Product Service

Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

Applicant / Auftraggeber: Tangshan Haitai New Energy Technology Co.,Ltd.
No.88, Haomen Road, Yutian County, Tangshan City, Hebei Province, China

Manufacturer / Hersteller: 1.Tangshan Haitai New Energy Technology Co.,Ltd.
No.88, Haomen Road, Yutian County, Tangshan City, Hebei Province, China
2.HT SOLAR VIETNAM COMPANY LIMITED
F3 Lot,factory F3-1,F3-2,Trang Due Industrial Park,An Duong District,A part of Dinh Vu-Cat Hai Economic Zone, Hai Phong City,Viet Nam

Type of equipment / Geräteart: Mono-crystalline SiliconPhotovoltaic (PV) Module

Classification as below:

System voltage	Front cover	Rear cover
1000V DC ☒	Backsheet ☐	Backsheet ☒
1500 V DC ☒	Glass ☒	Glass ☐

Type/model / Typenbezeichnung:

1000V DC modules:

a) with 156.75mm mono 72 cells:
HTMxxxMA-72(xxx=330-385,in steps of 5);
b) with 156.75mm mono 60 cells:
HTMxxxMA-60(xxx=275-320,in steps of 5);
c) with 156.75mm mono 54 cells:
HTMxxxMA-54(xxx=250-285,in steps of 5);
1000V DC half-cell modules:

d) with 156.75mm mono 144 half-cells:
HTMxxxMH-72(xxx=340-390,in steps of 5);
e) with 156.75mm mono 120 half-cell:
HTMxxxMH-60(xxx=285-325,in steps of 5);
f) with 156.75mm mono 108 half-cell:
HTMxxxMH-54(xxx=255-290,in steps of 5);
g) with 158.75mm mono 144 half-cell:
HTMxxxMH2-72(xxx=390-425,in steps of 5);
h) with 158.75mm mono 120 half-cell:
HTMxxxMH2-60(xxx=325-350,in steps of 5);

i) with 166 mm mono 144 half-cell:

HTMxxxMH3-72 (xxx=415-460, in steps of 5)

j) with 166 mm mono 120 half-cell:

HTMxxxMH3-60 (xxx=345-380, in steps of 5)

k) with 182 mm mono 144 half-cell:

HTMxxxMH5-72 (xxx=520-555, in steps of 5)

l) with 182 mm mono 132 half-cell:

HTMxxxMH5-66 (xxx=480-505, in steps of 5)

m) with 182 mm mono 120 half-cell:

HTMxxxMH5-60 (xxx=435-460, in steps of 5)

n) with 182 mm mono 108 half-cell:

HTMxxxMH5-54 (xxx=390-415, in steps of 5)

1000V DC half-cell frameless modules with cooling system:

o) with 158.75mm mono 144 half-cell:

HTMxxxMH2-72-COOL (xxx=390-425, in steps of 5);

p) with 158.75mm mono 120 half-cell:

HTMxxxMH2-60-COOL (xxx=325-350, in steps of 5);

1000V DC 1/3 cut cell modules:

q) with 156.75mm mono 240 1/3 cut cell:

HTM-TSB-xxxM1(xxx=380-420,in steps of 5);

HTM-NHN-xxxM(xxx=380-420,in steps of 5);

r) 156.75mm mono 198 1/3 cut cell:

HTM-TSA-xxxM1(xxx=315-345,in steps of 5);

HTM-NHN-xxxM(xxx=315-345,in steps of 5);

s) with 158.75mm mono 240 1/3 cut cell:

HTM-TSB-xxxM2(xxx=410-445,in steps of 5);

t)with 158.75mm mono 198 1/3 cut cell:

HTM-TSA-xxxM2(xxx=340-365,in steps of 5);

u)with 210mm mono 150 1/3 cut cell:

HTMxxxMT8-50(xxx=480-510,in steps of 5)

v)with 210mm mono 120 1/3 cut cell:

HTMxxxMT8-40(xxx=385-405,in steps of 5)

1500V DC modules:

a1) with 156.75mm mono 72 cells:

HTMxxxMA-72(1500) (xxx=340-385,in steps of 5);

b1) with 156.75mm mono 60 cells:

HTMxxxMA-60(1500) (xxx=285-320,in steps of 5);

c1) with 156.75mm mono 54 cells:

HTMxxxMA-54(1500) (xxx=255-285,in steps of 5);

1500V DC half-cell modules:

d1) with 156.75mm mono 144 half-cell:

HTMxxxMH-72(1500) (xxx=340-390,in steps of 5);

e1) with 156.75mm mono 120 half-cell:

HTMxxxMH-60(1500) (xxx=285-325,in steps of 5);

f1) with 156.75mm mono 108 half-cell:

HTMxxxMH-54(1500) (xxx=255-290,in steps of 5);

g1) with 158.75mm mono 144 half-cell:

HTMxxxMH2-72(1500) (xxx=390-425,in steps of 5)

h1) with 158.75mm mono 120 half-cell:

HTMxxxMH2-60(1500) (xxx=325-350,in steps of 5);

i1) with 166 mm mono 144 half-cell:

HTMxxxMH3-72(1500) (xxx=415-460, in steps of 5)

j1) with 166 mm mono 120 half-cell:

HTMxxxMH3-60(1500) (xxx=345-380, in steps of 5)

k1) with 182mm mono 144 half-cell:

HTMxxxMH5-72(1500) (xxx=520-555,in steps of 5);

l1) with 182 mm mono 132 half-cell:

HTMxxxMH5-66(1500) (xxx=480-505, in steps of 5)

m1) with 182 mm mono 120 half-cell:

HTMxxxMH5-60(1500) (xxx=435-460, in steps of 5)

n1) with 182 mm mono 108 half-cell:

HTMxxxMH5-54(1500) (xxx=390-415, in steps of 5)

1500V DC half-cell frameless modules with cooling system:

o1) with 158.75mm mono 144 half-cell:

HTMxxxMH2-72-COOL(1500) (xxx=390-425, in steps of 5);

p1) with 158.75mm mono 120 half-cell:

HTMxxxMH2-60-COOL(1500) (xxx=325-350, in steps of 5);

1500V DC 1/3 cut cell modules:

q1) with 156.75mm mono 240 1/3 cut cell :

HTM-TSB-xxxM1(1500) (xxx=380-420,in steps of 5);

HTM-NHN-xxxM(1500) (xxx=380-420,in steps of 5);

r1) with 156.75mm mono 1/3 cut cell:

HTM-TSA-xxxM1(1500) (xxx=315-345,in steps of 5);

HTM-NHN-xxxM(1500) (xxx=315-345,in steps of 5);

s1) with 158.75mm mono 240 1/3 cut cell:

HTM-TSB-xxxM2(1500) (xxx=410-445,in steps of 5);

t1) with 158.75mm mono 1/3 cut cell:

HTM-TSA-xxxM2(1500) (xxx=340-365,in steps of 5);

u1)with 210mm mono 150 1/3 cut cell:

HTMxxxMT8-50(1500) (xxx=480-510,in steps of 5)

v1)with 210mm mono 120 1/3 cut cell:

HTMxxxMT8-40(1500) (xxx=385-405,in steps of 5)

1000V DC half-cell modules:

w1) with 210mm mono 132 half-cell:

HTMxxxMH8-66 (xxx=635-670, in steps of 5)

x1) with 210mm mono 120 half-cell:

HTMxxxMH8-60 (xxx=580-605, in steps of 5)

1500V DC half-cell modules

y1) with 210mm mono 132 half-cell:

HTMxxxMH8-66(1500) (xxx=635-670, in steps of 5)

z1) with 210mm mono 120 half-cell:

HTMxxxMH8-60(1500) (xxx=580-605, in steps of 5)

Rated Output Power at STC:

1000V DC modules:

a) 330-385, in steps of 5,

b) 275-320, in steps of 5;

c) 250-285, in steps of 5.

1000V DC half-cell modules:

d) 340-390, in steps of 5;

e) 285-325, in steps of 5;

f) 255-290, in steps of 5;

g) 390-410, in steps of 5;

h) 325-340, in steps of 5.

i) 415-460, in steps of 5

j) 345-380, in steps of 5

k) 520-555, in steps of 5

l) 480-505, in steps of 5

m) 435-460, in steps of 5

n) 390-415, in steps of 5

1000V DC half-cell frameless modules with cooling system:

o) 390-425, in steps of 5

p) 325-350, in steps of 5

1000V DC 1/3 cut cell modules:

q) 380-420, in steps of 5;

r) 315-345, in steps of 5;

s) 410-445, in steps of 5;

t) 340-365, in steps of 5;

u) 480-510,in steps of 5

v) 385-405,in steps of 5

1500V DC module:

a1) 340-385, in steps of 5;

b1) 285-320, in steps of 5;

c1) 255-285, in steps of 5;

1500V DC half-cell modules:

d1) 340-390, in steps of 5;

e1) 285-325, in steps of 5;

f1) 255-290, in steps of 5;

g1) 390-425, in steps of 5;

h1) 325-350, in steps of 5;

i1) 415-460, in steps of 5

j1) 345-380, in steps of 5

k1) 520-555, in steps of 5

l1) 480-505, in steps of 5

m1) 435-460, in steps of 5

n1) 390-415, in steps of 5

1500V DC half-cell frameless modules with cooling system:

o1) 390-425, in steps of 5

p1) 325-350, in steps of 5

1500V DC 1/3 cut cell modules:

q1) 380-420, in steps of 5;

r1) 315-345, in steps of 5;

s1) 410-445, in steps of 5;

t1) 340-365, in steps of 5;

u1) 480-510,in steps of 5

v1) 385-405,in steps of 5

1000V DC half-cell modules:

w1) 635-670, in steps of 5

x1) 580-605, in steps of 5

1500V DC half-cell modules:

y1) 635-670, in steps of 5

z1) 580-605, in steps of 5

Min. Value of Output Power or Deviation at STC: -3%

MaximumSystem Voltage: 1000 V DC or 1500V DC

Max. over-current protection rating: 25 A for 182mm solar cell modules ; 30A for 210mm solar cell modules,

20A&18A(for 158.75mm & 166mm solar cell modules),others:15A

Dimensions / Abmessungen [HxWxD / HxBxT]:

a),a1) 1957*992*40(mm), 1957*992*35(mm);
b),b1) 1640*992*40 (mm); 1640*992*35 (mm);
c),c1) 1482*992*40 (mm), 1482*992*35 (mm);
d),d1) 1997*992*40(mm), 1997*992*35(mm);
e),e1) 1675*992*40 (mm), 1675*992*35(mm);
f),f1) 1515*992*40(mm),1515*992*35(mm);
g),g1) 2008*1002*40(mm), 2008*1002*35(mm);

h),h1) 1684*1002*40(mm),1684*1002*35(mm);

i),i1)2115*1052*40(mm), 2115*1052*35(mm),2094*1038*40(mm), 2094*1038*35(mm),2108*1048*40(mm),2108*1048*35(mm);

j),j1)1776*1052*40(mm), 1776*1052*35(mm),1755*1038*40(mm) ,1755*1038*35(mm),1765*1048*40(mm),1765*1048*35(mm);1778*1040*40(mm), 1778*1040*35(mm)

k),k1) 2288*1133*40(mm), 2288*1133*35(mm), 2274*1134*40(mm), 2274*1134*35(mm),2256*1133*40(mm), 2256*1133*35(mm),2230*1133*40(mm), 2230*1133*35(mm), 2279*1134*40(mm), 2279*1134*35(mm)

l),l1) 2102*1133*40(mm), 2102*1133*35(mm), 2090*1134*40(mm), 2090*1134*35(mm), 2074*1133*40(mm), 2074*1133*35(mm), 2050*1133*40(mm), 2050*1133*35(mm),2094*1134*40(mm), 2094*1134*35(mm)

m),m1) 1916*1133*40(mm), 1916*1133*35(mm), 1904*1134*40(mm), 1904*1134*35(mm), 1890*1133*40(mm), 1890*1133*35(mm), 1868*1133*40(mm), 1868*1133*35(mm),1909*1134*40(mm), 1909*1134*35(mm);

n),n1)1708*1133*40(mm), 1708*1133*35(mm),1724*1134*40(mm), 1724*1134*35(mm)

o),o1)2002*996*43.2(mm);

p) ,p1) 1678*996*43.2(mm);
q) ,q1) 2125*983*40(mm), 2125*983*35(mm);
r) ,r1) 1762*983*40(mm),1762*983*35(mm);

s) ,s1) 2151*994*40(mm), 2151*994*35(mm);

t) ,t1) 1785*994*40(mm),1785*994*35(mm);

u) ,u1) 2220*1102*40(mm), 2220*1102*35(mm),2176*1098*40(mm), 2176*1098*35(mm);

v) ,v1) 1754*1096*40(mm), 1754*1096*35(mm);

w1), y1): 2384*1303*40/35(mm)

x1),z1): 2172*1303*40/35(mm)

Weight / Gewicht:

a),a1) 21.5kg;
b),b1) 18.5 kg;
c),c1) 16.5 kg;
d),d1) 22.0 kg;
e),e1) 19.0 kg;
f),f1) 17.0 kg;
g),g1) 22.5 kg;

h),h1) 19.5 kg;

i),i1)24.0 kg;

j),j1)20.0 kg

k),k1) 29.0 kg

l),l1) 27.0 kg

m),m1) 25.0 kg

n),n1)22.0 kg

o),o1) 22.5 kg

p),p1) 19.5 kg;

q),q1) 23.5 kg;

r),r1) 19.5 kg;

s),s1) 24.0 kg;

t),t1) 20.0 kg;

u),u1) 27.0 kg;

v),v1) 22.0 kg;

w1), y1): 34.0kg

x1),z1): 31.0kg

Cell technology:	Monocrystalline Silicon	☒
	Polycrystalline Silicon	☐
	Thin-film (amorphous Silicon)	☐
	CIGS	☐
	CdTe	☐
	Other	☐

Safety class in accordance with IEC 61140:

Class	0:	Application in restricted access area	☐
Class	II:	Application in non-restricted access area	☒
Class	III:	Basic protection by limitation of voltage (ELV)	☐

Types of terminations:	Type A: wire of flying lead	☒
	Type B: tags, threaded stubs, screws, etc.	☐
	Type C: connector	☐
	Junction box	☒
Protection devices:	By-pass Diode	☒
	Fuse	☐
	Other	☐

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Fire safety class according to UL790:	Class A	☐
	Class B	☐
	Class C	☒
Frame:	Framed	☒
	Frameless	☐
Designed mechanical load and safety factor:	Positive: 3600 Pa, 1.5	☒
	Negative: 1600Pa, 1.5	☒

Module Design - Minimum Distances:

Between cells: q),r),s),t),q1),r1),s1), t1): 0±0.5mm; others: 1.5mm;

Between cell and edge of laminate: a),b),c), a1),b1),c1):14.5mm;

d),e),f),g),h),o),p), d1),e1),f1),g1),h1) ,o1),p1):12.75mm

i),j), q),r),s),t), i1),j1), q1),r1),s1), t1): 14mm;

k),l),m),n), k1),l1),m1),n1):11mm

u),v), u1),v1):12mm

Between any current carrying part and edge of laminate:

a),b),c), a1),b1),c1):14.5mm;

d),e),f),g),h),o),p), d1),e1),f1),g1),h1) ,o1),p1):12.75mm

i),j), q),r),s),t), i1),j1), q1),r1),s1), t1): 14mm;

k),l),m),n), k1),l1),m1),n1):11mm

u),v), u1),v1):12mm

Degree of pollution / Verschmutzungsgrad: **1** ☒ **2** ☐ **3** ☐ **4** ☐

Materials: Superstrate Tempered Glass ☐

Test Report No. / Prüfbericht Nr.: 88.216.18.095.12_b	Place / Ort: Date / Datum: 2021-12-10
Name of Project manager / Li Yuqing	Name, Stempel und Unterschrift des Zertifikatinhabers:
Name Projektleiter:	Name, Stempel und Unterschrift des Zertifikatinhabers:

Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

	CoatingTempered Glass	☒
	Normal Glass	☐
	Other:_____	☐
Encapsulant	EVA	☒
	Other	☐
Substrate	TPT	☐
	TPE	☐
	Other:	☒
	See below for details	
Frame	Aluminium	☒
	Other:_____	☐

Supplementary information: Components marked “For 1000V DC certificate” have passed 1000V testing, other components passed 1500V testing.

Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

Safety relevant components: (switches, temperature regulators, heating elements, plugs, sockets, wiring, capacitors, motors and other components with windings e.g. transformers, coils, emergency off devices, 2-hand-control-devices, interlock switches, safety light barriers, safety valves, programmable electronic controllers -PLC, hydraulic controllers, pneumatic controllers, Software (Revision), housing parts, materials with contact to food etc.
Components for Functional Safety shall be listed in appropriate table.
The entry of safety relevant components into this table documents and confirms review of suitability and acceptance by the product specialist.

Sicherheitsrelevante Bauteile: (Schalter, Temperaturregler, Heizkörper, Stecker, Fassungen, Leitungen, Kondensatoren, Motoren und sonstige Wicklungen z.B. Transformatoren, Magnetspulen, Not-Aus Geräte, 2-Handsteuerungen, Verriegelungsschalter, Sicherheits-Lichtschranken, Sicherheitsventile, Programmierbare Steuerungen-SPS, hydraulische Steuerungen, pneumatische Steuerungen , Software (Revisionsstand), Gehäuseteile, Materialien mit Kontakt zu Lebensmitteln usw.
Komponenten für Funktionale Sicherheit müssen in die entsprechende Tabelle eingetragen werden.

Der Eintrag sicherheitsrelevanter Komponenten in die Übersicht dokumentiert und bestätigt die Überprüfung der Eignung und Freigabe durch den „Product Specialist“.

Kind of component / Bauteil Part. No. (e.g. X1, F1) / Bauteilbez. (z. B. X1, F1) PCB (PWB) / Leiterplatte	Manufacturer / Hersteller Trademark / Handelsname	Information about mechanical, electrical, chemical etc. requirements, e.g. type, current, power, transformer specification number, insulating class, mechanical strength, PAH content / Angaben über mechanische, elektrische, chemische, etc. Anforderungen z.B. Typ, Stromstärke, Leistung, Transformatorspezifikationsnummer, Isolationsklasse, mechanische Festigkeit, PAK-Gehalt	Test mark from / Prüfzeichen von (TÜV, VDE, BSI, UL etc.) / Test report of an ISO 17025 accredited laboratory with appropriate scope / Prüfbericht von einem akkreditierten ISO 17025 Labor mit korrekten Scope
1.Solar Cell	1.Motech Rencewable Energy Co.Ltd. (For 1000VDC certifiate)	Mono-Si, Cell type: XS156B5-210R+,5BB Cell dimensions L x W: 156.75mm x 156.75mm Cell thickness: 200±20 (µm) Cell area: **244.32** (cm^2)	Tested with appliance
	2.Jiangsu Shunfeng Photovoltaic Technology Co., Ltd. (For 1000VDC certifiate)	Mono-Si, Cell type: 156S2-PERC, 12BB Cell dimensions L x W: 156.75mm x 156.75mm Cell thickness: 200±20 (µm)	Tested with appliance

		Cell area: **244.32** (cm²) (Test report no. 88.216.17.261.02_a)	
	3. Tongwei solar energy (hefei) co. LTD.	Mono-Si, Cell type: M1565B,half-cell Cell dimensions L x W: 156.75mm x 78.38mm Cell thickness: 200±30 (μm) Cell area: 122.16(cm²) (Test report no. 88.216.17.261.03)	Tested with appliance
	4. Tongwei solar energy (hefei) co. LTD.	Mono-Si, Cell type: M1565B Cell dimensions L x W: 156.75mm x 156.75mm Cell thickness: 200±30 (μm) Cell area: 244.32(cm²) (Test report no.:88.216.18.096.03)	Tested with appliance
	5.SHANXI LUAN PHOTOVOLTAICS CO. LTD.	Mono-Si, Cell type: M1565B Cell dimensions L x W: 156.75mm x 156.75mm Cell thickness:180(-10,+20)(μm) Cell area: 244.32(cm²) (Test report no.:88.216.18.096.03)	Tested with appliance
	6.Tainergy Tech Co.,Ltd	Mono-Si, Cell type: T1S- Cell dimensions L x W: 156.75mm x 52.25mm Cell thickness:200±20 (μm) Cell area:81.90(cm²) (Test report no.:88.216.18.096.04)	Tested with appliance
	7. Tongwei solar energy (hefei) co. LTD. (For 1500VDC certifiate)	Mono-Si, Cell type: M1585BPERC Cell dimensions L x W: 158.75mm x79.375mm Cell thickness: 190±30 (μm) Cell area: 126.01(cm²) (Test report no.:88.216.18.096.05)	Tested with appliance

	8. Zhejiang Aiko Solar Energy Technology Co.,Ltd.	Mono-Si, Cell type: 6M2E514A-J1 Cell dimensions L x W: 158.75mm x52.92mm Cell thickness: 190±20 (µm) Cell area:84.01(cm²) (Test report no.:88.216.18.096.06)	Tested with appliance
	9.Zhejiang Beyondsun PV Co.,Ltd	Mono-Si, Cell type: BYS6S-5BB Cell dimensions L x W: 156.75mm x 156.75mm Cell thickness: 200±30 (µm) Cell area:244.32(cm²) (Test report no.88.216.18.096.06_a)	Tested with appliance
	10. Tongwei solar energy (chengdu) co. LTD.	Mono-Si, Cell type: M1666BPERC Cell dimensions L x W: 166mm x 83mm Cell thickness: 190±30 (µm) Cell area:137.78(cm²) (Test report no.88.216.18.096.07)	Tested with appliance
	11.Tainergy Tech Co.,Ltd.	Mono-Si, Cell type: T1S-00000UD6B Cell dimensions L x W: 158.75mm x 79.375mm Cell thickness:190±20 (µm) Cell area:126.01(cm²) (Test report no.:88.216.18.095.08)	Tested with appliance
	12. Tongwei solar energy (chengdu) co. LTD.	Mono-Si, Cell type: M1669BPERCBP SE Cell dimensions L x W: 166mm x 83mm Cell thickness: 190±30 (µm) Cell area:137.075(cm²) (Test report no.88.216.18.096.08_a)	Tested with appliance
	13. Tongwei solar energy (meishan) co. LTD.	Mono-Si, Cell type: M182ABPERCBP SE Cell dimensions L x W: 182mm x 91mm	Tested with appliance

		Cell thickness:180±18 (μm) Cell area:165.07(cm²) (Test report no.:88.216.18.095.09)	
	14. Tongwei solar energy (chengdu) co. LTD.	Mono-Si, Cell type: M1585BPERC Cell dimensions L x W: 158.75mm x 52.92mm Cell thickness:190±30 (μm) Cell area: 84.01(cm²) (Test report no.:88.216.18.095.09_a)	Tested with appliance
	15. Tongwei solar energy (hefei) co. LTD.	Mono-Si, Cell type: M1565BPERC Cell dimensions L x W: 156.75mm x52.25mm Cell thickness:200 ± 30 (μm) Cell area: 81.90 (cm²) (Test report no.:88.216.18.095.09_a)	Tested with appliance
	16. Tongwei solar energy (meishan) co. LTD.	Mono-Si, Cell type: M2109BPERCBP SE Cell dimensions L x W: 210mm x 105mm Cell thickness:180±18 (μm) Cell area:220.5(cm²) (Test report no.:88.216.18.095.10)	Tested with appliance
	17.SHANXI LUAN PHOTOVOLTAICS CO. LTD.	Mono-Si, Cell type: LA MP 112D-5-DFBP-158.75 Cell dimensions L x W: 158.75mm x 79.375mm Cell thickness:175 (-10,+20) (μm) Cell area:126.01 (cm²) (Test report no.:88.216.18.095.10_a)	Tested with appliance
	18.SHANXI LUAN PHOTOVOLTAICS CO. LTD.	Mono-Si, Cell type: LA MP 122D-9-BP-166SE Cell dimensions L x W: 166mm x 83mm Cell thickness:170 ± 17.5 (μm) Cell area:137.1 (cm²)	Tested with appliance

		(Test report no.:88.216.18.095.10_a)	
	19. JIANGSU RUNERGY YUEDA PV TECHNOLOGY CO.,LTD	Mono-Si, Cell type: PM69BF29B2 Cell dimensions L x W: 166mm x 83mm Cell thickness:185 ± 18.5 (µm) Cell area:137.1 (cm²) (Test report no.:88.216.18.095.10_a)	Tested with appliance
	20. JIANGSU RUNERGY YUEDA PV TECHNOLOGY CO.,LTD	Mono-Si, Cell type: M6E9B Cell dimensions L x W: 166mm x 83mm Cell thickness:180 ± 18(µm) Cell area:137.1 (cm²) (Test report no.:88.216.18.095.10_a)	Tested with appliance
	21.Tongwei solar energy (meishan) co. LTD.	Model:M21012BPERCBP SE Cell type: P type, Cell technology: Mono-si Cell dimensions :210*105mm ± 0. 25 Cell thickness [µm]: 180 ± 18 (Test report no.:88.216.18.095.12)	Tested with appliance
	22. SHANXI LUAN PHOTOVOLTAICS CO. LTD.	**Model: LA MP 136D-10BB-DFBP-182SE** **Cell type: P type, Cell technology: Mono-si** **Cell dimensions :182mm*91mm ± 0. 5** **Cell thickness [µm]: 175 ± 17.5** (Test report no.:88.216.18.095.12_a)	Tested with appliance
	23. JIANGSU RUNERGY YUEDA PV TECHNOLOGY CO.,LTD.	**Model: PM1011BF1B1** **Cell type: P type,** **Cell dimensions :182mm*91mm ± 0. 5** **Cell thickness [µm]: 175 ± 17.5** (Test report no.:88.216.18.095.12_a)	Tested with appliance
	24. Tainergy Tech Co.,Ltd.	Model: **HE2B** Cell type: P type, Cell technology: Mono-si Cell dimensions :166mm*83mm±0. 25	Tested with appliance

		Cell thickness [µm]: 190±19 (Test report no.:88.216.18.095.12_b)	
	25. Et Solar Technology (Vietnam) Company Limited	Model: ET-P-166-9BB-Bifacial Cell Cell type: P type, Cell technology: Mono-si Cell dimensions :166mm*83mm±0. 25 Cell thickness [µm]: 190±19 (Test report no.:88.216.18.095.12_b)	Tested with appliance
	26. Vina Solar Technology Co., Ltd.	Model: M6B9B Cell type: P type, Cell technology: Mono-si Cell dimensions :166mm*83mm±0. 25 Cell thickness [µm]: 190±19 (Test report no.:88.216.18.095.12_b)	Tested with appliance
2.Superstrate	1.Xinyi PV Products Holdings Ltd.	Type:3.2 AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm) (Tested in report no.88.216.18.095.01)	Tested with appliance
	2.Jinxin PV Products(Anhui) Holdings Ltd.	Type:3.2 AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm) (Test report no.:88.216.18.096.03)	Tested with appliance
	3.Henan Ancai High-Tech Co., Ltd.	Type:3.2AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm) (Test report no.:88.216.18.096.04)	Tested with appliance
	4.Wuxi haida safety glass Co.,Ltd	Type:3.2 AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm)	Tested with appliance

		(Test report no.:88.216.18.096.05)	
	5. Changzhou Almaden Stock Co.,Ltd.	Type:3.2 AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm) (Test report no.:88.216.18.095.06)	Tested with appliance
	6. CAIHONG GROUP NEW ENERGY COMPANY LIMITED	Type:3.2 AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm) (Test report no.:88.216.18.095.09_a)	Tested with appliance
	7. FLAT GLASS GROUP CO.,LTD	Type:3.2 AR Glass Material: Outside coated tempered Glass Size: Thickness: 3.2 (mm) (Test report no.:88.216.18.095.10_a)	Tested with appliance
3.Substrate (backsheet)	1.Cybrid Tecenologies Inc. (For 1000VDC certifiate)	Type: Cynagard 2X5A Material: PVDF/Adhesive/PET/Primer coating White Thickness: 22.5/10/250 /4(μm) Max. System voltage rating : 1000 VDC (Tested in report no.88.216.17.261.01)	Tested with appliance
	2. Endurance Sunshine Solar Technology(Suzhou) Co.,Ltd. (For 1000VDC certifiate)	Type: HP B05 Material: (air side)modified PA12/modified PO/modified PE Thickness: 25/240 /35(μm) White Max. System voltage rating : 1000 VDC (Tested in report no.88.216.17.261.02_a)	Tested with appliance
	3.ZhongTian photovoltaic Materials Co., Ltd.	Type:ZTT-TPT Material: PVF/Adhesive/PET/ Adhesive /PVF White Thickness: 25-38/10/250 /10/25-38(μm) Max. System voltage rating : 1500 VDC (Tested in report no.88.216.18.095.01)	Tested with appliance

	4. ZhongTian photovoltaic Materials Co., Ltd. (For 1000VDC certifiate)	Type:ZTT-KPO Material: PVDF/Adhesive/PET/ Adhesive /O Film White Thickness: 20/10/188 /10/60(μm) Max. System voltage rating : 1000 VDC (Test report no. 88.216.17.261.03)	Tested with appliance
	5.Lucky Film Company Limited (For 1000VDC certifiate)	Type:KPCw Material: PVDF/Adhesive/PET/ coating White Thickness:20-25/7/230-285/5-10(μm) Max. System voltage rating : 1000 VDC	Tested with appliance
	6. Crown Advanced Material Co.,Ltd	Type:Crown BF-xyn Material:PVF/Adhesive/PET/Adhesive/M Film White Thickness:25-38/10/250-275/10/25-38(μm) Max. System voltage rating : 1500 VDC (Test report no. **88.216.18.096.04**)	Tested with appliance
	7. Crown Advanced Material Co.,Ltd. (For 1500VDC certifiate)	Type:Crown BE-xn Material:PVDF/Adhesive/PET/Adhesive/M Film White Thickness:20-25/7-13/225-275/7-13/45-55(μm) Max. System voltage rating : 1500 VDC (Test report no. **88.216.18.096.05**)	Tested with appliance
	8. Crown Advanced Material Co.,Ltd.	Type:Crown BE-xn(black) Material: PVDF/Adhesive/PET/Adhesive/M Film Thickness: 20-25/7-13/225-275/7-13/45-55(μm) Max. System voltage rating : 1500 VDC (Test report no. **88.216.18.096.05_a**)	Tested with appliance
	9. Jolywood(Suzhou) Sunwatt Co.,Ltd.	Type: TFB-30(plus) Material: PVF/Adhesive/PET/FFC Thickness: 25/10/275/10(μm)	Tested with appliance

