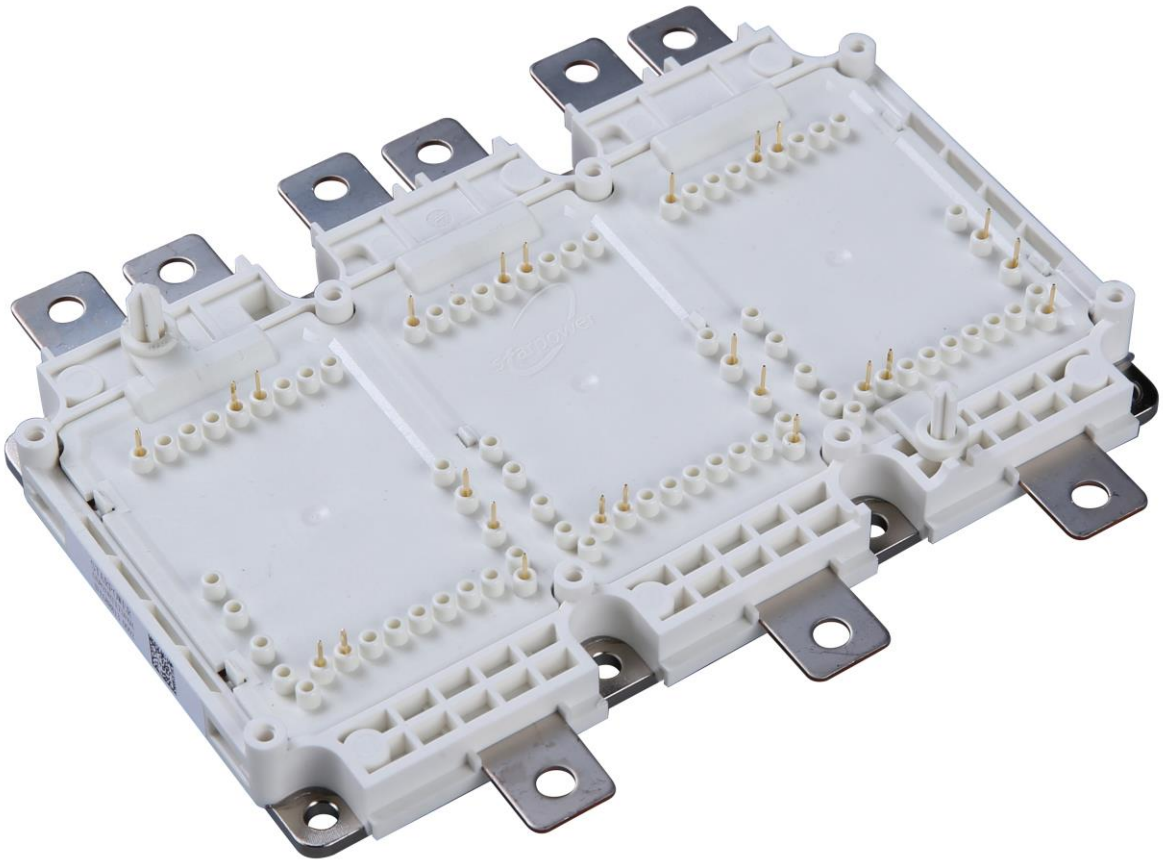
P6 solder signal pin module installation instruction



1． Module related installation parts recommendation

2． Module installation process and requirements

1. Module related installation parts recommendation

1.1 P6 module mounting screw specification recommendation

Table 1 Module mounting screw specification recommendation

Screws	Specifications
Power Terminals screws	M5
PCB mounting screws on the module housing	ST2.9*10/M3.0*10
Baseplate Mounting Screws	M4x10

1.2 Requirements for the PCB.

The requirements for the PCB are in Table 2.

Table 2 Requirements to the PCB.

NO	Description	Unit	min.	typ.	max.
1	End hole diameter	mm	1.05	1.15	1.25
2	Hole to hole pattern tolerance	um			±100
3	Recommended PCB thickness	mm	1.46	1.6	1.74

The recommendations for the PCB for the X-pin holes are in Table 3.

