


## Constructional Data Form for Photovoltaic Modules

License Holder..... (full address)	Sany Silicon Energy (Zhuzhou) Co., Ltd. Room 518-50, Building 1, Longxin International, No.255, Tongxia Road, Tongtangwan Street, Shifeng District, Zhuzhou City, 412005, Hunan Province, P.R. China			
Production Factory .....	Sany Silicon Energy (Zhuzhou) Co., Ltd. Sany Energy Equipment Industrial Park, No.320 Qingshui Road, Shifeng District, Zhuzhou City, 412005, Hunan Province, P.R. China			
Type of Product .....	Photovoltaic (PV) Modules			
Trademark.....				
	Glass-glass module			
	With ½ cut of 182 mono c-Si cell (156pcs)	With ½ cut of 182 mono c-Si cell (144pcs)	With ½ cut of 182 mono c-Si cell (120pcs)	With ½ cut of 182 mono c-Si cell (108pcs)
Type Name or Model No.:	SYMNI56TBDxxx xxx=power in Wp	SYMNI44TBDxxx xxx=power in Wp	SYMNI20TBDxxx xxx=power in Wp	SYMNI08TBDxxx xxx=power in Wp
Maximum System Voltage [VDC]	1500	1500	1500	1500
Rated Maximum Power [W].....	615, 620, 625, 630, 635	555, 560, 565, 570, 575, 580, <b>585</b>	455, 460, 465, 470, 475, <b>480, 485</b>	415, 420, 425, 430, 435, <b>440</b>
Tolerance of Rating Pmax / Voc / Isc [%].....	±3 / ±3 / ±3	±3 / ±3 / ±3	±3 / ±3 / ±3	±3 / ±3 / ±3
Rated Open Circuit Voltage [V].....	55.53, 55.67, 55.81, 55.95, 56.09	50.98, 51.12, 51.26, 51.40, 51.54, 51.68, <b>51.82</b>	42.27, 42.41, 42.55, 42.69, 42.83, <b>42.97</b> , <b>43.11</b>	37.94, 38.14, 38.34, 38.54, 38.74, <b>38.94</b>
Rated Short Circuit Current [A].....	13.72, 13.78, 13.84, 13.90, 13.96	13.60, 13.66, 13.72, 13.78, 13.84, 13.90, <b>13.96</b>	13.54, 13.60, 13.66, 13.72, 13.78, <b>13.84</b> , <b>13.90</b>	13.60, 13.66, 13.72, 13.78, 13.84, <b>13.90</b>
Over-current protection rating[A]:	30	30	30	30
Classification (IEC 61730):	Class II	Class II	Class II	Class II
Fire rating (According to UL 790).....	Class A	Class A	Class A	Class A
Pollution degree.....	I	I	I	I
Dimensions (l x w x h) [mm].....	2465x1134x30	2278x1134x30	1903*1134*30	1722*1134*30
Module area [m²].....	2.80	2.58	2.16	1.95

