIE ®

Energy Professionals

FOTOVOLAICO

www.unoenergie.com

TW SOLAR

Tongwei è un produttore di moduli fotovoltaici di alta qualità, nato nel 2006 in Cina.
Tongwei ha raggiunto la classificazione di produttore Tier-1 secondo BloombergNEF e vanta una capacità produttiva annuale di oltre 60 GW di moduli e 200 GW di celle fotovoltaiche.
I pannelli fotovoltaici Tongwei sono realizzati con celle half-cut e tecnologie innovative come PERC e HJT, che aumentano l'efficienza energetica e migliorano la conversione dell'energia solare.
Tongwei è nota per l'elevata efficienza dei suoi pannelli, che garantiscono prestazioni ottimali anche in condizioni di alta temperatura.
Solar Energy Point è rivenditore di moduli fotovoltaici Tongwei e fornisce soluzioni per ogni tipo di installazione, da impianti residenziali su piccola scala a grandi impianti commerciali e industriali.
Visita il nostro shop e acquista online i pannelli solari Tongwei al miglior prezzo.
Contattaci per maggiori informazioni o per richiedere un'offerta personalizzata.

TW SOLAR

High Power Output
Low LCOE

Maximum Power
455W+

TWMNH

N-type Half-cell
Bifacial Black Frame Module (48)

48HD435-455W

Certisolis

TIER 1 Bloomberg NEW ENERGY FINANCE

Residential Rooftop

25 YEAR Materials Warranty

30 YEAR Power Warranty

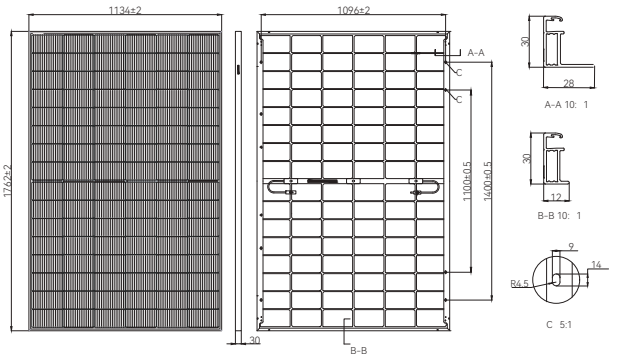
en.tongwei.com.cn

Learn More

TWMNH N-type Half-cell Bifacial Black Frame Module (48)

48HD435-455W

DRAWINGS (Unit: mm)



MECHANICAL PARAMETERS

Cells	TNC (N Type Monocrystalline Cell)
Cell Orientation	96[6×16]
Dimension	1762±2×1134±2×30mm
Weight	20.9kg
Front Glass	1.6mm high transmittance, AR tempered glass
Rear Glass	1.6mm semi-tempered glass
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm²
Cable Length	±1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet, 936pcs per 40'HC

ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMNH-48HDXXX					
Maximum Power: Pmax [W]	435	440	445	450	455
Open Circuit Voltage: Voc [V]	34.49	34.67	34.85	35.03	35.21
Short Circuit Current: Isc [A]	15.90	15.95	16.00	16.05	16.10
Voltage at Maximum Power: Vmp [V]	29.54	29.72	29.90	30.08	30.26
Current at Maximum Power: Imp [A]	14.73	14.81	14.89	14.97	15.04
Module Efficiency: η [%]	21.8	22.0	22.3	22.5	22.8

* STC: Irradiance 1000W/m², Cell Temperature 25℃, Air Mass1.5, Measuring Tolerance: ±3%

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	327	331	335	338	342
Open Circuit Voltage: Voc [V]	32.77	32.94	33.11	33.28	33.45
Short Circuit Current: Isc [A]	12.84	12.88	12.92	12.96	13.00
Voltage at Maximum Power: Vmp [V]	27.51	27.68	27.88	27.96	28.18
Current at Maximum Power: Imp [A]	11.89	11.96	12.02	12.09	12.14

* NMOT: Irradiance 800W/m², Ambient Temperature 20℃, Air Mass1.5, Wind Speed 1m/s

ELECTRICAL CHARACTERISTICS (Rear Power Gain)

5%	Maximum Power: Pmax[W]	456	462	467	472	477
	Module Efficiency: η [%]	22.8	23.1	23.4	23.6	23.9
15%	Maximum Power: Pmax[W]	500	506	511	517	523
	Module Efficiency: η [%]	25.0	25.3	25.6	25.9	26.2
25%	Maximum Power: Pmax[W]	543	550	556	562	568
	Module Efficiency: η [%]	27.2	27.5	27.8	28.1	28.4

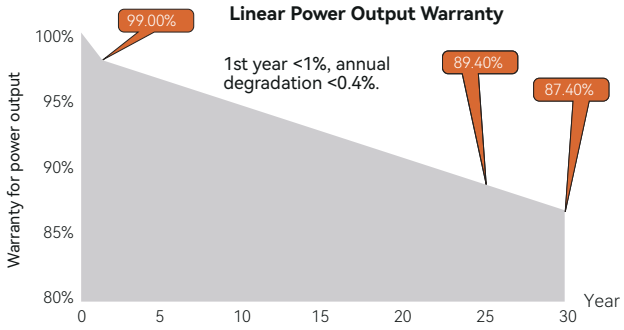
TEMPERATURE PARAMETERS

Temperature Coefficient (Pmax)	-0.30%/℃
Temperature Coefficient (Voc)	-0.25%/℃
Temperature Coefficient (Isc)	+0.046%/℃
NMOT	45±2℃

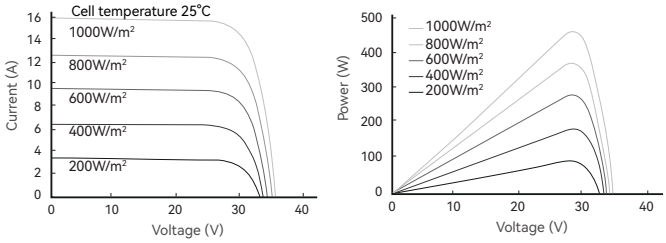
MAXIMUM RATINGS

Operational Temperature	-40℃~+85℃
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Output Tolerance	0~+5W
Maximum Bifaciality	80±10%

WARRANTY



I-V CURVE



CERTIFICATIONS

Quality Management System and Product Certification

ISO 9001: 2015/Quality management system
ISO 14001: 2015/Environmental management system
ISO 45001: 2018/Occupation health safety management system
ISO 50001: 2018/Energy management system
IEC 62941: 2019/Quality system for PV module manufacturing
IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt),
IEC 62716 (Ammonia), IEC 60068-2-68(Sand)

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TW SOLAR

TWMND

N-type Half-cell
Monofacial Black Frame Module (60)

60HS475-495W

Certisolis Low Carbon Footprint

TIER 1 Bloomberg NEW ENERGY FINANCE

Residential Rooftop

12 YEAR Materials Warranty

30 YEAR Power Warranty

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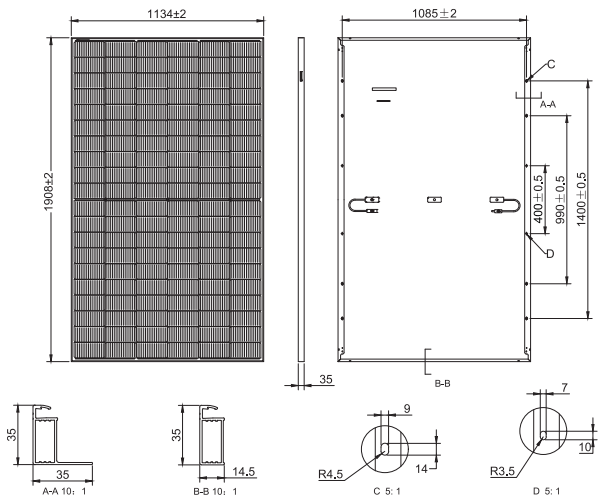
Learn More

TWMND N-type Half-cell Monofacial Black Frame Module (60)

60HS475-495W

DRAWINGS (Unit: mm)



ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMND-60HSXXX					
Maximum Power: Pmax [W]	475	480	485	490	495
Open Circuit Voltage: Voc [V]	43.51	43.68	43.85	44.02	44.19
Short Circuit Current: Isc [A]	13.60	13.65	13.70	13.75	13.82
Voltage at Maximum Power: Vmp [V]	36.96	37.13	37.30	37.47	37.65
Current at Maximum Power: Imp [A]	12.85	12.93	13.00	13.07	13.15
Module Efficiency: η [%]	22.0	22.2	22.4	22.6	22.9

* STC: Irradiance 1000W/m², Cell Temperature 25℃, Air Mass1.5, Measuring Tolerance: ±3%

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	359.5	363.3	367.0	370.8	374.6
Open Circuit Voltage: Voc [V]	41.38	41.54	41.71	41.87	42.03
Short Circuit Current: Isc [A]	10.71	10.74	10.78	10.82	10.88
Voltage at Maximum Power: Vmp [V]	35.58	35.74	35.90	36.07	36.24
Current at Maximum Power: Imp [A]	10.09	10.15	10.20	10.26	10.32

* NMOT: Irradiance 800W/m², Ambient Temperature 20℃, Air Mass1.5, Wind Speed 1m/s

TEMPERATURE PARAMETERS

Temperature Coefficient (Pmax)	-0.28%/℃
Temperature Coefficient (Voc)	-0.24%/℃
Temperature Coefficient (Isc)	+0.046%/℃
NMOT	45±2℃

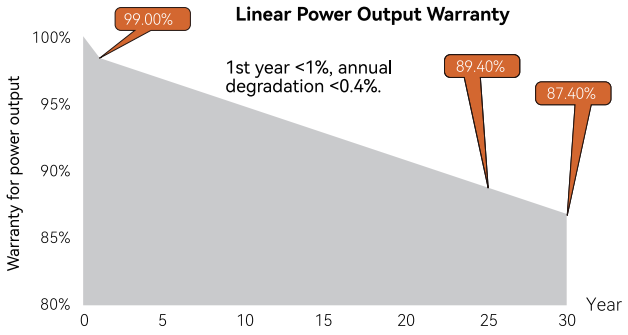
MAXIMUM RATINGS

Operational Temperature	-40℃~+85℃
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	25A
Power Output Tolerance	0~+5W

