

**GENERAL INFORMATION**

- Installing solar photovoltaic systems requires specialized skills and knowledge. The installer assumes all risk of injury, including risk of electric shock. Module installation should be performed only by a qualified installer.
- All modules come with a permanently attached junction box and 4mm<sup>2</sup>wire. Jayu Solar can provide customers with fitted cables for ease of installation, if desired.
- When disconnecting wires connected to a photovoltaic module that is exposed to sunlight, an electric arc may occur. Arcs can cause burns, start fires or otherwise create safety problems. Exercise caution when disconnecting wiring on modules exposed to sunlight.
- Photovoltaic solar modules convert light energy to direct-current electrical energy, and are designed for outdoor use. Proper design of support structures is the responsibility of the system designer and installer.



- Do not attempt to disassemble the module, and do not remove any attached nameplate or components. Doing so will void the warranty.
- Do not use mirrors or other hardware to artificially concentrate sunlight on the module.

**Safety precautions for installing a solar photovoltaic system**

- Solar modules produce electrical energy when light shines on the front surface. The DC voltage may exceed 30V. If modules are connected in series, the total voltage is equal to the sum of the individual module voltages. If modules are connected in parallel, the total current is equal to the sum of individual module current
- Keep children well away from the system while transporting and installing mechanical and electrical components.
- Completely cover the module with an opaque material during installation to keep electricity from being generated.
- Abide with the safety regulations for all other components used in the system, including wiring and cables, connectors, charging regulators, inverters, storage batteries and rechargeable batteries, etc.
- Use only equipment, connectors, wiring and support frames suitable for use in a solar electric systems. Always use the same type of module within a particular photovoltaic system.
- Modules rated for use in this application class may be used in systems operating at greater than 50V DC or 240W, where general contact access is anticipated. Modules qualified for safety through this part of IEC61730 and IEC61730-2 and within this application class are considered to meet the requirements for safety class II. Under normal conditions, a photovoltaic module is likely to experience conditions that produce more current and/or voltage than reported at standard test conditions. Accordingly, the value of Isc and Voc marked on this module should be multiplied by of 1.25 when determining component voltage ratings, conductor current ratings, fuse sizes, and size of controls connected to the PV output.
- The recommend maximum series fuse is 15A(156 module).
- The modules have been evaluated for a maximum positive loading of 5400pa.



- Do not wear metallic rings, watchbands, ear, nose, or lip rings, or other metallic devices while installing or troubleshooting a photovoltaic systems.
- Be sure to use appropriate safety equipment (insulated tools, insulated gloves, etc) approved for use in electrical installations.
- Application class A: meet the requirements for safety class II.

**MECHANICAL INSTALLATION****Selecting the location**

- Select a suitable location for installation of the module.
- The module should be face sun, reduce loss from exterior sunshine and raise export power.
- Detailed information on optimal module orientation will depend on the sunlight and specific system design. For the optimal annual output from the solar module, we suggest the mounting angle be equal to the latitude of the city where the modules are being installed. For the optimal battery performance in winter months, we suggest the mounting angle be 10 degrees greater than the latitude of the city where the installation is being done. For optimal solar battery performance in all four seasons, we suggest the mounting angle be 10 degrees less than latitude of the city where the installation is being done.
- A mounting location should be chosen where the module will not be shaded at any time of the day.
- Do not install the module near other equipment or in locations where flammable gases can be generated or collected.

The fire rating of this module is valid only when mounted in the manner specified in the mechanical mounting instructions.

- Modules can not be used in other excessive and harsh environments, such as hail, snow, sand, smoke, air pollution, soot, flammable gases, near open flames, and highly corrosive substances (salt, salt spray, salt water, acid rain) , As this will affect the module's safety and performance. If the installation environment is special, such as the seaside, farm, high humidity or wind and other large environment, please consult your local dealer for professional support and confirmation. If you need to be installed at a high altitude, the altitude should not exceed 2000m.