		Max. System voltage rating : 1500 VDC (Test report no. 88.216.18.095.06)	
	10. Cybird Tecenologies Inc.	Type: Cynagard 2X5A(R) Material: PVDF/Adhesive/PET/Primer coating White Thickness: 22.5/10/275 /4(μm) Max. System voltage rating : 1500 VDC (Tested in report no. 88.216.18.095.06_a)	Tested with appliance
	11. **Zhejiang sinopoly materials co.,LTD.** (For 1000VDC certifiate)	Type:NewCo-1000 Material: **modified PO/modified PE** White Thickness: **275/25(μm)** Max. System voltage rating : 1000 VDC Alternative (Test report no.:88.216.18.095.09_a)	Tested with appliance
	12. **Zhejiang sinopoly materials co.,LTD.**	Type:NewCo-1500E Material: **modified PO/modified PE** White Thickness: **325/25(μm)** Max. System voltage rating : 1500 VDC (Test report no.:88.216.18.095.09_a)	Tested with appliance
	13.COOLBACK COMPANY B.V. (for cooling system modules)	Type: Coolback® system Material of Coolback® system: COOLBACK PROFILES (CB-P01) / dyMAT COOL 40/300/75 (1500V DC) or dyMAT COOL 40/300/50(1500V DC) backsheet / COOLBACK ADHESIVE (COOLBACK ADHESIVE CB-1) Remark: (1) Manufacturer of backsheet: Coveme Engineered Films Zhangjiagang Co.,Ltd. (2) Material of dyMAT COOL 40/300/75(1500 VDC): Aluminum foli(aire side foil/natural color) 40μm; Adhesive/Translucent:8.5μm;	Tested with appliance

		PET(middle foil/Natural color):300µm; Adhesive/Translucent:8.5 µm; **PE(inner side foil/ White): 75 µm;** Total thckness:432 **µm;** (3) Material of dyMAT COOL 40/300/50(1500V DC): Aluminum foli(aire side foil/natural color) 40**µm;** **Adhesive/Translucent:8.5µm;** **PET(middle foil/Natural color):300µm;** **Adhesive/Translucent:8.5 µm;** **PE(inner side foil/ White): 50 µm;** Total thckness:407 **µm;** **(4) Max. System voltage rating : 1500 VDC** **(5) RTI for PET of dyMAT COOL 40/300/75(1500 VDC) or dyMAT COOL 40/300/50(1500V DC) backsheet: 105°C** **(6) Details of COOLBACK PROFILES (CB-P01) listed below:** **Material: 1050 H18 Aluminum** **Width: 94.24mm** **Length: 900mm** **Height: 35(±10)mm** **(7) Coolback adhesive type: CB-A01.** **Temperature range of use: -45 to 125°C** **(Test report no.:88.216.18.095.10)**	
	14. Endurance Sunshine Solar Technology(Suzhou) Co.,Ltd.	Type: HP D15 Material: Modified PO-1/ Modified PO-2/ Modified PO-3 White Thickness: 30/290/30(µm), total:350 µm, RTI:125**°C** Max. System voltage rating : 1500 VDC (Test report no.:88.216.18.095.10_a)	Tested with appliance
	15. Suzhou Yisheng opticl material Co.,Ltd	Type: Inshine301Y Material: PVDF/Adhesive/PET/Fluorocarbon coating White	Tested with appliance

		Thickness: 22.5/12/260/5(μm), total:300 μm, TI:124**°C** Max. System voltage rating : 1000 VDC Alternative (Test report no.:88.216.18.095.10_a)	
	16. Suzhou Yisheng opticl material Co.,Ltd	Type: Inshine301H Material: PVDF/PU/PET/Fluorocarbon coating White Thickness: 22.5/12/275/5(μm), total: 314.5μm; TI: 124**°C** Max. System voltage rating : 1500 VDC (Test report no.:88.216.18.095.10_a)	Tested with appliance
	17. Jolywood(Suzhou) Sunwatt Co.,Ltd.	Type: FFC-JW3020 Material: Fluorine resin /PET /Fluorine resin White Thickness: 13/250/12(μm) Max. System voltage rating : 1000 VDC Alternative (Test report no.:88.216.18.095.10_a)	Tested with appliance
	18 Jolywood(Suzhou) Sunwatt Co.,Ltd.	Type: FFC-JW3010(plus) Material: Fluorine resin /PET /Fluorine resin White Thickness: 13/285/12(μm) Max. System voltage rating : 1500 VDC (Test report no.:88.216.18.095.10_a)	Tested with appliance
	19. SUZHOU FIRST PV MATERIAL CO., LTD	Type: BEC-301 Material: Fluororesin /PET / Fluororesin White Thickness: 15/250/15(μm), total: 280 μm; TI: 124**°C** Max. System voltage rating : 1000 VDC (Test report no.:88.216.18.095.10_a)	Tested with appliance
	20. Lucky Film Company Limited	Type: KPP Material: PVDF /PU/ PET/ PU/PO White	Tested with appliance

		Thickness: 20/6.5/200/6.5/60 (µm) Max. System voltage rating : 1000 VDC Alternative (Test report no.:88.216.18.095.10_a)	
	21. Lucky Film Company Limited	Type: KPP2 Material: PVDF /Adhesive/ PET/ Adhesive /PO White Thickness: 20/6.5/250/6.5/60(µm) , total: 343 µm; TI:122**°C** Max. System voltage rating : 1500 VDC (Test report no.:88.216.18.095.10_a)	Tested with appliance
	22. **Jolywood (Suzhou) Sunwatt Co., Ltd.**	**Model: KFB-30(plus)** **Material:PVDF/Adhesive/PET/ Fluorine resin** **Thickness:20/10/275 /10(µm)** **Color：White** **(Test report no.:88.216.18.095.12_a)**	Tested with appliance
	23. **Jolywood (Suzhou) Sunwatt Co., Ltd.**	**Model: KFB-30** **Material:PVDF/Adhesive/PET/ Fluorine resin** **Thickness:20/10/250 /10(µm)** **Color：White** **(Test report no.:88.216.18.095.12_a)**	Tested with appliance
	24. Chang Zhou Hui Tian New Material Co., Ltd.	**Model: PV331C** **Material:PVDF/PU/PET/ Fluoropolymer Coating** **Thickness:25 ± 5/10 ± 5/275 ± 25/6 ± 2(µm)** **Color：White** **(Test report no.:88.216.18.095.12_b)**	Tested with appliance
	25.Chang Zhou Hui Tian New Material Co., Ltd.	**Model: PV332C** **Material:PVDF/PU/PET/ Fluoropolymer Coating** **Thickness:25 ± 5/10 ± 5/275 ± 25/6 ± 2(µm)** **Color：White** **(Test report no.:88.216.18.095.12_b)**	Tested with appliance
4.Encapsulant	1.HangZhou First PV Material Co.,Ltd.	Material:EVA,F406p(superstrateside)/F806p(backsheet side) Thickness: 0.45mm/0.5mm/0.55mm/0.6mm /0.65mm	Tested with appliance

	(combined with backsheet 1 type Cynagard 2X5A,backsheet 2 type:MP Sheet PF B05,backsheet 4 type ZTT-KPO, backsheet 8 type Crown BE-xn(black), backsheet 10 type Cynagard 2X5A(R), **backsheet model: KFB-30(plus), KFB-30**)		
	2.HangZhou First PV Material Co.,Ltd.(combined withbacksheet 3 type:ZTT-TPT, backsheet 7 type Crown BE-xn, backsheet 13 type Coolback® system, backsheet 15 type: Inshine301Y, backsheet 16 type: Inshine301H, backsheet 17 type: FFC-JW3020, backsheet 18 type: FFC-JW3010(plus), backsheet 20 type: KPP, backsheet 21 type: KPP2)	Material:EVA,F406P(superstrateside)/F806W(backsheet side) Thickness: 0.45mm/0.5mm /0.55mm/0.6mm/0.65mm (Tested in report no.88.216.18.095.01)	Tested with appliance
	3.Lushan Photovoltaic Technology Co.,Ltd (combined with backsheet 5 type:KPCw)	Material:EVA,EV1050G2(superstrateside) /EV1050G5(Y)(backsheet side) Thickness:0.45mm/0.5mm/0.55mm/0.6mm/0.65mm (Tested in report no.88.216.18.095.03)	Tested with appliance
	4. Lushan Photovoltaic Technology Co.,ltd. （combined with backsheet 6 type: Crown BF-xyn, backsheet 15 type: Inshine301Y, backsheet 16 type: Inshine301H, **backsheet type PV331C, PV332C**）	Material:EVA,EV1050G2(superstrateside)/EV1050G1(Y)(backsheet side) Thickness: 0.45mm/0.5mm /0.55mm/0.6mm/0.65mm (Tested in report no. 88.216.18.096.04)	Tested with appliance
	5.Hangzhou First PV Material Co,.Ltd. (combined with backsheet 9 type: TFB-30(plus))	Material:F406P/TF4 thickness: 0.45/0.5/0.55/0.6/0.65mm (Test report no. 88.216.18.095.06)	Tested with appliance
	6. **Shanghai HIUV New Materials Co., Ltd.**	Material:**S201MT1/ S201MT2** thickness**: 0.6 ± 0.1mm** (Test report no.:88.216.18.095.09_a)	Tested with appliance

	(combined with backsheet 11 type: NewCo-1000, backsheet 12 type: NewCo-1500E)		
	7. Changzhou Sveck PV New Material Co.,Ltd (combined with backsheet 14 type: MP sheet PF D15)	Material:SV-15296P/SV-15297P thickness: 0.9mm~0.6mm/0.5mm/0.45mm (Test report no.:88.216.18.095.10_a)	Tested with appliance
	8. CHANGZHOU BBETTER FILM TECHNOLOGIES CO.,LTD (combined with backsheet 19 type: BEC-301)	Material:B601HP/B601P thickness: 0.45/0.5mm (Test report no.:88.216.18.095.10_a)	Tested with appliance
5.Junction box combination 1			
Junction box	LEONI Cable (China) Co.,ltd.	Type: LSB-00070, 1000V DC, 13A, 110°C(RTI) IP68	TÜV RH R 50387210
Cable	LEONI Studer AG	Type: H1Z2Z2-K, 1 x 4.0 mm² ,1500V DC	TÜV TÜV RH R60119044
	LEONI Studer AG and LEONI Cable(China) Co.,Ltd.	Type: H1Z2Z2-K, 1 x 4.0 mm² ,1500V DC	TÜV RH R60101179
Connector	LEONI Cable(china) Co.,Ltd.	Type: LSC-R1, LSC-R1-A, LSC-R1-C, 1000V DC, 30A; LSC-R1-B, 1500V DC, 30A;	TÜV RH R 50386679
	LEONI Cable(china) Co.,Ltd.	Type: LSC-R4, LSC-R4-A, 1500V DC, 30A; (Alternative)	TÜV RH R 50382446
	Amphenol Industrial Operations	Type:Helios H4,1000V DC, 32A (Alternative)	TÜV RH R 5038538
Bypass diode	Yangzhou Yangjie Electronic Co., Ltd.	Type: 20SQ045 Max. peak reverse voltage 45V, Forward Rectified current 20A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance

Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
Adhesive for junction box	Shanghai Huitian New ChemicalMaterial Co., Ltd.	Type: HT906Z Max operating Temp.: 105°C	Tested with appliance
Junction box combination 2			
Junction box	LEONI Cable (China) Co.,ltd.	Type: LSB-00170, 1500V DC, 15A, 110°C(RTI) IP68	TÜV RH R 50344959
Cable	LEONI Studer AG	Type: BETAflam Solar 125 V Flex FRNC, 1 x 4.0 mm², 1500V DC	TÜV RH R60100611
Connector	LEONI Cable(china) Co.,Ltd.	Type: LSC-R1, LSC-R1-B, 1500V DC, 30A;	TÜV RH R 50386679
Bypass diode	Panjit Electronics(wuxi) Co., Ltd.	Type: SB2045DY Max. peak reverse voltage 45V, Forward Rectified current 15A. Max junction temperature +200 Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
Junction box combination 3			
Junction box	Jiangsu Holysun Electronics Technology Co.,Ltd.	Type: J2, 1500V DC, 13A, 105°C(RTI) IP68	TÜV RH R 50400305
Cable	CNINGBO KIBOR WIRE & CABLE CO.,LTD.	Type:H1Z2Z2-K 1×4.0mm², 1 x 4.0 mm², 1500V DC	TÜV RH R50302047
	Jiangsu Holysun Electronics Technology Co., Ltd.	Type:H1Z2Z2-K 1×4.0mm², 1 x 4.0 mm², 1500V DC	TÜV R 50432749
Connector	Jiangsu Holysun Electronics Technology Co., Ltd.	Type: C1, 1500V DC, 30A	TÜV RH R 50400309

	Jiangsu Holysun Electronics Technology Co.,Ltd.	Type:C2,1500V DC,30A (Alternative)	TÜV R 50435943
Bypass diode	Panjit Electronics Co., Ltd.	Type: 20SQ045 Max. peak reverse voltage 45V, Forward Rectified current 20A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	Shanghai Huitian New ChemicalMaterial Co., Ltd.	5299w-s	Tested with appliance
	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
	JiangSu CREVO science& Technology Co., Ltd.	Type: CV709 Max operating Temp.: 200°C	Tested with appliance
	Beijing Tonsan New Material Technology Co.,Ltd.	Type: TS1527 Max operating Temp.: 210°C	Tested with appliance
Junction box combination 4			
Junction box	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Type: PV-XT1206xy, 1500V DC, 15A, 110°C(RTI) IP68	TÜV RH R 50357480
Cable	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Type:H1Z2Z2-K 1 × 4.0mm², 1 x 4.0 mm², 1500V DC	TÜV RH R50358893
Connector	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Type: PV-XT101, 1500V DC, 35A;	TÜV RH R 50315829
Bypass diode	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Type: 20SQ045 Max. peak reverse voltage 45V, Forward Rectified current 15A. Max junction temperature +200°C	Tested with appliance

		Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	
Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1521	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
	JiangSu CREVO science& Technology Co., Ltd.	Type: CV709 Max operating Temp.: 200°C	Tested with appliance
Junction box combination 5			
Junction box	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type: GF50xy, 1500V DC, 15A, 110°C(RTI) IP68	TÜV RH R 50406314
Cable	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type:H1Z2Z2-K, 1 x 4.0 mm² ,1500V DC	TÜV RH R50318681
	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type:62930 IEC 131, 1 x 4.0 mm² ,1500V DC	TUV R 50452023
Connector	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type: 05-6, 05-8, 1500V DC, 30A;	TÜV RH R 50334688
	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type:RHC2xyzu, 1500V DC, 35A;	TUV R 504 73621
Bypass diode	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type:PS4025 Max. peak reverse voltage 45V, Forward Rectified current 15A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:5299W-S	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance

	JiangSu CREVO science& Technology Co., Ltd.	Type: CV709 Max operating Temp.: 200°C	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
Junction box combination 6			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd	Type: TS08-12, 1000V DC, 15A, 110°C(RTI) IP67	TÜV SÜD B0952070015
Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1x6mm²,25A	R50444396
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1000V DC	TUV RH R50439595
Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Type: TS01, 1000V DC, 30A;	TÜV SÜD B160695207005
Bypass diode	Yangzhou hongyang electronics co. LTD	Type:20PV045 Max. peak reverse voltage 45V, Forward Rectified current 15A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	JiangSu CREVO science& Technology Co., Ltd.	CV315	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
	JiangSu CREVO science& Technology Co., Ltd.	Type: CV709 Max operating Temp.: 200°C	Tested with appliance
Junction box combination 7			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd	Type: TS03-13B, 1500V DC, 15A, 110°C(RTI) IP67	TÜV SÜD B0952070015

Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1x6mm²,25A	R50444396
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1500V DC	TUV RH R50439595
Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Type: TS02, 1500V DC, 25A;	TÜV R15076730 001
Bypass diode	Yangzhou hongyang electronics co. LTD	Type:20PV045 Max. peak reverse voltage 45V, Forward Rectified current 15A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
	Shanghai Huitian New ChemicalMaterial Co., Ltd.	5299w-s	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
	JiangSu CREVO science& Technology Co., Ltd.	Type: CV709 Max operating Temp.: 200°C	Tested with appliance
	Beijing Tonsan New Material Technology Co.,Ltd.	Type: TS1527 Max operating Temp.: 210°C	Tested with appliance
Junction box combination 8			
Junction box	Zhejiang Renhe Photovoltaic Technology Co.,Ltd	Type:FT50xy,1500V DC,16A/20A/25A, 110℃（RTI） IP68	TÜV RH R 50415465
Cable	Zhejiang RenHe Photovoltaic Technology Co.,ltd.	Type:H1Z2Z2-K, 1 x 4.0 mm² ,1500V DC	TÜV RH R50318681
	Trina Solar Co., Ltd.	Type:H1Z2Z2-K, 1 x 4.0 mm² ,1500V DC	TUV RH R50426462

	Trina Solar Co., Ltd.	Model: 62930 IEC131 1x4mm2,1500V DC	TUV RH R50358893
Connector	Zhejiang Renhe Photovoltaic Technology Co.,Ltd.	Type:05-8,1500V DC,30A	TÜV R 50334688
	Zhejiang Renhe Photovoltaic Technology Co.,Ltd	Model: RHC2xyzu, 1500V DC,35A.	TUV RH R50473621
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY-UR; PV-KBT4-EVO2/XY-UR,1500V DC,45A	TÜV R 60127169
Bypass diode	Changzhou Starsea Electronic Co., Ltd	Type:FMK4525A Max. peak reverse voltage 45V, Forward Rectified current 16A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
	Changzhou Starsea Electronic Co., Ltd	Type:FMK4530T Max. peak reverse voltage 45V, Forward Rectified current 20A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
	Zhejiang Renhe Photovoltaic Technology Co.,Ltd	Model: FMK5040D Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:5299W-S	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance

	JiangSu CREVO science& Technology Co., Ltd.	Type: CV709	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
Junction box combination 9			
Junction box	Jiangsu Holysun Electronics Technology Co.,Ltd.	Type: S1, 1500V DC, 15A, 125°C(RTI) IP68	TÜV RH R 50400306
Cable	Ningbo Kibor Wire & Cable Co.,Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV RH R 50302047
	Changshu JHOSIN Communication Technology Co.,Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV RH R 50325448
	Changzhou Chaoyue Special Cable Co.,Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV RH R 50419838
	Jiangsu Holysun Electronics Technology Co.,Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV RH R 50432749
	EGE KABLO Endustri Malzemeleri Sanayi Ticaret A.S.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV RH R 50389201
Connector	Jiangsu Holysun Electronics Technology Co., Ltd.	Type: C1, 1500V DC, 30A	TÜV RH R 50400309
	Jiangsu Holysun Electronics Technology Co.,Ltd.	Type:C2,1500V DC,30A (Alternative)	TÜV R 50435943
Bypass diode	Jiangsu Holysun Electronics Technology Co., Ltd.	Type: HD2045 Max. peak reverse voltage 45V, Forward Rectified current 20A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells);	Tested with appliance
Potting Material inside	Shanghai Huitian New ChemicalMaterial Co., Ltd.	5299w-s	Tested with appliance

Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
Junction box combination 10			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd.	Type:TS08-12A, 1500V DC, 15A, 110°C(RTI) IP67	TUV SUD B 095207 0015 Rev.01
Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1x6mm²,25A	R50444396
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1500V DC	TUV RH R50439595
Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Type: TS02, 1500V DC, 25A;	TÜV R15076730 001
Bypass diode	Yangzhou hongyang electronics co. LTD	Type:20PV045 Max. peak reverse voltage 45V, Forward Rectified current 15A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	Shanghai Huitian New ChemicalMaterial Co., Ltd.	5299w-s	Tested with appliance
Adhesive for junction box	DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C	Tested with appliance
Junction box combination 11			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd.	Type:TS08-15A, 1500V DC, 20A, 110°C(RTI) IP67	TUV SUD B 095207 0015 Rev.02
Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1x6mm²,25A	R50444396
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1500V DC	TUV RH R50439595
Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Type: TS02, 1500V DC, 25A;	TÜV R15076730 001

Bypass diode	Yangzhou hongyang electronics co. LTD	Type: 30SQ045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 80(for 240 cells);66(for 198 cells);	Tested with appliance
Potting Material inside	Shanghai Huitian New ChemicalMaterial Co., Ltd.	5299w-s	Tested with appliance
	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co.,Ltd.	Type: TS1527 Max operating Temp.: 210°C	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
Junction box combination 12			
Junction box	Jiangsu Holysun Electronics Technology Co.,Ltd.	Type: J1A, 1500V DC, 15A, 125°C(RTI) IP68	TÜV RH R 50400305
Cable	CNINGBO KIBOR WIRE & CABLE CO.,LTD.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV RH R 50302047
	Jiangsu Holysun Electronics Technology Co., Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV R 50432749
Connector	Jiangsu Holysun Electronics Technology Co., Ltd.	Type: C1, 1500V DC, 30A	TÜV RH R 50400309
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY; PV-KBT4-EVO2/XY,1500V DC,45A (Alternative)	TÜV R 60098495
Bypass diode	Changzhou Starsea Electronic Co.,Ltd.	Type: PV3045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 80(for 240 cells);66(for 198 cells);	Tested with appliance

Potting Material inside	Beijing Tonsan New Material Technology Co.,Ltd	TS1533	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co.,Ltd.	Type: TS1527 Max operating Temp.: 210°C	Tested with appliance
Junction box combination 13			
Junction box	Jiangsu Holysun Electronics Technology Co.,Ltd.	Model:S4xy(x=C or G, y=blank or N; x=K, y=N),1500V DC,25/30A, (Test report no.:88.216.18.095.09)	TUV RH R50400306
Cable	Ningbo Kibor Wire & Cable Co.,Ltd.	Model:H1Z2Z2K,1x4.0mm²,1500V DC	R 50302047
	Jiangsu Holysun Electronics Technology Co., Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV R 50432749
	Jiangsu Holysun Electronics Technology Co., Ltd.	62930 IEC 131 1X4…6mm2 HALOGEN GREE LOW SMOKE	TÜV R 50481494
	Jiangsu Holysun Electronics Technology Co., Ltd.	62930 IEC 131 1X4mm2 HALOGEN GREE LOW SMOKE	TUV R 50483180
Connector	Jiangsu Holysun Electronics Technology Co.,Ltd.	Model: C1, 1500V DC, 30A	R 50462216
	Stäubli Electrical Connectors AG	PV-KST4-EVO 2/xy_UR;PV-KBT4-EVO 2/xy_UR, 1500V DC, 30A	TÜV R 60127169
Bypass diode	SUZHOU GOOD-ARK ELECTRONIC CO., LTD	Model: GFT4050SM Max. peak reverse voltage 50V, Forward Rectified current 40A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Supplier: PAN JIT ELECTRONICS (WUXI) CO., LTD.	**Model: GF6045** Max. peak reverse voltage 50V, Forward Rectified current 40A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1533	Tested with appliance

	Shanghai Huitian New Chemical Material Co.,Ltd.	Model:5299W-S	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd.	Model:HT906Z	Tested with appliance
Junction box combination 14			
Junction box	Jiangxi Jinko PV Material Co., Ltd.	Model: PV- JK06Hxy,1500VDC,15A (Test report no.:88.216.18.095.09_a)	TUV RH R50377288
Cable	Ningbo Kibor Wire&Cable Co., Ltd.	Model:H1Z2Z2K,1x4.0mm²,1500V DC	R 50302047
Connector	Jiangxi Jinko PV Material Co., Ltd.	Model: PV-JK03Mxy, 1500V DC, 45A	R 50318165
Bypass diode	PANJIT International Inc.	Model: TPD3045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 24(for 72 cells);20(for 60 cells);18(for 54 cells)	Tested with appliance
Potting Material inside	CHENGDU GUIBAO SCIENCE&TECHNOLOGY CO.,LTD	Model:4808	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1533	Tested with appliance
	Shanghai Huitian photovoltaic technology co.Ltd.	Model:5299w-s	Tested with appliance
Adhesive for junction box	CHENGDU GUIBAO SCIENCE&TECHNOLOGY CO.,LTD	Model:888A	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance

	Shanghai Huitian photovoltaic technology co.Ltd.	Model:HT906Z	Tested with appliance
Junction box combination 15			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd	Model: PV-TS11-20A,1500V DC,20A/25A/30A, (Test report no.:88.216.18.095.10)	TUV SUD B 095207 0015 Rev.04
Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1x6mm²,25A	R50444396
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1000V DC	TUV RH R50439595
Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Model: TS02, 1500V DC, 30A	TUV SUD B 095207 0016 Rev.00
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY-UR; PV-KBT4-EVO2/XY-UR,1500V DC,45A	TUV RH R60127169
Bypass diode	Wuxi Panjit Technology Development Co.,Ltd.	Model: GF4045 Max. peak reverse voltage 45V, Forward Rectified current 40A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Wuxi Panjit Technology Development Co.,Ltd.	Model: GF3045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Wuxi Panjit Technology Development Co.,Ltd.	Model: GF6045 Max. peak reverse voltage 45V, Forward Rectified current 60A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance

Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1533	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	TUV SUD B 095207 0015 Rev.04
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	TUV SUD B 095207 0015 Rev.04
Junction box combination 16			
Junction box	Suzhou UKT New Energy Technology CO.,LTD	Model: PV-JB12S1,1500V DC,30A, (Test report no.:88.216.18.095.10_a)	TUV RH R50377301
Cable	Ningbo Kibor Wire & Cable Co., Ltd.	Model: H1Z2Z2K,1x4.0mm²,1500V DC	R 50302047
	Wuxi Xinhongye Wire & Cable Co., Ltd.	Model: H1Z2Z2K,1x4.0mm²,1500V DC	R 50311889
	Changshu JHOSIN Communication Technology Co., Ltd.	Model: 62930 IEC 131,1x4.0 mm²,1500V DC	R 50413335
Connector	Suzhou UKT New Energy Technology CO.,LTD	Model: PV-CO02-xy, 1500V DC, 45A	TUV SUD B 095207 0016 Rev.00
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY-UR; PV-KBT4-EVO2/XY-UR,1500V DC,45A	TÜV R 60127169
Bypass diode	Suzhou UKT New Energy Technology CO.,LTD	Model: UKTH3045-12 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	CHENGDU GUIBAO SCIENCE&TECHNOLOGY CO.,LTD.	Model:4808 (Tested)	Tested with appliance

	Shanghai Huitian New Chemical Material Co.,Ltd	Model:5299W-S	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:1533	Tested with appliance
Adhesive for junction box	CHENGDU GUIBAO SCIENCE&TECHNOLOGY CO.,LTD.	Model:888A (Tested)	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:1527	Tested with appliance
Junction box combination 17			
Junction box	Jiangsu Holysun Electronics Technology Co.,Ltd.	Model: S2N,1500V DC,20A, (Test report no.:88.216.18.095.10_a)	TUV RH R50400306
Cable	Ningbo Kibor Wire & Cable Co., Ltd.	Model: H1Z2Z2-K1X2,5...4,0mm2,1500V DC	TUV RH R50302047
	Jiangsu Holysun Electronics Technology Co., Ltd.	Type:H1Z2Z2-K 1 × 4.0mm² , 1 x 4.0 mm² , 1500V DC	TÜV R 50432749
	Jiangsu Holysun Electronics Technology Co.,Ltd.	Model: 62930 IEC 131 1X4...6mm2 HALOGENGREE LOW SMOKE,1500V DC	TUV RH R50481494
Connector	Jiangsu Holysun Electronics Technology Co.,Ltd.	Model: C1, 1500V DC, 30A	TUV RH R50462216
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY-UR; PV-KBT4-EVO2/XY-UR,1500V DC,45A	TÜV R 60127169
Bypass diode	Jiangsu Holysun Electronics Technology Co.,Ltd.	Model: HD3045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1533	Tested with appliance

	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	TUV SUD B 095207 0015 Rev.04
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	TUV SUD B 095207 0015 Rev.04
Junction box combination 18			
Junction box	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Model: PV-1609Nxyz,1500V DC,20A/25A, (Test report no.:88.216.18.095.10_a)	TUV RH R50359250
Cable	Wuxi Xingongye Wire&Cable Co.,Ltd	Model: 62930 IEC 1X4.0mm2,1500V DC	TUV RH R50439595
	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Model: 62930 IEC 1X4.0 HALOGENGREE LOW SMOKE,1500V DC	TUV RH R50358893
Connector	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Model: PV-XT101.1, 1500V DC, 35A	TUV RH R50385354
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY-UR; PV-KBT4-EVO2/XY-UR,1500V DC,45A	TÜV R 60127169
Bypass diode	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Model: XT3050A(x=3,y=3,z=6) Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Suzhou Xtong Photovoltaic Technologies Co.,Ltd.	Model: XT3050(x=3,y=2,z=4) Max. peak reverse voltage 50V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1521	Tested with appliance

	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	TUV SUD B 095207 0015 Rev.04
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	TUV SUD B 095207 0015 Rev.04
Junction box combination 19			
Junction box	Jiangxi Jinko PV Material Co., Ltd.	Model:PV-JK09Exy(x=M or M2 or L, y=1 or 2),1500V DC,18A, (Test report no.:88.216.18.095.10_a)	TUV RH R50354415
Cable	Jiangxi Jinko PV Material Co., Ltd.	Model: 62930 IEC131 1x4.0mm2,1500V DC	TUV RH R50463891
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model: 62930 IEC131 1x1,5....35mm2,1500V DC	TUV RH R50439595
Connector	Jiangxi Jinko PV Material Co., Ltd.	Model: **PV-JK03M2xy**, 1500V DC,45A.	TUV RH R50385354
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2/XY-UR; PV-KBT4-EVO2/XY-UR,1500V DC,45A	TÜV R 60127169
Bypass diode	Jiangxi Jinko PV Material Co., Ltd.	Model: TPA3045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1533	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	Tested with appliance
Adhesive for junction box	Hangzhou Zhijiang Silicone Chemicals Co.,Ltd.	Model:JS-606	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance

	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
Junction box combination 20			
Junction box	Jiangsu Tonglin Electric Co,.Ltd.	Model: TL-BOX022.3-A-2-1xyzF(x=4),1500V DC,25A, (Test report no.:88.216.18.095.10_a)	TUV RH R50431146
Cable	Jiangsu Tonglin Electric Co,.Ltd.	Model: H1Z2Z2-K1X1,5....35mm2/4mm2, 1500V DC	TUV RH R50362278
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model: H1Z2Z2-K1X1,5....35mm2/4mm2, 1500V DC	TUV RH R50311889
Connector	Jiangsu Tonglin Electric Co,.Ltd.	Model: TL-CABLE01S, 1500V DC,30A.	TUV RH R50385354
	Stäubli Electrical Connectors AG	Type:PV-KST4-EVO2; PV-KBT4-EVO2,1500V DC,45A	TÜV R 60127169
Bypass diode	Jiangsu Tonglin Electric Co,.Ltd.	Model: PT001B-HS Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:1521	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:5299W	TUV SUD B 095207 0015 Rev.04
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	TUV SUD B 095207 0015 Rev.04
	Hangzhou Zhijiang Silicone Chemicals Co.,Ltd.	Model:JS606	Tested with appliance
Junction box combination 21			

