

**To / 致:**  
Company / 公司: Sunova Solar Technology Co., Ltd.  
Contact / 联系人: Ms. Miao Lingzhu  
Email / 邮箱: Mary.miao@sunova-solar.com

**From / 自:**  
Company / 公司: TÜV NORD (HANGZHOU) CO., LTD. / 杭州汉德质量认证服务有限公司  
Contact / 联系人: Ms. Miley Li / 李文颖 小姐  
Email / 邮箱: wli@tuv-nord.com

**Subject: Announcement of cancellation**  
**主题: 证书取消通知**

File No.: PVP07123/22P

项目号:

License holder: **Sunova Solar Technology Co., Ltd.**  
持证人: Building H, Phase II, Standard Workshop, Runzhou Road, Huishan Industrial Transformation and Agglomeration Area 214115 Wuxi, Jiangsu Province, P.R. China

Certificate No.: 44 780 22 406749 - 138R2A1M2

证书号:

Product: Crystalline Silicon Terrestrial Photovoltaic (PV) Modules  
产品: 地面用晶体硅光伏组件

Herewith it is declared, that the above noted certificate(s) has (have) been invalidated since 2023-07-13.  
特此声明, 上述证书自 2023 年 7 月 13 日起失效。

The cancellation is due to:

取消原因:

License holder applied for cancellation.

持证人申请取消。

New certificate(s) (no: 44 780 22 406749 - 138R2A2M3) has (have) been issued to replace the cancelled one(s).

新证书(证书号: 44 780 22 406749 - 138R2A2M3) 签发, 取代旧证书。

After the expiry date of the certificate(s), the certificate(s) has (have) not been renewed within 6 months.  
证书到期 6 个月内未续证。

After the expiry date of last factory inspection conclusion, no factory inspection has been conducted or no payment of annual fees has been received within 6 months.

上一厂检结论有效期到期后, 6 个月内未配合厂检或未支付年度费用。

No payment of annual fees has been received within 6 month after last period of payment of annual fees.  
上一证书年费支付期后, 超过 6 个月未支付证书年费。

Others: \_\_\_\_\_

其他情况: \_\_\_\_\_

Please pay attention to stop using the invalid certificate(s) from 2023-07-13. Meanwhile, please send back the original copies of above mentioned certificate(s) to us.

请注意从 2023 年 7 月 13 日开始停止使用无效证书。同时，请将上述证书原件寄回给我们。

TÜV NORD reserved the right of final explanation about the cancellation of certificate(s). TÜV NORD will not take any responsibility for the circumstance of misusing the invalid certificate(s) by the license holder or the manufacturer.

TÜV NORD 保留对证书取消的最终解释权。TÜV NORD 对证书持有者或制造商滥用无效证书的情况不承担任何责任。

Renewable Energy / 可再生能源

TÜV NORD (Hangzhou) Co., Ltd. / 杭州汉德质量认证服务有限公司

Miley Li / 李文颖

Technical Support / 技术支持

# CERTIFICATE

**TÜV NORD CERT GmbH**

herewith declares that

**Sunova Solar Technology Co., Ltd.**

Building H, Phase II, Standard Workshop, Runzhou Road, Huishan Industrial Transformation and Agglomeration Area 214115 Wuxi, Jiangsu Province, P.R. China

is authorized to provide the product mentioned below with the mark as illustrated:

**Description of product (details see Annex 2):**

**Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**



Valid from: 2023-07-13

Valid until: 2027-07-03

Certification program:	P12-VA-01 Rev. 17 09.20
Certification fundamental(s):	IEC / EN 61215-1:2016; IEC / EN 61215-1-1:2016; IEC 61215-2:2016 / EN 61215-2:2017 + AC:2017 + AC:2018; IEC 61730-1:2016 / EN IEC 61730-1:2018 + AC:2018; IEC 61730-2:2016 / EN IEC 61730-2:2018 + AC:2018.
Registered No.:	44 780 22 406749 - 138R2A2M3
Manufacturer:	see Annex 1
Test Report No.:	492012066.006
File No.:	PVP06117/23P-01



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

Essen, 2023-07-13

Please also pay attention to the information stated overleaf.