**Selecting the Proper Mounting Structure and Hardware****1. Mounting Structure****(1) Screw fitting:**

- Observe all instructions and safety precautions included with the mounting system to be used with the module.
- The aluminous frame has eight (8) mounting holes, and two (2) holes for grounding.
- Do not drill holes in the glass surface of the module. Doing so will void the warranty.
- Do not drill additional mounting holes in the module frame. Doing so will void the warranty.
- Modules must be securely attached to the mounting structure (racking) using eight (8) mounting points for normal installation. If heavy wind or snow loads are anticipated, we require advance notification. Load calculations are the responsibility of the system designer or installer.
- The support module mounting structure must be made of durable, anticorrosion and UV-resistant material.

**Hardware**

- The size of fixing hole for common modules is 9\*14 and the size of the fixing nut is M8. The size of fixing hole for common modules is 7\*12 and the size of the fixing nut is M6. Drawings as follows.



Figure1: Jayu Solar Module installed with screw fitting method

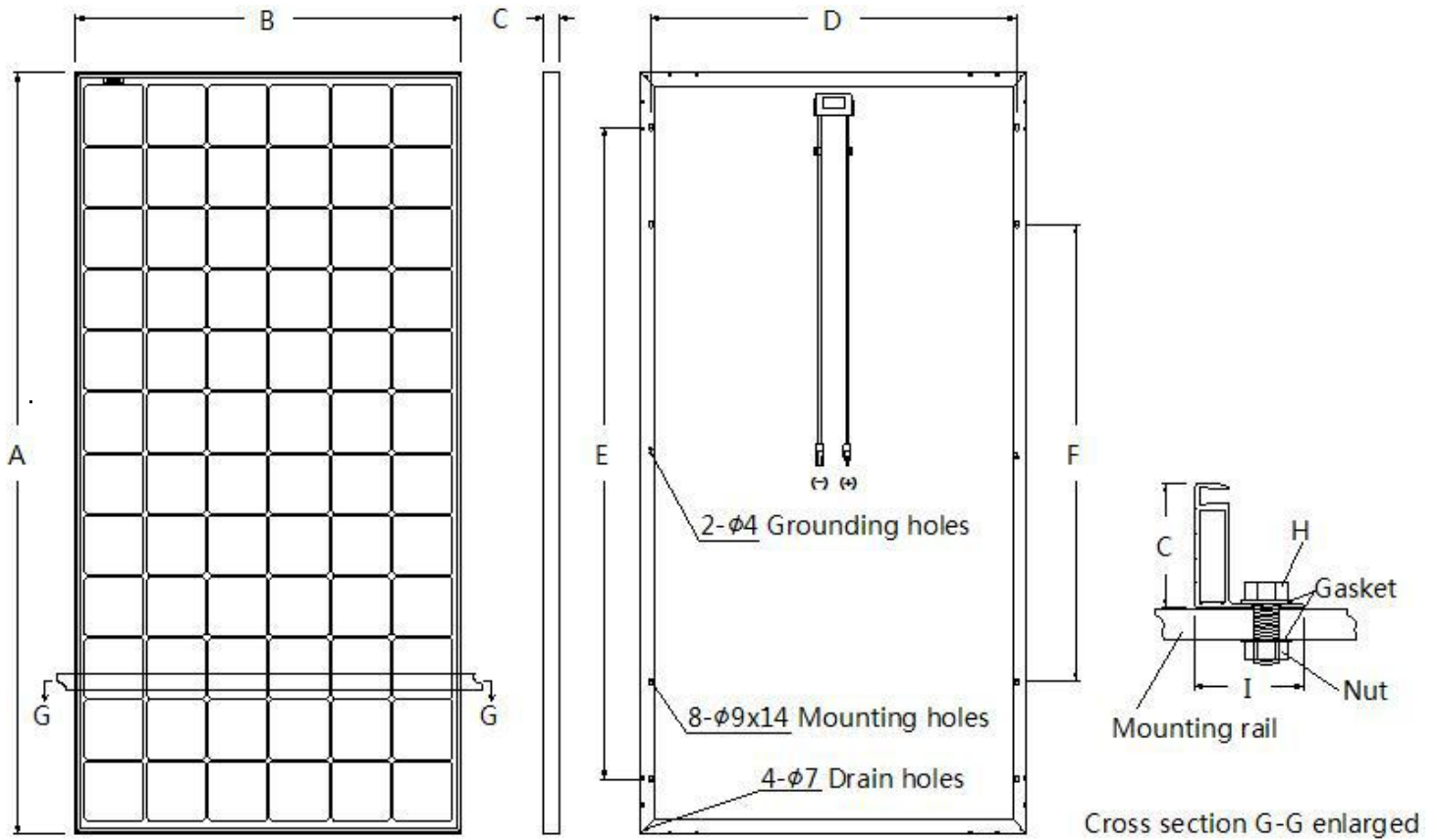


Chart 1 Mono&Poly-silicon module mechanical drawing

Module type	Cell quantity	Dimensions (mm)						
		A*B	C	D	E	F	H	I
156 Mono \Poly -silicon White	6*12	1956*992	50	942	1676	1176	M8	35
	6*12	1956*992	40	949	1676	1176	M6	28
	6*10	1650*992	35\40\50	942	1370	870	M8	35
	6*10	1650*992	40	949	1370	870	M6	28
	6*10	1640*992	35\40\50	942	1360	860	M8	35
	6*10	1640*992	40	949	1360	860	M6	28
	6*10	1636*992	35\40\50	942	1356	856	M8	35
	6*10	1636*992	40	949	1356	856	M6	28
	6*9	1482*992	35\40	942	1202	702	M8	35
	6*9	1482*992	40	949	1202	702	M6	28
	6*8	1325*992	35\40	942	1045	545	M8	35
	6*8	1325*992	40	949	1045	545	M6	28

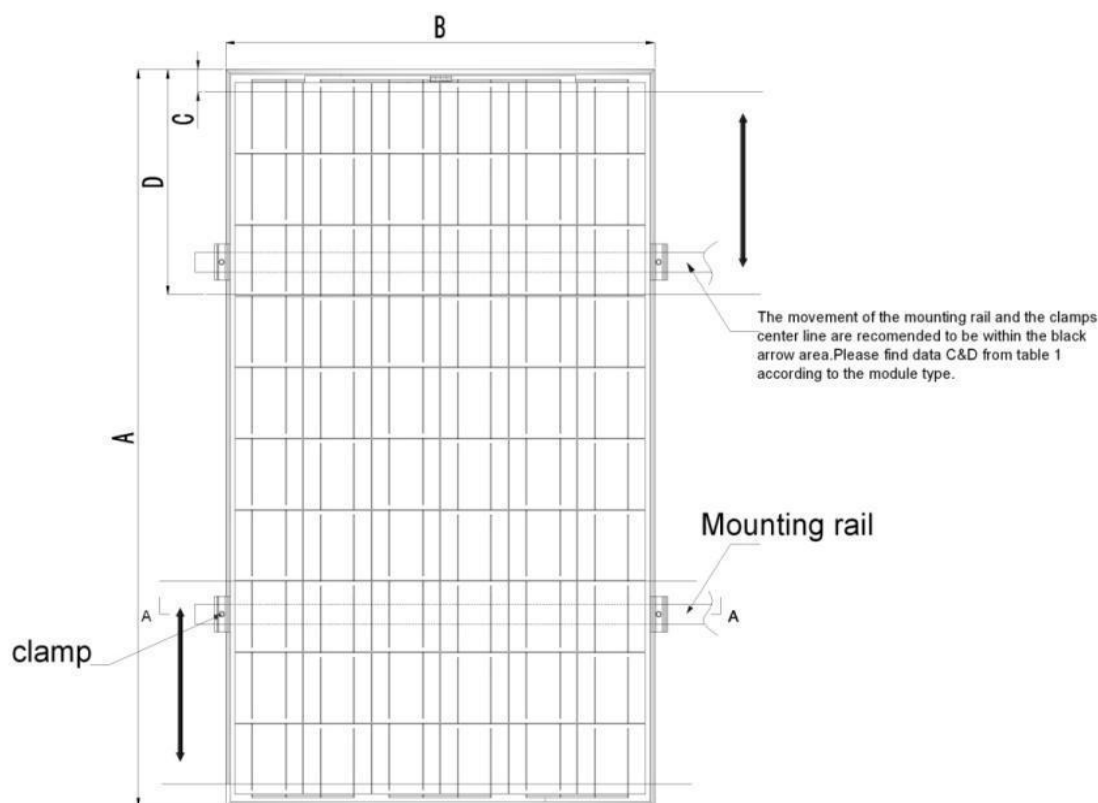
Table 1 The key size for each type of modules

