



## Data form for electrical equipment and machinery

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**Applicant / Auftraggeber:** Jolywood(Taizhou) Solar Technology Co., Ltd. (98081)  
Kaiyang Rd.Jiangyan Economic Development Zone,Taizhou  
City,Jiangsu Province,225500,P.R.China.

**Manufacturer / Hersteller:** Jolywood(Taizhou) Solar Technology Co., Ltd. (98081)  
Kaiyang Rd.Jiangyan Economic Development Zone,Taizhou  
City,Jiangsu Province,225500,P.R.China  
Ms Zhangman

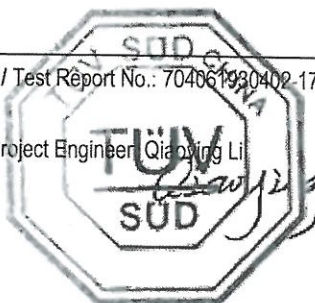
**Authorized person / Bevollmächtigter  
Factory / Fertigungsstätte:** 1.Jolywood(Taizhou) Solar Technology Co., Ltd. (98081)  
Kaiyang Rd.Jiangyan Economic Development Zone,Taizhou  
City,Jiangsu Province,225500, PEOPLE'S REPUBLIC OF  
CHINA  
2.FENGYANG JOY ENERGY TECHNOLOGY CO., LTD  
(114309)  
88 East Yongqing Road, Economic Development Zone,  
Fengyang County, 233100 Chuzhou City, Anhui Province  
PEOPLE'S REPUBLIC OF CHINA  
3.Changzhou RIX Photovoltaic Technology Co., Ltd.(117315)  
No.21 Changhu Road, Rulin Town, Jintan District 213200  
Changzhou, Jiangsu Province, PEOPLE'S REPUBLIC OF  
CHINA

**Type of equipment / Geräteart:** Mono-crystalline Silicon Photovoltaic (PV) Module

**Type/model / Typenbezeichnung:** Double Glass PV Modules with 6" Mono N-type Bifacial Cells:  
ZL-NM2+5B-L5/ZL-NM2+5B:  
1) 72 cells: JW-D72N-xxx (xxx=365-385, in steps of 5)  
2) 60 cells: JW-D60N-xxx (xxx=305-320, in steps of 5)  
ZL-NG112B:  
1) 72 cells: JW-D72N-xxx (xxx=390-410, in steps of 5)  
2) 60 cells: JW-D60N-xxx (xxx=325-340, in steps of 5)  
ZL-NM312B:  
1) 72 cells: JW-D72N-xxx (xxx=390-405, in steps of 5)  
2) 60 cells: JW-D60N-xxx (xxx=325-340, in steps of 5)  
Double Glass PV Modules with 6" Half-cut Mono N-type Bifacial  
Solar Cells:  
Half cut cell ZL-NG19B:  
3) 144 cells: JW-HD144N-xxx (xxx=390-420, in steps of 5)  
4) 120 cells: JW-HD120N-xxx (xxx=325-350, in steps of 5)  
7) 156 cells: JW-HD156N-xxx (xxx=425-455, in steps of 5)  
Half cut cell ZL-NM39B:  
3) 144 cells: JW-HD144N-xxx (xxx=390-410, in steps of 5)  
4) 120 cells: JW-HD120N-xxx (xxx=325-340, in steps of 5)  
7) 156 cells: JW-HD156N-xxx (xxx=425-445, in steps of 5)  
Double Glass PV Modules with 6" Half-cut Mono P-type Bifacial  
Solar Cells:  
Half cut cell M1589BPERC:  
5) 144 cells: JW-HD144P-xxx (xxx=390-415, in steps of 5)  
6) 120 cells: JW-HD120P-xxx (xxx=325-345, in steps of 5)  
8) 156 cells: JW-HD156P-xxx (xxx=425-445, in steps of 5)  
Half cut cell 158KSMP-0P:  
5) 144 cells: JW-HD144P-xxx (xxx=390-410, in steps of 5)  
6) 120 cells: JW-HD120P-xxx (xxx=325-340, in steps of 5)  
8) 156 cells: JW-HD156P-xxx (xxx=425-445, in steps of 5)  
Double Glass PV Modules with Half-cut Mono N-type Bifacial  
Solar Cells:  
Half cut cell NM69B  
9) 144 cells: JW-HD144N-xxx (xxx=430-470, in steps of 5)  
10) 120 cells: JW-HD120N-xxx (xxx=360-390, in steps of 5)

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- Double Glass PV Modules with Half-cut Mono P-type Bifacial Solar Cells:
- Half cut cell M1669BPERCBP/PM69BF32B2
- 11) 144 cells: JW-HD144P-xxx (xxx=430-450, in steps of 5)
- 12) 120 cells: JW-HD120P-xxx (xxx=360-375, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono N-type Bifacial Solar Cell NM109B:
- 13) 144 cells: JW-HD144N-xxx (xxx=525-550, in steps of 5)
- 14) 120 cells: JW-HD120N-xxx (xxx=435-455, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono P-type Bifacial Solar Cell PJ310BF47B2:
- 15) 144 cells: JW-HD144P-xxx (xxx=525-545, in steps of 5)
- 16) 120 cells: JW-HD120P-xxx (xxx=435-450, in steps of 5)
- 19) 132 cells: JW-HD132P-xxx (xxx=485-500, in steps of 5)
- 20) 108 cells: JW-HD108P-xxx (xxx=395-405, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono P-type Bifacial Solar Cell M18211BBF40:
- 15) 144 cells: JW-HD144P-xxx (xxx=525-550, in steps of 5)
- 16) 120 cells: JW-HD120P-xxx (xxx=435-455, in steps of 5)
- 19) 132 cells: JW-HD132P-xxx (xxx=485-505, in steps of 5)
- 20) 108 cells: JW-HD108P-xxx (xxx=395-410, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono P-type Bifacial Solar Cell PJ311BF46B2:
- 15) 144 cells: JW-HD144P-xxx (xxx=525-555, in steps of 5)
- 16) 120 cells: JW-HD120P-xxx (xxx=435-460, in steps of 5)
- 19) 132 cells: JW-HD132P-xxx (xxx=485-505, in steps of 5)
- 20) 108 cells: JW-HD108P-xxx (xxx=395-415, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono N-type Bifacial Solar Cell NM1011B:
- 13) 144 cells: JW-HD144N-xxx (xxx=525-575, in steps of 5)
- 14) 120 cells: JW-HD120N-xxx (xxx=435-480, in steps of 5)
- 17) 132 cells: JW-HD132N-xxx (xxx=485-525, in steps of 5)
- 18) 108 cells: JW-HD108N-xxx (xxx=395-430, in steps of 5)
- 23) 156 cells: JW-HD156N-xxx (xxx=580-620, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono N-type Bifacial Solar Cell NM1011B-L21:
- 13) 144 cells: JW-HD144N-xxx (xxx=540-585, in steps of 5)
- 14) 120 cells: JW-HD120N-xxx (xxx=450-485, in steps of 5)
- 17) 132 cells: JW-HD132N-xxx (xxx=495-535, in steps of 5)
- 18) 108 cells: JW-HD108N-xxx (xxx=405-435, in steps of 5)
- 23) 156 cells: JW-HD156N-xxx (xxx=585-630, in steps of 5)
- Double Glass PV Modules with 210 Half-cut Mono P-type Bifacial Solar Cell M21012BPERCBP:
- 21) 120 cells: JW-HD120P-xxx (xxx=580-610, in steps of 5)
- Double Glass PV Modules with 210 Half-cut Mono N-type Bifacial Solar Cell NM1212B/M210CBTCONBP:
- 22) 120 cells: JW-HD120N-xxx (xxx=580-620, in steps of 5)
- 24) 132 cells: JW-HD132N-xxx (xxx=655-680, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono N-type Bifacial Solar Cell NM1011BF1B3:
- 13) 144 cells: JW-HD144N-xxx (xxx=540-570, in steps of 5)
- 14) 120 cells: JW-HD120N-xxx (xxx=450-475, in steps of 5)
- 17) 132 cells: JW-HD132N-xxx (xxx=495-520, in steps of 5)
- 18) 108 cells: JW-HD108N-xxx (xxx=405-425, in steps of 5)
- 23) 156 cells: JW-HD156N-xxx (xxx=585-615, in steps of 5)
- Double Glass PV Modules with 182 Half-cut Mono N-type Bifacial Solar Cell NM1016B:

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- 13) 144 cells: JW-HD144N-xxx (xxx=525-580, in steps of 5)
  - 14) 120 cells: JW-HD120N-xxx (xxx=435-480, in steps of 5)
  - 17) 132 cells: JW-HD132N-xxx (xxx=485-530, in steps of 5)
  - 18) 108 cells: JW-HD108N-xxx (xxx=395-430, in steps of 5)
  - 23) 156 cells: JW-HD156N-xxx (xxx=580-625, in steps of 5)
- xxx stands for rated output power at STC

**Maximum System Voltage:**

**Dimensions / Abmessungen [HxWxD / HxBxT mm]:**

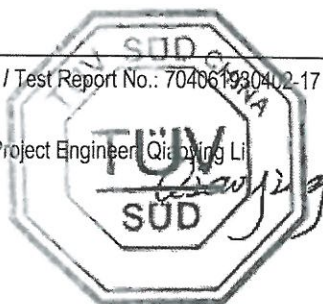
1500 V DC

- 1) 1974 x 992 x 6/5 (without frame), 1974 x 1014 x 21.5 (max. Dimension with partial frame), 1980 x 998 x 40/30 (with full frame), 2004 x 1008 x 40/30 or 1992 x 996 x 40/30 mm (with full frame), 1998 x 1002 x 6/5 or 1986 x 990 x 6/5mm(without frame);
- 2) 1658 x 992 x 6/5 (without frame), 1658 x 1014 x 21.5 (max. Dimension with partial frame), 1664 x 998 x 40/30 (with full frame), 1684 x 1008 x 40/30 or 1670 x 996 x 40/30 mm(with full frame), 1678 x 1002 x 6/5 or 1664 x 990 x 6/5mm(without frame);
- 3),5) 2030 x 1002 x 6/5 or 2010x990x6/5 (without frame), 2036 x 1008 x 40/30 or 2016 x 996 x 40 /30 mm or 2002 x 996 x 40 /35/30 mm (with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame: 2016 x 996 x 26mm or 2002 x 996 x 26 mm (with full frame)
- 4),6)1704 x 1002 x 6/5 or 1684x990x6/5(without frame), 1710 x 1008 x 40/30 or 1690 x 996 x 40/30mm(with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame: 1690 x 996 x 26 mm(with full frame)
- 7),8)2174x990x6/5(without frame) 2180 x 996 x 40/30 (with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame: 2180 x 996 x 26 (with full frame)
- 9),11) 2108x1042x30 or 2111x1046x30/35 or 2095x1039x30/35 (with full frame), 2105x1040x6/5 or 2089x1033x6/5 (without frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame:  
2108x1042x30/26 or 2111x1046x30/26 or 2095x1033x30/26 (with full frame)
- 10),12)1768x1042x30/26 or 1773x1046x30/35/26 or 1756x1039x30/35/26 (with full frame), 1767x1040x6/5 or 1750x1033x6/5 mm (without frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame:  
1768x1042x30/26 or 1773x1046x30/26 or 1756x1033x30/26 (with full frame)
- 13), 15) 2256x1133x35/30 or 2285x1134x35/30 or 2278x1134x35/30 mm (with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame: 2256x1133x30 or 2285x1134x30 or 2278x1134x30 mm (with full frame)
- 14), 16) 1890x1133x35/30 or 1915x1134x35/30 (with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame: 1890x1133x30 or 1915x1134x30 (with full frame)