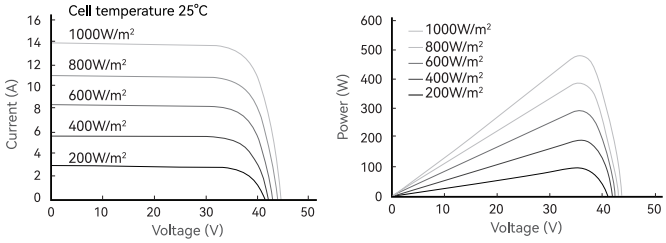
MECHANICAL PARAMETERS

Cells	TNC (N Type Monocrystalline Cell)
Cell Orientation	120[6×20]
Dimension	1908±2×1134±2×35mm
Weight	23.2kg
Front Glass	3.2mm high transmittance, AR tempered glass
Backsheet	White
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm²
Cable Length	±1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	31pcs per pallet, 744pcs per 40'HC

WARRANTY



I-V CURVE



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ISO 50001: 2018/Energy management system
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IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt),
IEC 62716 (Ammonia), IEC 60068-2-68(Sand)

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TW SOLAR

High Power Output
Low LCOE

Maximum Power
515W+

TWMNH

N-type Half-cell Bifacial Module (54)

54HD495-515W

Residential Rooftop

15 YEAR Materials Warranty

30 YEAR Power Warranty

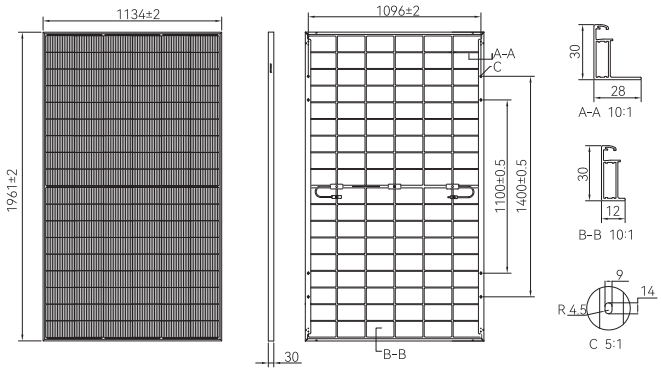
https://en.tongwei.cn/

Learn More

TWMNH N-type Half-cell Bifacial Module (54)

54HD495-515W

DRAWINGS (Unit: mm)



ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMNH-54HDXXX					
Maximum Power: Pmax [W]	495	500	505	510	515
Open Circuit Voltage: Voc [V]	39.88	40.06	40.24	40.42	40.60
Short Circuit Current: Isc [A]	15.86	15.89	15.92	15.95	15.98
Voltage at Maximum Power: Vmp [V]	33.45	33.70	33.94	34.19	34.43
Current at Maximum Power: Imp [A]	14.80	14.84	14.88	14.92	14.96
Module Efficiency: η [%]	22.3	22.5	22.7	22.9	23.2

* STC: Irradiance 1000W/m², Cell Temperature 25℃, Air Mass1.5

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	374	378	381	385	389
Open Circuit Voltage: Voc [V]	37.97	38.14	38.31	38.48	38.65
Short Circuit Current: Isc [A]	12.80	12.83	12.85	12.88	12.90
Voltage at Maximum Power: Vmp [V]	31.30	31.56	31.73	31.96	32.21
Current at Maximum Power: Imp [A]	11.95	11.98	12.01	12.05	12.08

* NMOT: Irradiance 800W/m², Ambient Temperature 20℃, Air Mass1.5, Wind Speed 1m/s

Electrical characteristics with different rear side power gain

5%	Maximum Power: Pmax [W]	519	525	530	535	540
	Module Efficiency: η [%]	23.3	23.6	23.8	24.1	24.3
15%	Maximum Power: Pmax [W]	569	575	580	586	592
	Module Efficiency: η [%]	25.6	25.9	26.1	26.4	26.6
25%	Maximum Power: Pmax [W]	618	625	631	637	643
	Module Efficiency: η [%]	27.8	28.1	28.4	28.6	28.9

TEMPERATURE RATING

Temperature Coefficient of Pmax	-0.28%/℃
Temperature Coefficient of Voc	-0.24%/℃
Temperature Coefficient of Isc	+0.046%/℃
NMOT	45±2℃

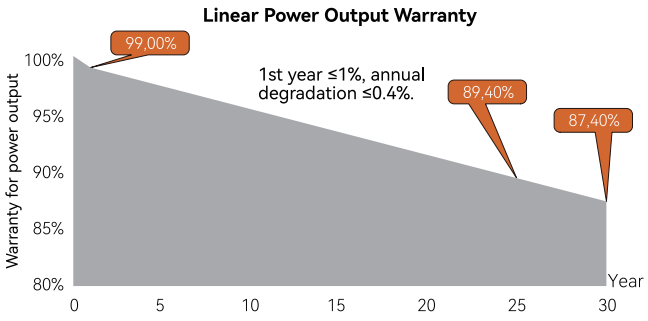
OPERATING PARAMETERS

Operating Temperature	-40℃~+85℃
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Output Tolerance	0~+3%
Bifaciality	80±5%

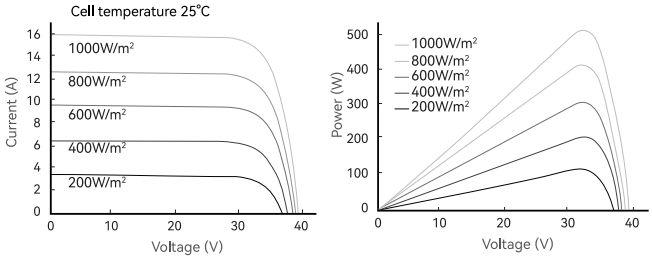
MECHANICAL PARAMETERS

Cell Type	TNC (N Type Monocrystalline Cell)
Cell Orientation	108[6×18]
Dimensions	1961±2×1134±2×30mm
Weight	27.0kg
Front Glass	2.0mm AR coated heat strengthened glass
Rear Glass	2.0mm heat strengthened glass
Frame	Anodized aluminum alloy frame
Junction Box	IP68, 3 diodes
Cable	4.0mm²
Cable length	±1200mm, length can be customized
Wind/Snow load	2400Pa/5400Pa
Packaging	36pcs per pallet, 864pcs per 40'HC

WARRANTY



I-V CURVE



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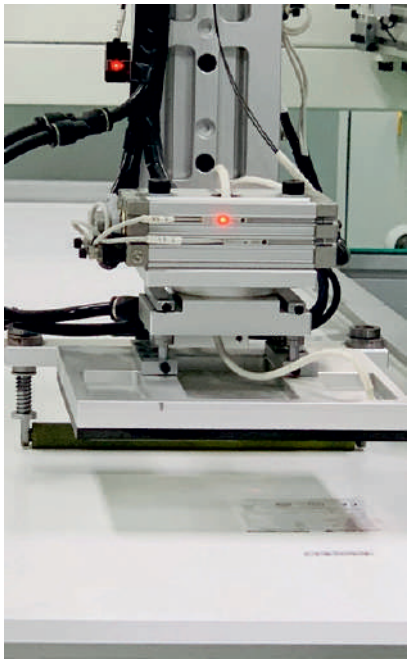
ulica solar
LEADING IN TECHNOLOGY

Fondata nell'agosto 2005, Ningbo Ulica Solar Co.,Ltd. è un produttore completamente integrato verticalmente di wafer solari, celle solari e moduli solari in Cina. Con un solido team di ricerca e sviluppo proveniente dalla migliore università in Cina, Ulica Solar è il primo produttore nel settore fotovoltaico ad aver lanciato moduli solari con l'innovativa tecnologia delle celle senza taglio, senza perdita di potenza di taglio e basse microcricche e prestazioni stabili.
Dal primo trimestre del 2020, Ulica Solar è stata costantemente quotata in Bloomberg Tier1 e accettata a livello globale dalle banche commerciali per il finanziamento di progetti.
Abbiamo anche acquisito una gamma completa di certificati internazionali, come CE, IEC61215 e IEC61730/TUV, ISO9001, ISO14001, ISO45001, UNI9177, CEC, WEEE, test PID, test di corrosione da nebbia salina, test di ammoniaca, ecc. Ulica Solar ha venduto in oltre 100 paesi e si è anche impegnata a diventare un'azienda leader a livello mondiale nel settore delle energie rinnovabili.