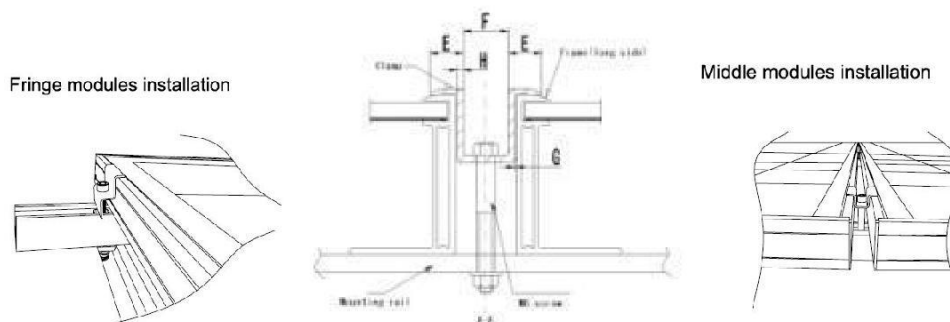
- Module can be mounted on a horizontal or an inclined plane. We recommend type “M8” stainless steel screws fix up on the bracket which we already fix up.
- Insert screw into flat gasket, insert screw into installation hole both on the modules and supporting frame.
- Insert screw into flat gasket and spring gasket, then apply nut on the screw and tighten securely.
- All bolts, nuts, washers are stainless-steel.
- Caution: Guard against contact between different metals. Doing so will give rise to electrochemical corrosion.

## (2) Clamp fitting:

- Use a certain number of clamps to fix the modules on the mounting rail.
- The module clamps should not come into contact with the front glass and must not deform the frame. Be sure to avoid shadowing effects from the module clamps.
- The module frame is not to be modified under any circumstances.
- When choosing this type of clamp-mounting method, please be sure to use at least four clamps on each module, two clamps should be attached on the long sides of the module. Depending on the local wind and snow loads, additional clamps may be required to ensure the module can bear the load. The applied torque should be about 8 Newton-meters.

**Figure2: PV module installed at portrait orientation with Clamp fitting method**





**Chart 2 The Guide for Fixing Modules**

Module type	Module	Cell quantity	Dimensions (mm)						
			A*B	C	D	E	F	G	H
156 Mono-silicon White	JYXXXM6-Aa-5	6*12	1956*992	50	490	11	14	0.5~2	2.5~3
	JYXXXM6-Ab-5	6*10	1640*992	50	428	11	14	0.5~2	2.5~3
	JYXXXM6-Ac-5	6*9	1482*992	50	396	11	14	0.5~2	2.5~3
	JYXXXM6-Ad-5	6*8	1325*992	50	365	11	14	0.5~2	2.5~3
156 Poly-silicon White	JYXXXP6-Aa-5	6*12	1956*992	50	490	11	14	0.5~2	2.5~3
	JYXXXP6- Ab-5	6*10	1636*992	50	427	11	14	0.5~2	2.5~3
	JYXXXP6- Ab-5	6*10	1640*992	50	428	11	14	0.5~2	2.5~3
	JYXXXP6- Ab-5	6*10	1650*992	50	430	11	14	0.5~2	2.5~3
	JYXXXP6- Ac-5	6*9	1482*992	50	396	11	14	0.5~2	2.5~3
	JYXXXP6- Ad-5	6*8	1325*992	50	365	11	14	0.5~2	2.5~3

**Table 2: Mechanical dimensions when modules installed at portrait orientation with Clamp fitting method**

Notes: -PV 60 cells module is used here as an example.