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17),19) 2100x1134x35/30(with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame:  
2100x1134x30(with full frame)

18),20) 1730x1134x35/30 or 1728x1134x35/30 or  
1722x1134x35/30 mm (with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame: 1730x1134x30  
or 1728x1134x35/30 or 1722x1134x30 mm (with full frame)

21),22) 2172x1303x35mm(with full frame)  
23) 2470x1134x30/35 or 2465x1134x30/35mm(with full frame)  
Aluminium-Magnesium-Zinc (Al-Mg-Zn) frame:  
2470x1134x30/35 or 2465x1134x30/35(with full frame)

**Weight / Gewicht:**

- 24) 2384x1303x35 mm(with full frame)  
1) 30.5kg or 29.5 kg or 28.0kg or 27.0 kg (approx)  
2) 26.0kg or 25.0 kg or 24.5 or 23.5 or 24 or 25.5 or 26.5kg  
(approx)  
3),5) 30.5kg or 29.5 or 30 or 28.5 or 29 or 28kg (approx)  
4),6) 26.5kg or 25.0 or 24.5 or 26 or 27kg or 27.5 kg (approx)  
7),8) 30.5kg or 32.5kg (approx)  
9),11) 28.0kg or 26.0kg or 29.0kg (approx)  
10)12) 23.0kg or 21.5kg or 24.5 kg (approx)  
13)15) 32.5kg or 34.5kg (approx)  
14)16) 27.5kg or 29.5kg (approx)  
17)19) 30.0kg or 32.0kg (approx)  
18)20) 24.5kg or 27.0kg (approx)  
21),22) 35.5kg (approx)  
23) 34.5kg or 36.5kg (approx)  
24) 38.0kg (approx)

**Ambient temperature / Umgebungstemperatur**

min.: -40 °C max.: 40 °C

**Operation / Einsatz:**

≤2,000 m above sea level / ≤ 2.000 m üNN   
up to m / bis zu m

**Protection class / Schutzklasse:**

- |      |                         |   |                                     |
|------|-------------------------|---|-------------------------------------|
| I:   | PE-connection           | Schutzleiteranschluss                         | <input type="checkbox"/>            |
| II:  | Double insulation       | Schutzisoliert                                | <input checked="" type="checkbox"/> |
| III: | SELV/internally powered | Schutzkleinspannung / interne Stromversorgung | <input type="checkbox"/>            |

**Degree of pollution / Verschmutzungsgrad:**

1  2  3  4

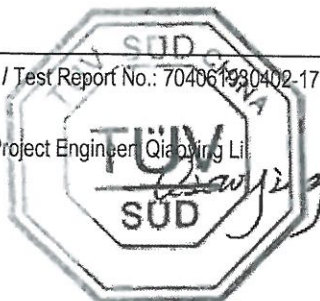
**Overvoltage category / Überspannungskategorie:**

I  II  III  IV

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# Aufbauübersicht für Elektrogeräte und Maschinen



Product Service

## Data form for electrical equipment and machinery

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**Additional information**  
**Cell technology:**

- Monocrystalline Silicon
- Polycrystalline Silicon
- Thin-film (amorphous Silicon)
- CIGS
- CdTe
- Other

**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

**Fire safety class according to UL790:**

- Class A (only tested on Xinyi glass)
- Class B
- Class C

**Frame:**

- Framed
- Frameless

**Front/Rear cover bonding classification:**

- Rigid/Flexible
- Rigid/Rigid
- Flexible/Flexible

**Designed mechanical load and safety factor:**

Positive: 3600 or 2400 or 1600 Pa, 1.5  
Negative: 1600 Pa, 1.5

**Module Design - Minimum Distances:**

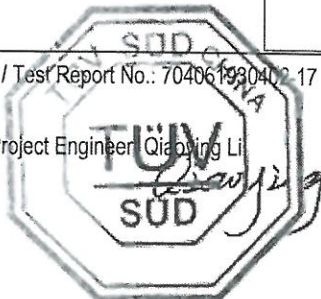
Between cells: 1.0mm or 0.6±0.1mm or 2±0.5mm  
0.3mm for 21),22),24) 1.3mm for 13)-20,23)  
Between cell and edge of laminate: 11.75mm or 12mm or  
12.25mm for 21),22),24) 12.0mm for 23)  
Between any current carrying part and edge of laminate: 11.50mm  
10.8mm for 21),22),24) 11.2mm for 23)  
20 A for 1)-2), 25 A for 1)-12), 30 A for 13)-24)

**Max. over-current protection rating:**  
**Limited materials combinations:**

Encapsulation & None Jolywood Cell	
Encapsulation	None Jolywood Cell
JW P-3 PO8110 TF4(P)	M1669BPERCBP M1589BPERC
JW P-3	M1669BPERCBP PJ310BF47B2 PJ311BF46B2 PM69BF32B2 M18211BBF40 M21012BPERCBP NM1011BF1B3
PO8110 TF4(P)	158KSMP-0P
JW P-3 TF4(P)	M210CBTCONBP

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Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

F406P/TF4(P) JW-EVA-01/JW-EPE-01	M1669BPERCBP PJ310BF47B2 PJ311BF46B2 PM69BF32B2 M21012BPERCBP
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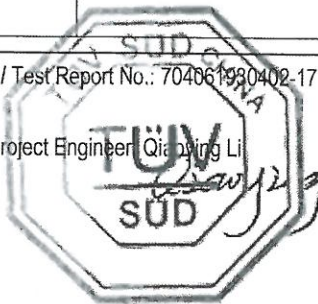
Safety relevant (critical) components/ Sicherheitsrelevante (kritische) Komponenten

Kind of component / Bauteil	Manufacturer / Hersteller	Mechanical, electrical and chemical specification / Mechanische, elektrische und chemische Spezifikation	Test report and/or mark from / Prüfbericht und /oder -zeichen von
1. SolarCell	Jolywood(Taizhou) Solar Technology Co., Ltd.	Mono-Si, Type: ZL-NM2+5B-L5/ ZL-NM2+5B,N Type,5BB Cell dimensions: L x W: 157.35x157.35 ± 0.25 (mm) Cell thickness: 170 ± 17 (µm) Cell area: 246.21 (cm²)	TÜV NORD 492011210.001
		Mono-Si, Type: ZL-NG19B,N Type,9BB Cell dimensions: L x W: 158.75x79.38 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 125.995 (cm²) for Φ223±0.25mm	TÜV NORD 492011210.004
		Mono-Si, Type: ZL-NM39B,N Type,9BB Cell dimensions: L x W: 158.75x79.375 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 125.075 (cm²) for Φ211±0.25mm	TÜV NORD 492011210.004 Tested with appliance
		Mono-Si, Type: ZL-NG112B,N Type,12BB Cell dimensions: L x W: 158.75x158.75 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 251.99 (cm²) for Φ223±0.25mm	TÜV NORD 492011210.005
		Mono-Si, Type: ZL-NM312B,N Type,12BB Cell dimensions: L x W: 158.75x158.75 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 250.15 (cm²) for Φ211±0.25mm	TÜV NORD 492011210.005
		Mono-Si, Type: NM69B, N Type,9BB Cell dimensions: L x W: 166.0x83.0 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 137.075 (cm²) for Φ223±0.25mm	Tested with appliance
		Mono-Si, Type: NM109B, N Type,9BB Cell dimensions: L x W: 182.0x91.0 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 165.07 (cm²)	Tested with appliance
		Mono-Si, Type: NM1011B, N Type,11BB Cell dimensions: L x W: 182.0x91.0 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 165.07 (cm²)	Tested with appliance
		Mono-Si, Type: NM1011B-L21, N Type,11BB Cell dimensions: L x W: 182.0x91.0 ± 0.25mm Cell thickness: 160 ± 16 (µm) Cell area: 165.07 (cm²)	Tested with appliance
		Mono-Si, Type: NM1212B, N Type,12BB Cell dimensions: L x W: 210.0x105.0 ± 0.25mm Cell thickness: 170 ± 17 (µm) Cell area: 220.46 (cm²)	Tested with appliance
		Mono-Si, Type: NM1016B, N Type,16BB Cell dimensions: L x W: 182x91 ± 0.25mm	Tested with appliance

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Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