Table 3 Recommendations for the printed circuit board X-pin holes

No	Description	unit	min.	typ.	max.
1	End hole diameter X-Pin1	mm	5.82	5.9	
2	End hole diameter Y-Pin1	mm	4.82	4.9	
3	Hole to hole pattern tolerance	um			±100

1.3 The cooler design and the module sealing area

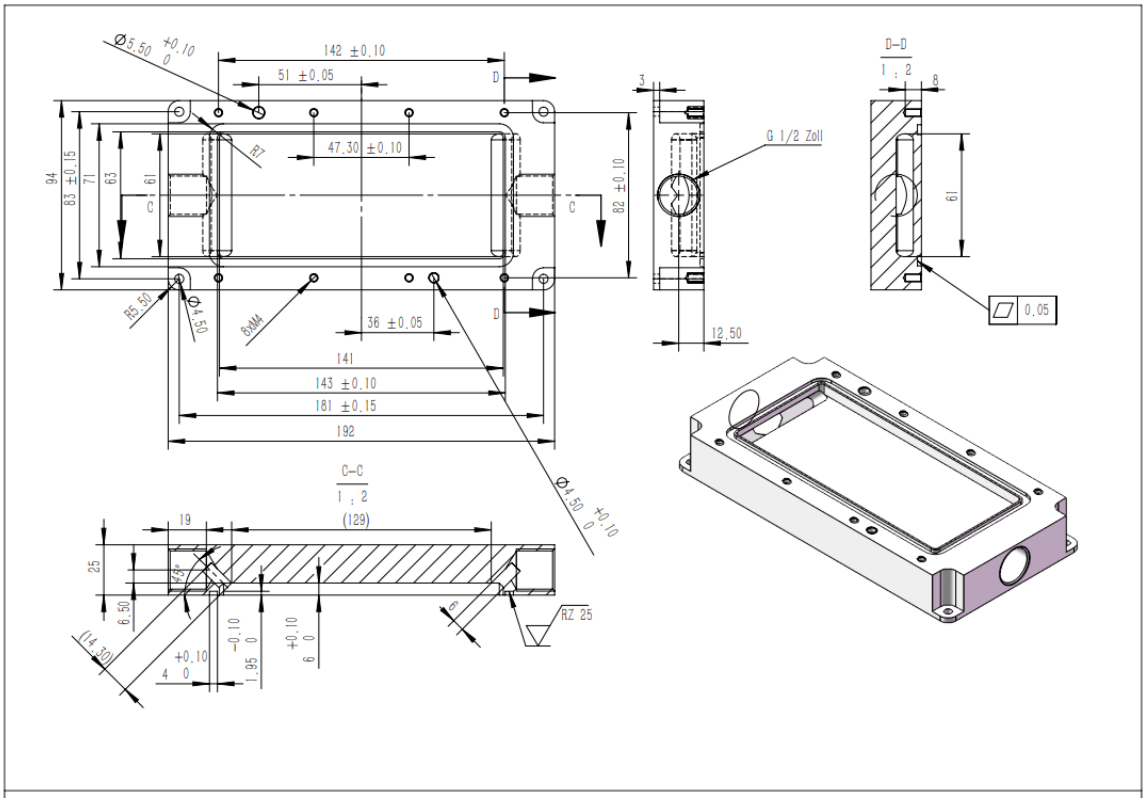


Figure 1 The mechanical drawing recommendation for the cooler, Material: AlMgSi0.5

