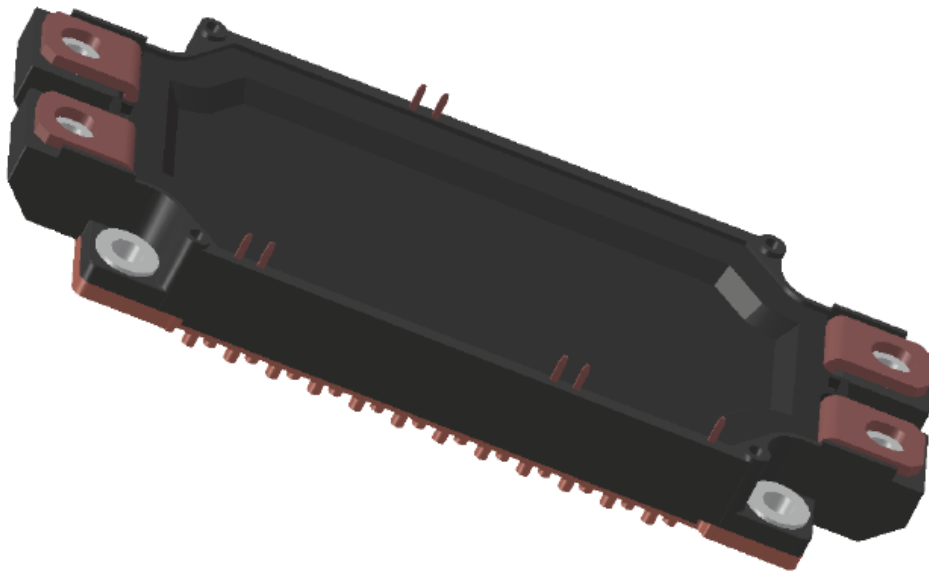


## **Assembly Instruction for C6.1 PINFIN Module**





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## 2 General information

### 2.1 C6.1 Application introduction

C6.1 PINFIN module has the following advantages :

1. Low thermal resistance, higher power density, suitable for water cooling system.
2. Optimized chip layout suitable for electric vehicle drive applications.
3. High reliability, prolong module life.
4. Suitable for electric vehicles and other fields.



Figure 1: Application fields.

## 2.2 Module dimensions

[Figure 2] shows the technical drawing of C6.1 module. The main dimensions and screw specifications are listed in [Table 1].