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		Cell thickness: 140 ± 14 (µm) Cell area: 165.07 (cm <sup>2</sup> )	
	Sumin Renewable Energy Technology Co., Ltd.	Mono-Si, Type: 158KSMP-0P, P Type, 9BB Cell dimensions: L x W: 158.75x79.375 ± 0.25mm Cell thickness: 200 ± 20 (µm) Cell area: 125.995 (cm <sup>2</sup> ) for Φ223±0.25mm	TÜV NORD 492011210.005
	Tongwei Solar (Chengdu) Co., Ltd.	Mono-Si, Cell type: M1589BPERC, P Type, 9BB Cell dimensions L x W: 158.75x78.38 ± 0.25mm (mm) Cell thickness: 190 ± 19µm Cell area: 125.995 (cm <sup>2</sup> ) for Φ223±0.25mm	TÜV NORD 492011210.004
		Mono-Si, Type: M1669BPERCBP, P Type, 9BB Cell dimensions: L x W: 166.0x83.0 ± 0.25mm Cell thickness: 190 ± 19 (µm) Cell area: 137.075 (cm <sup>2</sup> ) for Φ223±0.25mm	Tested with appliance
		Mono-Si, Type: M21012BPERCBP, P Type, 12BB Cell dimensions: L x W: 210.0x105.0 ± 0.5mm Cell thickness: 180 ± 18(µm) Cell area: 220.46 (cm <sup>2</sup> )	Tested with appliance
	Tongwei Solar (Meishan) Co., Ltd.	Mono-Si, Type: M210CBTCONBP, N Type, 12BB Cell dimensions: L x W: 210.0x105.0 ± 0.25mm Cell thickness: 175 ± 17.5(µm) Cell area: 220.46 (cm <sup>2</sup> )	Tested with appliance
	Jiangsu Runergy New Energy Technology Co., Ltd.	Mono-Si, Type: PJ310BF47B2, P Type, 9BB Cell dimensions: L x W: 182.0x91.0 ± 0.25mm Front side: 0.3mm wide bus bars Back side: 1.2mm wide bus bars Cell thickness: 175 ± 17.5 (µm) Cell area: 165.07 (cm <sup>2</sup> )	Tested with appliance
		Mono-Si, Type: PJ311BF46B2, P Type, 11BB Cell dimensions: L x W: 182.0x91.0 ± 0.5mm Front side: 1.0mm wide bus bars Back side: 1.0mm wide bus bars Cell thickness: 175 ± 17.5 (µm) Cell area: 165.07 (cm <sup>2</sup> )	Tested with appliance
		Mono-Si, Type: PM69BF32B2, P Type, 9BB Cell dimensions: L x W: 166.0x83.0 ± 0.25mm Cell thickness: 175 ± 17.5 (µm) Cell area: 137.075(cm <sup>2</sup> )	Tested with appliance
		Mono-Si, Type: NM1011BF1B3, N Type, 11BB Cell dimensions: L x W: 182.0x91.0 ± 0.5mm Cell thickness: 165 ± 16.5 (µm) Cell area: 165.07 (cm <sup>2</sup> )	Tested with appliance
	Jiangsu Longheng new energy Co., Ltd.	Mono-Si, Cell type: M18211BBF40, P type Cell dimensions: L x W: 182x 91±0.5(mm) Thickness: 175±17.5 (µm) Cell area: 165.075 (cm <sup>2</sup> )	Tested with appliance
2. Superstrate	Xinyi PV Products (Anhui) Holdings Ltd.	Material: Heat strengthened glass with external AR coating, Thickness: 2.0 or 2.5 (mm)	Tested with appliance
	Suolate Special Glass (Jiangsu) Co., Ltd.	Material: Heat strengthened glass with external AR coating, Thickness: 2.0 or 2.5 (mm)	Tested with appliance
	FLAT GLASS GROUP CO. LTD	Material: Heat strengthened glass with external AR coating, Thickness: 2.0 (mm) or 2.5 (mm)	Tested with appliance

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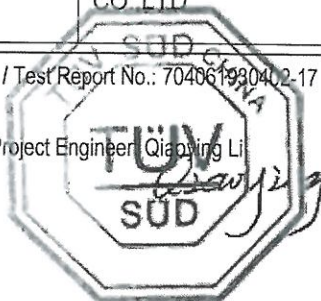
Ort/place: Taizhou

Projektleiter / Project Engineer: Qiaoping Li

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Data form for electrical and electronic equipment/components

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	CAIHONG (HEFEI) PHOTOVOLATIC CO., LTD	Material: Heat strengthened glass with external AR coating, Thickness: 2.0 (mm)	Tested with appliance	
	CHANGZHOU ALMADEN CO.,LTD.	Material: Heat strengthened glass with external AR coating, Thickness: 2.0 (mm)	Tested with appliance	
	Chenzhou Kibing Photovoltaic & Electronic Glass Co., Ltd.	Material: Heat strengthened glass with external AR coating Thickness: 2.0 (mm) or 2.5 (mm)	Tested with appliance	
3. Substrate	Xinyi PV Products (Anhui) Holdings Ltd.	Material: Heat strengthened glass Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
		Material: Heat strengthened glass with inside white ceramic glaze coating Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
	Suolate Special Glass (Jiangsu) Co., Ltd.	Material: Heat strengthened glass Thickness: 2.0 (mm) or 2.5 (mm)	TÜV Tested with appliance NORD 492011210.002	
		Material: Heat strengthened glass with inside white ceramic glaze coating Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
	FLAT GLASS GROUP CO.,LTD	Material: Heat strengthened glass Thickness: 2.0 (mm) or 2.5 (mm)	Tested with appliance	
		Material: Heat strengthened glass with inside white ceramic glaze coating Thickness: 2.0 (mm) or 2.5 (mm)	Tested with appliance	
	CAIHONG (HEFEI) PHOTOVOLATIC CO., LTD	Material: Heat strengthened glass Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
		Material: Heat strengthened glass with inside white ceramic glaze coating Thickness: 2.0 (mm)	Tested with appliance	
	CHANGZHOU ALMADEN CO.,LTD.	Material: Heat strengthened glass Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
		Material: Heat strengthened glass with inside white ceramic glaze coating Thickness: 2.0 (mm)	Tested with appliance	
	Chenzhou Kibing Photovoltaic & Electronic Glass Co., Ltd.	Material: Heat strengthened glass Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
		Material: Heat strengthened glass with inside white ceramic glaze coating Thickness: 2.0 or 2.5 (mm)	Tested with appliance	
	4. Encapsulant	3M	Type: PO8110, Material: POE Thickness: 0.65 (-0.13 ~ 0.3) mm	TÜV NORD 492011210.001
		Changzhou Sveck PV New Material Co., Ltd	Type: SE-556, Material: POE Thickness: 0.45(-0.05 ~ 0.35) mm	Tested with appliance
Hangzhou First PV Material Co., Ltd.		Type: TF4(P) Material: POE Thickness: 0.45(-0.05 ~ 0.35) mm	TÜV NORD 492011210.002	
		Type: F406P Material: EVA (Front side) Type: TF4(P) Material: POE(Rear side) Thickness: 0.45(-0.09 ~ 0.35)mm	Tested with appliance	
Jolywood (Suzhou) Sunwatt Co., Ltd.		Type: JW P-3, Material: POE Thickness: 0.45(-0.05 ~ 0.35) mm	Tested with appliance	
		Type: JW-EVA-01 Material: EVA (Front side) Type: JW-EPE-01 Material: POE(Rear side) Thickness: 0.45(-0.05 ~ 0.35) mm	Tested with appliance	
Jiangsu Lushan New Materials Co.ltd		Type: S102, Material: POE Thickness: 0.65(-0.13 ~ 0.3) mm	Tested with appliance	

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	Zhejiang Tony Electronics Co., Ltd	Type: EPE2100, Material: POE Thickness: 0.45(-0.05 ~ 0.35) mm	Tested with appliance
5.1 Junction box 1	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: FT50xy(x=1, 2, 3 or 4, y= B, D or F), DC 1500V, 16A or 18A or 20A or 25A, IP68, -40 °C to 85 °C	TÜVSÜD B 073488 0006 Rev.00
Potting material	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Chemical Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Guangzhou Baiyun Chemical Industry Co., Ltd.	Type: SKF323, Material: Silicon Rated V-0 at min. 2.0 mm thick, RTI=105, CTI=0	UL (E252101)
Bypassdiode	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: FMK4525A(for x=1) Max. peak reverse voltage 45 V Max. average forward current 25A Type: FMK4530A(for x=2) Max. peak reverse voltage 45 V Max. average forward current 30A Type: FMK4530B/FMK4530T(for x=3) Max. peak reverse voltage 45 V Max. average forward current 30A Max. peak reverse voltage 45 V, Type: FMK5040D(for x=4), If=40A Max. peak reverse voltage 50 V Max. average forward current 40A Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: 62930 IEC131 1×4mm <sup>2</sup> , 1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV SÜD B073844 009 Rev.00
Connectors	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: 05-8, 1500VDC, 30A, IP68, -40 °C to 85 °C	TÜV Rheinland R50334688
	Amphenol Technology (Shenzhen) Co., Ltd	Type: UTXCFabcde; UTXCMabcde (a=A, b=4, c=A, d= A to Z, e=Blank or A or Z), 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R50334688
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/XY_UR, PV-KBT4-EVO 2/XY_UR, Rated DC 1500V, 45A, IP68, -40°C to 85°C	TÜV Rheinland R50340393
5.2 Junction box 2	QC Solar (Suzhou) Corporation	Type: 171721-abc, DC 1500V, 15A or 17.5A or 20.2A, IP68, -40 °C to 85 °C	TÜVSÜD B 077362 0006 Rev.0
Potting material	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Chemical Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
Bypassdiode	QC Solar (Suzhou) Corporation	Type: SB3050DY (1 for each box), Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t	Tested with appliance

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		≤ 1 h)	
Cable	QC Solar (Suzhou) Corporation	Type: H1Z2Z2-K 1x4.0mm <sup>2</sup> , 1500V DC, -40 °C to 90 °C	TÜV Rheinland R50348871
Connectors	QC Solar (Suzhou) Corporation	Type: QC4.10-cd, 1500VDC, 41A, IP68, -40 °C to 85 °C	TÜV Rheinland R50353779
	Amphenol Technology (Shenzhen) Co., Ltd	Type: UTXCFabcde; UTXCMabcde (a=A, b=4,c=A, d= Ato Z, e=Blank or A or Z), 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R50340393
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/xy_UR;PV-KBT4-EVO 2/xy_UR 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R60127169
5.3 Junction box 3	QC Solar (Suzhou) Corporation	Type: 181821-xyz, DC 1500V, 20.2A for (x=1 or 2, y=1,z=1 or 2) or 25A for (x=1 or 2,y=3, z=1 or 2), IP68, -40 °C to 85 °C	TÜVSÜD B 077362 0009 Rev.0
Potting material	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Chemical Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	
	Guangzhou Baiyun Chemical Industry Co., Ltd.	SKF323	UL (E344518)
Bypassdiode	QC Solar (Suzhou) Corporation	Type: 30SQ050 (1 for each box), Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: 30SQ050 A (for y=3), Max. peak reverse voltage 50 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	QC Solar (Suzhou) Corporation	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Type: 62930 IEC131 1×4mm <sup>2</sup> ,1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50447239
Connectors	QC Solar (Suzhou) Corporation	Type: QC4.10-cd, 1500VDC, 41A, IP68, -40 °C to 85 °C	TÜV Rheinland R50353779
		Type: QC4.10-cds, 1500VDC, 41A, IP68, -40 °C to 85 °C	TÜVSÜD B 077362 0004 Rev.05
	Amphenol Technology (Shenzhen) Co., Ltd	Type: UTXCFabcde; UTXCMabcde (a=A, b=4,c=A, d= Ato Z, e=Blank or A or Z), 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R50340393
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/xy_UR;PV-KBT4-EVO 2/xy_UR 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R60127169
5.4 Junction box 4	Suzhou Xtong Photovoltaic Technologies Co., Ltd.	Type: PV-XT1609Nxyz (x=1 or 2, y=1 or 2, z=1, 2 or 3), DC 1500V, 17A for (y=1) or 20A for (x=1, or 2 or 3, y=2, z=1 or 3 or 4 or 5) or 25A for (x=3, y=3, z=6) or 30A for (x= 2 or 4, y=4, z=8) or 35A for (x= 2 or 4, y=5, z=9) IP68, -40 °C to 85 °C	TÜVSÜD B 076061 0014 Rev.02
Potting material	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)