**Manufacturer:**

Manufacturer 1: **Sunova Solar Technology Co., Ltd.**  
Building H, Phase II, Standard Workshop, Runzhou Road, Huishan  
Industrial Transformation and Agglomeration Area 214115 Wuxi,  
Jiangsu Province, P.R. China

Factory inspection report no.: 862010664.001

Manufacturer 2: **Jiangsu Green Energy Power Technology Co., Ltd.**  
No.1 Taiyang Road, Youfang Town,  
Yangzhong City, Jiangsu Province

Factory inspection report no.: 862010732.001

Manufacturer 3: **THORNOVA SOLAR VIET NAM COMPANY LIMITED**  
Factory No. 1 and No. 2 Lot (VI) VI-1.2, Road N1 intersects with Road D2,  
Que Vo II Industrial Park, Ngoc Xa Commune, Que Vo Town, Bac Ninh  
Province, Vietnam

Factory inspection report no.: 862010779.001

**Remark:**

Factory inspection is mandatory to be performed annually. Please refer to factory inspection report for detailed information.



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

**Description of product(s):**

Module types:	<b>Double Glass PV Modules with Half-cut 182mm Mono-crystalline Silicon Solar Cells:</b> 144 cells: SS-BGxxx-72MDH (xxx=530-550, in steps of 5) 132 cells: SS-BGxxx-66MDH (xxx=485-505, in steps of 5) 120 cells: SS-BGxxx-60MDH (xxx=440-455, in steps of 5) 108 cells: SS-BGxxx-54MDH (xxx=400-410, in steps of 5) 108 cells: Alp 2 SS-BGxxx-54MDH (xxx=400-410, in steps of 5) Remark: xxx indicates output power from the front side only
Maximum system voltage:	1500V
Fuse rating:	30A
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)
Bifaciality coefficient ( $\varphi$ ):	70% $\pm$ 5%

Module types:	<b>Double Glass PV Modules with Half-cut 210mm Mono-crystalline Silicon Solar Cells:</b> 132 cells: SS-BGxxx-66MDH-G12 (xxx=650-670, in steps of 5) 120 cells: SS-BGxxx-60MDH-G12 (xxx=590-610, in steps of 5) 108 cells: SS-BGxxx-54MDH-G12 (xxx=530-545, in steps of 5) 96 cells: SS-BGxxx-48MDH-G12 (xxx=475-490, in steps of 5) 84 cells: SS-BGxxx-42MDH-G12 (xxx=415-425, in steps of 5) Remark: xxx indicates output power from the front side only
Maximum system voltage:	1500V
Fuse rating:	35A
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)
Bifaciality coefficient ( $\varphi$ ):	70% $\pm$ 5%



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

Module types:	<b>Double Glass PV Modules with Half-cut 210mm TOPCon Monocrystalline Silicon Solar Cells:</b> 132 cells: SS-BGxxx-66MDH-G12(T) (xxx=660-690, in steps of 5) 120 cells: SS-BGxxx-60MDH-G12(T) (xxx=600-625, in steps of 5) Remark: xxx indicates output power from the front side only
Maximum system voltage:	1500V
Fuse rating:	35A
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)
Bifaciality coefficient ( $\varphi$ ):	70% $\pm$ 5%

Module types:	<b>Double Glass PV Modules with Half-cut 182mm TOPCon Monocrystalline Silicon Solar Cells:</b> 156 cells: SS-BGxxx-78MDH(T) (xxx=580-615, in steps of 5) 144 cells: SS-BGxxx-72MDH(T) (xxx=535-590, in steps of 5) 132 cells: SS-BGxxx-66MDH(T) (xxx=490-540, in steps of 5) 120 cells: SS-BGxxx-60MDH(T) (xxx=445-490, in steps of 5) 108 cells: SS-BGxxx-54MDH(T) (xxx=400-440, in steps of 5) 108 cells: Alp 3 SS-BGxxx-54MDH(T) (xxx=400-440, in steps of 5) Remark: xxx indicates output power from the front side only
Maximum system voltage:	1500V
Fuse rating:	30A
Electrical protection class:	Class II
Pollution degree:	1
Material group:	I
Design load (positive / negative):	3600Pa / 1600Pa
Safety factors:	1.5
Fire safety class:	Class C according to ANSI/UL 1703-2018 (as per ANSI/UL 790-2018)
Bifaciality coefficient ( $\varphi$ ):	70% $\pm$ 5%



**TÜV NORD CERT GmbH**  
Certification Body  
Consumer Products

Module types:	SS-BG530-72MDH	SS-BG535-72MDH	SS-BG540-72MDH	SS-BG545-72MDH
Rated Pmpp at STC (Front side only):	530W	535W	540W	545W
Rated Pmpp power with albedo 13.5%:	580W	585W	590W	595W