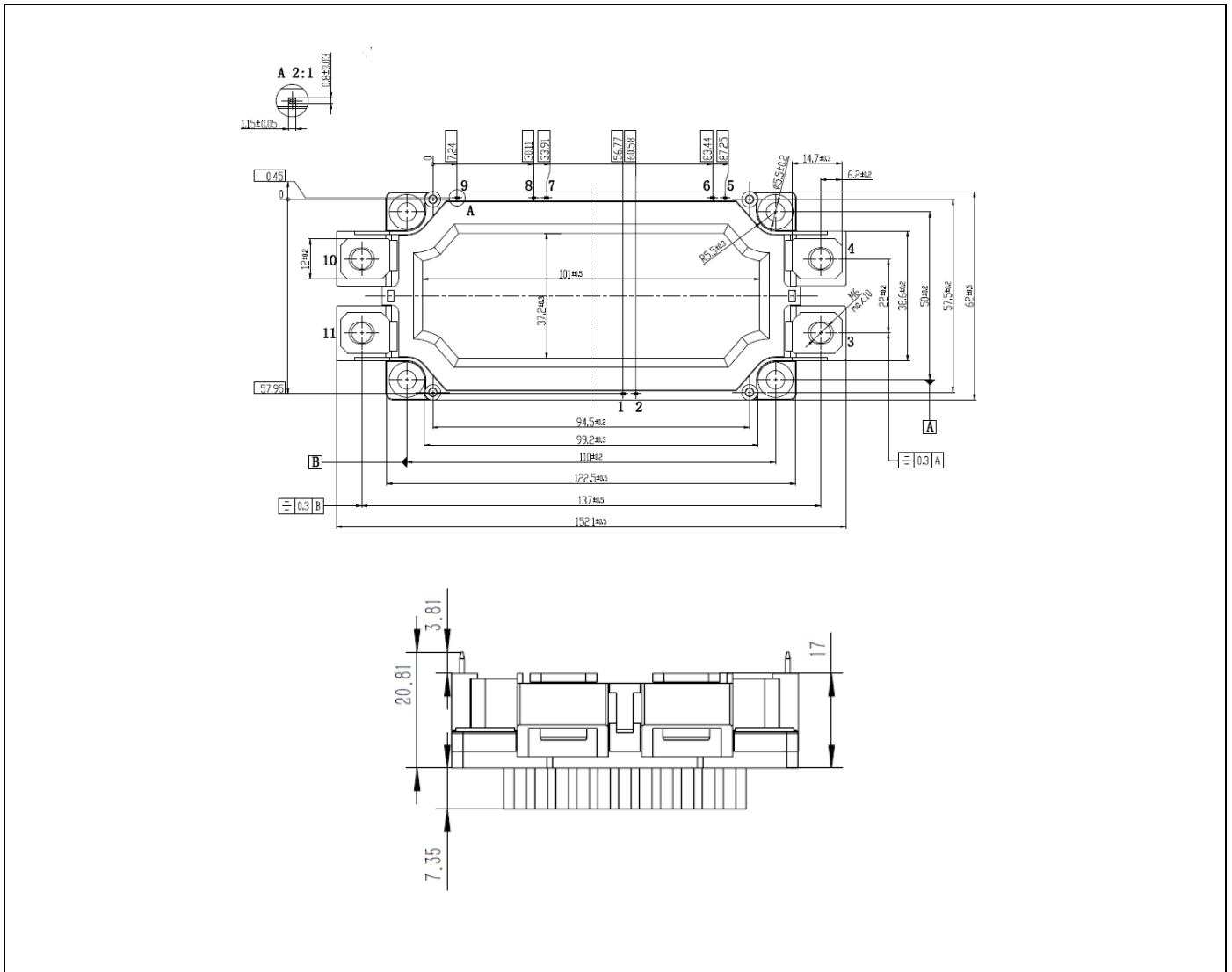


Figure 2: Technical drawing of C6.1 module.

Table 1: Main dimensions and screw specifications for C6.1 module.

Item	Specification
Length	152.1 mm
Width	62 mm
Height	28.16 mm
Busbar screw	M6
PCB fixing screw	M2.5
Base plate mounting screw	M5

### 3 Heat sink

[Figure 3] and [Figure 4] show the recommended dimensions for heat sink and sealing ring, respectively.