Junction box	Dongguan Zerun Electronics Technology Co.,Ltd	Model: Z7-abcdef-g,1500V DC,15A, (Test report no.:88.216.18.095.10_a)	TUV SUD B109065 0001 Rev.00
Cable	Dongguan Zerun Electronics Technology Co.,Ltd	Model: H1Z2Z2-K 1X4mm2, 1500V DC	TUV RH R50354353
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model: 62930 IEC131 1X4mm2, 1500V DC	TUV RH R50439595
Connector	Dongguan Zerun Electronics Technology Co.,Ltd	Model: Z4S, 1500V DC,40A.	TUV RH R50363877
Bypass diode	Dongguan Zerun Electronics Technology Co.,Ltd	Model: 20SQ045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1521	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1521	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
Junction box combination 22			
Junction box	Dongguan Zerun Electronics Technology Co.,Ltd	Model: Z8-abcde,1500V DC,16A/18A/20A, (Test report no.:88.216.18.095.10_a)	TUV SUD B098719 0005 Rev.01
Cable	Dongguan Zerun Electronics Technology Co.,Ltd	Model: H1Z2Z2-K,1X4mm2, 1500V DC	TUV RH R50354353
	Wuxi Suntech Power Co.,Ltd	Model: 62930 IEC131, 1X4mm2, 1500V DC	TUV RH R50439595
Connector	Dongguan Zerun Electronics Technology Co.,Ltd	Model: Z4S-abcde, 1500V DC,40A.	TUV RH R50363877

Bypass diode	Yangzhou Yangjie Electronic Technology Co.,Ltd	Model: 20SQ045 Max. peak reverse voltage 45V, Forward Rectified current 20A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Yangzhou Yangjie Electronic Technology Co.,Ltd	Model: 25SQ045 Max. peak reverse voltage 45V, Forward Rectified current 25A Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Yangzhou Yangjie Electronic Technology Co.,Ltd	Model: 30SQ045 Max. peak reverse voltage 45V, Forward Rectified current 30A Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1521	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
Junction box combination 23			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd	Model: PV-TS03-13C 1000V DC,15A/20A (Test report no.:88.216.18.095.10_a)	TUV SUD B 095207 0015 Rev.04
Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm², 1000V DC	TUV RH R50444396

	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm², 1000V DC	TUV RH R50439595
Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Model: TS01, 1000V DC, 30A	TUV SUD B 095207 0016 Rev.00
Bypass diode	Yangzhou Hongyang Technology Co.,Ltd	Model: HY 20PV045 Max. peak reverse voltage 45V, Forward Rectified current 20A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Yangzhou Hongyang Technology Co.,Ltd	Model: 30SQ045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1521	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
Junction box combination 24			
Junction box	Jiangsu TianSheng PV Technology Co.,Ltd	Model: PV-TS11-20,1000V DC,20A/25A (Test report no.:88.216.18.095.10_a)	TUV SUD B 095207 0015 Rev.04
Cable	Huzhou Shangfu Electric Wire&Cable High-Tech	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1000V DC	TUV RH R50444396
	Wuxi Xinhongye Wire & Cable Co.,Ltd.	Model:62930 IEC 131 1*2,5...35mm², 1x4mm²,1000V DC	TUV RH R50439595

Connector	Jiangsu TianSheng PV Technology Co.,Ltd	Model: TS01, 1000V DC, 30A	TUV SUD B 095207 0016 Rev.00
Bypass diode	Wuxi Panjit Technology Development Co.,Ltd.	Model: GF4045 Max. peak reverse voltage 45V, Forward Rectified current 40A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
	Wuxi Panjit Technology Development Co.,Ltd.	Model: GF3045 Max. peak reverse voltage 45V, Forward Rectified current 30A. Max junction temperature +200°C Cells per bypass diode: 48(for 144 cells);40(for 120 cells);	Tested with appliance
Potting Material inside	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1521	Tested with appliance
	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1533	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT5299W-S	Tested with appliance
Adhesive for junction box	Beijing Tonsan New Material Technology Co., Ltd.	Model:TS1527	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	Model:HT906Z	Tested with appliance
Junction box combination 24			
Junction box	**Zhejiang Renhe Photovoltaic Technology Co.,Ltd**	**Model:FT60xy,1500V DC,25A/30/35A,**	Tested with appliance
Cable	**Zhejiang RenHe Photovoltaic Technology Co.,ltd.**	**Model:62930 iec 131,1x4.0mm²,1500V**	Tested with appliance
Connector	**Zhejiang RenHe Photovoltaic Technology Co.,ltd.**	**Model: RHC2xyzu**	Tested with appliance

	Stäubli Electrical Connectors AG	**Type:PV-KST4-EVO2/xy-UR; PV-KBT4-EVO2/xy-UR,1500V DC,45A**	
Bypass diode	**Zhejiang RenHe Photovoltaic Technology Co.,ltd**	**Model: RMK4545D** **IF(AV)=45A,VRRM=45V,Tj=200℃,30A**	Tested with appliance
	Zhejiang RenHe Photovoltaic Technology Co.,ltd	**Model: RMK4560D** **IF(AV)=60A,VRRM=45V,Tj=200℃,35A**	Tested with appliance
	Zhejiang RenHe Photovoltaic Technology Co.,ltd	**Model: RMK4550D** **IF(AV)=50A,VRRM=45V,Tj=200℃,30A**	Tested with appliance
	Zhejiang RenHe Photovoltaic Technology Co.,ltd	**Model: RMK4555D** **IF(AV)=55A,VRRM=45V,Tj=200℃,30A**	Tested with appliance
	Zhejiang RenHe Photovoltaic Technology Co.,ltd	**Model: RMK4545T** **IF(AV)=45A,VRRM=45V,Tj=200℃,25A**	Tested with appliance
Potting Material inside	**Beijing Tonsan New Material Technology Co., Ltd.**	**Model:TS1533**	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	**Model:HT5299W-S**	Tested with appliance
Adhesive for junction box	**Beijing Tonsan New Material Technology Co., Ltd.**	**Model: TS1527**	Tested with appliance
	Shanghai Huitian New Chemical Material Co.,Ltd	**Model:HT906Z**	Tested with appliance
6. Cell interconnector Adhesive for junction box	1.Wuxi Sveck Technology Co.，Ltd.	Cross section: 0.25mm x 1.0mm/ 0.9mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	2.Xi＇an Telison New Materials Co.,Ltd.	Cross section: Φ0.4mm; Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	3.TaiCang JuRen PV Material Co.,Ltd.	Cross section: 0.25mm x 1.0mm/ 0.9mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance

	4.Jiangsu Sun Technology Corp., Ltd.	Cross section: 0.25mm x 1.0mm/0.9mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	5. TaiCang JuRen PV Material Co.,Ltd.	Cross section: 0.18mm*0.6mm ; Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	6.Xi ' an Telison New Materials Co.,Ltd.	Cross section: 0.25mm x 1.0mm/0.9mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	7. Jiangsu Sun Technology Corp., Ltd.	cell connector 0.18*0.6mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	8. TaiCang JuRen PV Material Co.,Ltd.	cell connector φ0.3mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	9. TaiCang JuRen PV Material Co.,Ltd.	cell connector :0.2mm x 0.9mm Material: Cu,Sn,PbSn60Pb40 (Test report no.:88.216.18.095.09_a)	Tested with appliance
	10.Jiangsu Sun Technology Corp., Ltd.	cell connector :0.2mm x 0.9mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	11. TaiCang JuRen PV Material Co.,Ltd.	cell connector φ0.35mm/φ0.32mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	12.Jiangsu Sun Technology Corp., Ltd.	cell connector : φ0.3mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	13.Jiangsu Sun Technology Corp., Ltd.	cell connector : φ0.35mm/φ0.32mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	14. Shanghai Shengbai Solar Energy Technology Co.,Ltd.	cell connector : 0.25x0.9/1.0mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	15.Tangshan Haitai New Energy Technology Co.,Ltd	cell connector : 0.25x0.9/1.0mm, **Φ0.35mm, Φ0.3mm** Material: Cu,Sn,PbSn60Pb40	Tested with appliance
7. String connector	1.Wuxi Sveck Technology Co.，Ltd.	Cross section: 0.35mm x 6.0mm/ 4.0mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance

	2.Xi ' an Telison New Materials Co.,Ltd.	Cross section: 0.35mm x 6.0mm/ 4mm, **0.4*6mm&0.35*4mm** Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	3.TaiCang JuRen PV Material Co.,Ltd.	Cross section: 0.35mm x 6.0mm/ 4mm;0.35mm x8.0mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	4.Jiangsu Sun Technology Corp., Ltd.	Cross section: 0.35mm x 6.0mm/4mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	5.TaiCang JuRen PV Material Co.,Ltd.	Cross section: 0.1mm*3mm(0.1mm*5mm) ; 0.4mm*6mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	6. Jiangsu Sun Technology Corp., Ltd.	Cross section: 0.13*3.0/0.4*6 mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	7. TaiCang JuRen PV Material Co.,Ltd.	Cross section: 0.35mm x 6.0mm/ 0.13mm x 3.0mm Material: Cu,Sn,PbSn60Pb40 (Test report no.:88.216.18.095.09_a)	Tested with appliance
	8. Jiangsu Sun Technology Corp., Ltd.	Cross section: 0.3 x 6 mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	9. TaiCang JuRen PV Material Co.,Ltd.	Cross section: 0.25 x 6mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	10. Jiangsu Sun Technology Corp., Ltd.	Cross section: 0.25 x 6mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	11. Xi ' an Telison New Materials Co.,Ltd.	Cross section: 0.25mm x 6mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	12. Shanghai Shengbai Solar Energy Technology Co.,Ltd.	Cross section: 0.35 x 4/6mm Material: Cu,Sn,PbSn60Pb40	Tested with appliance
	13.Tangshan Haitai New Energy Technology Co.,Ltd	Cross section: 0.35 x 4/6mm, **0.3*6mm&0.35*4mm** Material: Cu,Sn,PbSn60Pb40	Tested with appliance
8. Fluxing material	1. Zhaori	Type: SF-56	Tested with appliance

	2. HenKel	Type: X33-08i	Tested with appliance
	3. Hasaconi	Type: SF-56	Tested with appliance
	4.Shenzhen Vital New Material Company Limited	Type: PV105A	Tested with appliance
	5. Shenzhen Tong fang Electronic New Material Co., Ltd.	Type TF-6201	Tested with appliance
	6. Shenzhen Tong fang Electronic New Material Co., Ltd.	Type: TFHF9200	Tested with appliance
	7.CHANGLI SHENGRI CHEMICAL PRODUCTS CO.,LTD	Type: SF-105	Tested with appliance
9.Frame	1.TangShan Jing Tuo Aluminum Products Co.Ltd.	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm,35mmX35mm	Tested with appliance
	2.Jinan sonny photovoltaic technology co. LTD	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm	Tested with appliance
	3. Jiangyin Chuangyue Metal Products Co.,Ltd.	Type: Aluminum 6005-T6 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm	Tested with appliance
	4. Tangshan Haitai New Energy Technology Co.,Ltd	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.09_a)	Tested with appliance
	5. Jiangyin Xuchu Technology Co., Ltd.	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.10_a)	Tested with appliance
	6. Jiangyin Xuchu Technology Co., Ltd.	Type: Aluminum 6005T6 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.10_a)	Tested with appliance
	7. Henan Guotai Aluminium Industry Co.,Ltd	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm	Tested with appliance

		(Test report no.:88.216.18.095.10_a)	
	8. JIANGSU YUEJIA METALLIC TECHNOLOGY CO.,LTD	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.10_a)	Tested with appliance
	9. Wuxi Haiyuan New Energy Material Technology Co., Ltd	Type: Aluminum 6063T5 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.10_a)	
	10. Tangshan Haitai New Energy Technology Co.,Ltd	Type: Aluminum 6005T6 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.10_a)	Tested with appliance
	11. **Jiangsu Guangzhou Metal Technology Co.,Ltd.**	Type: Aluminum 6005T6 Material: Al Alloy ;size:40mm × 30mm/35mm X 35mm (Test report no.:88.216.18.095.12_b)	Tested with appliance
10. Adhesive for frame	1. Shanghai Huitian New ChemicalMaterial Co., Ltd.	Type: HT906Z Max operating Temp.: 105°C (Test report no. 88.216.17.261.01)	Tested with appliance
	2. DOW CORNING CORPORATION	Type: PV804 Max operating Temp.: 105°C Test report no. 88.216.18.096.01)	Tested with appliance
	3.JiangSu CREVO science& Technology Co., Ltd.	Type: CV709 Max operating Temp.: 200°C (Tested in report no. 88.216.18.095.03)	Tested with appliance
	4. Beijing Tonsan New Material Technology Co.,Ltd.	Type: TS1527 Max operating Temp.: 210°C (Tested in report 88.216.18.096.04)	Tested with appliance
	5.CHENGDU GUIBAO SCIENCE&TECHNOLOGY CO.,LTD	Model:888A Max operating Temp.: 180°C	Tested with appliance

		(Test report no.:88.216.18.095.09_a)	
	6.Hangzhou Zhijiang Silicone Chemicals Co.,Ltd.	Model:JS606 (Test report no.:88.216.18.095.10_a)	Tested with appliance
11. Insulation material between string connectors	1.HangZhou First PV Material Co.,Ltd.	Type:BEC-201	Tested with appliance
	2.3M	Type: EPE	Tested with appliance
	3.Suzhou Technique Solar Film Material Co.,Ltd.	Type: TEC022	Tested with appliance
	4.Suzhou Technique Solar Film Material Co.,Ltd.	Type: TEC030	Tested with appliance
	5. Changzhou Sveck New Material Technology Co.,Ltd	Type: SVK-GL01	Tested with appliance
12. Fixing tape	1. 3M	Type: UV-1	Tested with appliance
	2. TERAOKA	Type:631S	Tested with appliance
	3. 3M	Type: UV-100	Tested with appliance
13. Solar light Redirecting Film	1. 3M	Type: T81X, Solar light redirecting film. Thickness:0.068-0.075mm	Tested with appliance
14.label	1.Tianjin Heng Qi packaging products Co.，Ltd.	UV series	Tested with appliance
	2. Lintec Printing&Technology (Tianjin) Corporation	72826T	Tested with appliance

Label / Typenschild

Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

Haitai Solar — Crystalline Silicon Photovoltaic Modules

Module Type	HTM670MH8-66(1500)
Rated Maximum Power(Pm)	670W
Tolerance	±3%
Voltage at Pmax(Vmp)	38.19V
Current at Pmax (Imp)	17.55A
Open-Circuit Voltage(Voc)	46.09±3%V
Short-Circuit Current(Isc)	18.63±4%A
Nominal Module Operating Temperature	41±3℃
Maximum System Voltage	1500VDC
Maximum Series Fuse Rating	30A
Application Class	Class A
Safety Class	Class II
Weight	34.0kg
Dimensions	2384*1303*35mm

STC : AM=1.5 E=1000W/m² TC=25℃

Warning — Solar modules generate electricity as soon as they are exposed to light. One module on its own is below the safety extra low volt level, but multiple modules connected in series (summing the voltage) represent a danger.

Tangshan Haitai New Energy Technology Co., Ltd
Add: NO.88 Haomen Road,Yutai Industrial Zone,Yutian County, Tangshan City, China.
Web: www.haitai-solar.cn E-mail:info@haitai-solar.com Made in China

Haitai Solar
Crystalline Silicon Photovoltaic Modules

Module Type	HTM670MH8-66(1500)
Rated Maximum Power(Pm)	670W
Tolerance	±3%
Voltage at Pmax(Vmp)	38.19V
Current at Pmax (Imp)	17.55A
Open-Circuit Voltage(Voc)	46.09±3%V
Short-Circuit Current(Isc)	18.63±4%A
Nominal Module Operating Temperature	41±3℃
Maximum System Voltage	1500VDC
Maximum Series Fuse Rating	30A
Application Class	Class A
Safety Class	Class II
Weight	34.0kg
Dimensions	2384*1303*35mm

STC : AM=1.5 E=1000W/m² TC=25℃

Warning — Solar modules generate electricity as soon as they are exposed to light. One module on its own is below the safety extra low volt level, but multiple modules connected in series (summing the voltage) represent a danger.