Module types:	SS-BG550-72MDH	SS-BG485-66MDH	SS-BG490-66MDH	SS-BG495-66MDH
Rated Pmpp at STC (Front side only):	550W	485W	490W	495W
Rated Pmpp power with albedo 13.5%:	600W	530W	535W	540W

Module types:	SS-BG500-66MDH	SS-BG505-66MDH	SS-BG440-60MDH	SS-BG445-60MDH
Rated Pmpp at STC (Front side only):	500W	505W	440W	445W
Rated Pmpp power with albedo 13.5%:	545W	550W	480W	485W

Module types:	SS-BG450-60MDH	SS-BG455-60MDH	Alp 2 SS-BG400-54MDH / SS-BG400-54MDH /	Alp 2 SS-BG405-54MDH / SS-BG405-54MDH
Rated Pmpp at STC (Front side only):	450W	455W	400W	405W
Rated Pmpp power with albedo 13.5%:	490W	495W	435W	440W

Module types:	Alp 2 SS-BG410-54MDH / SS-BG410-54MDH	SS-BG650-66MDH-G12	SS-BG655-66MDH-G12	SS-BG660-66MDH-G12
Rated Pmpp at STC (Front side only):	410W	650W	655W	660W
Rated Pmpp power with albedo 13.5%:	445W	710W	715W	720W



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

Module types:	SS-BG665-66MDH-G12	SS-BG670-66MDH-G12	SS-BG590-60MDH-G12	SS-BG595-60MDH-G12
Rated Pmpp at STC (Front side only):	665W	670W	590W	595W
Rated Pmpp power with albedo 13.5%:	725W	730W	645W	650W

Module types:	SS-BG600-60MDH-G12	SS-BG605-60MDH-G12	SS-BG610-60MDH-G12	SS-BG530-54MDH-G12
Rated Pmpp at STC (Front side only):	600W	605W	610W	530W
Rated Pmpp power with albedo 13.5%:	655W	660W	665W	580W

Module types:	SS-BG535-54MDH-G12	SS-BG540-54MDH-G12	SS-BG545-54MDH-G12	SS-BG475-48MDH-G12
Rated Pmpp at STC (Front side only):	535W	540W	545W	475W
Rated Pmpp power with albedo 13.5%:	585W	590W	595W	520W

Module types:	SS-BG480-48MDH-G12	SS-BG485-48MDH-G12	SS-BG490-48MDH-G12	SS-BG415-42MDH-G12
Rated Pmpp at STC (Front side only):	480W	485W	490W	415W
Rated Pmpp power with albedo 13.5%:	525W	530W	535W	455W

Module types:	SS-BG420-42MDH-G12	SS-BG425-42MDH-G12
Rated Pmpp at STC (Front side only):	420W	425W
Rated Pmpp power with albedo 13.5%:	460W	465W



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**



Module types:	SS-BG660-66MDH-G12(T)	SS-BG665-66MDH-G12(T)	SS-BG670-66MDH-G12(T)	SS-BG675-66MDH-G12(T)
Rated Pmpp at STC (Front side only):	660W	665W	670W	675W
Rated Pmpp power with albedo 13.5%:	735W	740W	745W	750W

Module types:	SS-BG680-66MDH-G12(T)	SS-BG685-66MDH-G12(T)	SS-BG690-66MDH-G12(T)	SS-BG600-60MDH-G12(T)
Rated Pmpp at STC (Front side only):	680W	685W	690W	600W
Rated Pmpp power with albedo 13.5%:	755W	760W	765W	670W

Module types:	SS-BG605-60MDH-G12(T)	SS-BG610-60MDH-G12(T)	SS-BG615-60MDH-G12(T)	SS-BG620-60MDH-G12(T)
Rated Pmpp at STC (Front side only):	605W	610W	615W	620W
Rated Pmpp power with albedo 13.5%:	675W	680W	685W	690W

Module types:	SS-BG625-60MDH-G12(T)	SS-BG580-78MDH(T)	SS-BG585-78MDH(T)	SS-BG590-78MDH(T)
Rated Pmpp at STC (Front side only):	625W	580	585	590
Rated Pmpp power with albedo 13.5%:	695W	645	650	655

Module types:	SS-BG595-78MDH(T)	SS-BG600-78MDH(T)	SS-BG605-78MDH(T)	SS-BG610-78MDH(T)
Rated Pmpp at STC (Front side only):	595	600	605	610
Rated Pmpp power with albedo 13.5%:	660	665	670	675