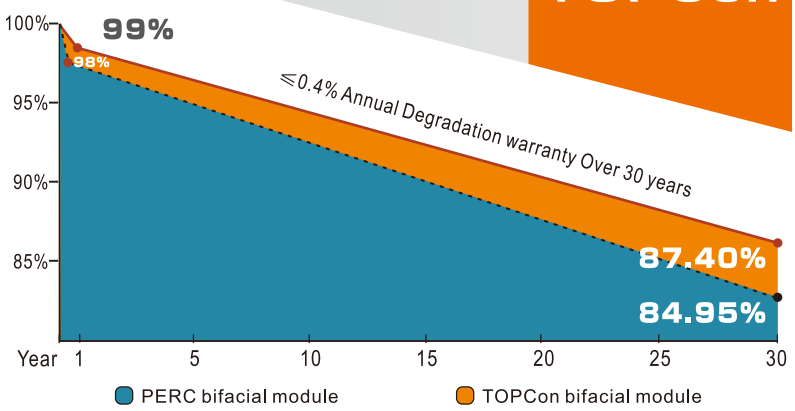


241	2+8	800+	7x24
241 PATENTS	2 R&D BASES 2 PRODUCTION BASES	R&D TEAM 800+	7 X 24 FULL CYCLE SERVICE

DOUBLE-GLASS BIFACIAL N-TYPE 445~455 Watt

ulica solar
LEADING IN TECHNOLOGY

TOPCon



Cutting Free Technology
Minimized micro-crack

Bifacial Mono Module
Capable of generating power at back side,at least 80% efficiency of the front side

Anti-PID(potentialinduced degradation)
Passed anti-PID test under 85°C damp heat 85% relative humidity for 192 hours

Lower LCOE
Lower shading and resistive loss
Lower temperature coefficient

Outstanding mechanical load resistance
2400 Pa wind load, 5400 Pa snow load

15
30

15-year product warranty

30-year linear power output

CE TÜV SÜD VDE CQC MCS CERTIFIED CEC Listed IAPI INMETRO

IEC 61215, IEC 61730
ISO 9001: 2015(Quality management systems)
ISO 14001: 2015 (Environmental management systems)
ISO45001: 2018 (Occupational health and safety)
UNI 9177 Ia CLASSE DI REAZIONE AL FUOCO:1

Add:No.238 Yunlin Middle Road, Wangchun Industrial District,Ningbo China
Tel:+86-574-28828939 Email:sales@ulsolar.com.cn
Fax:+86-574-28828997 Web:www.ulicasolar.com

TOPCon(N TYPE) 445~455Watt

ELECTRICAL SPECIFICATIONS

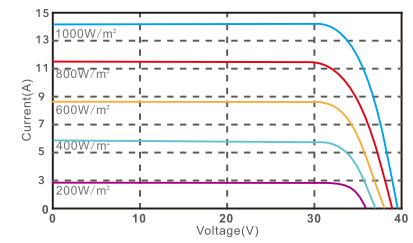
Module Type		UL-445M-108BDGN		UL-450M-108BDGN		UL-455M-108BDGN	
		STC*	NOCT*	STC*	NOCT*	STC*	NOCT*
Maximum Power (Pmax)	W	445	337	450	341	455	345
Maximum Power Voltage (Vmp)	V	33.02	30.38	33.22	30.56	33.42	30.75
Maximum Power Current (Imp)	A	13.48	11.10	13.55	11.16	13.61	11.21
Open-circuit Voltage (Voc)	V	39.58	36.02	39.78	36.20	39.98	36.38
Short-circuit Current (Isc)	A	14.30	11.53	14.38	11.60	14.45	11.66
Module Efficiency STC	%	22.27		22.52		22.77	
Operating Temperature		-40°C~85°C					
Maximum system voltage		DC1500V(IEC)					
Maximum series fuse rating		30A					
Power tolerance		0~+5Watt					
Temperature coefficients of Pmax		-0.29%/°C					
Temperature coefficients of Voc		-0.25%/°C					
Temperature coefficients of Isc		0.046%/°C					
Nominal operating cell temperature (NOCT)		43±2°C					

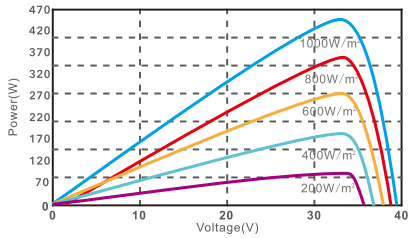
*STC : Cell temperature: 25°C, Irradiance: 1000 W/m²,Air mass: 1.5G

*NOCT : Air temperature: 20°C,Irradiance: 800 W/m²,Air mass:1.5G,Wind speed: 1 m/s

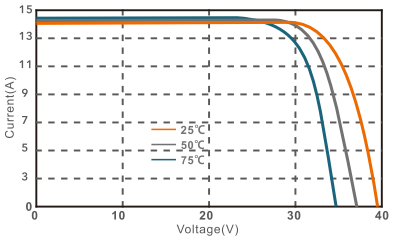
I-V CURVE

I-V characteristics at different irradiations (reference to 450W)



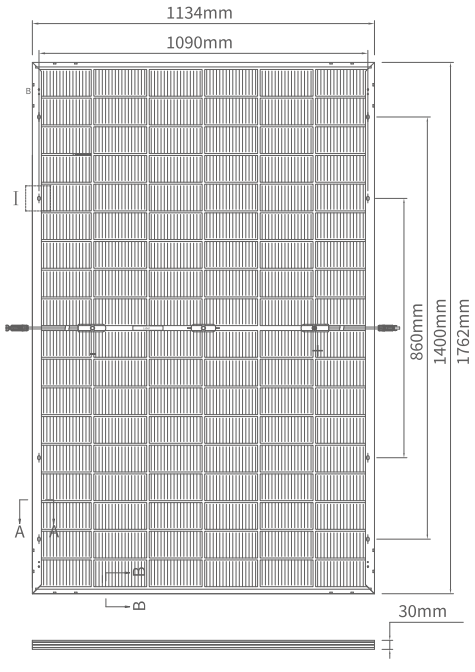


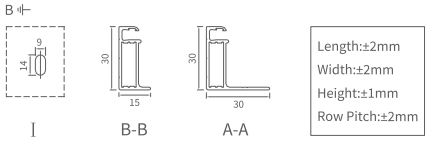
I-V characteristics at different temperature



SPECIFICATIONS

Cell Type	N type Mono-crystalline
No. of cells	108(6×9×2)
Dimensions	1762*1134*30mm
Weight	24.0kg
Glass	2.0mm+2.0mm,Anti-Reflection Coating,High Transmission,Low Iron,Tempered Glass
Junction Box	IP68,3diodes
Connector	MC4 Compatible
Cable Length (Including Connector)	4mm² Landscape:(+)1200/(-)1200mm or Customized Length
Packaging Configuration	Two Box=One Pallet 36pcs/Box,72pcs/Pallet,936pcs/40HQ Container





Electrical characteristics with different rear side power gain(reference to 450W front)

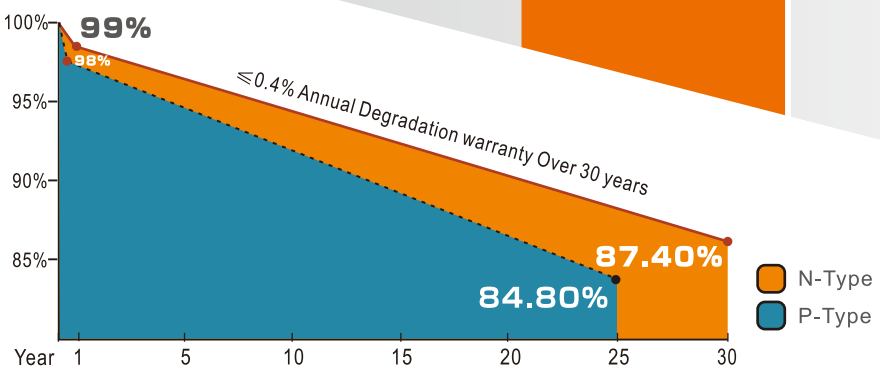
Pmax/W	Voc/V	Isc/A	Vmp/V	Imp/A	Pmax gain
450	39.78	14.38	33.22	13.55	0%
473	39.78	15.10	33.22	14.22	5%
495	39.78	15.82	33.22	14.90	10%
518	39.78	16.54	33.22	15.58	15%
540	39.78	17.26	33.22	16.26	20%
563	39.78	17.98	33.22	16.93	25%
585	39.78	18.69	33.22	17.61	30%

Version No.: UL-1762-108BDGNBBC-30-EN-V1.0

MONO-FACIAL MODULE
N-TYPE 445~455 Watt

ulica solar
LEADING IN TECHNOLOGY

TOPCon



Cutting Free Technology
Minimized micro-crack

Anti-PID(potentialinduced degradation)
Passed anti-PID test under 85°C damp heat
85% relative humidity for 192 hours

Great Durability against extreme conditions
Passed salt mist corrosion test.ammonia corrosion test
dust & sand test,fire test,all certified by TUV

Lower LCOE
Lower shading and resistive loss
Lower temperature coefficient

Outstanding mechanical load resistance
2400 Pa wind load, 5400 Pa snow load

15
30

15-year product warranty

30-year linear power output

IEC 61215, IEC 61730
ISO 9001: 2015(Quality management systems)
ISO 14001: 2015 (Environmental management systems)
ISO45001: 2018 (Occupational health and safety)
UNI 9177 Ia CLASSE DI REAZIONE AL FUOCO:1

Add:No.238 Yunlin Middle Road, Wangchun Industrial District,Ningbo China
Tel:+86-574-28828939 Email:sales@ulsolar.com.cn
Fax:+86-574-28828997 Web:www.ulicasolar.com