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	Shanghai Huitian New Chemical Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Guangzhou Baiyun Chemical Industry Co., Ltd.	Type: SKF323, Material: Silicon Rated V-0 at min. 2.0 mm thick, RTI=105, CTI=0	UL (E252101)
Bypassdiode	Panjit Electronics (Wuxi) Co., Ltd.	Type: SB3050DC(x=1, y=2, z=1), Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
	Suzhou Xtong Photovoltaic Technologies Co., Ltd.	Type: SB3050S (x=1, y=1, z=2), Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: GFS2545 (x=2, y=2, z=3) Max. peak reverse voltage 45 V, Max. average forward current 25A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT3050 (x=3, y=2, z=4) Max. peak reverse voltage 50 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: TS3045A (x=3, y=3, z=6) Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT3050M (x=2 or 4, y=2, z=5) Max. peak reverse voltage 50 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT3050A (x=3, y=3, z=6) Max. peak reverse voltage 50 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT4050M-A (x=2 or 4, y=3, z=7) Max. peak reverse voltage 50 V, Max. average forward current 40A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT4550M-A (x=2 or 4, y=4, z=8) Max. peak reverse voltage 50 V, Max. average forward current 45A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT5050M-A (x=2 or 4, y=5, z=9) Max. peak reverse voltage 50 V, Max. average forward current 50A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance

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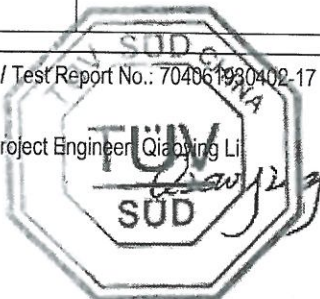
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		≤ 1 h)	
		Type: XT4050M-B (x=2 or 4, y=3, z=10) Max. peak reverse voltage 50 V, Max. average forward current 25A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: XT4550M-B (x=2 or 4, y=4, z=12) Max. peak reverse voltage 50 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	Suzhou Xtong Photovoltaic Technologies Co., Ltd.	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Type: 62930 IEC131 1×4mm <sup>2</sup> ,1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50358893 R50453577
	Wuxi Xinhongye Wire & Cable Co., Ltd.	Type: H1Z2Z2-K 1x4.0mm <sup>2</sup> , 1500V DC, -40 °C to 90 °C	TÜV Rheinland R50311889
Connectors	Suzhou Xtong Photovoltaic Technologies Co., Ltd.	Type: PV-XT101.1, 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R50385354
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/xy_UR; PV-KBT4-EVO 2/xy_UR 1500VDC, 45A, IP68, -40 °C to 85 °C	TÜV Rheinland R60127190
5.5 Junction box 5	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH011B-5, DC 1500V, 15A, IP68, -40 °C to 85 °C	TÜVSÜD B 082630 0025 Rev.02
Potting material	TONSAN ADHESIVE INC	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Material Co., Ltd.	Type: 5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
Bypassdiode	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: 20SQ045 Max. peak reverse voltage 45 V, Max. average forward current 20A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50330645
Connector	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH202B, 1500VDC, 30A, IP68, -40 °C to 85 °C	TÜVSÜD B170282630021
5.6 Junction box 6	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH011C-1, DC 1500V, 17A, IP68, -40 °C to 85 °C	TÜVSÜD B 082630 0025 Rev.02
Potting material	TONSAN ADHESIVE INC	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
Bypassdiode	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: 20SQ045 Max. peak reverse voltage 45 V, Max. average forward current 20A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50330645
Connectors	Zhejiang Zhonghuan Sunter PV Technology	Type: PV-ZH202B, 1500VDC, 30A, IP68, -40 °C to 85 °C	TÜVSÜD B170282630021

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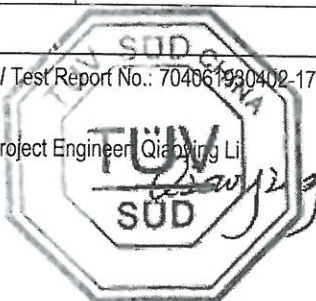
Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

	Co., Ltd.		
5.7 Junction box 7	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH011C-2X, DC 1500V, 20A, IP68, -40 °C to 85 °C	TÜVSÜD B 082630 0024 Rev.00
Potting material	TONSAN ADHESIVE INC	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
Bypassdiode	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: SB3045DY Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50330645
Connector	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH202B, Rated DC 1500 V, 30 A, IP 68, -40 °C to 85 °C	TÜVSUD B170282630021
5.8 Junction box 8	QC Solar (Suzhou) Corporation	Type: 3Qxy(x= 2 or 4 or 6; y=1), DC 1500V, 30A for (x=2, y=1) or 25A for (x=4,y=1) or 20A for (x=6,y=1), IP68, -40 °C to 85 °C	TÜVSÜD B 077362 0009 Rev.02
Potting material	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Chemical Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	
Bypassdiode	QC Solar (Suzhou) Corporation	Type: QCMK3045 Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: QCMK4045 Max. peak reverse voltage 45 V, Max. average forward current 40A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: QCMK5045 Max. peak reverse voltage 45 V, Max. average forward current 50A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.4011.19.020.04-03
		Type: QCM3045 Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.4011.19.020.04-03
		Type: QCM4045 Max. peak reverse voltage 45 V, Max. average forward current 40A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.4011.19.020.04-03

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		Type: QCM5045 Max. peak reverse voltage 45 V, Max. average forward current 50A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.4011.19.020.04-03
		Type: QCM5045B Max. peak reverse voltage 45 V, Max. average forward current 50A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.4011.19.020.04-03
		Type: QCM2545 Max. peak reverse voltage 45 V, Max. average forward current 25A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.4011.19.020.04-03
Cable	QC Solar (Suzhou) Corporation	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Type: 62930 IEC131 1×4mm <sup>2</sup> ,1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50348871 R50447239
Connectors	QC Solar (Suzhou) Corporation	Type: QC4.10-cd, 1500VDC, 41A, IP68, -40 °C to 85 °C	TÜV Rheinland R50353779
		Type: QC4.10-cds, 1500VDC, 41A, IP68, -40 °C to 85 °C	TÜV SUD 077362 0004 Rev.05
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/xy_UR;PV-KBT4-EVO 2/xy_UR 1500VDC, 45A, IP68, -40 °C to 85 °C	TÜV Rheinland R60127169
		Type: PV-KST4-EVO 2A/xy_UR;PV-KBT4-EVO 2A/xy_UR 1500VDC, 45A, IP68, -40 °C to 85 °C	TÜV Rheinland R60127169
5.9 Junction box 9	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: FT60xy(x=1 or 2, y=A,B,C or D), DC 1500V, 30A or 35A, IP68, -40 °C to 85 °C	TÜVSÜD B 073488 0012 Rev.00
Potting material	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Chemical Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
Bypassdiode	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: RMK4545D(for x=2) Max. peak reverse voltage 45 V Max. average forward current 45A Type: RMK4560D(for x=1) Max. peak reverse voltage 45 V Max. average forward current 60A Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.407.19.062.03-04
Cable	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Type: 62930 IEC131 1×4mm <sup>2</sup> ,1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50318681  B 073844 009 Rev.00
Connectors	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: 05-8, 1500VDC, 30A, IP68, -40 °C to 85 °C	TÜV Rheinland R50334688
		Type: RHC2xyzu(x=S or L; y=M; z= V ,C or A) 1500VDC, 35A, IP68, -40 °C to 85 °C	TÜV Rheinland R50473621
	Amphenol Technology (Shenzhen) Co., Ltd	Type: UTXCFabcde; UTXCMabcde (a=A, b=4,c=A, d= A to Z, e=Blank or A or Z) 1500VDC	TÜV Rheinland R50340393

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		35A, IP68, -40 °C to 85 °C	
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/XY_UR, PV-KBT4-EVO 2/XY_UR, Rated DC 1500V, 45A, IP68, -40°C to 85°C	TÜV Rheinland R60127169
5.10 Junction box 10	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH011C-5, DC 1500V, 25A or 30A, IP68, -40 °C to 85 °C	TÜVSÜD B 082630 0028 Rev.00
Potting material	BEIJING TONSAN New Material Technology Co.LTD.	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
		Type: 1533, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
	Shanghai Huitian New Material Co., Ltd.	Type: 5299W/5299W-S, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	CHENGDU GUIBAO SCIENCE&TECHNOLOGY CO., LTD	Type: 4808, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	
Bypassdiode	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd. Panjit Electronics (Wuxi) Co., Ltd.	Type: 30SQ045 Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.407.21.170.02-00
		Type: 35SQ045 Max. peak reverse voltage 45 V, Max. average forward current 35A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.407.21.170.02-00
		Type: 40SQ045 Max. peak reverse voltage 45 V, Max. average forward current 40A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	70.407.21.170.02-00
Cable	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: H1Z2Z2-K 1×4mm <sup>2</sup> , Type: 62930 IEC131 1×4mm <sup>2</sup> ,1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50330645,R50436635
Connectors	Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.	Type: PV-ZH202B, Rated DC 1500 V, 40 A, IP 68, -40 °C to 85 °C	TÜVSÜD B170282630021 Rev.01
	Stäubli Electrical Connectors AG	Type: PV-KST4-EVO 2/XY_UR, PV-KBT4-EVO 2/XY_UR, Rated DC 1500V, 45A, IP68, -40°C to 85°C	TÜV Rheinland R60127169
5.11 Junction box 11	Jiangsu Tonglin Electric Co., Ltd.	Type: TL-BOX022.3-A-2-1xyzF;TL-BOX022.3-A-2-2xF;TL-BOX022.3-A-2-3xyzF(x=1 or 2,3); Rated Voltage = 1500VDC Rated Current = 25A (x=2) Rated Current = 30A (x=3) , IP 68(1m, 1h), -40 °C to 85 °C	TÜV SÜD (B 079881 0008 Rev. 01)
Potting material	BEIJING TONSAN New Material Technology Co.LTD.	Type: 1521, Rated HB at min. 3.0 mm thick, RTI=105, CTI=0	UL (E253998)
Bypassdiode	Jiangsu Tonglin Electric Co., Ltd.	Type: PT001B-HS (for x=2) Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance

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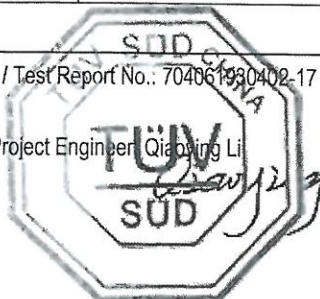
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		Type: PT001B-HS-25 (for x=2) Max. peak reverse voltage 45 V, Max. average forward current 30A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
		Type: PT001B-HS-30(for x=3) Max. peak reverse voltage 45 V, Max. average forward current 40A, Junction temperature in bypass mode 200 °C (t ≤ 1 h)	Tested with appliance
Cable	Jiangsu Tonglin Electric Co., Ltd.	Type: 62930 IEC131 1×4mm <sup>2</sup> ,1×6mm <sup>2</sup> , Rated DC 1500V, -40 °C to 90 °C	TÜV Rheinland R50462100
Connectors	Jiangsu Tonglin Electric Co., Ltd.	Type: TL-Cable01S, Rated 1500VDC, 30A, IP68, -40 °C to 85 °C	TÜV Rheinland R50332964
	Stäubli Electrical Connectors AG	Type: TL-Cable01S-F, Rated 1500VDC, 30A, IP68, -40 °C to 85 °C	
6. Cell interconnector	Suzhou YourBest New Materials Co., Ltd.	Type: Copper belt with tin plated Cross section: 0.23 x 1.0 or 0.25 x 1.0 (mm) for 5BB Cells Material: Base Cu (≥99.97%), Sn60Pb40	TÜV NORD 492011210.001
	Wuxi Sveck Technology Co., Ltd.		TÜV NORD 492011210.001
	Jolywood (Jiangsu)New Material Technology Co., Ltd.		TÜV NORD 492011210.001
	Suzhou YourBest New Materials Co., Ltd.	Type: Copper belt with tin plated Cross section: Φ=0.35(mm) for 9BB or 12BB cells Cross section: Φ=0.40(mm) for 12BB cells Cross section: Φ=0.32 (mm) for 9BB or 11BB or 12BB Material: Base Cu (≥99.97%), Sn60Pb40,	TÜV NORD 492011210.004/005
	Xi'an Telison New Materials Co., Ltd.		Tested with appliance
	Wuxi Sveck Technology Co., Ltd.		
Jolywood (Jiangsu)New Material Technology Co., Ltd.	Type: Copper belt with tin plated Cross section: Φ=0.30(mm) for 9BB or 11BB or 12BB, Φ=0.25 or 0.26(mm) for 16BB Material: Base Cu (≥99.97%), Sn60Pb40	Tested with appliance	
Wuxi Sveck Technology Co., Ltd.			
Suzhou YourBest New Materials Co., Ltd.			
Xi'an Telison New Materials Co., Ltd.			
7. String connector	Suzhou YourBest New Materials Co., Ltd.	Type: Copper belt with tin plated Cross section: 0.3 x 8.0(mm) Material: Base Cu (≥99.97%), Sn60Pb40,	TÜV NORD 492011210.004/005
	Xi'an Telison New Materials Co., Ltd.		
	Wuxi Sveck Technology Co., Ltd.	Type: Copper belt with tin plated Cross section: 0.3 x 7.0 or 0.3 x 6.0 or 0.3 x 4.0 or 0.35 x 4.0/6.0/7.0/8.0 (mm) Material: Base Cu (≥99.97%), Sn60Pb40,	TÜV NORD 492011210.004/005 Tested with appliance
	Jolywood (Jiangsu)New Material Technology Co., Ltd.		

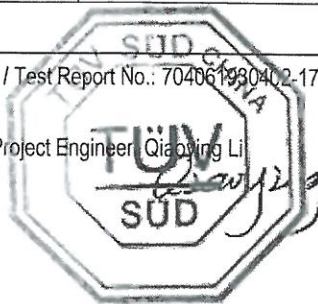
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	Suzhou SanySolar MATERIALS Technology Co., Ltd.			
8. Flux	Asahi solder Technology (Wuxi) Co., Ltd.	Type: SF56, no clean halogen free liquid flux.	Tested with appliance	
	Costar Electronic Material Co., Ltd.	Type: FD-309	Tested with appliance	
	Suzhou Grabble Electronics Technology Co., Ltd.	Type: FM19	Tested with appliance	
	SHENZHEN TONGFANG ELECTRONIC NEW MATERIAL CO., LTD	Type: AATF9800 - MBB	Tested with appliance	
9. Frame	Suzhou Lang Cheng metal products Co., Ltd.	Material: Aluminium alloy, 6063-T5, Partial/Full frame Color: silvery or black Dimensions: 300*21*21.5 (mm) 6 frames, 3 frames / long side Design load (front/back) = 1600/1600 for 4 bolts	TÜV NORD 492011210.001 TÜV NORD 492011210.005	
	Jolywood (Jiangsu) New Material Technology Co., Ltd.	Material: Aluminium alloy, 6063-T5, assembled by key corners, Color: silvery or black Thickness : 40 mm or 30 mm Design load (front/back) = 3600/1600 for 6 clamps Design load (front/back) = 1600/1600 for 4 bolts Design load (front/back) = 3600/1600 Pa for 4 bolts with 3 rails Design load (front/back) = 1600/1600 Pa for 4 clamps Design load (front/back) = 3600/1600 Pa for bolts mounted in 4 outer holes with 4 supporting rails		
	SHANGHAI HUANENG E-BUSINESS CO., LTD	Material: Aluminium alloy, 6063-T5, Full frame Color: silvery or black Thickness : 40 mm or 30 mm Design load (front/back) = 1600/1600 for 6 clamps Design load (front/back) = 3600/1600 for 6 clamps		Tested with appliance
	Jolywood (Jiangsu) New Material Technology Co., Ltd. Suzhou Lang Cheng metal products Co., Ltd.	Material: Aluminium alloy, 6063-T5, Full frame Color: silvery or black Thickness : 30 or 35 mm Design load (front/back) = 1600/1600 for 4 clamps Design load (front/back) = 3600/1600 for 6 clamps Design load (front/back) = 1600/1600 for C-shaped steel parallel long side Design load (front/back) = 3600/1600 for C-shaped steel vertical long side		Tested with appliance
	Jolywood (Jiangsu) New Material Technology Co., Ltd.	Material: Aluminium-Magnesium-Zinc (Al-Mg-Zn), Full frame Color: silvery or black Thickness : 26 mm or 30 mm Design load (front/back) = 3600/1600 (only for 158 or 166 or 182 cells module), installed by 6 clamps		Tested with appliance

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	Jolywood (Jiangsu) New Material Technology Co., Ltd.	Material: Aluminium alloy,6005-T6, Full frame Color: silvery or black Thickness : 30mm or 35 mm Design load (front/back) = 3600/1600 for 4 clamps Design load (front/back) = 3600/1600 for 6 clamps	Tested with appliance
10. Adhesive for Junction box	Shanghai Huitian New Chemical Material Co., Ltd.	Type: HT906Z, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1527, Rated HB at min. 0.5 mm thick, RTI=105, CTI=0	Tested with appliance UL (E253998)
	Guangzhou Baiyun Chemical Industry Co., Ltd.	Type: SMG533,Material: Silicon Rated HB at min. 2.0 mm thick, RTI=105, CTI=0	Tested with appliance UL (E252101)
	Chengdu Guibao Science & technology Co., Ltd	Type: 888A, white colour Rated HB, RTI=105, CTI=0	Tested with appliance
	Jiangsu Minghao New Material Sci-tech Corporation	Type: MH3668, white colour Rated HB, RTI=105, CTI=0 UL	UL (E335929)
	Hangzhou Zhijiang Silicone Chemicals Co., Ltd.	Type: JS-606, white colour Rated HB, RTI=105, CTI=0	UL (E335227)
11. Adhesive for Frame	Shanghai Huitian New Chemical Material Co., Ltd.	Type: HT906Z, white or black colour, Rated V-0 at min. 3.0 mm thick, RTI=105, CTI=0	UL (E248611)
	H.B. Fuller (Suzhou) Advanced Material Co., Ltd	Type: 1527, white or black colour, Rated HB at min. 0.5 mm thick, RTI=105, CTI=0	Tested with appliance UL (E253998)
		Type: 1581, white, Rated HB at min. 0.5 mm thick, RTI=105, CTI=0	Tested with appliance UL (E344518)
	Jiangsu Minghao New Material Sci-tech Corporation	Type: MH3668, white colour Rated HB, RTI=105, CTI=0 UL	UL (E335929)
	Hangzhou Zhijiang Silicone Chemicals Co., Ltd.	Type: JS-606, white colour Rated HB, RTI=105, CTI=0	UL (E335227)
	Guangzhou Baiyun Chemical Industry Co., Ltd.	Type: SMG533,Material: Silicon, white or black colour, Rated HB at min. 2.0 mm thick, RTI=105, CTI=0	Tested with appliance UL (E252101)
	Chengdu Guibao Science & technology Co., Ltd	Type: 888A, white colour Rated HB, RTI=105, CTI=0	Tested with appliance
12. Fixing tape	3M	Type: Tape UV-1, Materials: Backing: PET, Adhesive: Special Acrylic, Clear colour, Temperature 130°C	UL (E230409)
		Type: UV-100	Tested with appliance
	Suzhou Rongzhi Electronic Technology Co.,Ltd	Type: D60F6-2	Tested with appliance
13. Light Redirection Film	Suzhou golden electrical technology co., Ltd.	Type: GS-1200-090-01 Materials: EVA/PET,Thickness: 0.12 mm +/- 0.02mm	TÜV NORD 492011210.001 Tested with appliance