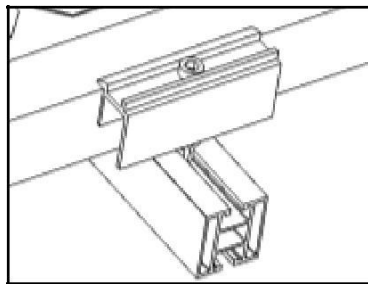
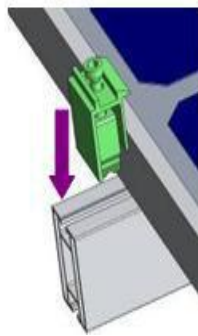
-Dimension "G" represents the distance between clamp and frame.

-Dimension "H" represents the thickness of clamp.

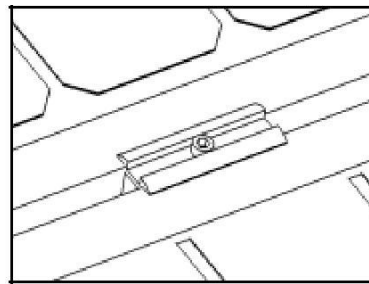
### Hardware

Modules can be mounted on a horizontal or an inclined plane. We can use clamps to fix the modules on the aluminum rails which we set up already.

- According to installation position as shown in table2, put PV modules on the aluminum rails.
- Press clamps into the groove of aluminum rails. To ensure clamps is stuck. Use a mid-clamp connect 2 modules as shown in figure 2. Use an end-clamp to fix the edge module as shown in figure 1. Use hexagon screwdriver to tighten the clamp on the rail securely.
- All clamps (include bolts and flange nuts) are stainless-steel.



(1) end-clamp



(2) mid-clamp

## 2. Mounting Methods

### Ground Mount

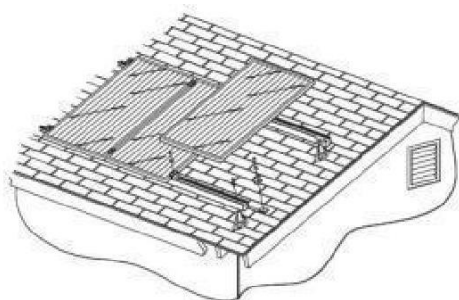
- Select the height of the mounting system that prevents the lowest edge of the modules from being covered by snow for an extended period of time in the winter months in areas that experience heavy snowfall. In addition, assure that the lowest portion of the module is placed high enough so that it is not shaded by plants or trees, or will not be damaged by sand or stone driven by wind.





### Roof Mount

- When installing a module on a roof top or building, ensure that it is securely fastened and cannot fall as a result of wind or snow loads.
- Provide adequate ventilation under a module for cooling. A minimum air gap of 93mm is recommended between the modules and mounting surface.
- When installing module on a roof top, ensure that the roof construction is suitable. In addition, any roof penetration required to mount the module must be properly sealed to prevent leaks. In some cases, a special support frame may be necessary.
- Module could be used in Fire safety Class C. To maintain the corresponding fire prevention level, the tilt angle should be no less than 5 in/ft (127 mm/305 mm) when the modules are mounted on the roof.
- When installing the module on a roof or building, do so in calm winds. Installing a module during strong winds may cause accidents.



### Pole mount

- When installing a module on a pole, choose a pole and module mounting structure that will withstand anticipated winds for the area.