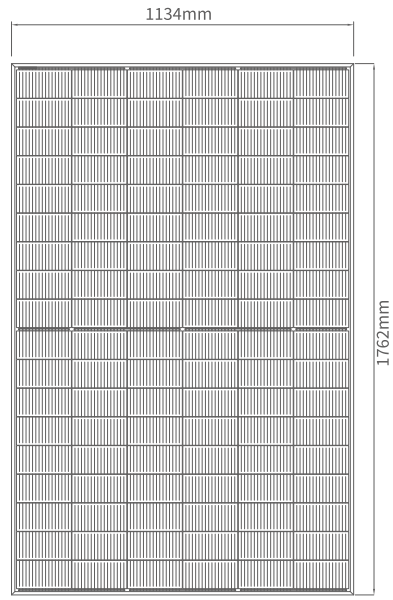
TOPCon(N TYPE) 445~455Watt

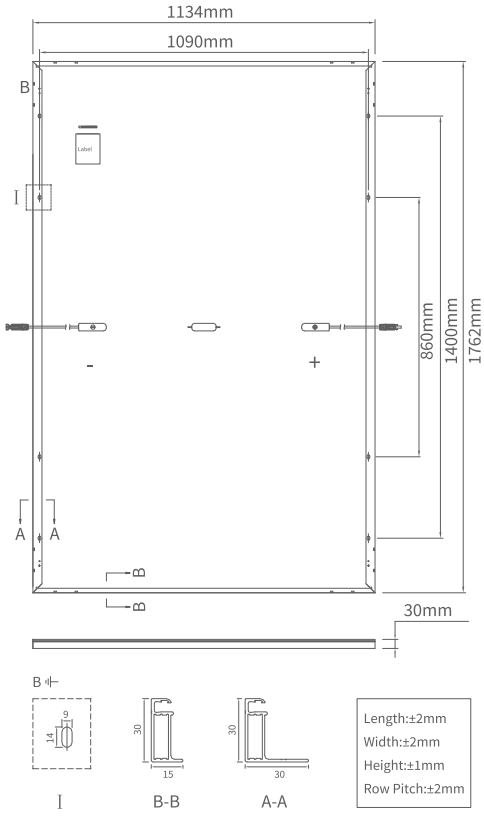
ELECTRICAL SPECIFICATIONS

Module Type		UL-445M-108BHVN		UL-450M-108BHVN		UL-455M-108BHVN	
		STC*	NOCT*	STC*	NOCT*	STC*	NOCT*
Maximum Power (Pmax)	W	445	337	450	341	455	345
Maximum Power Voltage (Vmp)	V	33.02	30.38	33.22	30.56	33.42	30.75
Maximum Power Current (Imp)	A	13.48	11.10	13.55	11.16	13.61	11.21
Open-circuit Voltage (Voc)	V	39.58	36.02	39.78	36.20	39.98	36.38
Short-circuit Current (Isc)	A	14.30	11.53	14.38	11.60	14.45	11.66
Module Efficiency STC	%	22.27		22.52		22.77	
Operating Temperature		-40°C~85°C					
Maximum system voltage		DC1500V(IEC)					
Maximum series fuse rating		25A					
Power tolerance		0~+5Watt					
Temperature coefficients of Pmax		-0.29%/°C					
Temperature coefficients of Voc		-0.25%/°C					
Temperature coefficients of Isc		0.046%/°C					
Nominal operating cell temperature (NOCT)		43±2°C					

*STC : Cell temperature: 25°C, Irradiance: 1000 W/m², Air mass: 1.5G

*NOCT : Air temperature: 20°C, Irradiance: 800 W/m², Air mass: 1.5G, Wind speed: 1 m/s



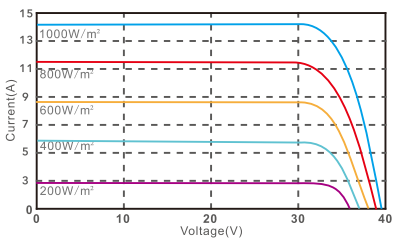


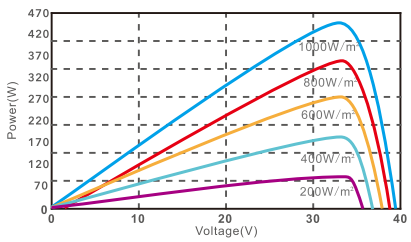
SPECIFICATIONS

Cell Type	N type Mono-crystalline
No. of cells	108(6×9×2)
Dimensions	1762*1134*30mm
Weight	21.0kg
Front Glass	3.2mm,Anti-Reflection Coating,High Transmission,Low Iron,Tempered Glass
Junction Box	IP68,3diodes
Connector	MC4 Compatible
Cable Length (Including Connector)	4mm² Landscape:(+)1200/(-)1200mm or Customized Length
Packaging Configuration	Two Box=One Pallet 36pcs/Box,72pcs/Pallet,936pcs/40HQ Container

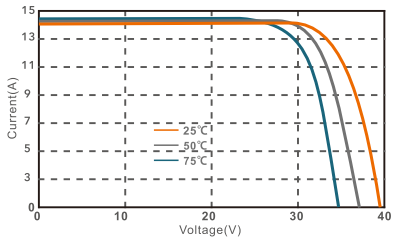
I-V CURVE

I-V characteristics at different irradiations (reference to 450 W)





I-V characteristics at different temperature



Specifications included in this datasheet are subject to change without noctice.

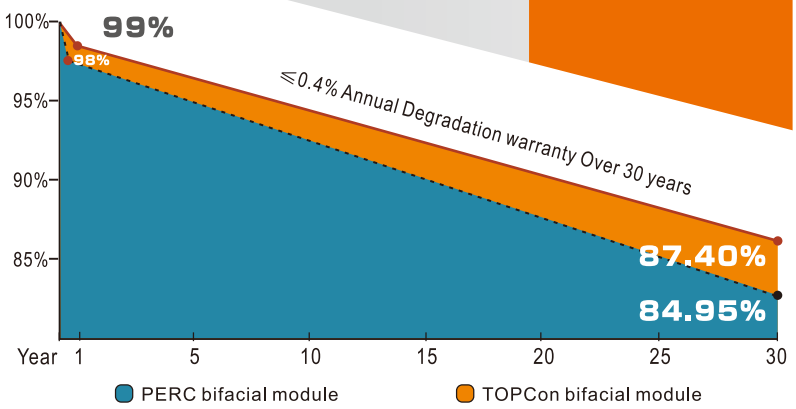
Ulica Solar reserves the right of final interpretation.

Version No.: UL-1762-108BHVNBBC-30-EN-V1.0

DOUBLE-GLASS BIFACIAL N-TYPE 495~505 Watt

ulica solar
LEADING IN TECHNOLOGY

TOPCON



Cutting Free Technology
Minimized micro-crack

Bifacial Mono Module
Capable of generating power at back side,at least 80% efficiency of the front side

PID FREE

Anti-PID(potentialinduced degradation)
Passed anti-PID test under 85°C damp heat 85% relative humidity for 192 hours

Lower LCOE
Lower shading and resistive loss
Lower temperature coefficient

Outstanding mechanical load resistance
2400 Pa wind load, 5400 Pa snow load

15
30

15-year product warranty

30-year linear power output

CE TÜV SÜD WEEE SOLAR PV CQC MCS CERTIFIED CEC Listed IAPI INMETRO

IEC 61215, IEC 61730
ISO 9001: 2015(Quality management systems)
ISO 14001: 2015 (Environmental management systems)
ISO45001: 2018 (Occupational health and safety)
UNI 9177 Ia CLASSE DI REAZIONE AL FUOCO:1

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Fax:+86-574-28828997 Web:www.ulicasolar.com

TOPCon(N TYPE)495~505Watt

ELECTRICAL SPECIFICATIONS

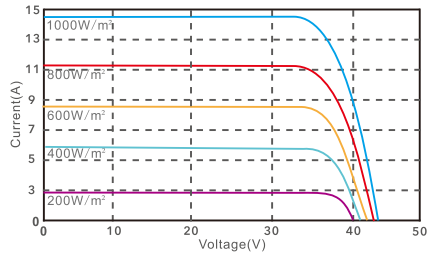
Module Type		UL-495M-120BDGN		UL-500M-120BDGN		UL-505M-120BDGN	
		STC*	NOCT*	STC*	NOCT*	STC*	NOCT*
Maximum Power (Pmax)	W	495	375	500	379	505	383
Maximum Power Voltage (Vmp)	V	36.85	33.90	37.02	34.06	37.18	34.21
Maximum Power Current (Imp)	A	13.43	11.06	13.51	11.13	13.58	11.19
Open-circuit Voltage (Voc)	V	43.52	39.60	43.78	39.84	43.98	40.02
Short-circuit Current (Isc)	A	14.43	11.64	14.48	11.68	14.54	11.73
Module Efficiency STC	%	22.36		22.59		22.81	
Operating Temperature		-40°C~85°C					
Maximum system voltage		DC1500V(IEC)					
Maximum series fuse rating		30A					
Power tolerance		0~+5Watt					
Temperature coefficients of Pmax		-0.29%/°C					
Temperature coefficients of Voc		-0.25%/°C					
Temperature coefficients of Isc		0.046%/°C					
Nominal operating cell temperature (NOCT)		43±2°C					

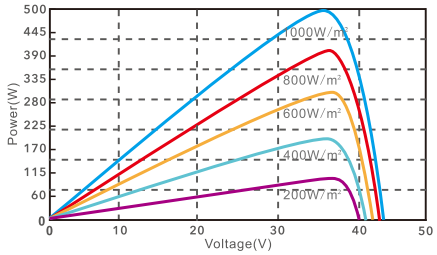
*STC : Cell temperature: 25°C, Irradiance: 1000 W/m²,Air mass: 1.5G

*NOCT : Air temperature: 20°C,Irradiance: 800 W/m²,Air mass:1.5G,Wind speed: 1 m/s

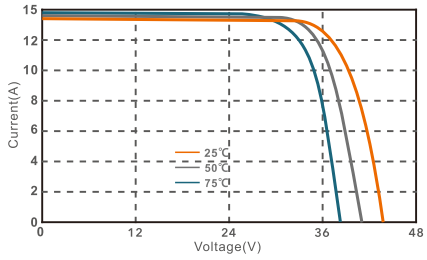
I-V CURVE

I-V characteristics at different irradiations (reference to 500 W)