Label / Typenschild

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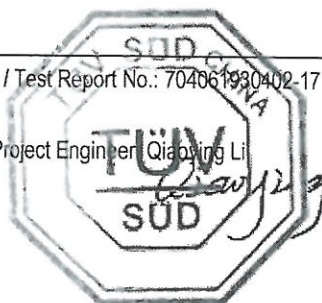
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中来光电 JOLYWOOD Jolywood(Taizhou) Solar Technology Co.,Ltd.		Test conditions	STC	Power Selection	0~+5W
		Rated Max Power(Pmax TOL±3%)	540W	Maximum overcurrent protection rating	30A
Model Type	JW-HD144N-540	Current at Pmax(Imp)	12.99A	Maximum System Voltage	1500V
Product Name	Solar Module	Voltage at Pmax(Vmp)	41.6V	PV module classification	Class II
Address: Kaiyang Rd. Jiangyan Economic Development Zone, Taizhou, Jiangsu, China		Short-Circuit Current(Isc TOL±5%)	13.75A		
		Open-Circuit Voltage(Voc TOL±4%)	49.8V		
		STC: AM=1.5 E=1000W/m² Tc=25°C			

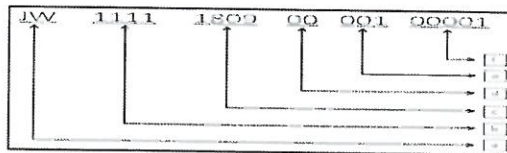
中来光电 JOLYWOOD Product Name   Solar Module Jolywood(Taizhou) Solar Technology Co.,Ltd.		Model Type	JW-HD120P-610	Voltage at Pmax(Vmp)	34.5V	Maximum overcurrent protection rating	30A	
		Test conditions	STC	Current at Pmax(Imp)	17.53A	Maximum System Voltage	1500V	
		Rated Max Power(Pmax TOL±3%)	610W	Open-Circuit Voltage(Voc TOL±4%)	41.2V	PV module classification	Class II	Address: Kaiyang Rd. Jiangyan Economic Development Zone, Taizhou, Jiangsu, China
		Power Selection	0~+5W	Short-Circuit Current(Isc TOL±5%)	18.61A	STC: AM=1.5 E=1000W/m² Tc=25°C		

中来光电 JOLYWOOD Product Name   Solar Module Jolywood(Taizhou) Solar Technology Co.,Ltd.		Model Type	JW-HD120N-610	Voltage at Pmax(Vmp)	34.5V	Maximum overcurrent protection rating	30A	
		Test conditions	STC	Current at Pmax(Imp)	17.48A	Maximum System Voltage	1500V	
		Rated Max Power(Pmax TOL±3%)	610W	Open-Circuit Voltage(Voc TOL±4%)	41.7V	PV module classification	Class II	Address: Kaiyang Rd. Jiangyan Economic Development Zone, Taizhou, Jiangsu, China
		Power Selection	0~+5W	Short-Circuit Current(Isc TOL±5%)	18.5A	STC: AM=1.5 E=1000W/m² Tc=25°C		

中来光电 JOLYWOOD Jolywood (Taizhou) Solar Technology Co., Ltd.		Test Conditions	STC	Power Selection	0~+5W
		Rated Max Power (Pmax TOL±3%)	555W	Maximum Overcurrent Protection Rating	30A
Model Type	JW-HD144N-555	Current at Pmax (Imp)	13.16A	Maximum System Voltage	1500V
Product Name	Solar Module	Voltage at Pmax (Vmp)	42.2V	PV Module Classification	Class II
Address: Kaiyang Rd. Jiangyan Economic Development Zone, Taizhou, Jiangsu, China		Short-Circuit Current (Isc TOL±5%)	13.93A		
		Open-Circuit Voltage (Voc TOL±4%)	50.4V		
		STC: AM=1.5 E=1000W/m² Tc=25°C			

中来光电 JOLYWOOD NIWA Jolywood (Taizhou) Solar Technology Co., Ltd.		Test Conditions	STC	Power Selection	0~+5W
		Rated Max Power (Pmax TOL±3%)	560W	Maximum Overcurrent Protection Rating	30A
Model Type	JW-HD144N-560	Current at Pmax (Imp)	13.21A	Maximum System Voltage	1500V
Product Name	Solar Module	Voltage at Pmax (Vmp)	42.40V	PV Module Classification	Class II
Address: Kaiyang Rd. Jiangyan Economic Development Zone, Taizhou, Jiangsu, China		Short-Circuit Current (Isc TOL±5%)	14.13A		
		Open-Circuit Voltage (Voc TOL±4%)	50.65V		
		STC: AM=1.5 E=1000W/m² Tc=25°C			

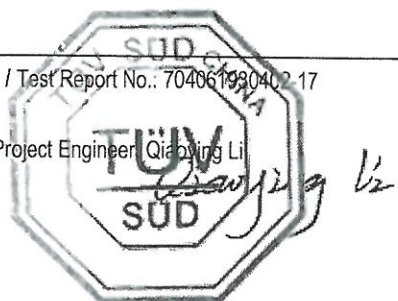
Serial No. code bar Ver 1:



- a) Company Code:
- b) Module type: for example 11 for 60 N type cells modules ,33 for 144 N type cells modules, 34 for 144 P type cells modules;  
Backsheet(third):1 for Transparent Backsheet,2 for white backsheet,3 for blacksheet, 4 for glass with inside white ceramic glaze coating  
Cell type(forth):1 for156.75 chamfer,2 for157.35chamfer, 3for158.75chamfer,4 for158.75 right-angle ,5 for 166.0 chamfer, 6 for 182.0 chamfer
- c) Date:example: 1810
- d) Factory Code:00 for 98085,01 for 98081
- e) Order No.:last three number

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f) Producted No:including date ,factory,order from 00001;

For example: JW011111161100105306

Explanation, this is Jolywood company producted,used Transparent backsheet and composed by 60 pieces N type 156.75 chamfer mono cells module,the first order the 00001<sup>st</sup> produced in Sep, 2018

Serial No. code bar Ver 2:

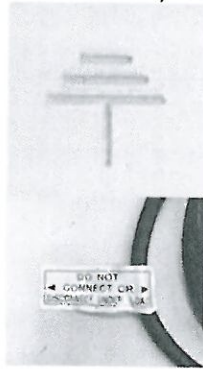
JW	****	***	*****
公司代码	时间代码	工单流水号	产品流水号

- a) Company Code:
- b) Date No:example: 1810
- c) Order No.:after date No three number
- d) Producted No: order from 00001;

For example: JW2201 001 00001

Explanation, this is Jolywood company producted, the first order the 00001<sup>st</sup> produced in Jan, 2022

Equipotential bonding symbol:



Warning label attached on the cable:

Product Electrical Ratings at STC:

Module	JW-D72N-365	JW-D72N-370	JW-D72N-375	JW-D72N-380	JW-D72N-385	-	-
open-circuit voltage [V]:	48.5±4%	48.8± 4%	49.1± 4%	49.5± 4%	49.8± 4%	-	-
Short-circuit current [A]:	9.78 ± 5%	9.84 ±5%	9.88 ± 5%	9.93 ± 5%	9.98 ± 5%	-	-
voltage at max. power [V]:	39.5	39.7	39.9	40.2	40.5	-	-
current at max. power [A]:	9.30	9.34	9.40	9.44	9.51	-	-
max. power (with tolerance) [W]:	365 ±3%	370 ±3%	375 ±3%	380 ±3%	385±3%	-	-

Product Electrical Ratings at STC:

Module	JW-D60N-305	JW-D60N-310	JW-D60N-315	JW-D60N-320	-	-	-

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open-circuit voltage [V]:	39.5±4%	40.0±4%	40.5±4%	41.1±4%	-	-	-
Short-circuit current [A]:	9.83 ±5%	9.86 ±5%	9.89 ±5%	9.92 ±5%	-	-	-
voltage at max. power [V]:	32.8	33.2	33.7	34.3	-	-	-
current at max. power [A]:	9.32	9.34	9.36	9.38	-	-	-
max. power (with tolerance) [W]:	305±3%	310 ±3%	315 ±3%	320 ±3%	-	-	-
<b>Product Electrical Ratings at STC:</b>							
Module	JW-D72N-390	JW-D72N-395	JW-D72N-400	JW-D72N-405	JW-D72N-410	-	-
	JW-HD144N-390	JW-HD144N-395	JW-HD144N-400	JW-HD144N-405	JW-HD144N-410	JW-HD144N-415	JW-HD144N-420
open-circuit voltage [V]:	49.20 ± 4%	49.50 ± 4%	49.80 ± 4%	50.10 ± 4%	50.40± 4%	50.70 ±4%	51.00 ± 4%
Short-circuit current [A]:	10.02 ±5%	10.08 ±5%	10.14 ± 5%	10.19 ± 5%	10.24 ± 5%	10.29 ± 5%	10.34 ± 5%
voltage at max. power [V]:	40.80	41.20	41.50	41.80	42.10	42.40	42.70
current at max. power [A]:	9.56	9.60	9.64	9.69	9.74	9.79	9.84
max. power (with tolerance) [W]:	390 ±3%	395 ±3%	400 ±3%	405 ±3%	410 ±3%	415 ±3%	420 ±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-D60N-325	JW-D60N-330	JW-D60N-335	JW-D60N-340	JW-D60N-345	-	-
	JW-HD120N-325	JW-HD120N-330	JW-HD120N-335	JW-HD120N-340	JW-HD120N-345	JW-HD120N-350	-
open-circuit voltage [V]:	41.00 ± 4%	41.20 ± 4%	41.50 ± 4%	41.80 ± 4%	42.10 ± 4%	42.40 ± 4%	-
Short-circuit current [A]:	10.01 ± 5%	10.07 ± 5%	10.12 ±5%	10.17 ±5%	10.22 ± 5%	10.28 ± 5%	-
voltage at max. power [V]:	34.10	34.40	34.70	35.10	35.40	35.70	-
current at max. power [A]:	9.54	9.60	9.66	9.70	9.75	9.81	-

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Projektleiter / Project Engineer: Qiaoping Li

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Data form for electrical and electronic equipment/components