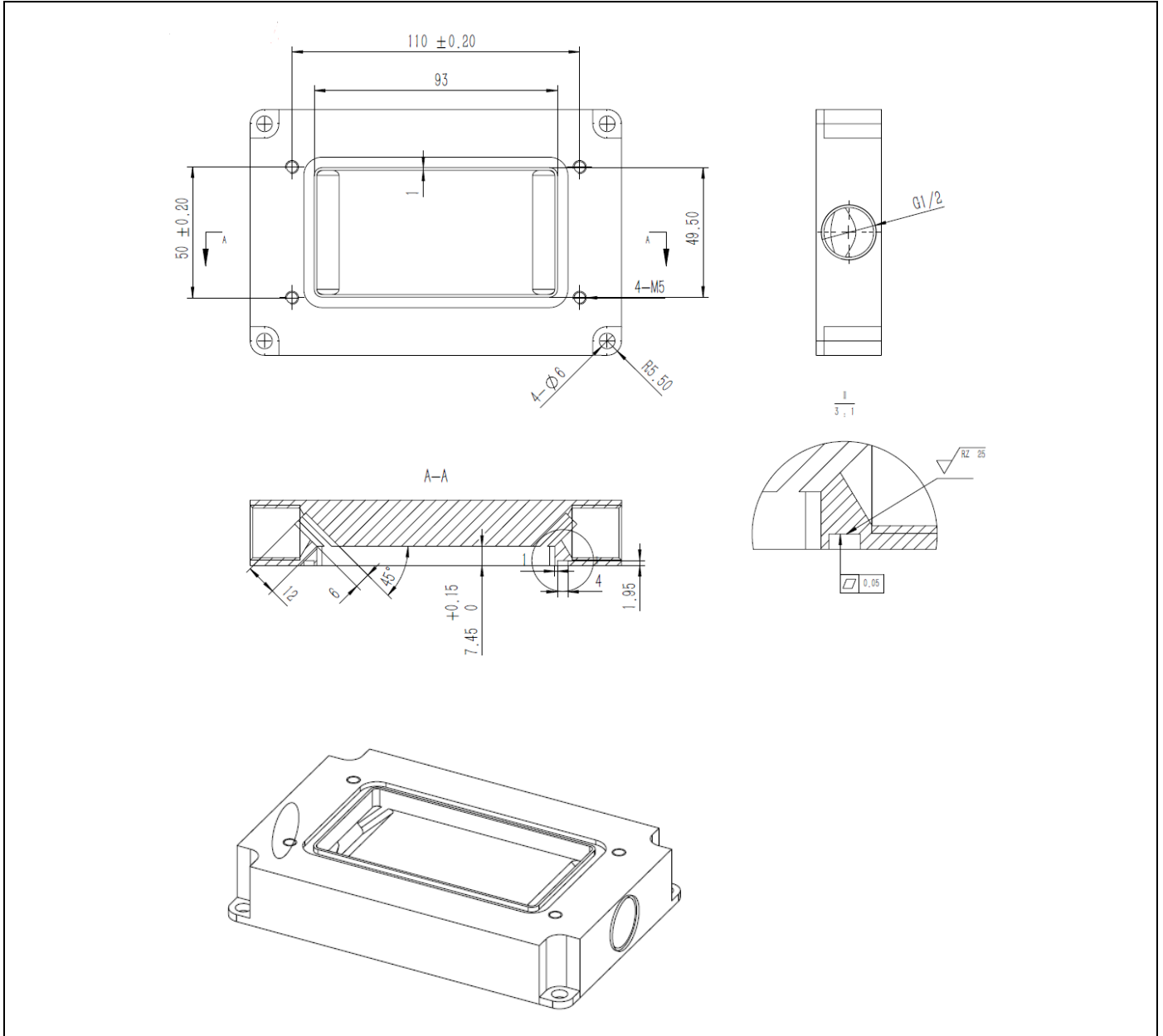


Figure 3: Technical drawing of heat sink.