Tangshan Haitai New Energy Technology Co., Ltd
Add: NO.88 Haomen Road,Yutai Industrial Zone,Yutian County, Tangshan City, China.
Web: www.haitai-solar.cn E-mail:info@haitai-solar.com Made in China

Serial No. code bar

XX XX X XX XX XX XXXX

- XXXX — Numerical Order
- XX — Date of manufacture code
- XX — Month of manufacture code
- XX — Year of manufacture code
- X — Cell type
- XX — Workshop production line
- XX — Manufacturer abbreviation

Test Report No. / Prüfbericht Nr.: 88.216.18.095.12_b

Place / Ort:

Date / Datum: 2021-12-10

Name of Project manager / Li Yuqing

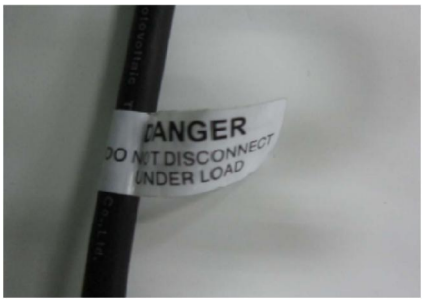
Name Projektleiter:

Name, Stempel und Unterschrift des Zertifikatinhabers:

Name, Stempel und Unterschrift des Zertifikatinhabers:

Equipotential bonding symbol

Warning label attached on the cable



Routine Safety Test

Final inspection requirements for production are described in:

IEC 61215-1(ed.1)

IEC 61215-1-1(ed.1)

IEC 61215-2(ed.1)

IEC 61730-1(ed.2)
IEC 61730-2(ed.2)

☒ Required	☐ Not Required	Reason:
		☐ Class III product
		☐ Other:

Test Details:	**Test Points:**	**Test Values:**
☒ Dielectric Strength	BI: L/N – Chassis	4800Vdc,1s (for 1500VDC modules)

		3600Vdc, 1s (for 1000VDC modules)
☒ Ground Continuity	RI: L/N – Secondary	50A, 1s, <0.1 Ohm (Ω)
☒ Insulation Resistance	AC-Inlet – Chassis	1500V, 1s, ≥27 M Ohm (Ω) (for 1500VDC modules); 1000V, 1s, ≥27 M Ohm (Ω) (for 1000VDC modules);
☐ Leakage Current		
☐ Other:		

Mechanical testing:

☒ Load test	Result:	P
☐ Pressure test	Result:	
☐ Control of safety relevant measurements		

Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

Product Electrical Ratings at STC:							
Module	HTM330MA-72	HTM335MA-72	HTM340MA-72	HTM345MA-72	HTM350MA-72	HTM355MA-72	HTM360MA-72
open-circuit voltage(tolerance±2%) [V]:	46.13 ± 3%	46.41 ± 3%	46.62 ± 3%	46.86 ± 3%	47.02 ± 3%	47.45 ± 3%	47.77 ± 3%
short-circuit current (tolerance±3%)	37.60	37.91	38.12	38.30	38.55	38.80	39.09
voltage at max. power [V]:	8.78	8.84	8.92	9.01	9.08	9.15	9.21
current at max. power [A]: [A]:	9.31 ± 4%	9.37 ± 4%	9.44 ± 4%	9.52 ± 4%	9.59 ± 4%	9.64 ± 4%	9.71 ± 4%
max. power (with tolerance±3%) [W]:	330 ± 3%	335 ± 3%	340 ± 3%	345 ± 3%	350 ± 3%	355 ± 3%	360 ± 3%
Module	HTM365MA-72	HTM370MA-72	HTM375MA-72	HTM380MA-72	HTM385MA-72		
open-circuit voltage(tolerance±2%) [V]:	47.96 ± 3%	48.36 ± 3%	48.52 ± 3%	48.82 ± 3%	49.07 ± 3%		
short-circuit current (tolerance±3%)	39.35	39.58	39.81	40.05	40.28		
voltage at max. power [V]:	9.28	9.35	9.42	9.49	9.56		

Test Report No. / Prüfbericht Nr.: 88.216.18.095.12_b

Place / Ort:

Date / Datum: 2021-12-10

Name of Project manager / Li Yuqing

Name, Stempel und Unterschrift des Zertifikatinhabers:

Name Projektleiter:

Name, Stempel und Unterschrift des Zertifikatinhabers:

current at max. power [A]: [A]:	9.78 ± 4%	9.85 ± 4%	9.92 ± 4%	9.99 ± 4%	10.06 ± 4%		
max. power (with tolerance) [W]:	365 ± 3%	370 ± 3%	375 ± 3%	380 ± 3%	385 ± 3%		
Module	HTM275MA-60	HTM280MA-60	HTM285MA-60	HTM290MA-60	HTM295MA-60	HTM300MA-60	HTM305MA-60
open-circuit voltage (with tolerance) [V]:	38.23 ± 3%	38.52 ± 3%	38.85 ± 3%	39.15 ± 3%	39.48 ± 3%	39.84 ± 3%	40.15 ± 3%
voltage at max. power [V]:	31.18	31.5	31.81	32.1	32.35	32.65	32.91
current at max. power [A]:	8.82	8.89	8.96	9.05	9.12	9.2	9.27
short-circuit current (with tolerance) [A]:	9.37 ± 4%	9.43 ± 4%	9.51 ± 4%	9.58 ± 4%	9.65 ± 4%	9.72 ± 4%	9.79 ± 4%
max. power (with tolerance) [W]:	275 ± 3%	280 ± 3%	285 ± 3%	290 ± 3%	295 ± 3%	300 ± 3%	305 ± 3%
Module	HTM310MA-60	HTM315MA-60	HTM320MA-60				
open-circuit voltage (with tolerance) [V]:	40.63 ± 3%	40.91 ± 3%	41.3 ± 3%				
voltage at max. power [V]:	33.25	33.55	33.87				

current at max. power [A]:	9.33	9.39	9.45				
short-circuit current (with tolerance) [A]:	9.85 ± 4%	9.91 ± 4%	9.97 ± 4%				
max. power (with tolerance) [W]:	310 ± 3%	315 ± 3%	320 ± 3%				
Module	HTM250MA-54	HTM255MA-54	HTM260MA-54	HTM265MA-54	HTM270MA-54	HTM275MA-54	HTM280MA-54
open-circuit voltage (with tolerance) [V]:	34.6 ± 3%	35.07 ± 3%	35.53 ± 3%	35.99 ± 3%	36.44 ± 3%	36.89 ± 3%	37.33 ± 3%
voltage at max. power [V]:	28.16	28.53	28.91	29.26	29.62	29.97	30.31
current at max. power [A]:	8.88	8.94	9	9.06	9.12	9.18	9.24
short-circuit current (with tolerance) [A]:	9.42 ± 4%	9.48 ± 4%	9.54 ± 4%	9.6 ± 4%	9.66 ± 4%	9.72 ± 4%	9.78 ± 4%
max. power (with tolerance) [W]:	250 ± 3%	255 ± 3%	260 ± 3%	265 ± 3%	270 ± 3%	275 ± 3%	280 ± 3%
Module	HTM285MA-54						
open-circuit voltage (with tolerance) [V]:	37.76 ± 3%						

voltage at max. power [V]:	30.66						
current at max. power [A]:	9.3						
short-circuit current (with tolerance) [A]:	9.84 ± 4%						
max. power (with tolerance) [W]:	285 ± 3%						
Module	HTM340MH-72	HTM345MH-72	HTM350MH-72	HTM355MH-72	HTM360MH-72	HTM365MH-72	HTM370MH-72
open-circuit voltage (with tolerance) [V]:	46.61 ± 3%	46.8 ± 3%	47.00 ± 3%	47.42 ± 3%	47.75 ± 3%	47.95 ± 3%	48.35 ± 3%
voltage at max. power [V]:	38.38	38.64	38.89	39.15	39.39	39.64	39.88
current at max. power [A]:	8.86	8.93	9.00	9.07	9.14	9.21	9.28
short-circuit current (with tolerance) [A]:	9.37 ± 4%	9.44 ± 4%	9.51 ± 4%	9.58 ± 4%	9.65 ± 4%	9.72 ± 4%	9.79 ± 4%
max. power (with tolerance) [W]:	340 ± 3%	345 ± 3%	350 ± 3%	355 ± 3%	360 ± 3%	365 ± 3%	370 ± 3%
Module	HTM375MH-72	HTM380MH-72	HTM385MH-72	HTM390MH-72			
open-circuit voltage (with	48.75 ± 3%	49.06 ± 3%	49.35 ± 3%	49.65 ± 3%			

tolerance) [V]:							
voltage at max. power [V]:	40.11	40.34	40.57	40.80			
current at max. power [A]:	9.35	9.42	9.49	9.56			
short-circuit current (with tolerance) [A]:	9.86 ± 4%	9.93 ± 4%	10.00 ± 4%	10.07 ± 4%			
max. power (with tolerance) [W]:	375 ± 3%	380 ± 3%	385 ± 3%	390 ± 3%			
Module	HTM285MH-60	HTM290MH-60	HTM295MH-60	HTM300MH-60	HTM305MH-60	HTM310MH-60	HTM315MH-60
open-circuit voltage [V]:	38.84 ± 3%	39.14 ± 3%	39.47 ± 3%	39.83 ± 3%	40.14 ± 3%	40.62 ± 3%	40.99 ± 3%
voltage at max. power [V]:	32.03	32.33	32.64	32.94	33.23	33.52	33.80
current at max. power [A]:	8.9	8.97	9.04	9.11	9.18	9.25	9.32
short-circuit current [A]:	9.45 ± 4%	9.54 ± 4%	9.61 ± 4%	9.67 ± 4%	9.73 ± 4%	9.79 ± 4%	9.85 ± 4%
max. power (with tolerance) [W]:	285 ± 3%	290 ± 3%	295 ± 3%	300 ± 3%	305 ± 3%	310 ± 3%	315 ± 3%
Module	HTM320MH-60	HTM325MH-60					
open-circuit voltage [V]:	41.39 ± 3%	41.79 ± 3%					

voltage at max. power [V]:	34.08	34.36					
current at max. power [A]:	9.39	9.46					
short-circuit current [A]:	9.91 ± 4%	9.97 ± 4%					
max. power (with tolerance) [W]:	320 ± 3%	325 ± 3%					
Module	HTM255MH-54	HTM260MH-54	HTM265MH-54	HTM270MH-54	HTM275MH-54	HTM280MH-54	HTM285MH-54
open-circuit voltage [V]:	35.26 ± 3%	35.70 ± 3%	36.11 ± 3%	36.52 ± 3%	36.92 ± 3%	37.31 ± 3%	37.72 ± 3%
voltage at max. power [V]:	28.62	28.99	29.35	29.71	30.05	30.40	30.74
current at max. power [A]:	8.91	8.97	9.03	9.09	9.15	9.21	9.27
short-circuit current [A]:	9.39 ± 4%	9.46 ± 4%	9.53 ± 4%	9.60 ± 4%	9.67 ± 4%	9.74 ± 4%	9.81 ± 4%
max. power (with tolerance) [W]:	255 ± 3%	260 ± 3%	265 ± 3%	270 ± 3%	275 ± 3%	280 ± 3%	285 ± 3%
Module	HTM290MH-54						
open-circuit voltage [V]:	38.11 ± 3%						
voltage at max. power [V]:	31.08						

current at max. power [A]:	9.33						
short-circuit current [A]:	9.88 ± 4%						
max. power (with tolerance) [W]:	290 ± 3%						
Module	HTM390MH 2-72	HTM395MH 2-72	HTM400MH 2-72	HTM405MH 2-72	HTM410MH 2-72	HTM415MH 2-72	HTM420MH 2-72
open-circuit voltage [V]:	48.64±3%	48.92±3%	49.21±3%	49.48±3%	49.76±3%	50.03±3%	50.29±3%
voltage at max. power [V]:	40.42	40.65	40.87	41.09	41.29	41.51	41.71
current at max. power [A]:	9.65	9.72	9.79	9.86	9.93	10.00	10.07
short-circuit current [A]:	10.15±4%	10.22±4%	10.29±4%	10.36±4%	10.43±4%	10.50±4%	10.57±4%
max. power (with tolerance) [W]:	390±3%	395±3%	400±3%	405±3%	410±3%	415±3%	420±3%
Module	HTM425MH 2-72	HTM325MH 2-60	HTM330MH 2-60	HTM335MH 2-60	HTM340MH 2-60	HTM345MH 2-60	HTM350MH 2-60
open-circuit voltage [V]:	50.56±3%	40.25±3%	40.59±3%	40.93±3%	41.26±3%	41.59±3%	41.91±3%
voltage at max. power [V]:	41.92	33.45	33.72	33.99	34.24	34.51	34.76
current at max. power [A]:	10.14	9.72	9.79	9.86	9.93	10.00	10.07

short-circuit current [A]:	10.64±4%	10.22±4%	10.29±4%	10.36±4%	10.43±4%	10.50±4%	10.57±4%
max. power (with tolerance) [W]:	425±3%	325±3%	330±3%	335±3%	340±3%	345±3%	350±3%
Module	HTM-TSA-315M1	HTM-TSA-320M1	HTM-TSA-325M1	HTM-TSA-330M1	HTM-TSA-335M1	HTM-TSA-340M1	HTM-TSA-345M1
open-circuit voltage [V]:	43.06±3%	43.30±3%	43.55±3%	43.72±3%	43.98±3%	44.23±3%	44.45±3%
voltage at max. power [V]:	36.09	36.29	36.49	36.68	36.86	37.05	37.23
current at max. power [A]:	8.73	8.82	8.91	9.00	9.09	9.18	9.27
short-circuit current [A]:	9.18±4%	9.27±4%	9.36±4%	9.45±4%	9.54±4%	9.63±4%	9.72±4%
max. power (with tolerance) [W]:	315±3%	320±3%	325±3%	330±3%	335±3%	340±3%	345±3%
Module	HTM-TSB-380M1	HTM-TSB-385M1	HTM-TSB-390M1	HTM-TSB-395M1	HTM-TSB-400M1	HTM-TSB-405M1	HTM-TSB-410M1
open-circuit voltage [V]:	52.24±3%	52.46±3%	52.68±3%	52.9±3%	53.1±3%	53.25±3%	53.45±3%
voltage at max. power [V]:	43.74	43.91	44.08	44.24	44.41	44.56	44.72
current at max. power [A]:	8.69	8.77	8.85	8.93	9.01	9.09	9.17
short-circuit current [A]:	9.13±4%	9.21±4%	9.29±4%	9.37±4%	9.45±4%	9.53±4%	9.61±4%
max. power (with	380±3%	385±3%	390±3%	395±3%	400±3%	405±3%	410±3%