### 3. General installation notes

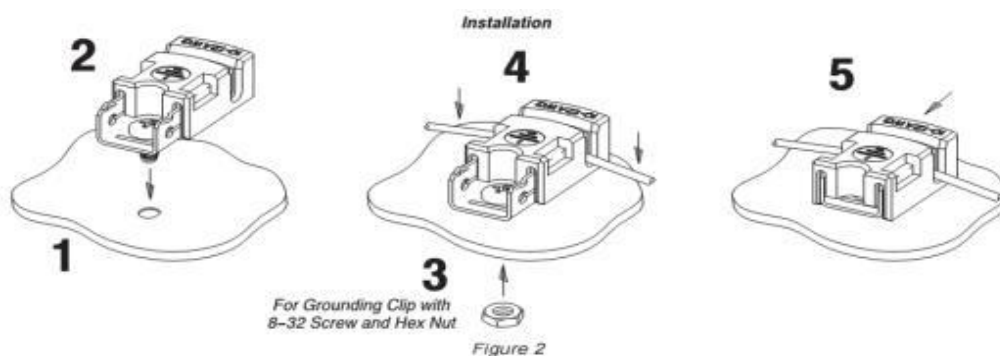
- Drainage holes must not be covered with any part of the mounting system. The junction box has a breather port which must be mounted facing downward and cannot be exposed to the rain. The junction box should be on the highest side of the module when it is mounted in order to orient the breather port correctly. Do not lift
- the module by grasping the module's junction box or electrical leads.

- Do not stand or step on module.
- Do not drop the module or allow objects to fall on the module.
- Do not place any heavy objects on the module.
- Inappropriate transport and installation may damage the module glass or frame.

## ELECTRICAL INSTALLATION

### Grounding

- There are ground holes and marking along either edge of the frame.
- All module frames must be properly grounded.
- The grounding wire must be properly fastened to the module frame to assure good electrical contact. Use the recommended type, or an equivalent, connector for this wire.
- If the support frame is made of metal, the surface of the frame must be electroplated and have excellent conductivity.



- We recommend the TYCO grounding clip ( Manufacturer: Tyco Electronics (Shanghai) Co., Ltd Type no.:1954381-2,).
- When using grounding clips, the grounding conductor should be inserted into the aluminum frame as shown above in Figure 2, and secured using the 8-32 set screw. Then use a nut (included with the Tyco grounding clip) to secure the entire assembly, as shown.
- Next, insert the 12-10 AWG solid, un-insulated ground wire into the slot of the lug (see the picture), and screw down the slotted screw.
- Recommended torque of 8-32 screw assembly is 4N.M.
- Further, buildup of hardware for mounting the grounding lugs are the same.

### General Electrical Installation

- Do not use modules of different electrical configurations or manufacturers in the same system.
- This module is supplied with MC connectors(PV-KST4、PV-KBT4) or others meet the TUV requirements for electrical connections.
- Refer to Section 690.31 of the NEC to determine appropriate types and temperature ratings of conductors. Wiring should be #12 AWG, 4 mm<sup>2</sup> (minimum) and must be temperature rated at 90°C (minimum).
- Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
- The cross section area of cable and the capacity of connector must be selected to suit the maximum system



short circuit current, otherwise the cable and connector will overheat under large current. Refer to NEC for details.

- For best performance, ensure that positive and negative DC wires run closely together avoiding loops.
- The manufacturer of the Bypass Diode is Panjit Group, the model of that is 20SQ045, the Maximum Recurrent Peak Reverse Voltage is 45V and Maximum Average Forward Current is 20A.
- Caution: Electrical shock hazard! Do not touch bare conductors or other potentially energized parts.

## MAINTENANCE

Jayu Solar recommends the following maintenance items to ensure optimum performance of the module:

- Clean the glass surface of the module as necessary. Use water and a soft sponge or cloth for cleaning. A mild, non-abrasive cleaning agent can be used if necessary. Do not use dishwasher detergent.
- Electrical and mechanical connections should be checked periodically by qualified personnel to verify that they are clean, secure and undamaged.
- Check the electrical and mechanical connections periodically to verify that they are clean, secure and undamaged.
- Problems should only be investigated by qualified personnel.
- Observe the maintenance instructions for all other components used in the system.

## SHUTTING DOWN THE SYSTEM

- Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
- Disconnect system from all power sources in accordance with instructions for all other components used in the system.
- The system should now be out of operation and can be dismantled. In doing so, observe the all safety instructions as applicable to installation.