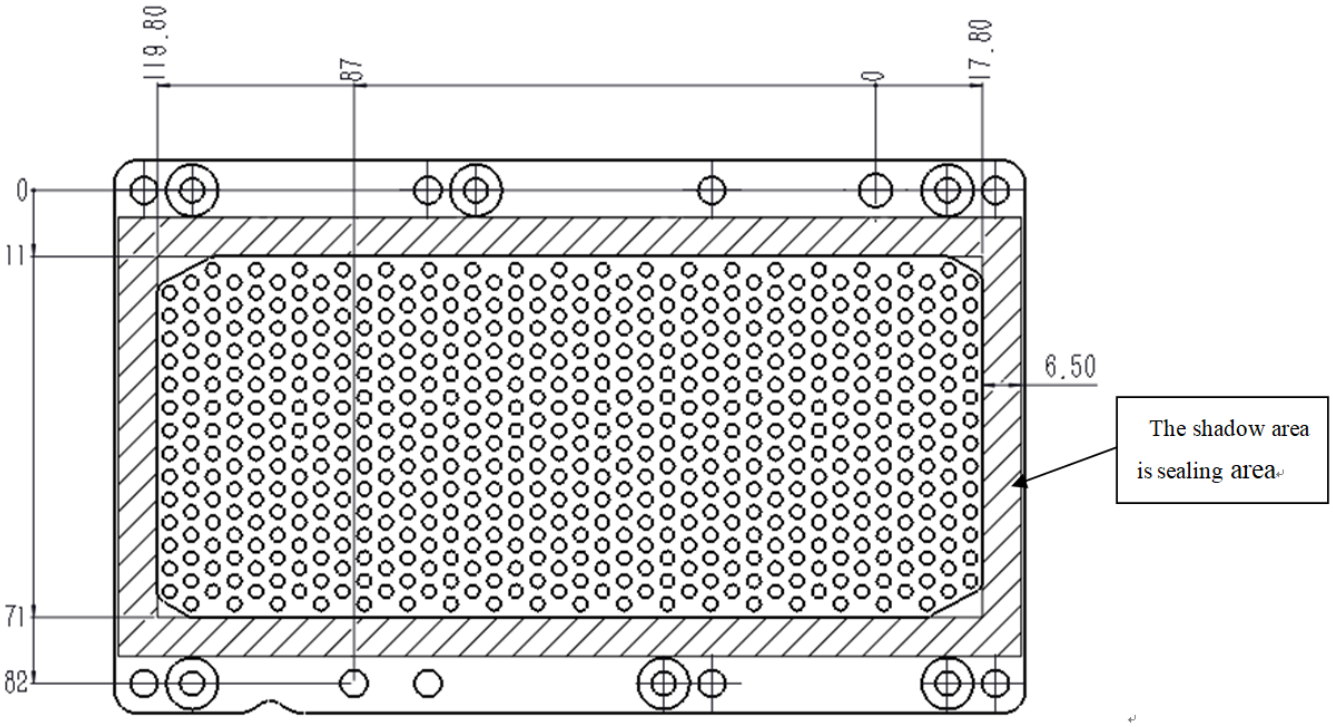


Figure 2 The module sealing area

2. Module installation process and requirements

Module installation process:

1. Align PCB to the power module (the X-Pins will support this process).
2. Fix the PCB on the power module by screws.
3. Soldering module signal pins
4. Prepare cooling system with the sealing ring.
5. Attach power module with PCB to the prepared cooling system.
6. Fix module baseplate on the cooler by screws.
7. Connect the module power tabs to busbar, capacitor, etc.

2.1 Align PCB to the power module

It mainly relies on X and Y two pins to align with the corresponding holes of PCB board. Make sure that all signal pins have been inserted into corresponding holes before solder process.

