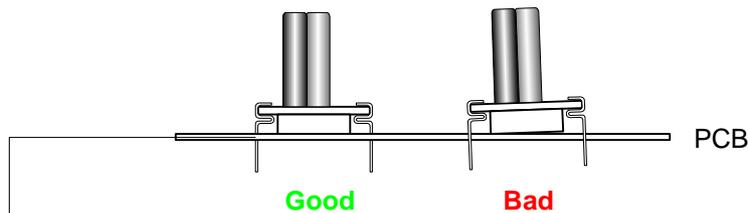


AN07: Assembly and Soldering Guidelines for Pressure Sensors

Foreword: Even though pressure sensors are electrical components meant to be soldered onto a PCB, they are also mechanical devices that transform a pressure signal into an electrical signal. They need to be handled with EXTRA CARE when compared to other electrical components.

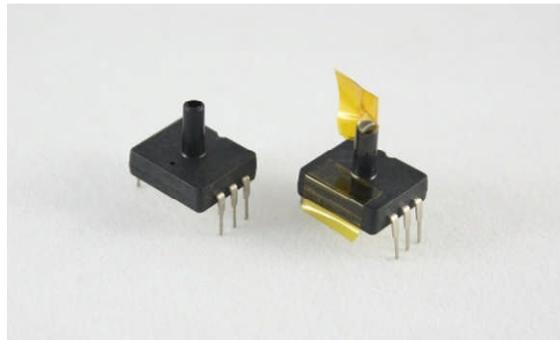
- 1) Component placement:** Components must be placed flat onto the PCB. It is absolutely necessary that they be level. Tilted components are not acceptable. While this may not affect the performance of semiconductors, pressure sensors with a mechanical component will be affected



2) Pressure Ports and Vent Holes :

Senphire strongly recommends a 'No Clean' soldering process. In the event the customer cannot comply please see the guidelines below. Most Senphire pressure sensors have pressure ports or vent holes. During the soldering process it may be necessary to block these with teflon tape. The acceptable media for the pressure sensors is dry non-corrosive air. Steam, water or cleaning agents used in the soldering process may affect the sensor performance.

*Note that this very much depends on the assembly capability of the user. If you are not doing washing after solder reflow (no-clean process) you may not need this step.



Port and Vent Holes may need to be covered before Reflow (Right side)

- 3) Reflow Soldering:** As almost all our components are lead free we recommend using SnAgCu based solder. A sample reflow profile is given on the next page.

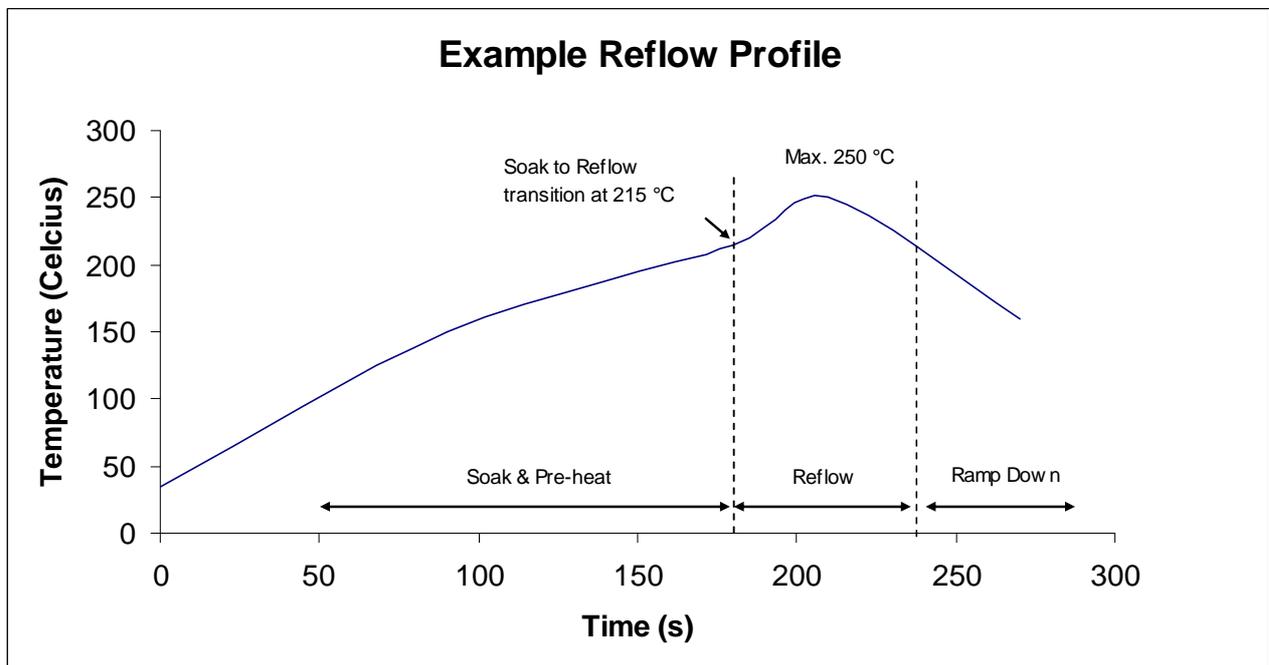
Note: Again this very much depends on the solder paste being used and the in-house capability of the user. In case the example profile does not meet your requirement feel free to change. Any recommendation from the solder paste manufacturer supersedes Senphire's recommendation. The only requirements from Senphire are:

- i) Maximum temperature is 250 °C
- ii) The maximum reflow time (time which temperature exceeds 215 °C) is 75 seconds
- iii) The total time which the sensor exceeds 125°C is less than 5 minutes



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Soak and Pre-heat: 2.0 to 3.5 min
Reflow: 60-75 seconds

Soak Time starts when temperature exceeds 100°C
Reflow time starts when temperature exceed 215°C

4) Wave Soldering: We strongly recommend the use of wave soldering wherever possible and are of the opinion that this is still the best method to solder our through-hole sensors. In this case the same parameters for temperature and soak time apply:

- i) Maximum temperature is 250 °C
- ii) The maximum time temperature exceeds 215 °C is 75 seconds with peak temperature of 250 °C
- lii) The total time which the sensor exceeds 125°C is less than 5 minutes

5) ESD Precautions: Senphire Pressure sensors are electrostatically sensitive devices. All pins are rated to 2kV HBM. Please observe all handling precautions.

6) Vapor Phase Soldering: Vapor phase soldering is strictly not allowed for Senphire pressure sensors.

For more information please contact your local distributor or our technical support department:

support@senphire.com



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