## PRODUCT INFORMATION

- Each module has the following product identification:  
Label: Refer to IEC standards  
Pass: QC Department detailed inspection date and lot tracking information.  
Bar code: Each individual module has a unique serial number.

### Example:



Typical serial number barcode lable

Do not remove any label. If the label is removed, the product warranty will no longer be honored by Jayu.

**DISCLAIMER OF LIABILITY**

Because the use of this manual and the conditions or methods of installation, operation, use and maintenance of photovoltaic (PV) product are beyond Jayu Solar's control, Jayu Solar does not accept responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with such installation, operation, use or maintenance.

- No responsibility is assumed by Jayu Solar for any infringement of patents or other rights of third parties, which may result from use of the PV product. No license is granted by implication or otherwise under any patent or patent rights.

- The information in this manual is based on Jayu Solar's knowledge and experience and is believed to be reliable; but such information including product specifications (without limitations) and suggestions do not constitute a warranty, expresses or implied.

- Jayu Solar Solar reserves the right to change the manual, the PV product, the specifications, or product information sheets without prior notice.

Cell size (mm)	Model	Voc (V)	Isc (A)	Umpp (V)	Impp (A)	Pmpp (W)	Eff (%)
156*156/ 156.75*156.75	JY360M6-Aa-5	47.89	9.66	39.96	9.02	360.00	18.55
	JY355M6-Aa-5	47.68	9.49	39.66	8.95	355.00	18.30
	JY350M6-Aa-5	47.45	9.40	39.36	8.89	350.00	18.04
	JY345M6-Aa-5	47.31	9.31	38.96	8.84	345.00	17.78
	JY340M6-Aa-5	47.03	9.27	38.79	8.76	340.00	17.52
	JY335M6-Aa-5	46.81	9.22	38.61	8.69	335.00	17.26
	JY330M6-Aa-5	46.46	9.15	38.45	8.60	330.00	17.01
	JY325M6-Aa-5	46.38	9.09	38.32	8.49	325.00	16.75
	JY320M6-Aa-5	46.11	8.92	38.23	8.38	320.00	16.49
	JY300M6-Ab-5	40.58	9.42	33.37	8.99	300.00	18.44
	JY295M6-Ab-5	40.22	9.33	32.98	8.93	295.00	18.13
	JY290M6-Ab-5	39.90	9.30	32.64	8.87	290.00	17.83
	JY285M6-Ab-5	39.86	9.21	32.57	8.75	285.00	17.52
	JY280M6-Ab-5	39.56	9.09	32.42	8.62	280.00	17.21
	JY275M6-Ab-5	38.89	9.04	32.20	8.55	275.00	16.90
	JY270M6-Ab-5	38.72	8.89	32.02	8.42	270.00	16.60
	JY265M6-Ab-5	38.45	8.79	31.56	8.40	265.00	16.29
	JY270M6-Ac-5	36.43	9.62	30.26	8.94	270.00	18.37
	JY265M6-Ac-5	36.22	9.45	29.96	8.85	265.00	18.03
	JY260M6-Ac-5	35.97	9.25	29.66	8.75	260.00	17.69
	JY255M6-Ac-5	35.73	9.15	29.47	8.64	255.00	17.35
	JY250M6-Ac-5	35.35	9.09	29.22	8.55	250.00	17.01
	JY245M6-Ac-5	34.92	9.01	28.98	8.45	245.00	16.67
	JY240M6-Ac-5	34.63	8.88	28.83	8.33	240.00	16.32
	JY240M6-Ad-5	32.25	9.65	26.57	9.05	240.00	18.26
	JY235M6-Ad-5	32.04	9.49	26.35	8.92	235.00	17.88
	JY230M6-Ad-5	31.92	9.30	26.11	8.81	230.00	17.50
	JY225M6-Ad-5	31.81	9.12	25.98	8.66	225.00	17.12
	JY220M6-Ad-5	31.51	9.04	25.76	8.55	220.00	16.74
	JY215M6-Ad-5	31.27	8.89	25.61	8.42	215.00	16.36
JY210M6-Ad-5	31.08	8.68	25.41	8.27	210.00	15.98	