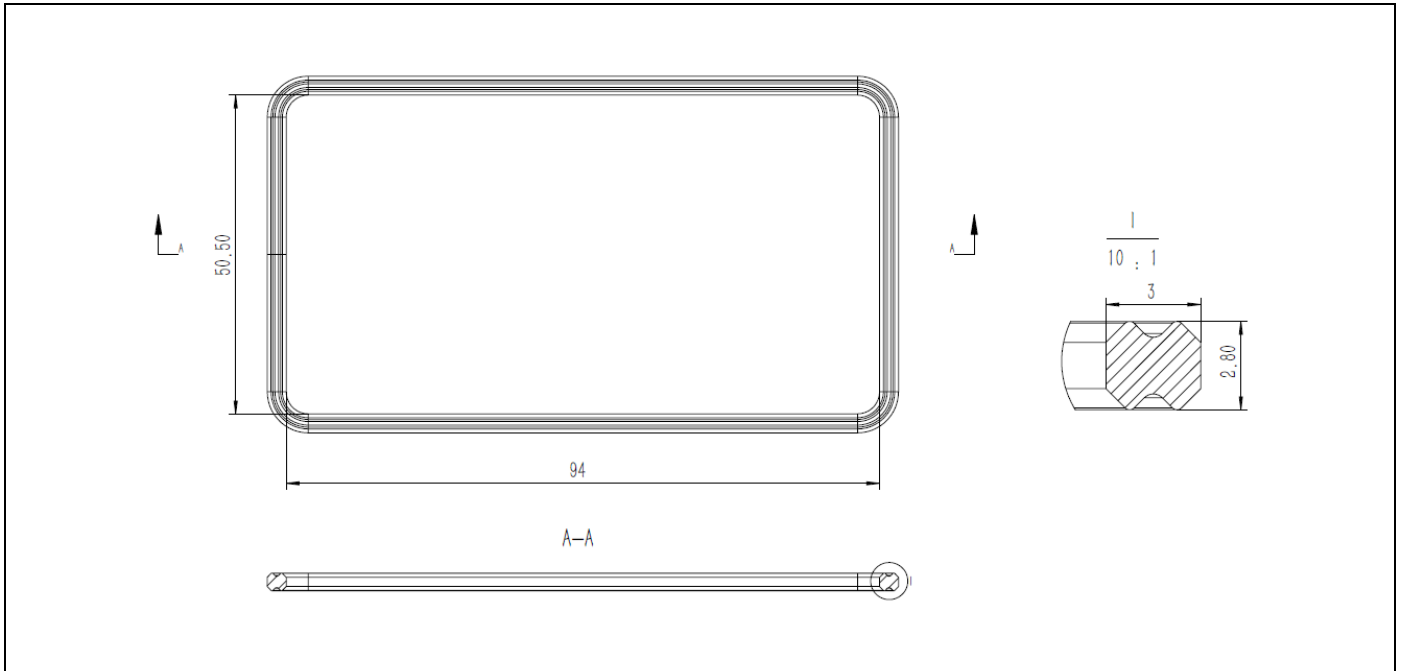


Figure 4: Technical drawing of the sealing ring.

## 4 Module installation process and requirements

### 4.1 Assembling C6.1 module on heat sink

C6.1 module is fixed on the heat sink with M6 screws. The fixing-screws should not exceed their maximum reinstallation times. When installing the module on the heat sink, it is recommended to tighten the screws in diagonal sequence as shown in [Figure 5].

The assembly steps are described as follows:

1. Position the module correctly on the heatsink and avoid any unnecessary movement.
2. Insert the mounting screws into the corresponding holes and pre-tighten each screw with a torque of 0.5 Nm to half the hole depth, the tightening sequence is as follows: 1→3→4→2.
3. Then tighten the screws using a tool with a torque between 3.0 Nm and 6.0 Nm in the same order: 1→3→4→2.