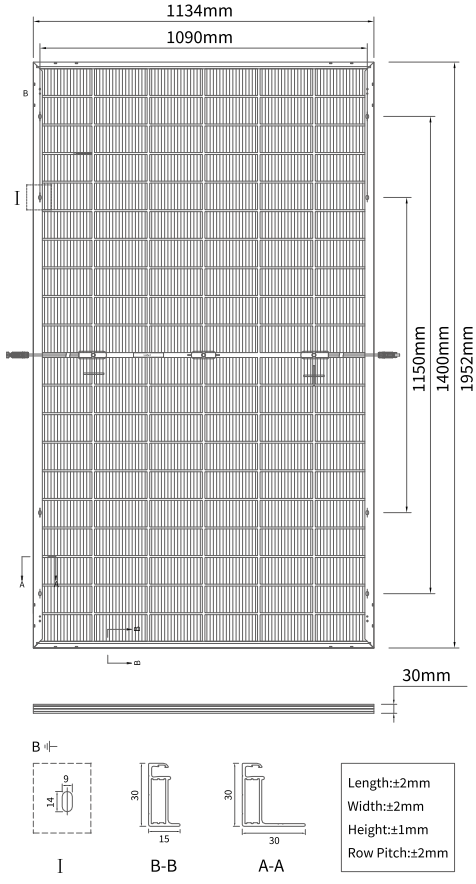


I-V characteristics at different temperature



SPECIFICATIONS

Cell Type	N type Mono-crystalline
No. of cells	120(6×10×2)
Dimensions	1952*1134*30mm
Weight	26.5kg
Glass	2.0mm+2.0mm,Anti-Reflection Coating,High Transmission,Low Iron,Tempered Glass
Junction Box	IP68,3diodes
Connector	MC4 Compatible
Cable Length (Including Connector)	4mm² Landscape:(+)1200/(-)1200mm or Customized Length
Packaging Configuration	Two Box=One Pallet 36pcs/Box,72pcs/Pallet,864pcs/40HQ Container



Electrical characteristics with different rear side power gain(reference to 500 W front)

Pmax/W	Voc/V	Isc/A	Vmp/V	Imp/A	Pmax gain
500	43.78	14.48	37.02	13.51	0%
525	43.78	15.20	37.02	14.18	5%
550	43.78	15.93	37.02	14.86	10%
575	43.78	16.65	37.02	15.53	15%
600	43.78	17.38	37.02	16.21	20%
625	43.78	18.10	37.02	16.88	25%
650	43.78	18.82	37.02	17.56	30%

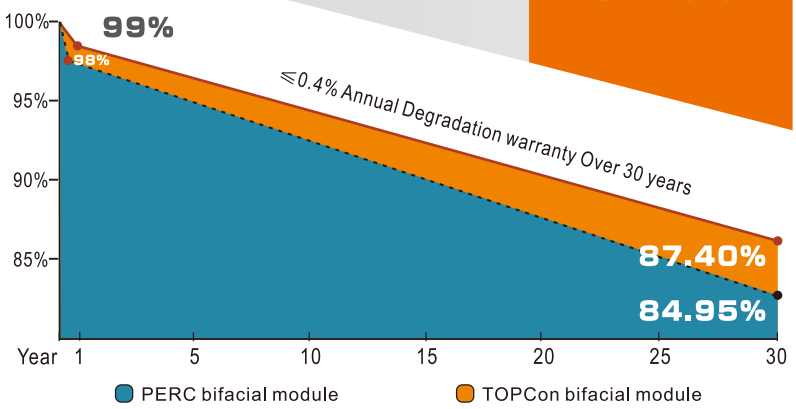
Specifications included in this datasheet are subject to change without noctice.

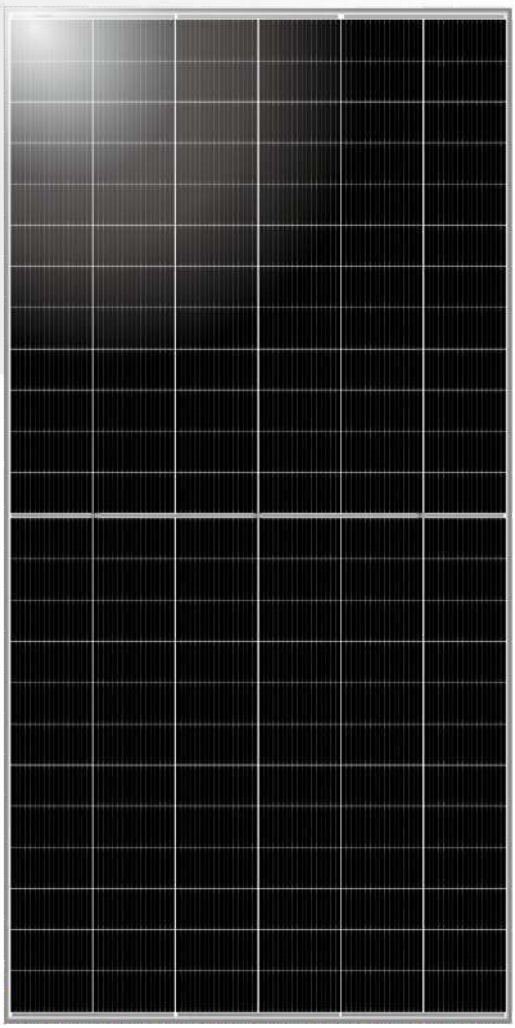
Ulica Solar reserves the right of final interpretation.

Version No.: UL-1952-120BDGNBBC-30-EN-V1.0

DOUBLE-GLASS BIFACIAL N-TYPE 575~590Watt

ulica solar
LEADING IN TECHNOLOGY





Bifacial Mono Module
Capable of generating power at back side,at least 80% efficiency of the front side

Anti-PID(potentialinduced degradation)
Passed anti-PID test under 85℃ damp heat 85% relative humidity for 192 hours

Great Durability against extreme conditions
Passed salt mist corrosion test.ammonia corrosion test dust & sand test,fire test,all certified by TUV

Lower LCOE
Lower shading and resistive loss
Lower temperature coefficient

Outstanding mechanical load resistance
2400 Pa wind load, 5400 Pa snow load

15
30

15-year product warranty

30-year linear power output

IEC 61215, IEC 61730
ISO 9001: 2015(Quality management systems)
ISO 14001: 2015 (Environmental management systems)
ISO45001: 2018 (Occupational health and safety)
UNI 9177 Ia CLASSE DI REAZIONE AL FUOCO:1

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Fax:+86-574-28828997 Web:www.ulicasolar.com

TOPCon(N TYPE)575~590Watt

ELECTRICAL SPECIFICATIONS

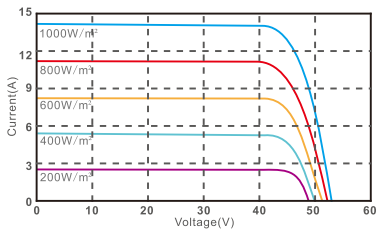
Module Type		UL-575M-144ADGN		UL-580M-144ADGN		UL-585M-144ADGN		UL-590M-144ADGN	
		STC*	NOCT*	STC*	NOCT*	STC*	NOCT*	STC*	NOCT*
Maximum Power (Pmax)	W	575	436	580	440	585	443	590	447
Maximum Power Voltage (Vmp)	V	43.85	40.34	44.02	40.50	44.17	40.64	44.35	40.80
Maximum Power Current (Imp)	A	13.11	10.80	13.18	10.85	13.24	10.91	13.30	10.96
Open-circuit Voltage (Voc)	V	52.32	47.61	52.52	47.79	52.72	47.98	52.82	48.07
Short-circuit Current (Isc)	A	13.89	11.20	13.95	11.25	14.01	11.30	14.02	11.31
Module Efficiency STC	%	22.26		22.45		22.65		22.84	
Operating Temperature	-40℃~85℃								
Maximum system voltage	DC1500V(IEC)								
Maximum series fuse rating	30A								
Power tolerance	0~+5Watt								
Temperature coefficients of Pmax	-0.29%/℃								
Temperature coefficients of Voc	-0.25%/℃								
Temperature coefficients of Isc	0.046%/℃								
Nominal operating cell temperature (NOCT)	43±2℃								

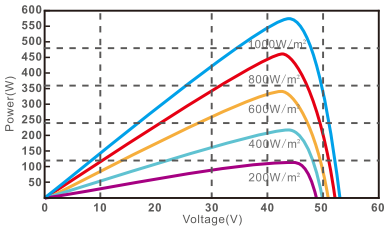
*STC : Cell temperature: 25°C, Irradiance: 1000 W/m², Air mass: 1.5G

*NOCT : Air temperature: 20°C, Irradiance: 800 W/m², Air mass:1.5G, Wind speed: 1 m/s

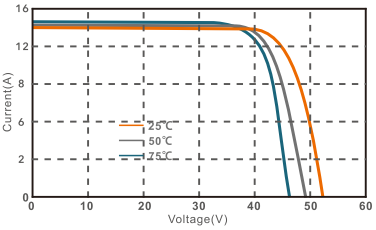
I-V CURVE

I-V characteristics at different irradiations (reference to 580 W)



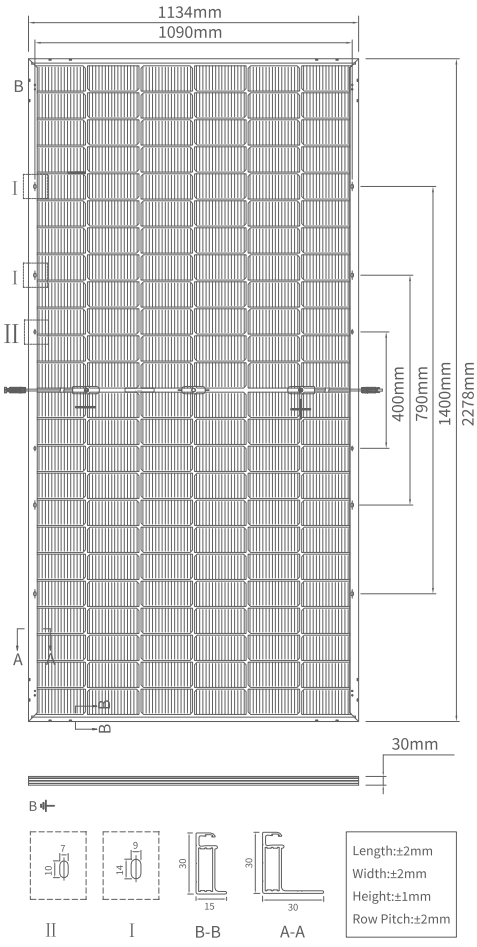


I-V characteristics at different temperature



SPECIFICATIONS

Cell Type	N type Mono-crystalline
No. of cells	144(6×12×2)
Dimensions	2278*1134*30mm
Weight	30.6kg
Glass	2.0mm+2.0mm,Anti-Reflection Coating,High Transmission,Low Iron,Tempered Glass
Junction Box	IP68,3diodes
Connector	MC4 Compatible
Cable Length (including Connector)	4mm² Landscape: (+) 1400mm/(-)1400 mm or Customized Length
Packaging Configuration	Two Box=One Pallet 36pcs/Box,72pcs/Pallet,720pcs/40HQ Container