Cell size (mm)	Model	Voc (V)	Isc (A)	Umpp (V)	Impp (A)	Pmpp (W)	Eff (%)
156*156 /156.75*156.75	JY355P6-Aa-5	48.53	9.41	39.31	9.03	355	18.30
	JY350P6-Aa-5	48.35	9.33	39.02	8.96	350	18.04
	JY345P6-Aa-5	48.19	9.25	38.88	8.88	345	17.78
	JY340P6-Aa-5	47.89	9.19	38.64	8.81	340	17.52
	JY335P6-Aa-5	47.59	9.13	38.40	8.73	335	17.26
	JY330P6-Aa-5	47.06	9.10	38.04	8.69	330	17.01
	JY325P6-Aa-5	46.96	9.07	37.92	8.57	325	16.75
	JY320P6-Aa-5	46.76	9.00	37.69	8.49	320	16.49
	JY315P6-Aa-5	46.37	8.89	37.44	8.41	315	16.23
	JY310P6-Aa-5	46.07	8.83	37.21	8.33	310	15.98
	JY305P6-Aa-5	45.77	8.77	36.96	8.25	305	15.72
	JY300P6-Aa-5	45.46	8.71	36.71	8.17	300	15.46
	JY295P6-Aa-5	45.27	8.62	36.46	8.09	295	15.20
	JY295P6-Ab-5	40.52	9.41	32.96	8.94	295	18.13
	JY290P6-Ab-5	40.31	9.32	32.86	8.82	290	17.83
	JY285P6-Ab-5	40.04	9.21	32.53	8.76	285	17.52
	JY280P6-Ab-5	39.80	9.13	32.27	8.69	280	17.21
	JY275P6-Ab-5	39.48	9.06	32.02	8.60	275	16.90
	JY270P6-Ab-5	39.06	9.04	31.84	8.49	270	16.60
	JY265P6-Ab-5	38.84	8.92	31.48	8.42	265	16.29
	JY260P6-Ab-5	38.52	8.85	31.21	8.33	260	15.98
	JY255P6-Ab-5	38.20	8.78	30.94	8.24	255	15.67
	JY250P6-Ab-5	37.88	8.71	30.67	8.15	250	15.37
	JY245P6-Ab-5	37.56	8.64	30.40	8.06	245	15.06

Cell size (mm)	Model	Voc (V)	Isc (A)	Umpp (V)	Impp (A)	Pmpp (W)	Eff (%)
156*156 /156.75*156.75	JY265P6-Ac-5	36.58	9.44	29.54	8.97	265	18.03
	JY260P6-Ac-5	36.32	9.31	29.25	8.89	260	17.69
	JY255P6-Ac-5	36.01	9.22	28.95	8.81	255	17.35
	JY250P6-Ac-5	35.71	9.10	28.79	8.68	250	17.01
	JY245P6-Ac-5	35.40	9.02	28.57	8.58	245	16.67
	JY240P6-Ac-5	35.10	8.95	28.27	8.50	240	16.32
	JY235P6-Ac-5	34.82	8.88	28.11	8.37	235	15.98
	JY240P6-Ad-5	35.10	8.95	28.27	8.49	240	18.26
	JY235P6-Ad-5	34.79	8.88	28.05	8.38	235	17.88
	JY230P6-Ad-5	34.49	8.80	27.78	8.28	230	17.50
	JY225P6-Ad-5	34.28	8.69	27.54	8.17	225	17.12
	JY220P6-Ad-5	33.87	8.59	27.26	8.07	220	16.74
	JY215P6-Ad-5	33.56	8.47	27.01	7.96	215	16.36
	JY210P6-Ad-5	33.25	8.35	26.71	7.86	210	15.98
	JY205P6-Ad-5	32.91	8.23	26.41	7.76	205	15.60
	JY200P6-Ad-5	32.66	8.03	26.11	7.66	200	15.22