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Min- creepage distance [mm].....:	12.3±1	12.3±1	12.3±1	12.3±1
Number of solar cells	156	144	120	108
Cells per bypass diode	52	48	40	36
Serial/parallel connection of cells	SPS	SPS	SPS	SPS
	With ½ cut of 182 mono c-Si cell (144pcs)	With ½ cut of 182 mono c-Si cell (120pcs)	With ½ cut of 182 mono c-Si cell (108pcs)	-
Type Name or Model No. ....:	SYMN144R01TBDxxx xxx=power in Wp	SYMN120R01TBDxxx xxx=power in Wp	SYMN108R01TBDxxx xxx=power in Wp	-
Maximum System Voltage [VDC]	1500	1500	1500	-
Rated Maximum Power [W]:	590, 595, 600, 605, 610, 615, 620	490, 495, 500, 505, 510, 515, 520	440, 445, 450, 455, 460, 465, 470	-
Tolerance of Rating Pmax / Voc / Isc [%].....:	±3 / ±3 / ±3	±3 / ±3 / ±3	±3 / ±3 / ±3	-
Rated Open Circuit Voltage [V].....:	51.20, 51.34, 51.48, 51.62, 51.76, 51.90, 52.04	42.62, 42.76, 42.90, 43.04, 43.18, 43.32, 43.46	38.33, 38.47, 38.61, 38.75, 38.89, 39.03, 39.17	-
Rated Short Circuit Current [A].....:	14.44, 14.50, 14.56, 14.62, 14.68, 14.74, 14.80	14.44, 14.50, 14.56, 14.62, 14.68, 14.74, 14.80	14.44, 14.50, 14.56, 14.62, 14.68, 14.74, 14.80	-
Over-current protection rating[A]:	30	30	30	-
Classification (IEC 61730) ...:	Class II	Class II	Class II	-
Fire rating (According to UL 790) .....	Class A	Class A	Class A	-
Pollution degree .....	I	I	I	-
Dimensions (l x w x h) [mm]:	2382x1134x30	1994x1134x30	1800x1134x30	-
Module area [m²] .....	2.70	2.20	2.04	-
Min- creepage distance [mm].....:	12.3±1	12.3±1	12.3±1	-
Number of solar cells	144	120	108	-
Cells per bypass diode	48	40	36	-
Serial/parallel connection of cells	SPS	SPS	SPS	-

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Copy of marking plate:



**PV MODULE**  
Sany Silicon Energy (Zhuzhou) Co., LTD  
Sany Energy Equipment Industrial Park,  
No.320 Qingshui Road, Shifeng District,  
Zhuzhou City, Hunan Province  
412005 China  
www.sanygroup.com/

**SYM144TBD555**  
Max. power (P<sub>max</sub>)  
Max. power tolerance  
Voltage at max. power (V<sub>mpp</sub>)  
Current at max. power (I<sub>mpp</sub>)  
Open-circuit voltage (V<sub>oc</sub>)  
Short-circuit current (I<sub>sc</sub>)  
Maximum system voltage

555W  
±3%  
41.84V  
13.29A  
50.47V±3%  
14.07A±3%  
1500VDC

bifaciality  
Series Fuse Rating  
operating temperature range  
protect rage  
module wprotecteight  
module size  
STC

80±5%  
30A  
40°C ~ +85°C  
II  
32.0(kg)  
2278×1134×30(mm)  
1000W/m², AM1.5, 25°C



warning

Only the professionals can install and  
maintain the components Be careful of the  
dangerous high DC voltage when connecting  
the components Never damage or scratch the  
back of the assembly



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Zhuzhou City, Hunan Province  
412005 China  
www.sanygroup.com/

**SYM156TBD635**  
Max. power (P<sub>max</sub>)  
Max. power tolerance  
Voltage at max. power (V<sub>mpp</sub>)  
Current at max. power (I<sub>mpp</sub>)  
Open-circuit voltage (V<sub>oc</sub>)  
Short-circuit current (I<sub>sc</sub>)  
Maximum system voltage

635W  
±3%  
47.47V  
13.38A  
56.09V±3%  
13.96A±3%  
1500VDC

bifaciality  
Series Fuse Rating  
operating temperature range  
protect rage  
module wprotecteight  
module size  
STC