Electrical characteristics with different rear side power gain(reference to 580 W front)

Pmax/W	Voc/V	Isc/A	Vmp/V	Imp/A	Pmax gain
580	52.52	13.95	44.02	13.18	0%
609	52.52	14.65	44.02	13.83	5%
638	52.52	15.35	44.02	14.49	10%
667	52.52	16.04	44.02	15.15	15%
696	52.52	16.74	44.02	15.81	20%
725	52.52	17.44	44.02	16.47	25%
754	52.52	18.14	44.02	17.13	30%

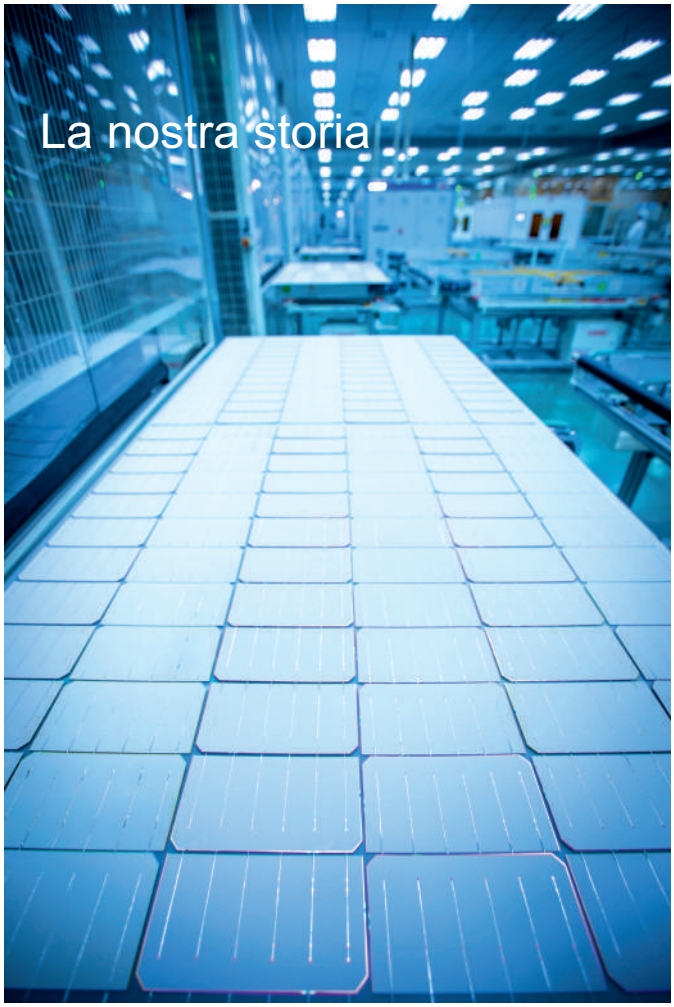
Version No.: UL-2278-144ADGNBBC-30-EN-V1.0

LONGi Solar

Futuro green

Fondata nel 2000, LONGi Green Energy Technology Co., Ltd. (LONGi) si impegna a essere l'azienda di tecnologia solare più apprezzata al mondo.

Con la missione di "Costruire un mondo verde utilizzando l'energia solare" e un'immagine della marca come "Solida, affidabile e leader nella tecnologia", LONGi sviluppa soluzioni per grandi impianti di energia, per diversi settori industriali e per famiglie ugualmente votate all'innovazione.
Col tempo, forniremo anche soluzioni di "Energia verde + Idrogeno verde", per lo sviluppo globale a zero emissioni di carbonio.



Solida e affidabile

Reddito operativo	Utile netto attribuibile alla capogruppo	Fortune Cina 500
$ 18,28	**$ 1,51**	**177**
< miliardi >	< miliardi >	< Classifica >

*Dati aggiornati alla fine del 2023

Hi-MO 6
Explorer

LR5-54HTH
415~435M

- Adatto a progetti distribuiti
- Stile semplice, moderno, unico
- Miglioramento delle prestazioni di generazione di energia durante l'intero ciclo di vita
- Alta qualità per garantire l'affidabilità dei moduli a lungo termine

15 anni di garanzia di prodotto

25 anni di garanzia di potenza con decadimento lineare

Sistema Completo e Certificazioni di Prodotto

IEC 61215, IEC61730, UL1703
ISO9001: 2015: Sistema di Gestione della Qualità ISO
ISO14001: 2015: Sistema di Gestione Ambientale ISO
ISO45001: 2018: Salute e Sicurezza sul Lavoro
IEC62941: Linee Guida per la Qualifica della Progettazione del Modulo e l'Omologazione

LONGi

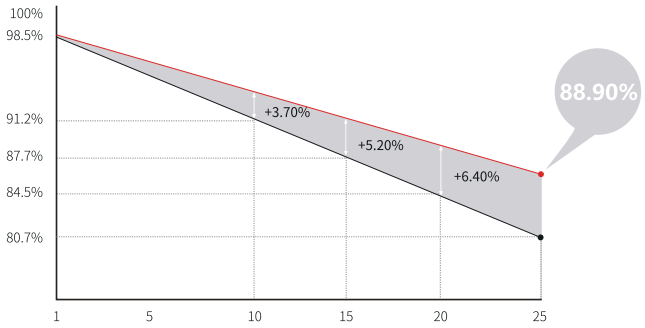
Hi-MO 6

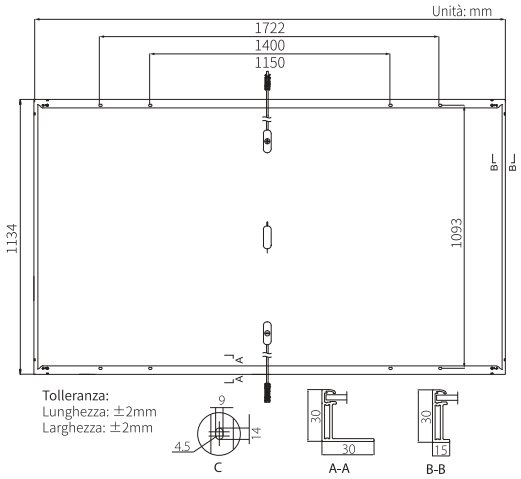
LR5-54HTH 415~435M

22.3%	0~3%	<1.5%	0.40%
MASSIMA EFFICIENZA DEL MODULO	TOLLERANZA DI POTENZA	DEGRADO DELLA POTENZA AL PRIMO ANNO	DEGRADO DELLA POTENZA DAL 2° al 25° ANNO

Valore aggiunto

Garanzia sulla potenza di 25 anni





Parametri Meccanici

Orientamento Celle	108 (6×18)
Scatola di Giunzione	IP68, 3 diody
Cavo di uscita	4mm², ±1200mm la lunghezza può essere personalizzata
Vetro	Vetro singolo, 3.2mm vetro temperato rivestito
Telaio	Telaio in lega di alluminio anodizzato
Peso	20.8kg
Dimensioni	1722×1134×30mm
Confezione	36 pz a pallet / 216 pz a 20' GP / 936 pz a 40' HC

Caratteristiche Elettriche

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Tolleranza di prova per Pmax: ± 3%

Modello	LR5-54HTH-415M		LR5-54HTH-420M		LR5-54HTH-425M		LR5-54HTH-430M		LR5-54HTH-435M	
Condizioni di Prova	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Potenza Massima (Pmax / W)	415	310	420	314	425	318	430	321	435	325
Tensione Circuito Aperto (Voc / V)	38.53	36.18	38.73	36.36	38.93	36.55	39.13	36.74	39.33	36.93
Corrente Corto Circuito (Isc / A)	13.92	11.24	14.00	11.31	14.07	11.36	14.15	11.43	14.22	11.49
Tensione alla Massima Potenza (Vmp / V)	32.24	29.42	32.44	29.60	32.64	29.78	32.84	29.97	33.04	30.15
Corrente alla Massima Potenza (Imp / A)	12.88	10.54	12.95	10.60	13.03	10.67	13.10	10.72	13.17	10.78
Efficienza del Modulo (%)	21.3		21.5		21.8		22.0		22.3	

Parametri Operativi

Temperatura di funzionamento	-40°C ~ +85°C
Tolleranza dell'Uscita di Potenza	0 ~ 3%
Tolleranza di Voc e Isc	±3%
Tensione Massima di Sistema	DC1500V (IEC/UL)
Valore Massimo di Serie Fusibili	25A
Temperatura operativa nominale della cella	45±2°C
Classe di Sicurezza	Class II
Classificazione Resistenza al fuoco	UL tipo 1 o 2 IEC Class C

Caricamento Meccanico

Carico Statico Massimo sul Lato Anteriore	5400Pa
Carico Statico Massimo sul Lato Posteriore	2400Pa
Test di resistenza alla grandine	Grandine di 25 mm alla velocità di 23 m/s

Valutazioni di Temperatura (STC)

Coefficiente di Temperatura di Isc	+0.050%/°C
Coefficiente di Temperatura di Voc	-0.230%/°C
Coefficiente di Temperatura di Pmax	-0.290%/°C

LONGi

No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China.
Web: www.longi.com

(20230201V17) DG

Hi-MO 6
Explorer

LR5-54HTB
410~430M

- Adatto a progetti distribuiti
- Nero puro, massima eleganza
- Miglioramento delle prestazioni di generazione di energia durante l'intero ciclo di vita
- Alta qualità per garantire l'affidabilità dei moduli a lungo termine

