Evaluation of the Results

To verify the correct state of the hot plates, once all the necessary material is received, proceed to connect it into the current.

Once verified that the plates rise in temperature, from the mechanical part and with the help of the programmer, is wanted to be verified that it reaches the limits established at the beginning to be able to carry out the welding process.

By connecting the hot plates directly to the current, it is achieved that despite not having control, they seek to reach their maximum working capacity, arriving on their maximum temperature. In this way, it is enough to evaluate both if the calculations referring to the chosen insulation are the ones indicated, and to evaluate if we are able to reach the necessary temperature.

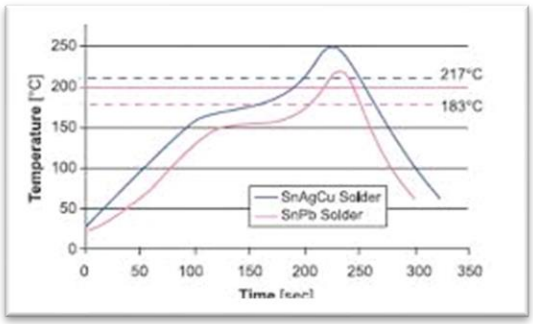

figure 1- typical soldering reflow profile.

Looking at the figure 1, according to an standard soldering reflow temperature-time graphic, is possible to see approximately that the preheat ends at the temperature of 150-160 degrees, then takes place the soak part until 183-217 degrees and incrementing the temperature approximately 10% it arrives at his maximum. Finally takes place the cool down part descending the temperature approximately at a relation of 100 degrees per minute.

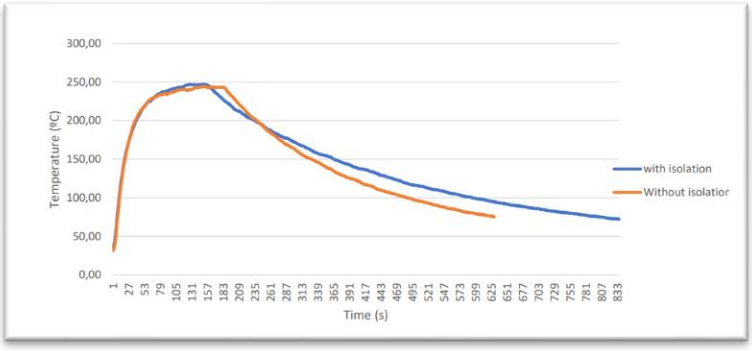

figure 2- temperature time graphic of our hot plate.

Looking at figure 2 is possible to see the results of how the temperature behaves as a function of the passage of time in our project.

We observe that by increasing the temperature until it reaches its maximum it behaves the same as we need (figure 1), thus reaching a temperature of approximately 250 degrees in a period very similar to that used by other market solutions.

On the other hand, cooling down is a new problem to deal with since the temperature does not drop to the desired ratio.

As can also be observed, the study is repeated without considering the isolation used and surprisingly the results do not agree with our predictions concluding that:

- The heating phase is practically the same with and without insulation.
- We observe that the maximum temperature is very similar, thus being the one with a slightly higher insulation.
- The cool down is more disadvantaged with insulation since it costs more to lose temperature but even so, without insulation, it is not enough, it is believed that it needs to reduce more quickly.

The main function of the insulator is based on protecting the electronic circuits, as well as the user and the materials used. We will consider the possibility of restructuring the model in order not to use insulation since it has been proven that it does not favor us and it is believed that with good modeling it can be done without it.