80±5%  
30A  
40°C ~ +85°C  
II  
34.3(kg)  
2465×1134×30(mm)  
1000W/m², AM1.5, 25°C



warning

Only the professionals can install and  
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Object	Manufacturer / trademark	Type / model	Technical data / ratings	Standard (if applicable)	Certificates (if applicable)
Front cover 1	Hunan Kibing Solar Technology Co., Ltd.	Semi-tempered AR coated glass	Thickness =2.0mm±0.2mm	—	—
Front cover 2	CSG HOLDING CO., LTD.	Semi-tempered AR coated glass	Thickness =2.0mm±0.2mm	—	—
Rear cover 1	Hunan Kibing Solar Technology Co., Ltd.	Semi-Tempered back glass	Thickness =2.0mm±0.2mm	—	—
Rear cover 2	CSG HOLDING CO., LTD.	Semi-Tempered back glass	Thickness =2.0mm±0.2mm	—	—
Encapsulation material 1	HANGZHOU FIRST APPLIED MATERIAL CO., LTD	EP304 (near glass)	Thickness = 0.5mm±10% gram weight: 400g/m <sup>2</sup> ±10%	—	—
		F406PS (near back glass)	Thickness = 0.5mm±10% gram weight: 400g/m <sup>2</sup> ±10%		
Encapsulation material 2	Nantong Golden Wrapping Materials Co., Ltd.	GW601 (near glass)	Thickness = 0.5mm±10% gram weight: 400g/m <sup>2</sup> ±10%	—	—
		GW801A (near back glass)	Thickness = 0.5mm±10% gram weight: 400g/m <sup>2</sup> ±10%		
Encapsulation material 3	CHANGZHOU BETTERIAL FILM TECHNOLOGIES CO., LTD	B602M (near glass)	Thickness = 0.5mm±10% gram weight: 400g/m <sup>2</sup> ±10%	—	—
		B601HP (near back glass)	Thickness = 0.5mm±10% gram weight: 400g/m <sup>2</sup> ±10%		
Solar cell 1	Sany Silicon Energy (Zhuzhou) Co., Ltd.	SYCN182T16 (combined with Encapsulation material 1,2,3)	N type mono c-Si cell with 16 dotted busbars 182mm×91mm±0.25mm Thickness=130µm±15µm	—	—
Solar cell 2	Sany Silicon Energy (Zhuzhou) Co., Ltd.	SYCN18AT16 (combined with Encapsulation material 1,2,3)	N type mono c-Si cell with 16 dotted busbars 182.2mm×95.8mm±0.25mm Thickness=130µm±15µm	—	—
Cell connectors 1	Changzhou Sheng Yue metal new material Co., Ltd.	Sn60Pb40	Ø= 0.26±0.01mm	—	—

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Object	Manufacturer / trademark	Type / model	Technical data / ratings	Standard (if applicable)	Certificates (if applicable)
Cell connectors 2	Suzhou YourBest New-type Materials Co., Ltd.	Sn60Pb40	Ø= 0.26±0.01mm	—	—
Cell connectors 3	Suzhou bonide Photovoltaic Technology Co., Ltd	Sn60Pb40	Ø= 0.26±0.01mm	—	—
Cell connectors 4	Jiangsu Xingdarui Optical Power Co. LTD	Sn60Pb40	Ø= 0.26±0.01mm	—	—
String connectors 1	Changzhou Sheng Yue metal new material Co., Ltd.	Sn60Pb40	T(mm) x L(mm): 0.3±0.01mm x 6.0±0.05mm 0.3±0.01mm x 4.0±0.05mm	—	—
String connectors 2	Suzhou YourBest New-type Materials Co., Ltd.	Sn60Pb40	T(mm) x L(mm): 0.3±0.01mm x 6.0±0.05mm 0.3±0.01mm x 4.0±0.05mm	—	—
String connectors 3	Suzhou bonide Photovoltaic Technology Co., Ltd	Sn60Pb40	T(mm) x L(mm): 0.3±0.01mm x 6.0±0.05mm 0.3±0.01mm x 4.0±0.05mm	—	—
String connectors 4	Jiangsu Xingdarui Optical Power Co. LTD	Sn60Pb40	T(mm) x L(mm): 0.3±0.01mm x 6.0±0.05mm 0.3±0.01mm x 4.0±0.05mm	—	—
Frame parts 1	Jiangsu Jiachen Aluminium Technology Co., Ltd	Anodized Aluminium Alloy 6005-T6 (Silver)	H(mm) x W(mm): 1. 30x33mm (long frame) 30x18mm (short frame) 2. 30x30mm (long frame) 30x15mm (short frame)	—	—
Frame parts 2	CHANGSHU DONGNENG SOLAR TECHNOLOGY CO., LTD	Anodized Aluminium Alloy 6005-T6 (Silver)	H(mm) x W(mm): 1. 30x33mm (long frame) 30x18mm (short frame) 2. 30x30mm (long frame) 30x15mm (short frame)	—	—
Frame parts 3	Jiangyin Chaoyang Photovoltaic Co., Ltd.	Anodized Aluminium Alloy 6005-T6 (Silver)	H(mm) x W(mm): 30x30mm (long frame) 30x15mm (short frame)	—	—