15 anni di garanzia di prodotto

25 anni di garanzia di potenza con decadimento lineare

Sistema Completo e Certificazioni di Prodotto

IEC 61215, IEC61730, UL1703
ISO9001: 2015: Sistema di Gestione della Qualità ISO
ISO14001: 2015: Sistema di Gestione Ambientale ISO
ISO45001: 2018: Salute e Sicurezza sul Lavoro
IEC62941: Linee Guida per la Qualifica della Progettazione del Modulo e l'Omologazione

LONGi

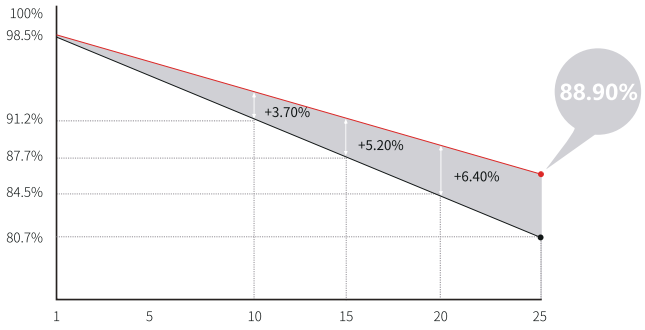
Hi-MO 6

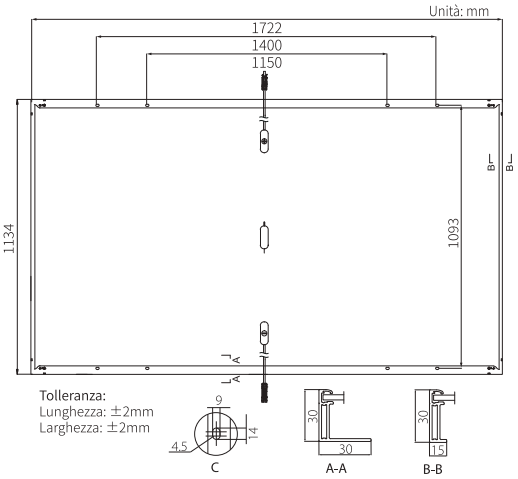
LR5-54HTB 410~430M

22.0%	0~3%	<1.5%	0.40%
MASSIMA EFFICIENZA DEL MODULO	TOLLERANZA DI POTENZA	DEGRADO DELLA POTENZA AL PRIMO ANNO	DEGRADO DELLA POTENZA DAL 2° al 25° ANNO

Valore aggiunto

Garanzia sulla potenza di 25 anni





Parametri Meccanici

Orientamento Celle	108 (6×18)
Scatola di Giunzione	IP68, 3 diody
Cavo di uscita	4mm², ±1200mm la lunghezza può essere personalizzata
Vetro	Vetro singolo, 3.2mm vetro temperato rivestito
Telaio	Telaio in lega di alluminio anodizzato
Peso	20.8kg
Dimensioni	1722×1134×30mm
Confezione	36 pz a pallet / 216 pz a 20' GP / 936 pz a 40' HC

Caratteristiche Elettriche

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s

Tolleranza di prova per Pmax: ± 3%

Modello	LR5-54HTB-410M		LR5-54HTB-415M		LR5-54HTB-420M		LR5-54HTB-425M		LR5-54HTB-430M	
Condizioni di Prova	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Potenza Massima (Pmax / W)	410	306	415	310	420	314	425	318	430	321
Tensione Circuito Aperto (Voc / V)	38.63	36.27	38.83	36.46	39.03	36.65	39.23	36.83	39.43	37.02
Corrente Corto Circuito (Isc / A)	13.70	11.07	13.78	11.13	13.85	11.19	13.93	11.25	14.00	11.31
Tensione alla Massima Potenza (Vmp / V)	32.36	29.53	32.56	29.71	32.76	29.89	32.96	30.08	33.16	30.26
Corrente alla Massima Potenza (Imp / A)	12.67	10.37	12.75	10.44	12.83	10.50	12.90	10.56	12.97	10.62
Efficienza del Modulo (%)	21.0		21.3		21.5		21.8		22.0	

Parametri Operativi

Temperatura di funzionamento	-40°C ~ +85°C
Tolleranza dell'Uscita di Potenza	0 ~ 3%
Tolleranza di Voc e Isc	±3%
Tensione Massima di Sistema	DC1500V (IEC/UL)
Valore Massimo di Serie Fusibili	25A
Temperatura operativa nominale della cella	45±2°C
Classe di Sicurezza	Class II
Classificazione Resistenza al fuoco	UL tipo 1 o 2 IEC Class C

Caricamento Meccanico

Carico Statico Massimo sul Lato Anteriore	5400Pa
Carico Statico Massimo sul Lato Posteriore	2400Pa
Test di resistenza alla grandine	Grandine di 25 mm alla velocità di 23 m/s

Valutazioni di Temperatura (STC)

Coefficiente di Temperatura di Isc	+0.050%/°C
Coefficiente di Temperatura di Voc	-0.230%/°C
Coefficiente di Temperatura di Pmax	-0.290%/°C

LONGi

No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China.
Web: www.longi.com

(20230201V17) DG

Hi-MO X6 max Explorer

LR7-54HTH

455~465M

- Suitable for Distribution Market
- Simple design embodies modern style
- Highest efficiency with the best energy generation performance
- Better product warranty, better service

15 15-year Warranty for Materials and Processing

25 25-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730

ISO9001:2015: ISO Quality Management System

ISO14001: 2015: ISO Environment Management System

ISO45001: 2018: Occupational Health and Safety

IEC62941: Guideline for module design qualification and type approval

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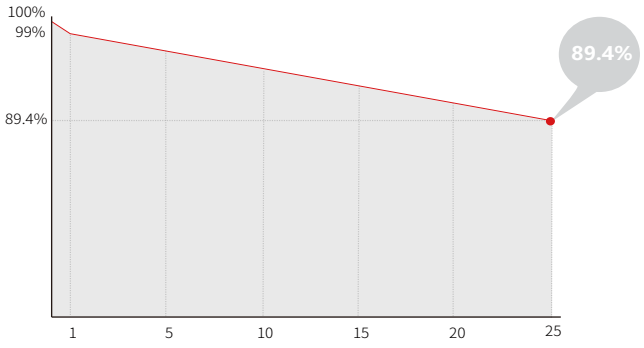
Hi-MO X6 Max Explorer

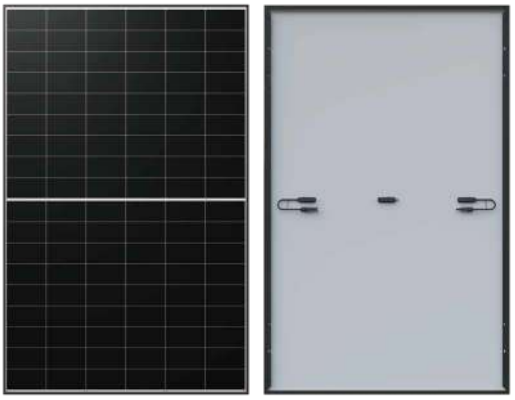
LR7-54HTH 455~465M

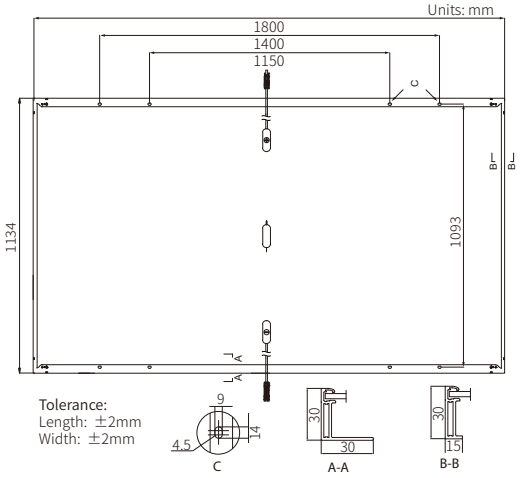
22.8%	0~3%	<1%	0.40%
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-25 POWER DEGRADATION

Additional Value

25-Year Power Warranty







Mechanical Parameters

Cell Orientation	108 (6×18)
Junction Box	IP68
Output Cable	4mm², ±1200mm length can be customized
Glass	Single glass, 3.2mm coated tempered glass
Frame	Anodized aluminum alloy frame
Weight	21.6kg
Dimension	1800×1134×30mm
Packaging	36pcs per pallet / 216pcs per 20' GP / 864pcs per 40' HC

Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR7-54HTH-455M		LR7-54HTH-460M		LR7-54HTH-465M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	455	340.0	460	343.7	465	347.4
Open Circuit Voltage (Voc/V)	39.15	36.76	39.35	36.95	39.55	37.13
Short Circuit Current (Isc/A)	14.79	11.95	14.86	12.00	14.93	12.06
Voltage at Maximum Power (Vmp/V)	32.98	30.09	33.19	30.29	33.39	30.47
Current at Maximum Power (Imp/A)	13.80	11.30	13.86	11.35	13.93	11.41
Module Efficiency(%)	22.3		22.5		22.8	

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	25A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Fire Rating	IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.230%/°C
Temperature Coefficient of Pmax	-0.280%/°C

LONGi

Hi-MO X6 Explorer

LR5-72HTH
565~585M

- Suitable for Distribution Market
- Simple design embodies modern style
- Better energy generation performance
- High-quality module guarantees long-term reliability