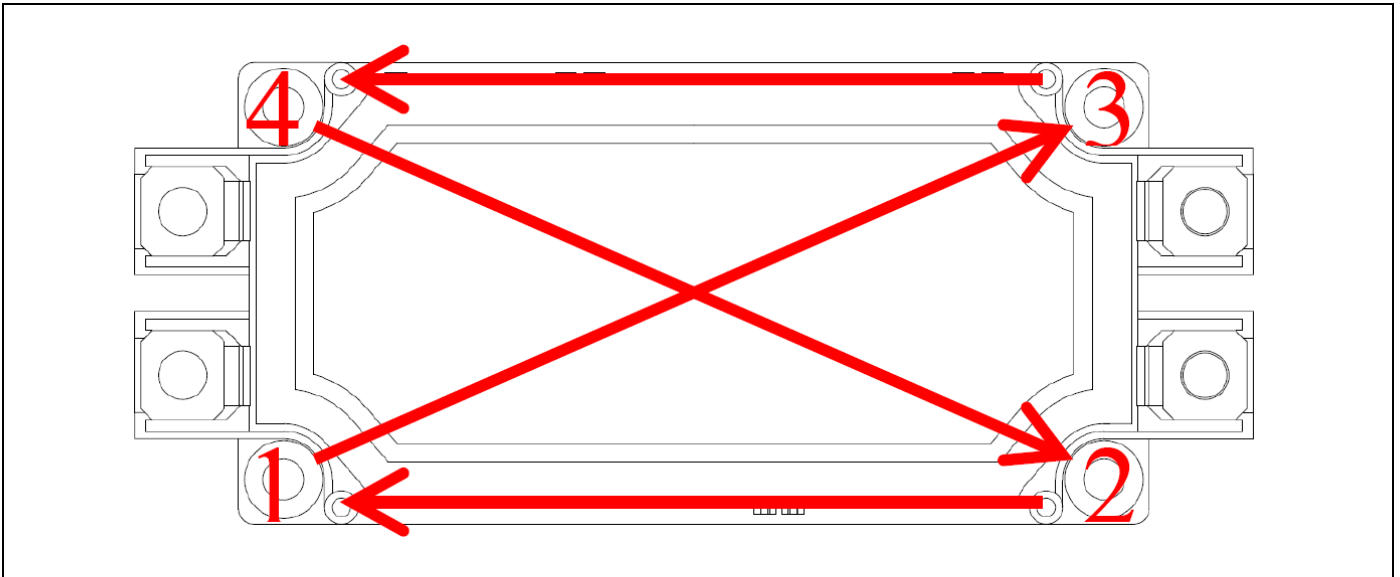


Figure 5: Tightening sequence of the fixing-screws.

### 4.2 Installation of self-tapping screws to fix PCB

Mounting holes for self-tapping screws are provided on the upper part of the module to fix the PCB. Customers decide whether to use these mounting holes based on their requirements.

The self-tapping screw for the mounting hole is M2.5. Its effective length of the thread is between 4 mm and 10 mm, which is based on the PCB thickness, the recommendation sees [Table 2].

Table 2: Effective thread length based on PCB thickness.

PCB thickness	0.5 mm	1.0 mm	1.5 mm	2.0 mm	3.0 mm
Effective thread length	5.0 mm	5.0 mm	6.0 mm	6.0 mm	8.0 mm

Before installing the self-tapping screws, make sure that the PCB holes are aligned with the mounting holes. The self-tapping screws should be installed vertically into the holes as shown in [Figure 6].

Since there is no thread in the upper 1.5 mm depth of the mounting hole, the self-tapping screws can be easily pressed in by hand up to a distance of the PCB thickness plus 1.5 mm depth of the mounting hole. Then tighten the self-tapping screws into the mounting holes with a torque within 0.5 Nm throughout the process.