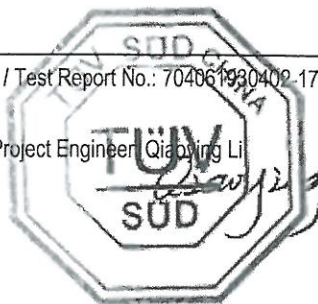
Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

max. power (with tolerance) [W]:	325 ±3%	330 ±3%	335 ±3%	340 ±3%	345 ±3%	350 ±3%	-
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD144P-390	JW-HD144P-395	JW-HD144P-400	JW-HD144P-405	JW-HD144P-410	JW-HD144P-415	-
open-circuit voltage [V]:	48.40 ± 4%	48.60 ± 4%	48.80 ± 4%	49.00 ± 4%	49.20 ± 4%	49.40 ± 4%	-
Short-circuit current [A]:	10.14 ± 5%	10.22 ± 5%	10.30 ± 5%	10.38 ± 5%	10.45 ± 5%	10.52 ± 5%	-
voltage at max. power [V]:	40.30	40.50	40.70	40.90	41.10	41.30	-
current at max. power [A]:	9.69	9.76	9.83	9.91	9.98	10.05	-
max. power (with tolerance) [W]:	390 ±3%	395 ±3%	400 ±3%	405 ±3%	410 ±3%	415 ±3%	-
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD120P-325	JW-HD120P-330	JW-HD120P-335	JW-HD120P-340	JW-HD120P-345	-	-
open-circuit voltage [V]:	40.40 ± 4%	40.60 ± 4%	40.80 ± 4%	41.00 ± 4%	41.20 ± 4%	-	-
Short-circuit current [A]:	10.14 ± 5%	10.22 ± 5%	10.30 ± 5%	10.38 ± 5%	10.47 ± 5%	-	-
voltage at max. power [V]:	33.80	34.00	34.20	34.40	34.60	-	-
current at max. power [A]:	9.63	9.72	9.81	9.89	9.98	-	-
max. power (with tolerance) [W]:	325 ±3%	330 ±3%	335 ±3%	340 ±3%	345 ±3%	-	-
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD156N-425	JW-HD156N-430	JW-HD156N-435	JW-HD156N-440	JW-HD156N-445	JW-HD156N-450	JW-HD156N-455
open-circuit voltage [V]:	53.2±4%	53.5±4%	53.8±4%	54.1±4%	54.4±4%	54.7±4%	54.9±4%
Short-circuit current [A]:	10.01 ± 5%	10.06± 5%	10.12± 5%	10.17± 5%	10.22± 5%	10.28± 5%	10.34± 5%
voltage at max. power [V]:	44.5	44.8	45.2	45.5	45.8	46.1	46.3

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current at max. power [A]:	9.56	9.60	9.64	9.68	9.72	9.77	9.83
max. power (with tolerance) [W]:	425±3%	430±3%	435±3%	440±3%	445±3%	450±3%	455±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD156P-425	JW-HD156P-430	JW-HD156P-435	JW-HD156P-440	JW-HD156P-445	JW-HD156P-450	-
open-circuit voltage [V]:	52.4±4%	52.7±4%	52.9±4%	53.1±4%	53.3±4%	53.5±4%	-
Short-circuit current [A]:	10.14± 5%	10.22± 5%	10.30± 5%	10.38± 5%	10.45± 5%	10.52±5%	-
voltage at max. power [V]:	43.8	44.0	44.2	44.4	44.6	44.8	-
current at max. power [A]:	9.71	9.78	9.85	9.91	9.98	10.05	-
max. power (with tolerance) [W]:	425±3%	430±3%	435±3%	440±3%	445±3%	450±3%	-
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD144N-430	JW-HD144N-435	JW-HD144N-440	JW-HD144N-445	JW-HD144N-450	JW-HD144N-455	JW-HD144N-460
open-circuit voltage [V]:	49.2±4%	49.4±4%	49.6±4%	49.8±4%	50.0±4%	50.2±4%	50.4±4%
Short-circuit current [A]:	11.15±5%	11.22±5%	11.29±5%	11.36±5%	11.43±5%	11.50±5%	11.56±5%
voltage at max. power [V]:	40.8	41.0	41.2	41.4	41.6	41.8	42.0
current at max. power [A]:	10.54	10.61	10.68	10.75	10.82	10.89	10.96
max. power (with tolerance) [W]:	430±3%	435±3%	440±3%	445±3%	450±3%	455±3%	460±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD120N-360	JW-HD120N-365	JW-HD120N-370	JW-HD120N-375	JW-HD120N-380	JW-HD144P-430	JW-HD144P-435
open-circuit voltage [V]:	41.0±4%	41.2±4%	41.4±4%	41.6±4%	41.8±4%	48.8±4%	49.0±4%
Short-circuit current [A]:	11.18±5%	11.27±5%	11.36±5%	11.45±5%	11.54±5%	11.18±5%	11.26±5%

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Data form for electrical and electronic equipment/components

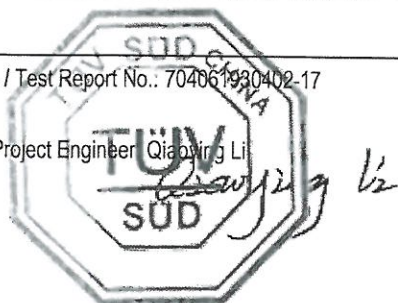
Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

voltage at max. power [V]:	34.1	34.3	34.5	34.7	34.9	40.5	40.7
current at max. power [A]:	10.56	10.65	10.73	10.81	10.89	10.62	10.69
max. power (with tolerance) [W]:	360±3%	365±3%	370±3%	375±3%	380±3%	430±3%	435±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD144P-440	JW-HD144P-445	JW-HD144P-450	JW-HD120P-360	JW-HD120P-365	JW-HD120P-370	JW-HD120P-375
open-circuit voltage [V]:	49.2±4%	49.4±4%	49.6±4%	40.9±4%	41.1±4%	41.3±4%	41.5±4%
Short-circuit current [A]:	11.34±5%	11.42±5%	11.50±5%	11.21±5%	11.29±5%	11.38±5%	11.46±5%
voltage at max. power [V]:	40.9	41.1	41.3	33.7	33.9	34.1	34.3
current at max. power [A]:	10.76	10.83	10.90	10.69	10.77	10.86	10.94
max. power (with tolerance) [W]:	440±3%	445±3%	450±3%	360±3%	365±3%	370±3%	375±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD144N-525	JW-HD144N-530	JW-HD144N-535	JW-HD144N-540	JW-HD144N-545	JW-HD144N-550	JW-HD144N-555
open-circuit voltage [V]:	49.28±4%	49.48±4%	49.68±4%	49.88±4%	50.08±4%	50.28±4%	50.48±4%
Short-circuit current [A]:	13.70±5%	13.76±5%	13.82±5%	13.88±5%	13.94±5%	14.00±5%	14.06±5%
voltage at max. power [V]:	41.00	41.20	41.40	41.60	41.80	42.00	42.20
current at max. power [A]:	12.81	12.87	12.93	12.99	13.04	13.10	13.16
max. power (with tolerance) [W]:	525 ± 3%	530 ± 3%	535 ± 3%	540 ± 3%	545 ± 3%	550 ± 3%	555 ± 3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD120N-435	JW-HD120N-440	JW-HD120N-445	JW-HD120N-450	JW-HD120N-455	JW-HD120N-460	-
open-circuit voltage [V]:	40.8±4%	41.0±4%	41.2±4%	41.4±4%	41.6±4%	41.8±4%	-

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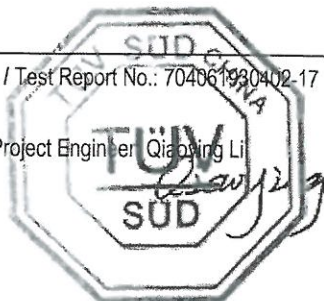
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Short-circuit current [A]:	13.54±5%	13.61±5%	13.68±5%	13.75±5%	13.82±5%	13.89±5%	-
voltage at max. power [V]:	34.1	34.3	34.5	34.7	34.9	35.1	-
current at max. power [A]:	12.76	12.83	12.9	12.97	13.04	13.11	-
max. power (with tolerance) [W]:	435±3%	440±3%	445±3%	450±3%	455±3%	460±3%	-
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD132N-485	JW-HD132N-490	JW-HD132N-495	JW-HD132N-500	JW-HD132N-505	JW-HD144N-465	JW-HD144N-470
open-circuit voltage [V]:	45.3±4%	45.5±4%	45.7±4%	45.9±4%	46.1±4%	50.6±4%	50.8±4%
Short-circuit current [A]:	13.6±5%	13.66±5%	13.72±5%	13.78±5%	13.84±5%	11.62±5%	11.69±5%
voltage at max. power [V]:	37.8	38	38.2	38.4	38.6	42.2	42.4
current at max. power [A]:	12.84	12.9	12.96	13.03	13.09	11.02	11.09
max. power (with tolerance) [W]:	485±3%	490±3%	495±3%	500±3%	505±3%	465±3%	470±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD144P-525	JW-HD144P-530	JW-HD144P-535	JW-HD144P-540	JW-HD144P-545	JW-HD120N-385	JW-HD120N-390
open-circuit voltage [V]:	48.8±4%	49.0±4%	49.2±4%	49.4±4%	49.6±4%	42.0	42.2
Short-circuit current [A]:	13.68±5%	13.74±5%	13.80±5%	13.86±5%	13.92±5%	11.62	11.69
voltage at max. power [V]:	40.7	40.9	41.1	41.3	41.5	35.1	35.3
current at max. power [A]:	12.9	12.96	13.02	13.08	13.14	10.97	11.05
max. power (with tolerance) [W]:	525±3%	530±3%	535±3%	540±3%	545±3%	385±3%	390±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD120P-435	JW-HD120P-440	JW-HD120P-445	JW-HD120P-450	JW-HD108N-395	JW-HD108N-400	JW-HD108N-405

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open-circuit voltage [V]:	40.5±4%	40.7±4%	40.9±4%	41.1±4%	36.9±4%	37.1±4%	37.3±4%
Short-circuit current [A]:	13.66±5%	13.73±5%	13.80±5%	13.86±5%	13.59±5%	13.67±5%	13.75±5%
voltage at max. power [V]:	33.8	34.0	34.2	34.4	30.9	31.1	31.3
current at max. power [A]:	12.87	12.95	13.02	13.09	12.79	12.87	12.95
max. power (with tolerance) [W]:	435±3%	440±3%	445±3%	450±3%	395±3%	400±3%	405±3%

Product Electrical Ratings at STC:

Module	JW-HD108N-410	JW-HD108N-415	JW-HD108N-420	JW-HD132P-480	JW-HD132P-485	JW-HD132P-490	JW-HD132P-495
open-circuit voltage [V]:	37.5±4%	37.7±4%	37.9±4%	44.70±4%	44.90±4%	45.10±4%	45.30±4%
Short-circuit current [A]:	13.82±5%	13.91±5%	13.98±5%	13.66±5%	13.73±5%	13.79±5%	13.84±5%
voltage at max. power [V]:	31.5	31.7	31.9	37.30	37.50	37.70	37.90
current at max. power [A]:	13.02	13.1	13.17	12.87	12.94	13.00	13.07
max. power (with tolerance) [W]:	410±3%	415±3%	420±3%	480±3%	485±3%	490±3%	495±3%