15 15-year Warranty for Materials and Processing

25 25-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730

ISO9001:2015: ISO Quality Management System

ISO14001: 2015: ISO Environment Management System

ISO45001: 2018: Occupational Health and Safety

IEC62941: Guideline for module design qualification and type approval

LONGi

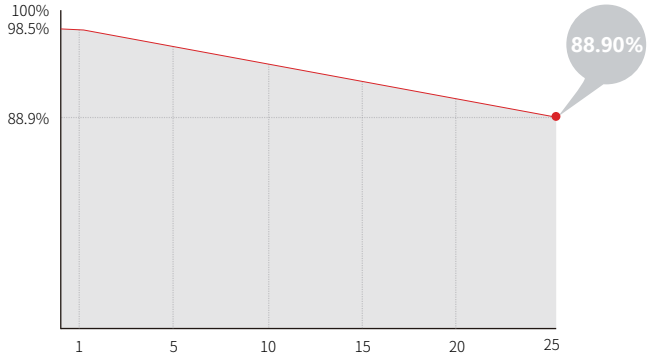
Hi-MO X6 Explorer

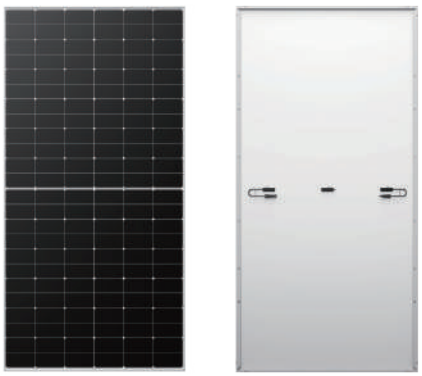
LR5-72HTH 565~585M

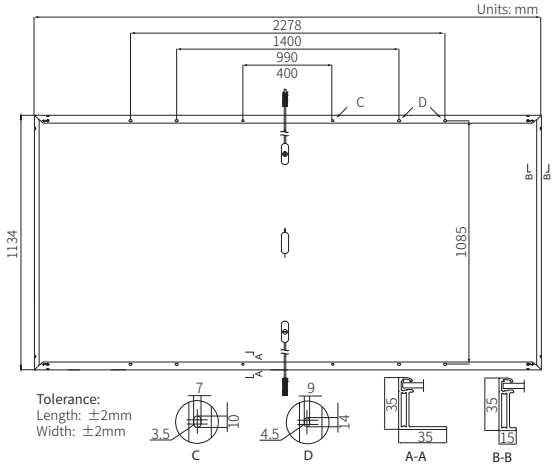
22.6%	0~3%	<1.5%	0.40%
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-25 POWER DEGRADATION

Additional Value

25-Year Power Warranty







Mechanical Parameters

Cell Orientation	144 (6×24)
Junction Box	IP68
Output Cable	4mm², +400, -200mm/±1400mm length can be customized
Glass	Single glass, 3.2mm coated tempered glass
Frame	Anodized aluminum alloy frame
Weight	27.5kg
Dimension	2278×1134×35mm
Packaging	31pcs per pallet / 155pcs per 20' GP / 620pcs per 40' HC

Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR5-72HTH-565M		LR5-72HTH-570M		LR5-72HTH-575M		LR5-72HTH-580M		LR5-72HTH-585M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	565	422	570	426	575	430	580	433	585	437
Open Circuit Voltage (Voc/V)	51.76	48.60	51.91	48.74	52.06	48.88	52.21	49.02	52.36	49.16
Short Circuit Current (Isc/A)	14.01	11.31	14.07	11.36	14.14	11.42	14.20	11.47	14.27	11.52
Voltage at Maximum Power (Vmp/V)	43.61	39.79	43.76	39.93	43.91	40.07	44.06	40.20	44.21	40.34
Current at Maximum Power (Imp/A)	12.96	10.61	13.03	10.68	13.10	10.73	13.17	10.78	13.24	10.84
Module Efficiency(%)	21.9		22.1		22.3		22.5		22.6	

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Voc and Isc Tolerance	±3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	25A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Fire Rating	UL type 1 or 2 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.230%/°C
Temperature Coefficient of Pmax	-0.290%/°C

LONGi

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Web: www.longi.com

Hi-MO 7

LR8-66HGD
595~625M

- La tecnologia avanzata delle celle HPDC garantisce un'efficienza superiore del modulo e una maggiore potenza
- Elevata bifaccialità e eccellente coefficiente di temperatura di potenza garantiscono un alto rendimento energetico
- La qualità LONGi garantisce prestazioni durature

12 Garanzia di 12 anni per materiali e lavorazione

30 Garanzia di 30 anni per una potenza di uscita extra lineare

Certificazioni complete di sistema e di prodotto

IEC 61215, IEC 61730, UL 61730

ISO9001:2015: Sistema di gestione della qualità ISO

ISO14001: 2015: Sistema di gestione ambientale ISO

ISO45001: 2018: Salute e sicurezza sul lavoro

IEC62941: Linee guida per la qualificazione della progettazione e l'omologazione dei moduli

LONGi

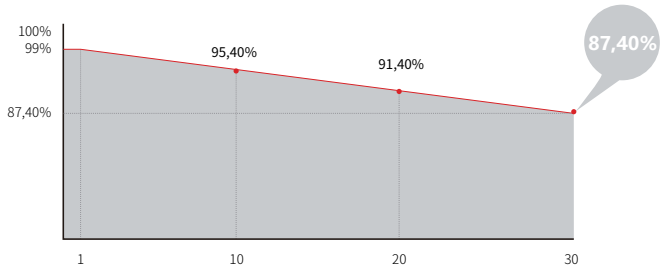
Hi-MO 7

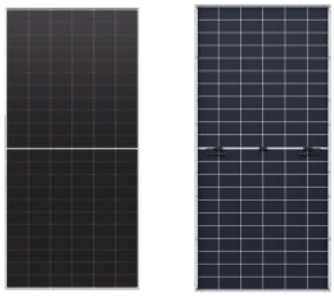
LR8-66HGD 595~625M

23,1%	0~3%	<1%	0,4%	MEZZA-CELLA
EFFICIENZA MODULO MASSIMA	TOLLERANZA DI POTENZA	DEGRADAZIONE POTENZA PRIMO ANNO	DEGRADAZIONE POTENZA ANNI 2-30	Temperatura operativa inferiore

Valore aggiuntivo

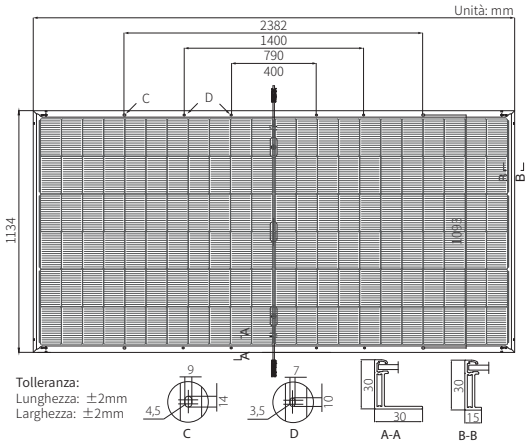
Garanzia potenza 30 anni





Parametri meccanici

Orientamento celle	132 (6×22)
Scatola di derivazione	IP68, tre diodi
Cavo di uscita	4mm², +400, -200mm/±1400mm lunghezza personalizzabile
Vetro	Doppio vetro 2+2 mm rinforzato termicamente
Telaio	Telaio in lega di alluminio anodizzato
Peso	33,5 kg
Dimensioni	2382×1134×30mm
Imballaggio	36 pz. per pallet / 144 pz. per 20' GP / 648 pz. per 40' HC



Caratteristiche elettriche

STC : AM 1,5 1000 W/m² 25°C NOCT : AM 1,5 800 W/m² 20°C 1.0 m/s

Incertezza test per Pmax: ±3%

Tipo di modulo	LR8-66HGD-595M		LR8-66HGD-600M		LR8-66HGD-605M		LR8-66HGD-610M		LR8-66HGD-615M		LR8-66HGD-620M		LR8-66HGD-625M	
Condizione di test	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Potenza massima (Pmax/W)	595	452,9	600	456,7	605	460,5	610	464,3	615	468,1	620	471,9	625	475,8
Tensione a circuito aperto (Voc/V)	47,78	45,41	47,98	45,60	48,18	45,79	48,38	45,98	48,58	46,17	48,78	46,36	48,98	46,55
Corrente di corto circuito (Isc/A)	15,80	12,69	15,85	12,73	15,90	12,77	15,95	12,81	16,00	12,85	16,05	12,89	16,10	12,93
Tensione alla massima potenza (Vmp/V)	39,91	37,93	40,11	38,12	40,31	38,31	40,51	38,50	40,71	38,69	40,91	38,88	41,11	39,07
Corrente alla massima potenza (Imp/A)	14,91	11,94	14,96	11,98	15,01	12,02	15,06	12,06	15,11	12,10	15,16	12,14	15,21	12,18
Efficienza modulo (%)	22,0		22,2		22,4		22,6		22,8		23,0		23,1	

Caratteristiche elettriche con guadagno di potenza sul lato posteriore diverso (riferimento a 610 W anteriore)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
641	48,38	16,75	40,51	15,81	5%
671	48,38	17,55	40,51	16,57	10%
703	48,48	18,34	40,61	17,32	15%
734	48,48	19,14	40,61	18,07	20%
764	48,48	19,94	40,61	18,82	25%

Parameteri operativi

Temperatura operativa	-40°C ~ +85°C
Tolleranza di potenza in uscita	0 ~ 3%
Tensione massima del sistema	DC1500V (IEC/UL)
Valore massimo del fusibile di serie	35A
Temperatura nominale di esercizio della cella	45±2°C
Classe di protezione	Classe II
Bifaccialità	80±5%
Classificazione di resistenza al fuoco	Tipo UL 29 Classe C IEC

Carico meccanico

Carico statico massimo lato anteriore	5400Pa
Carico statico massimo lato posteriore	2400Pa
Test grandine	25mm di grandine alla velocità 23m/s

Valori di temperatura (STC)

Coefficient di temperatura di Isc	+0,045%/°C
Coefficient di temperatura di Voc	-0,230%/°C
Coefficient di temperatura di Pmax	-0,280%/°C

LONGi

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