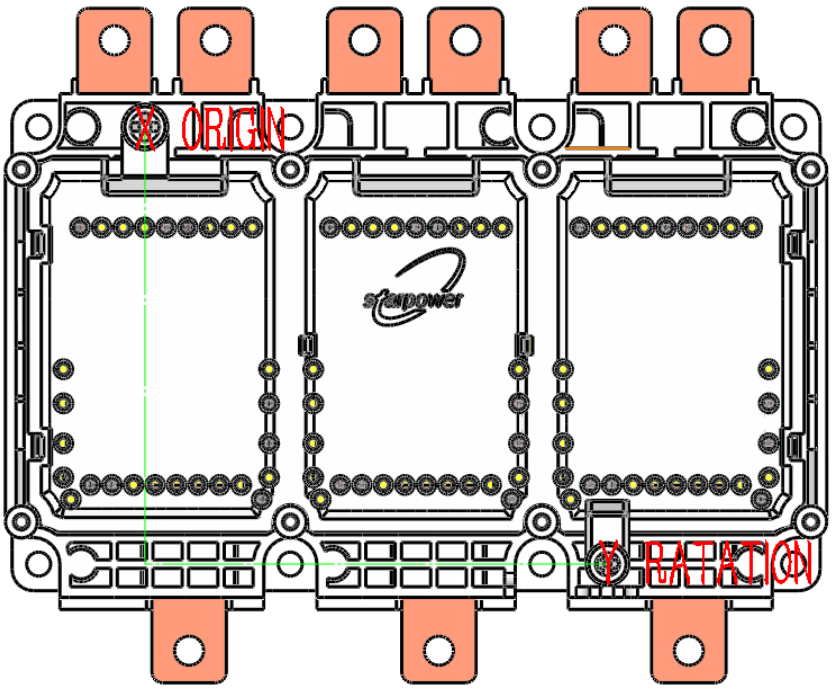


Figure 3 Align PCB to the power module

2.2 Fix the PCB on the power module by screws

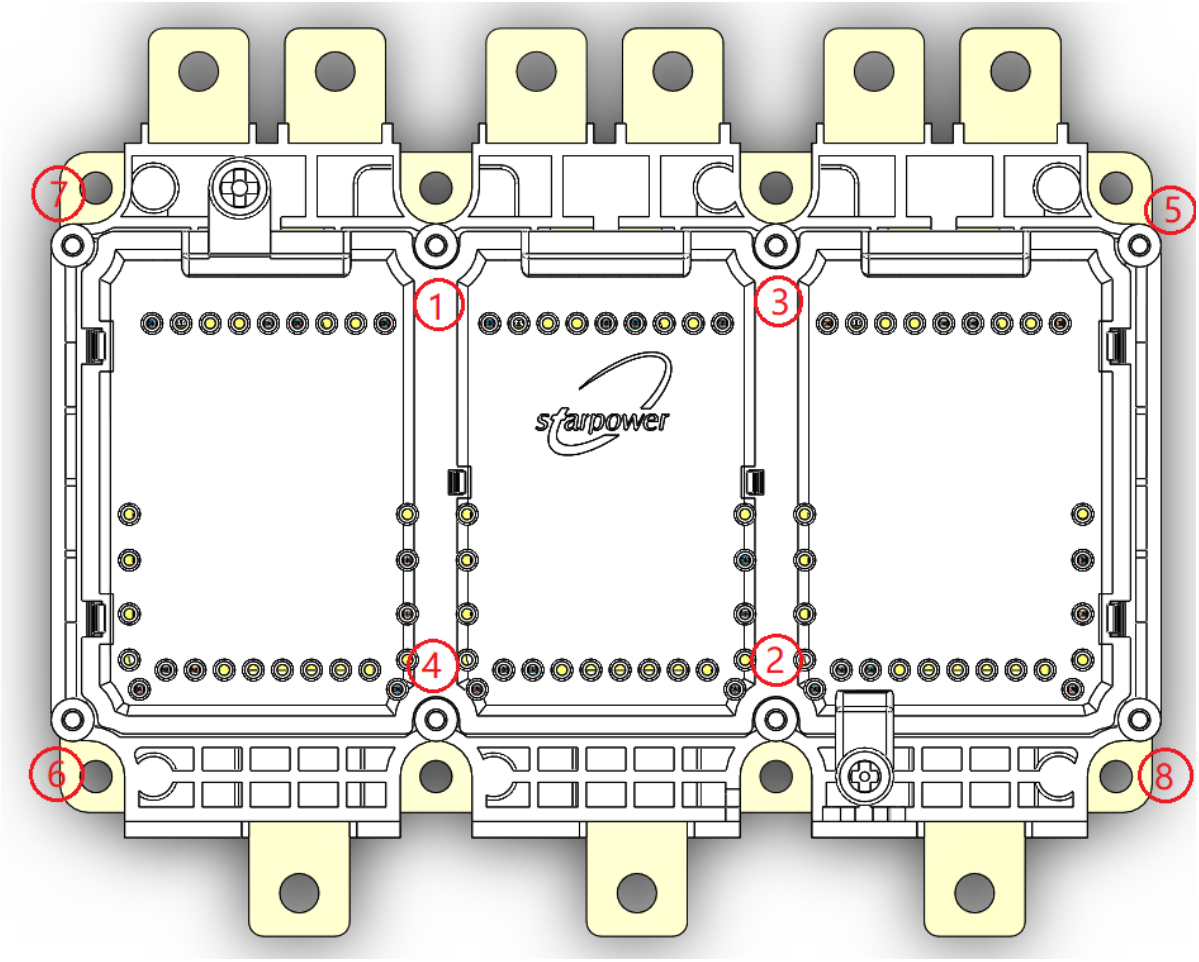


Figure 4 Screw orders for PCB

In order to achieve good installation effect, the module is required to be installed according to the number sequence in the figure above, 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8. The self tapping screw is driven in the vertical module state. The ST2.9X10 or M3.0X10 self tapping screw installation torque range 0.6 to 1.0Nm, speed range 400 to 600rpm

2.3 **Solder Process**

The signal pin solder process can be manual soldering, selective soldering, or wave soldering.

For the selective soldering process, during the soldering process, we advise the solder peak temperature T ≤ 260 ℃ and the soldering time tmax ≤ 10s. The