tolerance) [W]:							
Module	HTM-TSB-415M1	HTM-TSB-420M1					
open-circuit voltage [V]:	53.62±3%	53.82±3%					
voltage at max. power [V]:	44.87	45.03					
current at max. power [A]:	9.25	9.33					
short-circuit current [A]:	9.69±4%	9.77±4%					
max. power (with tolerance) [W]:	415±3%	420±3%					
Module	HTM340MA-72(1500)	HTM345MA-72(1500)	HTM350MA-72(1500)	HTM355MA-72(1500)	HTM360MA-72(1500)	HTM365MA-72(1500)	HTM370MA-72(1500)
open-circuit voltage (with tolerance) [V]:	46.62 ± 3%	46.86 ± 3%	47.02 ± 3%	47.45 ± 3%	47.77 ± 3%	47.96 ± 3%	48.36 ± 3%
voltage at max. power [V]:	38.12	38.30	38.55	38.80	39.09	39.35	39.58
current at max. power [A]:	8.92	9.01	9.08	9.15	9.21	9.28	9.35
short-circuit current (with tolerance) [A]:	9.44 ± 4%	9.52 ± 4%	9.59 ± 4%	9.64 ± 4%	9.71 ± 4%	9.78 ± 4%	9.85 ± 4%
max. power (with	340 ± 3%	345 ± 3%	350 ± 3%	355 ± 3%	360 ± 3%	365 ± 3%	370 ± 3%

tolerance) [W]:							
Module	HTM375MA-72(1500)	HTM380MA-72(1500)	HTM385MA-72(1500)				
open-circuit voltage (with tolerance) [V]:	48.52 ± 3%	48.82 ± 3%	49.07 ± 3%				
voltage at max. power [V]:	39.81	40.05	40.28				
current at max. power [A]:	9.42	9.49	9.56				
short-circuit current (with tolerance) [A]:	9.92 ± 4%	9.99 ± 4%	10.06 ± 4%				
max. power (with tolerance) [W]:	375 ± 3%	380 ± 3%	385 ± 3%				
Module	HTM285MA-60(1500)	HTM290MA-60(1500)	HTM295MA-60(1500)	HTM300MA-60(1500)	HTM305MA-60(1500)	HTM310MA-60(1500)	HTM315MA-60(1500)
open-circuit voltage (with tolerance) [V]:	38.85 ± 3%	39.15 ± 3%	39.48 ± 3%	39.84 ± 3%	40.15 ± 3%	40.63 ± 3%	40.91 ± 3%
voltage at max. power [V]:	31.81	32.1	32.35	32.65	32.91	33.25	33.55
current at max. power [A]:	8.96	9.05	9.12	9.2	9.27	9.33	9.39
short-circuit current (with tolerance) [A]:	9.51 ± 4%	9.58 ± 4%	9.65 ± 4%	9.72 ± 4%	9.79 ± 4%	9.85 ± 4%	9.91 ± 4%

max. power (with tolerance) [W]:	285 ± 3%	290 ± 3%	295 ± 3%	300 ± 3%	305 ± 3%	310 ± 3%	315 ± 3%
Module	HTM320MA -60(1500)						
open-circuit voltage (with tolerance) [V]:	41.3 ± 3%						
voltage at max. power [V]:	33.87						
current at max. power [A]:	9.45						
short-circuit current (with tolerance) [A]:	9.97 ± 4%						
max. power (with tolerance) [W]:	320 ± 3%						
Module	HTM255MA -54(1500)	HTM260MA-54(1500)	HTM265MA-54(1500)	HTM270MA-54(1500)	HTM275MA-54(1500)	HTM280MA -54(1500)	HTM285MA-54(1500)
open-circuit voltage (with tolerance) [V]:	35.07 ± 3%	35.53 ± 3%	35.99 ± 3%	36.44 ± 3%	36.89 ± 3%	37.33 ± 3%	37.76 ± 3%
voltage at max. power [V]:	28.53	28.91	29.26	29.62	29.97	30.31	30.66
current at max. power [A]:	8.94	9	9.06	9.12	9.18	9.24	9.3

short-circuit current (with tolerance) [A]:	9.48 ± 4%	9.54 ± 4%	9.6 ± 4%	9.66 ± 4%	9.72 ± 4%	9.78 ± 4%	9.84 ± 4%
max. power (with tolerance) [W]:	255 ± 3%	260 ± 3%	265 ± 3%	270 ± 3%	275 ± 3%	280 ± 3%	285 ± 3%
Module	HTM340MH -72(1500)	HTM345MH -72(1500)	HTM350MH -72(1500)	HTM355MH -72(1500)	HTM360MH -72(1500)	HTM365MH -72(1500)	HTM370MH-72(1500)
open-circuit voltage [V]:	46.61 ± 3%	46.8 ± 3%	47.00 ± 3%	47.42 ± 3%	47.75 ± 3%	47.95 ± 3%	48.35 ± 3%
voltage at max. power [V]:	38.38	38.64	38.89	39.15	39.39	39.64	39.88
current at max. power [A]:	8.86	8.93	9.00	9.07	9.14	9.21	9.28
short-circuit current [A]:	9.37 ± 4%	9.44 ± 4%	9.51 ± 4%	9.58 ± 4%	9.65 ± 4%	9.72 ± 4%	9.79 ± 4%
max. power (with tolerance) [W]:	340 ± 3%	345 ± 3%	350 ± 3%	355 ± 3%	360 ± 3%	365 ± 3%	370 ± 3%
Module	HTM375MH -72(1500)	HTM380MH -72(1500)	HTM385MH -72(1500)	HTM390MH -72(1500)			
open-circuit voltage [V]:	48.75 ± 3%	49.06 ± 3%	49.35 ± 3%	49.65 ± 3%			
voltage at max. power [V]:	40.11	40.34	40.57	40.80			
current at max. power [A]:	9.35	9.42	9.49	9.56			
short-circuit current [A]:	9.86 ± 4%	9.93 ± 4%	10.00 ± 4%	10.07 ± 4%			

max. power (with tolerance) [W]:	375 ± 3%	380 ± 3%	385 ± 3%	390 ± 3%			
Module	HTM285MH -60(1500)	HTM290MH -60(1500)	HTM295MH -60(1500)	HTM300MH -60(1500)	HTM305MH -60(1500)	HTM310MH -60(1500)	HTM315MH-60(1500)
open-circuit voltage [V]:	38.84 ± 3%	39.14 ± 3%	39.47 ± 3%	39.83 ± 3%	40.14 ± 3%	40.62 ± 3%	40.99 ± 3%
voltage at max. power [V]:	32.03	32.33	32.64	32.94	33.23	33.52	33.80
current at max. power [A]:	8.9	8.97	9.04	9.11	9.18	9.25	9.32
short-circuit current [A]:	9.45 ± 4%	9.54 ± 4%	9.61 ± 4%	9.67 ± 4%	9.73 ± 4%	9.79 ± 4%	9.85 ± 4%
max. power (with tolerance) [W]:	285 ± 3%	290 ± 3%	295 ± 3%	300 ± 3%	305 ± 3%	310 ± 3%	315 ± 3%
Module	HTM320MH -60(1500)	HTM325MH -60(1500)					
open-circuit voltage [V]:	41.39 ± 3%	41.79 ± 3%					
voltage at max. power [V]:	34.08	34.36					
current at max. power [A]:	9.39	9.46					
short-circuit current [A]:	9.91 ± 4%	9.97 ± 4%					
max. power (with tolerance) [W]:	320 ± 3%	325 ± 3%					

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Module	HTM255MH-54(1500)	HTM260MH-54(1500)	HTM265MH-54(1500)	HTM270MH-54(1500)	HTM275MH-54(1500)	HTM280MH-54(1500)	HTM285MH-54(1500)
open-circuit voltage [V]:	35.26 ± 3%	35.70 ± 3%	36.11 ± 3%	36.52 ± 3%	36.92 ± 3%	37.31 ± 3%	37.72 ± 3%
voltage at max. power [V]:	28.62	28.99	29.35	29.71	30.05	30.40	30.74
current at max. power [A]:	8.91	8.97	9.03	9.09	9.15	9.21	9.27
short-circuit current [A]:	9.39 ± 4%	9.46 ± 4%	9.53 ± 4%	9.60 ± 4%	9.67 ± 4%	9.74 ± 4%	9.81 ± 4%
max. power (with tolerance) [W]:	255 ± 3%	260 ± 3%	265 ± 3%	270 ± 3%	275 ± 3%	280 ± 3%	285 ± 3%
Module	HTM290MH-54(1500)						
open-circuit voltage [V]:	38.11 ± 3%						
voltage at max. power [V]:	31.08						
current at max. power [A]:	9.33						
short-circuit current [A]:	9.88 ± 4%						
max. power (with tolerance) [W]:	290 ± 3%						
Module	HTM390MH-72(1500)	HTM395MH-72(1500)	HTM400MH-72(1500)	HTM405MH-72(1500)	HTM410MH-72(1500)	HTM415MH-72(1500)	HTM420MH-72(1500)

open-circuit voltage [V]:	48.64±3%	48.92±3%	49.21±3%	49.48±3%	49.76±3%	50.03±3%	50.29±3%
voltage at max. power [V]:	40.42	40.65	40.87	41.09	41.29	41.51	41.71
current at max. power [A]:	9.65	9.72	9.79	9.86	9.93	10.00	10.07
short-circuit current [A]:	10.15±4%	10.22±4%	10.29±4%	10.36±4%	10.43±4%	10.50±4%	10.57±4%
max. power (with tolerance) [W]:	390±3%	395±3%	400±3%	405±3%	410±3%	415±3%	420±3%
Module	HTM425MH 2-72(1500)	HTM325MH 2-60(1500)	HTM330MH 2-60(1500)	HTM335MH 2-60(1500)	HTM340MH 2-60(1500)	HTM345MH 2-60(1500)	HTM350MH 2-60(1500)
open-circuit voltage [V]:	50.56±3%	40.25±3%	40.59±3%	40.93±3%	41.26±3%	41.59±3%	41.91±3%
voltage at max. power [V]:	41.92	33.45	33.72	33.99	34.24	34.51	34.76
current at max. power [A]:	10.14	9.72	9.79	9.86	9.93	10.00	10.07
short-circuit current [A]:	10.64±4%	10.22±4%	10.29±4%	10.36±4%	10.43±4%	10.50±4%	10.57±4%
max. power (with tolerance) [W]:	425±3%	325±3%	330±3%	335±3%	340±3%	345±3%	350±3%
Module	HTM-TSA-315M1(1500)	HTM-TSA-320M1(1500)	HTM-TSA-325M1(1500)	HTM-TSA-330M1(1500)	HTM-TSA-335M1(1500)	HTM-TSA-340M1(1500)	HTM-TSA-345M1(1500)
open-circuit voltage [V]:	43.06±3%	43.30±3%	43.55±3%	43.72±3%	43.98±3%	44.23±3%	44.45±3%

voltage at max. power [V]:	36.09	36.29	36.49	36.68	36.86	37.05	37.23
current at max. power [A]:	8.73	8.82	8.91	9.00	9.09	9.18	9.27
short-circuit current [A]:	9.18±4%	9.27±4%	9.36±4%	9.45±4%	9.54±4%	9.63±4%	9.72±4%
max. power (with tolerance) [W]:	315±3%	320±3%	325±3%	330±3%	335±3%	340±3%	345±3%
Module	HTM-TSB-380M1(1500)	HTM-TSB-385M1(1500)	HTM-TSB-390M1(1500)	HTM-TSB-395M1(1500)	HTM-TSB-400M1(1500)	HTM-TSB-405M1(1500)	HTM-TSB-410M1(1500)
open-circuit voltage [V]:	52.24±3%	52.46±3%	52.68±3%	52.9±3%	53.1±3%	53.25±3%	53.45±3%
voltage at max. power [V]:	43.74	43.91	44.08	44.24	44.41	44.56	44.72
current at max. power [A]:	8.69	8.77	8.85	8.93	9.01	9.09	9.17
short-circuit current [A]:	9.13±4%	9.21±4%	9.29±4%	9.37±4%	9.45±4%	9.53±4%	9.61±4%
max. power (with tolerance) [W]:	380±3%	385±3%	390±3%	395±3%	400±3%	405±3%	410±3%
Module	HTM-TSB-415M1(1500)	HTM-TSB-420M1(1500)					
open-circuit voltage [V]:	53.62±3%	53.82±3%					

voltage at max. power [V]:	44.87	45.03					
current at max. power [A]:	9.25	9.33					
short-circuit current [A]:	9.69±4%	9.77±4%					
max. power (with tolerance) [W]:	415±3%	420±3%					
Module	HTM-NHN-315M	HTM-NHN-320M	HTM-NHN-325M	HTM-NHN-330M	HTM-NHN-335M	HTM-NHN-340M	HTM-NHN-345M
open-circuit voltage [V]:	43.06±3%	43.30±3%	43.55±3%	43.72±3%	43.98±3%	44.23±3%	44.45±3%
voltage at max. power [V]:	36.09	36.29	36.49	36.68	36.86	37.05	37.23
current at max. power [A]:	8.73	8.82	8.91	9.00	9.09	9.18	9.27
short-circuit current [A]:	9.18±4%	9.27±4%	9.36±4%	9.45±4%	9.54±4%	9.63±4%	9.72±4%
max. power (with tolerance) [W]:	315±3%	320±3%	325±3%	330±3%	335±3%	340±3%	345±3%
Module	HTM-NHN-380M	HTM-NHN-385M	HTM-NHN-390M	HTM-NHN-395M	HTM-NHN-400M	HTM-NHN-405M	HTM-NHN-410M
open-circuit voltage [V]:	52.24±3%	52.46±3%	52.68±3%	52.9±3%	53.1±3%	53.25±3%	53.45±3%
voltage at max. power [V]:	43.74	43.91	44.08	44.24	44.41	44.56	44.72
current at max. power [A]:	8.69	8.77	8.85	8.93	9.01	9.09	9.17

short-circuit current [A]:	9.13±4%	9.21±4%	9.29±4%	9.37±4%	9.45±4%	9.53±4%	9.61±4%
max. power (with tolerance) [W]:	380±3%	385±3%	390±3%	395±3%	400±3%	405±3%	410±3%
Module	HTM-NHN-415M	HTM-NHN-420M					
open-circuit voltage [V]:	53.62±3%	53.82±3%					
voltage at max. power [V]:	44.87	45.03					
current at max. power [A]:	9.25	9.33					
short-circuit current [A]:	9.69±4%	9.77±4%					
max. power (with tolerance) [W]:	415±3%	420±3%					
Module	HTM-NHN-315M(1500)	HTM-NHN-320M(1500)	HTM-NHN-325M(1500)	HTM-NHN-330M(1500)	HTM-NHN-335M(1500)	HTM-NHN-340M(1500)	HTM-NHN-345M(1500)
open-circuit voltage [V]:	43.06±3%	43.30±3%	43.55±3%	43.72±3%	43.98±3%	44.23±3%	44.45±3%
voltage at max. power [V]:	36.09	36.29	36.49	36.68	36.86	37.05	37.23
current at max. power [A]:	8.73	8.82	8.91	9.00	9.09	9.18	9.27
short-circuit current [A]:	9.18±4%	9.27±4%	9.36±4%	9.45±4%	9.54±4%	9.63±4%	9.72±4%
max. power (with tolerance) [W]:	315±3%	320±3%	325±3%	330±3%	335±3%	340±3%	345±3%