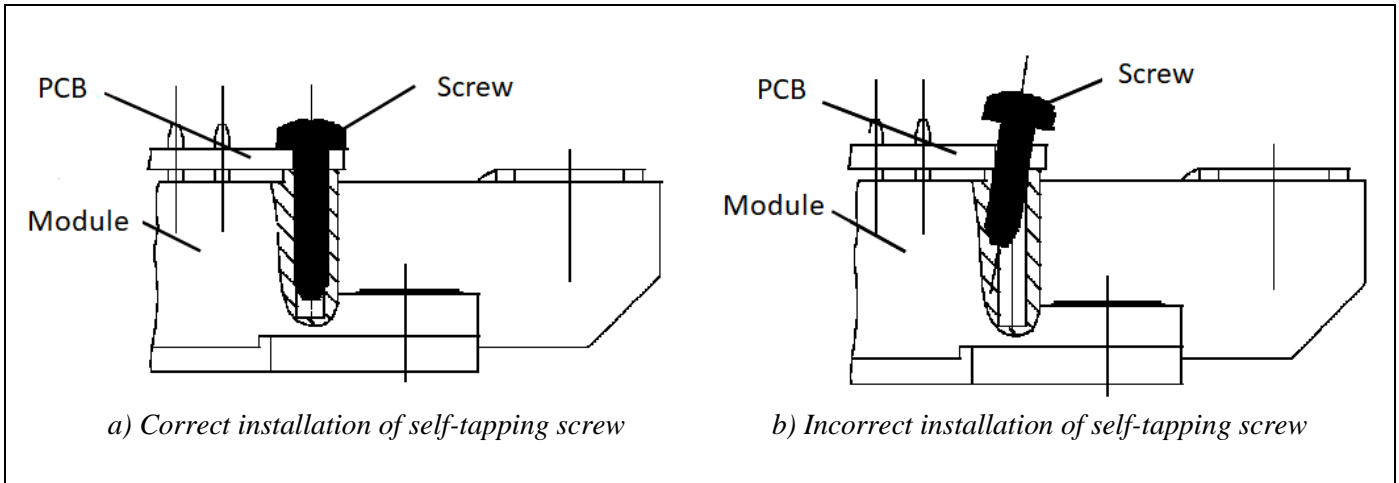


Figure 6: Installation of self-tapping screws to fix PCB.

### 4.3 Installation of power terminals

There are 4 power terminals at the 2 short sides of the module. The recommended mounting screw for the power terminal is M5. The torque should be controlled between 3.0 Nm and 6.0 Nm during tightening. The insert depth of the screw into the terminal cannot exceed 10 mm.

To keep the parasitic inductance under DC as low as possible, it is recommended to use the DC busbar to complete the connection with the power terminal. When connecting the DC busbar, pay attention to the force in all directions of the power terminal. Do not exceed the maximum force that the terminal can withstand. The maximum allowable force of the power terminal in all directions is shown in [Figure 7].



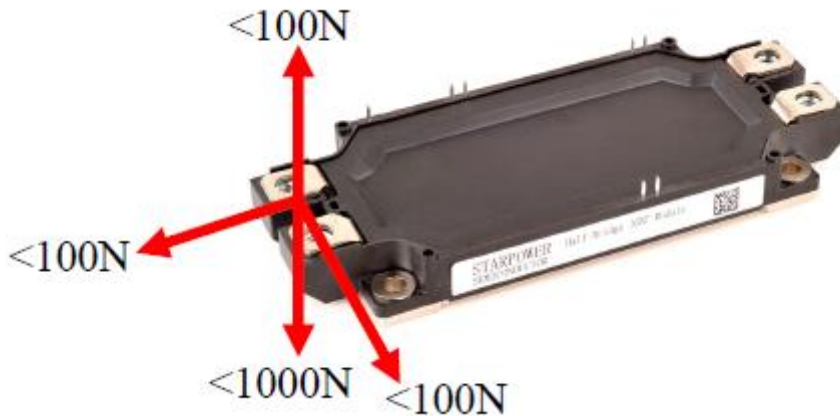


Figure 7: The maximum allowable force of the power terminal in all directions.

To reduce the stress on the power terminal after installation, the DC busbar must be additionally supported by a strut. The height of the support strut should be 0.5 mm lower than the height of the power terminal as shown in [Figure 8].

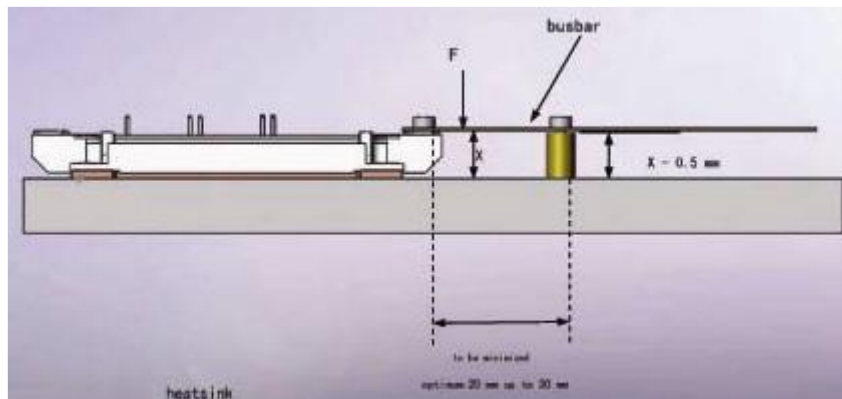


Figure 8: The height of the support strut.