temperature at any point on the plastic parts of the module should not exceed 223℃, and it is generally recommended that the overall temperature of the module should be below 150℃

2.4 Fix module baseplate on the cooler by screws.

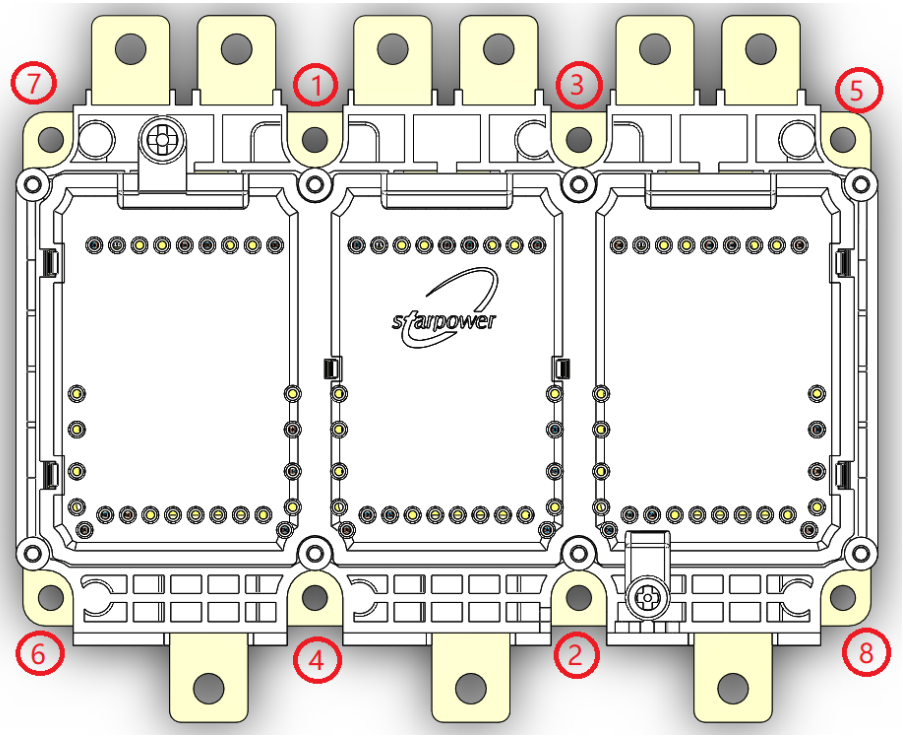


Figure 5 Screw orders for baseplate

In order to achieve good installation effect, the module is required to be installed according to the number sequence in the figure above, 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8. The screws are pre-tightened with 0.5N m at first, and then tightened with standard torque. The baseplate connected to cooler with M4 screw, the standard torque range 1.8 to 2.2N m.

2.5 Connect the module power tabs to busbar, capacitor, etc.

Module power tabs connected to to busbar, capacitor, etc with M5 screw, the torque range 3.6 to 4.4N m.