Product Electrical Ratings at STC:

Module	JW-HD132P-500	JW-HD132P-505	JW-HD108P-390	JW-HD108P-395	JW-HD108P-400	JW-HD108P-405	JW-HD108P-410
open-circuit voltage [V]:	45.50±4%	45.70±4%	36.40±4%	36.60±4%	36.80±4%	37.00±4%	37.20±4%
Short-circuit current [A]:	13.90±5%	13.96±5%	13.65±5%	13.72±5%	13.79±5%	13.85±5%	13.91±5%
voltage at max. power [V]:	38.10	38.30	30.40	30.60	30.80	31.00	31.20
current at max. power [A]:	13.13	13.19	12.83	12.91	12.99	13.07	13.15
max. power (with tolerance) [W]:	500±3%	505±3%	390±3%	395±3%	400±3%	405±3%	410±3%

Product Electrical Ratings at STC:

Module	JW-HD144P-	JW-HD132P-	JW-HD120P-	JW-HD108P-	JW-HD120N-	JW-HD120N-	JW-HD120N-
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	550	505	455	410	580	585	590
open-circuit voltage [V]:	49.80±4%	45.70±4%	41.30±4%	37.20±4%	40.5±4%	40.7±4%	40.9±4%
Short-circuit current [A]:	13.98±5%	13.96±5%	13.92±5%	13.91±5%	18.22±5%	18.26±5%	18.31±5%
voltage at max. power [V]:	41.70	38.30	34.60	31.20	33.7	33.9	34.1
current at max. power [A]:	13.20	13.19	13.16	13.15	17.22	17.26	17.31
max. power (with tolerance) [W]:	550±3%	505±3%	455±3%	410±3%	580±3%	585±3%	590±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD120N-595	JW-HD120N-600	JW-HD120N-605	JW-HD120N-610	JW-HD120N-615	JW-HD120N-620	JW-HD120N-625
open-circuit voltage [V]:	41.1±4%	41.3±4%	41.5±4%	41.7±4%	41.9 ±4%	42.1 ±4%	42.3 ±4%
Short-circuit current [A]:	18.35±5%	18.4±5%	18.45±5%	18.5±5%	18.55±5%	18.60±5%	18.65±5%
voltage at max. power [V]:	34.3	34.5	34.7	34.9	35.1	35.3	35.5
current at max. power [A]:	17.35	17.4	17.45	17.49	17.53	17.58	17.62
max. power (with tolerance) [W]:	595±3%	600±3%	605±3%	610±3%	615±3%	620±3%	625±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD120N-630	JW-HD120P-580	JW-HD120P-585	JW-HD120P-590	JW-HD120P-595	JW-HD120P-600	JW-HD120P-605
open-circuit voltage [V]:	42.5±4%	40.7±4%	40.9±4%	41.1±4%	41.3±4%	41.5±4%	41.7±4%
Short-circuit current [A]:	18.70±5%	18.34±5%	18.39±5%	18.43±5%	18.47±5%	18.52±5%	18.57±5%
voltage at max. power [V]:	35.7	33.6	33.8	34	34.2	34.4	34.6
current at max. power [A]:	17.66	17.27	17.32	17.36	17.4	17.45	17.49
max. power (with tolerance) [W]:	630±3%	580±3%	585±3%	590±3%	595±3%	600±3%	605±3%

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Product Electrical Ratings at STC:							
Module	JW-HD120P-610	JW-HD120P-615	JW-HD120P-620	JW-HD144P-555	JW-HD132P-460	JW-HD108P-415	-
open-circuit voltage [V]:	41.9±4%	42.1±4%	42.3±4%	50±4%	41.5±4%	37.4±4%	-
Short-circuit current [A]:	18.61±5%	18.65±5%	18.69±5%	14.04±5%	13.98±5%	13.97±5%	-
voltage at max. power [V]:	34.8	35	35.2	41.9	34.8	31.4	-
current at max. power [A]:	17.53	17.58	17.62	13.26	13.22	13.22	-
max. power (with tolerance) [W]:	610±3%	615±3%	620±3%	555±3%	460±3%	415±3%	-
Product Electrical Ratings at STC:							
Module	JW-HD156N-580	JW-HD156N-585	JW-HD156N-590	JW-HD156N-595	JW-HD156N-600	JW-HD156N-605	JW-HD156N-610
open-circuit voltage [V]:	53.7±4%	53.9±4%	54.1±4%	54.3±4%	54.5±4%	54.7±4%	54.9±4%
Short-circuit current [A]:	13.68±5%	13.74±5%	13.8±5%	13.86±5%	13.92±5%	13.98±5%	14.04±5%
voltage at max. power [V]:	44.7	44.9	45.1	45.3	45.5	45.7	45.9
current at max. power [A]:	12.99	13.04	13.09	13.14	13.19	13.24	13.29
max. power (with tolerance) [W]:	580±3%	585±3%	590±3%	595±3%	600±3%	605±3%	610±3%
Product Electrical Ratings at STC:							
Module	JW-HD144N-560	JW-HD144N-565	JW-HD144N-570	JW-HD120N-465	JW-HD120N-470	JW-HD120N-475	JW-HD132N-510
open-circuit voltage [V]:	50.68±4%	50.88±4%	51.08±4%	42±4%	42.2±4%	42.4±4%	46.3±4%
Short-circuit current [A]:	14.12±5%	14.18±5%	14.24±5%	13.96±5%	14.02±5%	14.09±5%	13.9±5%
voltage at max. power [V]:	42.40	42.60	42.80	35.3	35.5	35.7	38.8
current at max. power [A]:	13.21	13.27	13.32	13.18	13.24	13.31	13.15

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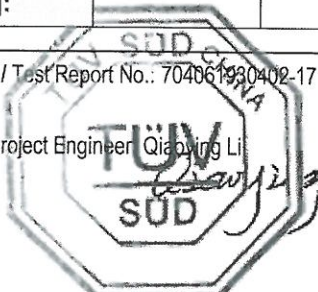
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## Data form for electrical and electronic equipment/components

Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

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max. power (with tolerance) [W]:	560±3%	565±3%	570±3%	465±3%	470±3%	475±3%	510±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD132N-515	JW-HD132N-520	JW-HD108N-420	JW-HD108N-425	JW-HD144N-575	JW-HD156N-615	JW-HD156N-620
open-circuit voltage [V]:	46.5±4%	46.7±4%	37.9±4%	38.1±4%	51.28±4%	55.1±4%	55.2±4%
Short-circuit current [A]:	13.96±5%	14.02±5%	13.98±5%	14.05±5%	14.30±5%	14.1±5%	14.17±5%
voltage at max. power [V]:	39	39.2	31.9	32.1	43.00	46.1	46.2
current at max. power [A]:	13.21	13.27	13.17	13.24	13.38	13.35	13.42
max. power (with tolerance) [W]:	515±3%	520±3%	420±3%	425±3%	575±3%	615±3%	620±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD132N-525	JW-HD120N-480	JW-HD-120N-485	JW-HD108N-430	JW-HD-108N-435	JW-HD144N-580	JW-HD144N-585
open-circuit voltage [V]:	46.9±4%	42.6±4%	42.8±4%	38.3±4%	38.40±4%	51.3±4%	51.5±4%
Short-circuit current [A]:	14.08±5%	14.16±5%	14.23±5%	14.12±5%	14.18±5%	14.23±5%	14.28±5%
voltage at max. power [V]:	39.4	35.9	36.1	32.3	32.50	43.2	43.4
current at max. power [A]:	13.33	13.38	13.45	13.32	13.39	13.43	13.48
max. power (with tolerance) [W]:	525±3%	480±3%	485±3%	430±3%	435±3%	580±3%	585±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD-132N-530	JW-HD-132N-535	JW-HD-156N-625	JW-HD-156N-630	JW-HD132N-655	JW-HD132N-660	JW-HD132N-665
open-circuit voltage [V]:	47.1±4%	47.3±4%	55.30±4%	55.50±4%	45.4±4%	45.6±4%	45.8±4%
Short-circuit current [A]:	14.14±5%	14.20±5%	14.25±5%	14.31±5%	18.37±5%	18.42±5%	18.47±5%
voltage at max. power [V]:	39.60	39.80	46.30	46.50	37.8	38	38.2

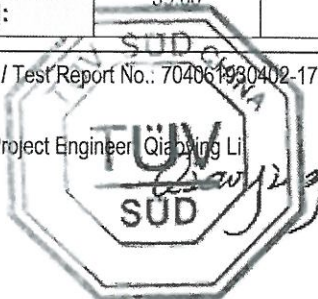
Prüfbericht Nr. / Test Report No.: 704061930402-17

Ort/place: Taizhou

Datum/date: 2020-04-20

Revised date: 2022-10-28

Projektleiter / Project Engineer: Qiaoping Li

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Data form for electrical and electronic equipment/components

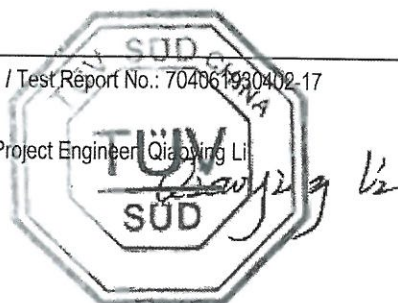
Aufbauübersicht für elektrische und elektronische Geräte/Komponenten

current at max. power [A]:	13.39	13.45	13.50	13.55	17.33	17.38	17.42
max. power (with tolerance) [W]:	530±3%	535±3%	625±3%	630±3%	655±3%	660±3%	665±3%
<b>Product Electrical Ratings at STC:</b>							
Module	JW-HD132N-670	JW-HD132N-675	JW-HD132N-680	JW-HD144N-580	JW-HD144N-585	-	-
open-circuit voltage [V]:	46±4%	46.2±4%	46.4±4%	51.48±4%	51.68±4%	-	-
Short-circuit current [A]:	18.52±5%	18.57±5%	18.62±5%	14.36±5%	14.42±5%	-	-
voltage at max. power [V]:	38.4	38.6	38.8	43.20	43.40	-	-
current at max. power [A]:	17.46	17.5	17.54	13.43	13.48	-	-
max. power (with tolerance) [W]:	670±3%	675±3%	680±3%	580±3%	585±3%	-	-

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