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Module	HTM-NHN-380M(1500)	HTM-NHN-385M(1500)	HTM-NHN-390M(1500)	HTM-NHN-395M(1500)	HTM-NHN-400M(1500)	HTM-NHN-405M(1500)	HTM-NHN-410M(1500)
open-circuit voltage [V]:	52.24±3%	52.46±3%	52.68±3%	52.9±3%	53.1±3%	53.25±3%	53.45±3%
voltage at max. power [V]:	43.74	43.91	44.08	44.24	44.41	44.56	44.72
current at max. power [A]:	8.69	8.77	8.85	8.93	9.01	9.09	9.17
short-circuit current [A]:	9.13±4%	9.21±4%	9.29±4%	9.37±4%	9.45±4%	9.53±4%	9.61±4%
max. power (with tolerance) [W]:	380±3%	385±3%	390±3%	395±3%	400±3%	405±3%	410±3%
Module	HTM-NHN-415M(1500)	HTM-NHN-420M(1500)					
open-circuit voltage [V]:	53.62±3%	53.82±3%					
voltage at max. power [V]:	44.87	45.03					
current at max. power [A]:	9.25	9.33					
short-circuit current [A]:	9.69±4%	9.77±4%					
max. power (with tolerance) [W]:	415±3%	420±3%					
Module	HTM-TSB-410M2 HTM-TSB-410M2(1500)	HTM-TSB-415M2 HTM-TSB-415M2(1500)	HTM-TSB-420M2 HTM-TSB-420M2(1500)	HTM-TSB-425M2 HTM-TSB-425M2(1500)	HTM-TSB-430M2 HTM-TSB-430M2(1500)	HTM-TSB-435M2 HTM-TSB-435M2(1500)	HTM-TSB-440M2 HTM-TSB-440M2(1500)

open-circuit voltage [V]:	52.94±3%	53.16±3%	53.36±3%	53.62±3%	53.88±3%	54.13±3%	54.38±3%
voltage at max. power [V]:	44.23	44.43	44.64	44.84	45.04	45.23	45.42
current at max. power [A]:	9.27	9.34	9.41	9.48	9.55	9.62	9.69
short-circuit current [A]:	9.79±4%	9.87±4%	9.95±4%	10.02±4%	10.09±4%	10.16±4%	10.23±4%
max. power (with tolerance) [W]:	410±3%	415±3%	420±3%	425±3%	430±3%	435±3%	440±3%
Module	HTM-TSB-445M2 HTM-TSB-445M2(1500)	HTM-TSA-340M2 HTM-TSA-340M2(1500)	HTM-TSA-345M2 HTM-TSA-345M2(1500)	HTM-TSA-350M2 HTM-TSA-350M2(1500)	HTM-TSA-355M2 HTM-TSA-355M2(1500)	HTM-TSA-360M2 HTM-TSA-360M2(1500)	HTM-TSA-365M2 HTM-TSA-365M2(1500)
open-circuit voltage [V]:	54.62±3%	43.51±3%	43.81±3%	44.16±3%	44.48±3%	44.80±3%	45.11±3%
voltage at max. power [V]:	45.60	36.41	36.67	36.93	37.18	37.43	37.68
current at max. power [A]:	9.76	9.34	9.41	9.48	9.55	9.62	9.69
short-circuit current [A]:	10.30±4%	9.88±4%	9.95±4%	10.02±4%	10.09±4%	10.16±4%	10.23±4%
max. power (with tolerance) [W]:	445±3%	340±3%	345±3%	350±3%	355±3%	360±3%	365±3%

Module	HTM415MH3-72 HTM415MH3-72(1500)	HTM420MH3-72 HTM420MH3-72(1500)	HTM425MH3-72 HTM425MH3-72(1500)	HTM430MH3-72 HTM430MH3-72(1500)	HTM435MH3-72 HTM435MH3-72(1500)	HTM440MH3-72 HTM440MH3-72(1500)	HTM445MH3-72 HTM445MH3-72(1500)

open-circuit voltage [V]:	48.08±3%	48.28±3%	48.48±3%	48.68±3%	48.88±3%	49.08±3%	49.28±3%
voltage at max. power [V]:	39.54	39.74	39.94	40.14	40.34	40.54	40.74
current at max. power [A]:	10.50	10.57	10.65	10.72	10.79	10.86	10.93
short-circuit current [A]:	11.00±4%	11.08±4%	11.17±4%	11.25±4%	11.32±4%	11.39±4%	11.46±4%
max. power (with tolerance) [W]:	415±3%	420±3%	425±3%	430±3%	435±3%	440±3%	445±3%
Module	HTM450MH 3-72 HTM450MH 3-72(1500)	HTM455MH 3-72 HTM455MH 3-72(1500)	HTM460MH 3-72 HTM460MH 3-72(1500)	HTM345MH 3-60 HTM345MH 3-60 (1500)	HTM350MH 3-60 HTM355MH 3-60(1500)	HTM355MH 3-60 HTM350MH 3-60(1500)	HTM360MH 3-60 HTM360MH 3-60(1500)
open-circuit voltage [V]:	49.48±3%	49.68±3%	49.88±3%	40.00±3%	40.20±3%	40.40±3%	40.60±3%
voltage at max. power [V]:	40.94	41.14	41.34	32.92	33.12	33.32	33.52
current at max. power [A]:	11.00	11.07	11.13	10.48	10.57	10.66	10.75
short-circuit current [A]:	11.53±4%	11.59±4%	11.67±4%	11.02±4%	11.11±4%	11.21±4%	11.30±4%
max. power (with tolerance) [W]:	450±3%	455±3%	460±3%	345±3%	350±3%	355±3%	360±3%
Module	HTM365MH 3-60 HTM365MH 3-60(1500)	HTM370MH 3-60 HTM375MH 3-60(1500)	HTM375MH 3-60 HTM375MH 3-60(1500)	HTM380MH 3-60 HTM380MH 3-60(1500)			

open-circuit voltage [V]:	40.80±3%	41.00±3%	41.20±3%	41.40±3%			
voltage at max. power [V]:	33.72	33.92	34.12	34.32			
current at max. power [A]:	10.83	10.92	11.00	11.08			
short-circuit current [A]:	11.37±4%	11.45±4%	11.54±4%	11.60±4%			
max. power (with tolerance) [W]:	365±3%	370±3%	375±3%	380±3%			
Module	HTM390MH 5-54 HTM390MH 5-54(1500)	HTM395MH 5-54 HTM395MH 5-54(1500)	HTM400MH 5-54 HTM400MH 5-54(1500)	HTM405MH 5-54 HTM405MH 5-54(1500)	HTM410MH 5-54 HTM410MH 5-54(1500)	HTM415MH 5-54 HTM415MH 5-54(1500)	
open-circuit voltage [V]:	36.66 ±3%	36.81 ±3%	36.96 ±3%	37.11 ±3%	37.26 ±3%	37.41±3%	
voltage at max. power [V]:	13.40 ±4%	13.50 ±4%	13.60 ±4%	13.70 ±4%	13.79 ±4%	13.89 ±4%	
current at max. power [A]:	30.70	30.85	31.00	31.15	31.30	31.45	
short-circuit current [A]:	12.71	12.81	12.91	13.01	13.10	13.20	
max. power (with tolerance) [W]:	390±3%	395±3%	400±3%	405±3%	410±3%	415±3%	
Module	HTM435MH 5-60 HTM435MH 5-60(1500)	HTM440MH 5-60 HTM440MH 5-60(1500)	HTM445MH 5-60 HTM445MH 5-60(1500)	HTM450MH 5-60 HTM450MH 5-60(1500)	HTM455MH 5-60 HTM455MH 5-60(1500)	HTM460MH 5-60 HTM460MH 5-60(1500)	HTM480MH 5-66 HTM480MH 5-66(1500)

open-circuit voltage [V]:	40.80±3%	40.95±3%	41.10±3%	41.25±3%	41.40±3%	41.55±3%	44.94±3%
voltage at max. power [V]:	33.76	33.91	34.06	34.21	34.36	34.49	37.20
current at max. power [A]:	12.89	12.98	13.07	13.16	13.25	13.34	12.90
short-circuit current [A]:	13.34±4%	13.41±4%	13.52±4%	13.62±4%	13.72±4%	13.82±4%	13.35±4%
max. power (with tolerance) [W]:	435±3%	440±3%	445±3%	450±3%	455±3%	460±3%	480±3%
Module	HTM485MH 5-66 HTM485MH 5-66(1500)	HTM490MH 5-66 HTM490MH 5-66(1500)	HTM495MH 5-66 HTM495MH 5-66(1500)	HTM500MH 5-66 HTM500MH 5-66(1500)	HTM505MH 5-66 HTM505MH 5-66(1500)	HTM520MH 5-72 HTM520MH 5-72(1500)	HTM525MH 5-72 HTM525MH 5-72(1500)
open-circuit voltage [V]:	45.09±3%	45.24±3%	45.39±3%	45.54±3%	45.69±3%	48.93±3%	49.08±3%
voltage at max. power [V]:	37.35	37.50	37.65	37.80	37.92	40.43	40.58
current at max. power [A]:	12.99	13.07	13.15	13.23	13.32	12.87	12.95
short-circuit current [A]:	13.45±4%	13.54±4%	13.63±4%	13.72±4%	13.82±4%	13.32±4%	13.39±4%
max. power (with tolerance) [W]:	485±3%	490±3%	495±3%	500±3%	505±3%	520±3%	525±3%
Module	HTM530MH 5-72 HTM530MH 5-72(1500)	HTM535MH 5-72 HTM535MH 5-72(1500)	HTM540MH 5-72 HTM540MH 5-72(1500)	HTM545MH 5-72 HTM545MH 5-72(1500)	HTM550MH 5-72 HTM550MH 5-72(1500)	HTM555MH 5-72 HTM555MH 5-72(1500)	
open-circuit voltage [V]:	49.23±3%	49.38±3%	49.53±3%	49.68±3%	49.83±3%	49.98±3%	

voltage at max. power [V]:	40.73	40.88	41.03	41.18	41.31	41.43	
current at max. power [A]:	13.02	13.10	13.17	13.24	13.32	13.40	
short-circuit current [A]:	13.46±4%	13.54±4%	13.63±4%	13.71±4%	13.80±4%	13.88±4%	
max. power (with tolerance) [W]:	530±3%	535±3%	540±3%	545±3%	550±3%	555±3%	
Module	HTM385MT 8-40 HTM385MT 8-40(1500)	HTM390MT 8-40 HTM390MT 8-40(1500)	HTM395MT 8-40 HTM395MT 8-40 (1500)	HTM400MT 8-40 HTM400MT 8-40(1500)	HTM405MT 8-40 HTM405MT 8-40(1500)	HTM480MT 8-50 HTM480MT 8-50(1500)	HTM485MT 8-50 HTM485MT 8-50 (1500)
open-circuit voltage [V]:	40.59±3%	40.79±3%	40.99±3%	41.19±3%	41.39±3%	50.89±3%	51.09±3%
voltage at max. power [V]:	33.59	33.79	33.99	34.19	34.39	41.99	42.19
current at max. power [A]:	11.47	11.55	11.63	11.70	11.78	11.44	11.50
short-circuit current [A]:	12.06±4%	12.14±4%	12.22±4%	12.28±4%	12.36±4%	11.97±4%	12.05±4%
max. power (with tolerance) [W]:	390±3%	390±3%	395±3%	400±3%	405±3%	480±3%	485±3%
Module	HTM490MT 8-50 HTM490MT 8-50 (1500)	HTM495MT 8-50 HTM495MT 8-50 (1500)	HTM500MT 8-50 HTM500MT 8-50 (1500)	HTM505MT 8-50 HTM505MT 8-50 (1500)	HTM510MT 8-50 HTM510MT 8-50 (1500)		

open-circuit voltage [V]:	51.29±3%	51.49±3%	51.69±3%	51.89±3%	52.09±3%		
voltage at max. power [V]:	42.39	42.59	42.79	42.99	43.19		
current at max. power [A]:	11.56	11.69	11.69	11.75	11.81		
short-circuit current [A]:	12.13±4%	12.20±4%	12.28±4%	12.35±4%	12.42±4%		
max. power (with tolerance) [W]:	490±3%	495±3%	500±3%	505±3%	510±3%		
Module	HTM390MH 2-72-COOL HTM390MH 2-72-COOL (1500)	HTM395MH 2-72-COOL HTM395MH 2-72-COOL (1500)	HTM400MH 2-72-COOL HTM400MH 2-72-COOL (1500)	HTM405MH 2-72-COOL HTM405MH 2-72-COOL (1500)	HTM410MH 2-72-COOL HTM410MH 2-72-COOL (1500)	HTM415MH 2-72-COOL HTM415MH 2-72-COOL (1500)	HTM420MH 2-72-COOL HTM420MH 2-72-COOL (1500)
open-circuit voltage [V]:	48.64±3%	48.92±3%	49.21±3%	49.48±3%	49.76±3%	50.03±3%	50.29±3%
voltage at max. power [V]:	40.42	40.65	40.87	41.09	41.29	41.51	41.71
current at max. power [A]:	9.65	9.72	9.79	9.86	9.93	10.00	10.07
short-circuit current [A]:	10.15±4%	10.22±4%	10.29±4%	10.36±4%	10.43±4%	10.50±4%	10.57±4%
max. power (with tolerance) [W]:	390±3%	395±3%	400±3%	405±3%	410±3%	415±3%	420±3%
Module	HTM425MH 2-72-COOL	HTM325MH 2-60-COOL	HTM330MH 2-60-COOL	HTM335MH 2-60-COOL	HTM340MH 2-60-COOL	HTM345MH 2-60-COOL	HTM350MH 2-60-COOL

	HTM425MH 2-72-COOL (1500)	HTM325MH 2-60-COOL (1500)	HTM330MH 2-60-COOL (1500)	HTM335MH 2-60-COOL (1500)	HTM340MH 2-60-COOL (1500)	HTM345MH 2-60-COOL (1500)	HTM350MH 2-60-COOL (1500)
open-circuit voltage [V]:	50.56±3%	40.25±3%	40.59±3%	40.93±3%	41.26±3%	41.59±3%	41.91±3%
voltage at max. power [V]:	41.92	33.45	33.72	33.99	34.24	34.51	34.76
current at max. power [A]:	10.14	9.72	9.79	9.86	9.93	10.00	10.07
short-circuit current [A]:	10.64±4%	10.22±4%	10.29±4%	10.36±4%	10.43±4%	10.50±4%	10.57±4%
max. power (with tolerance) [W]:	425±3%	325±3%	330±3%	335±3%	340±3%	345±3%	350±3%
Module	**HTM635MH 8-66(1500)**	**HTM640MH 8-66(1500)**	**HTM645MH 8-66(1500)**	**HTM650MH 8-66(1500)**	**HTM655MH 8-66(1500)**	**HTM660MH 8-66(1500)**	**HTM665MH 8-66(1500)**
open-circuit voltage [V]:	**44.69±3%**	**44.89±3%**	**45.09±3%**	**45.29±3%**	**45.49±3%**	**45.69±3%**	**45.89±3%**
voltage at max. power [V]:	**18.29±4%**	**18.33±4%**	**18.37±4%**	**18.43±4%**	**18.49±4%**	**18.52±4%**	**18.58±4%**
current at max. power [A]:	**36.79**	**36.99**	**37.19**	**37.39**	**37.59**	**37.79**	**37.99**
short-circuit current [A]:	**17.26**	**17.31**	**17.35**	**17.39**	**17.43**	**17.47**	**17.51**
max. power (with tolerance) [W]:	**635±3%**	**640±3%**	**645±3%**	**650±3%**	**655±3%**	**660±3%**	**665±3%**
Module	**HTM670MH 8-66(1500)**	**HTM580MH 8-60(1500)**	**HTM585MH 8-60(1500)**	**HTM590MH 8-60**	**HTM595MH 8-60**	**HTM600MH 8-60**	**HTM605MH 8-60**

Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

open-circuit voltage [V]:	46.09±3%	40.69±3%	40.89 ±3%	41.09±3%	41.29±3%	41.49±3%	41.69±3%
voltage at max. power [V]:	18.63±4%	18.32±4%	18.38±4%	18.43±4%	18.48±4%	18.53±4%	18.58±4%
current at max. power [A]:	38.19	33.59	33.79	33.99	34.19	34.39	34.59
short-circuit current [A]:	17.55	17.27	17.32	17.36	17.41	17.45	17.50
max. power (with tolerance) [W]:	670±3%	580±3%	585±3%	590±3%	595±3%	600±3%	605±3%