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Object	Manufacturer / trademark	Type / model	Technical data / ratings	Standard (if applicable)	Certificates (if applicable)
Adhesive (frame) 1	Shanghai Huitian New Material Co., Ltd.	HT906Z	Color: White	—	—
Adhesive (frame) 2	Guangzhou Jointas Chemical Co., Ltd.	179W	Color: White	—	—
Adhesive (frame) 3	Jiangsu Tianchen New Materials CO., LTD	HT-8258	Color: White	—	—
Fluxing agent 1	Zhuhai Changxian New Materials Technology Co., Ltd	CX700	—	—	—
Fluxing agent 2	ASAHI SOLDER TECHNOLOGY(WUXI) CO., LTD	SF180	—	—	—
Fluxing agent 3	Shenzhen Tongfang Electronic New-Material CO., LTD	AATF9800-MBB	—	—	—
Fixing tape 1	SuZhou Rongzhi Electronic Technology Co., Ltd	D60F6-2	Thickness= 100µm±40µm	—	—
Fixing tape 2	Guangdong Sunrui New Material Co., Ltd.	HZ UV-100	Thickness= 100µm±40µm	—	—
Fixing tape 3	SuZhou Rongzhi Electronic Technology Co., Ltd	D60F6-6	Thickness= 100µm±40µm	—	—
Fixing tape 4	Guangdong Sunrui New Material Co., Ltd.	HZ UV-3	Thickness= 100µm±40µm	—	—
Insulation tape	—	—	—	—	—
(Optional) Accessories	—	—	—	—	—

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Object	Manufacturer / trademark	Type / model	Technical data / ratings	Standard (if applicable)	Certificates (if applicable)
Junction box 1	QC Solar (Suzhou) Corporation	3Qxy (x=1 or 2 or 3 or 4; y=1 or 2 or 3 or 4)	Rated voltage =1500VDC Rated current =20A (x=1; y=1 or 2 or 3 or 4) Rated current =22A (x=2; y=1 or 2 or 3) Rated current =25A (x=3; y=1 or 2 or 3 or 4) Rated current =30A (x=4; y=1 or 2 or 3 or 4) Reverse current=40A IP68	IEC 62790: 2020 EN IEC 62790: 2020	R 50510013
Cable	QC Solar (Suzhou) Corporation	62930 IEC 131 1 x 2,5mm <sup>2</sup> / 1 x 4,0mm <sup>2</sup> / 1 x 6,0mm <sup>2</sup> / 1 x 10,0mm <sup>2</sup> HALOGEN FREE LOW SMOKE	Max. Voltage = 1500VDC	IEC 62930	R 50447239
Connector	QC Solar (Suzhou) Corporation	QC4.10-cds	Max. Voltage = 1500VDC Max. Current = 41A	IEC 62852: 2014	R 50505605
Bypass diode	QC Solar (Suzhou) Corporation	QCM4045	Tj max =200 °C;	—	—
Adhesive (junction box) 1	Shanghai Huitian New Material Co., Ltd.	HT906Z	Color: White	—	—
Adhesive (junction box) 2	Jiangsu Tianchen New Materials CO., LTD	HT-8258	Color: White	—	—
Adhesive (junction box) 3	Guangzhou Jointas Chemical Co., Ltd.	179W	Color: White	—	—
Potting (junction box) 1	Shanghai Huitian New Material Co., Ltd.	5299W-S	Color: White	—	—
Potting material 2	Jiangsu Tianchen New Materials CO., LTD	HT-6360 A/B	Color: White	—	—
Potting material 3	Guangzhou Jointas Chemical Co., Ltd.	162 A/B	Color: White	—	—