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

Module types:	SS-BG615-78MDH(T)	SS-BG535-72MDH(T)	SS-BG540-72MDH(T)	SS-BG545-72MDH(T)
Rated Pmpp at STC (Front side only):	615	535	540	545
Rated Pmpp power with albedo 13.5%:	680	595	600	605

Module types:	SS-BG550-72MDH(T)	SS-BG555-72MDH(T)	SS-BG560-72MDH(T)	SS-BG565-72MDH(T)
Rated Pmpp at STC (Front side only):	550	555	560	565
Rated Pmpp power with albedo 13.5%:	610	615	620	625

Module types:	SS-BG570-72MDH(T)	SS-BG575-72MDH(T)	SS-BG580-72MDH(T)	SS-BG585-72MDH(T)
Rated Pmpp at STC (Front side only):	570	575	580	585
Rated Pmpp power with albedo 13.5%:	630	635	640	645

Module types:	SS-BG590-72MDH(T)	SS-BG490-66MDH(T)	SS-BG495-66MDH(T)	SS-BG500-66MDH(T)
Rated Pmpp at STC (Front side only):	590	490	495	500
Rated Pmpp power with albedo 13.5%:	650	545	550	555

Module types:	SS-BG505-66MDH(T)	SS-BG510-66MDH(T)	SS-BG515-66MDH(T)	SS-BG520-66MDH(T)
Rated Pmpp at STC (Front side only):	505	510	515	520
Rated Pmpp power with albedo 13.5%:	560	565	570	575



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

Module types:	SS-BG525-66MDH(T)	SS-BG530-66MDH(T)	SS-BG535-66MDH(T)	SS-BG540-66MDH(T)
Rated Pmpp at STC (Front side only):	525	530	535	540
Rated Pmpp power with albedo 13.5%:	580	585	590	595

Module types:	SS-BG445-60MDH(T)	SS-BG450-60MDH(T)	SS-BG455-60MDH(T)	SS-BG460-60MDH(T)
Rated Pmpp at STC (Front side only):	445	450	455	460
Rated Pmpp power with albedo 13.5%:	495	500	505	510

Module types:	SS-BG465-60MDH(T)	SS-BG470-60MDH(T)	SS-BG475-60MDH(T)	SS-BG480-60MDH(T)
Rated Pmpp at STC (Front side only):	465	470	475	480
Rated Pmpp power with albedo 13.5%:	515	520	525	530

Module types:	SS-BG485-60MDH(T)	SS-BG490-60MDH(T)	Alp 3 SS-BG400-54MDH(T) / SS-BG400-54MDH(T)	Alp 3 SS-BG405-54MDH(T) / SS-BG405-54MDH(T)
Rated Pmpp at STC (Front side only):	485	490	400	405
Rated Pmpp power with albedo 13.5%:	535	540	445	450

Module types:	Alp 3 SS-BG410-54MDH(T) / SS-BG410-54MDH(T)	Alp 3 SS-BG415-54MDH(T) / SS-BG415-54MDH(T)	Alp 3 SS-BG420-54MDH(T) / SS-BG420-54MDH(T)	Alp 3 SS-BG425-54MDH(T) / SS-BG425-54MDH(T)
Rated Pmpp at STC (Front side only):	410	415	420	425
Rated Pmpp power with albedo 13.5%:	455	460	465	470



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**

Module types:	Alp 3 SS-BG430-54MDH(T) / SS-BG430-54MDH(T)	Alp 3 SS-BG435-54MDH(T) / SS-BG435-54MDH(T)	Alp 3 SS-BG440-54MDH(T) / SS-BG440-54MDH(T)
Rated Pmpp at STC (Front side only):	430	435	440
Rated Pmpp power with albedo 13.5%:	475	480	485

Remark:

For detailed product information, please refer to CDF (Constructional Data Form) in Annex 1 of test report.

Bifaciality coefficient ( $\phi$ ) = ( $I_{sc_{rear}} / I_{sc_{front}}$ ) or ( $P_{mpp_{rear}} / P_{mpp_{front}}$ ), whichever is smaller.

The tolerance of bifaciality coefficient ( $\phi$ ) is claimed by client.

Rated Pmpp power with albedo: comprehensive power of both sides, taken  $\phi$  and albedo into consideration.

The albedo is claimed by client.



**TÜV NORD CERT GmbH**  
**Certification Body**  
**Consumer Products**