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Object	Manufacturer / trademark	Type / model	Technical data / ratings	Standard (if applicable)	Certificates (if applicable)
Junction box 2	Changshu Friends connector Technology CO., LTD	F20-01 X	Rated voltage =1500VDC 25A for F20-01 X (x=003a); 30A for F20-01 X (x=003b) Reverse current=41A IP68	IEC 62790: 2020 EN IEC 62790: 2020	R 50576603
Cable	Changshu Friends connector Technology CO., LTD	62930 IEC 131 1 x 1,5 ... 35mm2 HALOGEN FREE LOW SMOKE	Max. Voltage = 1500VDC	IEC 62930	R 50538772
Connectors	Changshu Friends connector Technology CO., LTD	PV5e	Max. Voltage = 1500VDC Rated Current = 35A	IEC 62852: 2014	R 50525017
Bypass diode	Changshu Friends connector Technology CO., LTD	30SQ045	Tj max =200 °C;		
Adhesive (junction box) 1	Shanghai Huitian New Material Co., Ltd.	HT906Z	Color: White	—	—
Adhesive (junction box) 2	Jiangsu Tianchen New Materials CO., LTD	HT-8258	Color: White	—	—
Adhesive (junction box) 3	Guangzhou Jointas Chemical Co., Ltd.	179W	Color: White	—	—
Potting (junction box) 1	Shanghai Huitian New Material Co., Ltd.	5299W-S	Color: White	—	—
Potting material 2	Jiangsu Tianchen New Materials CO., LTD	HT-6360 A/B	Color: White	—	—
Potting material 3	Guangzhou Jointas Chemical Co., Ltd.	162 A/B	Color: White	—	—
Junction box 3	ZHEJIANG FORSOL ENERGY CO., LTD	F303x Plus	Rated voltage =1500VDC 20A for F303x Plus (x=D); 25A for F303x Plus (x=F); 30A for F303x Plus (x=G) Reverse current=40A IP68	IEC 62790: 2020 EN IEC 62790: 2020	R 50603479

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Cable	ZHEJIANG FORSOL ENERGY CO., LTD	62930 IEC 131 1 x 1,5 ... 6mm <sup>2</sup> HALOGEN FREE LOW SMOKE	Max. Voltage = 1500VDC	IEC 62930	R 50515986
Connectors	ZHEJIANG FORSOL ENERGY CO., LTD	FC4	Max. Voltage = 1500VDC Max. Current = 41A	IEC 62852: 2014	R 50513372
Bypass diode	ZHEJIANG FORSOL ENERGY CO., LTD	FSL-4050	Tj max =200 °C;	—	—
Adhesive (junction box) 1	Shanghai Huitian New Material Co., Ltd.	HT906Z	Color: White	—	—
Adhesive (junction box) 2	Jiangsu Tianchen New Materials CO., LTD	HT-8258	Color: White	—	—
Adhesive (junction box) 3	Guangzhou Jointas Chemical Co., Ltd.	179W	Color: White	—	—
Potting (junction box) 1	Shanghai Huitian New Material Co., Ltd.	5299W-S	Color: White	—	—
Potting material 2	Jiangsu Tianchen New Materials CO., LTD	HT-6360 A/B	Color: White	—	—
Potting material 3	Guangzhou Jointas Chemical Co., Ltd.	162 A/B	Color: White	—	—

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