SAFRAN Colibrys

DESIGNED FOR ACCURACY, BUILT FOR TRUST

TECHNICAL NOTE

Handling, mounting & soldering recommendations

Product: all products with LCC-48 and LCC-20 packages

This document presents the recommended information for the handling, the soldering and the mounting instruction of the Colibrys' accelerometers. This covers all accelerometer product series 8000, 9000, 1000 (MS8000, MS9000, VS9000, TS9000, VS1000).

Table of contents

Handling, mounting & soldering recommendations	
Document number	30N.SOLDERING.C.09.15
Document revision	V1.0
Date of revision	09 Sept. 2015
Note	Colibrys reserves the right to change these data without notice

PCB layout recommendation

LCC-48 package

The outline dimensions of the LCC-48 are presented in the figure 1. Typical pitch between pins is 1 mm. To insure the right orientation of the product during mounting, the length of pin 1 is longer (see bottom view of figure 1). To improve the control of this orientation from the top, an extra point is printed on the lid of the LCC package in the side corresponding to pin 1 location.

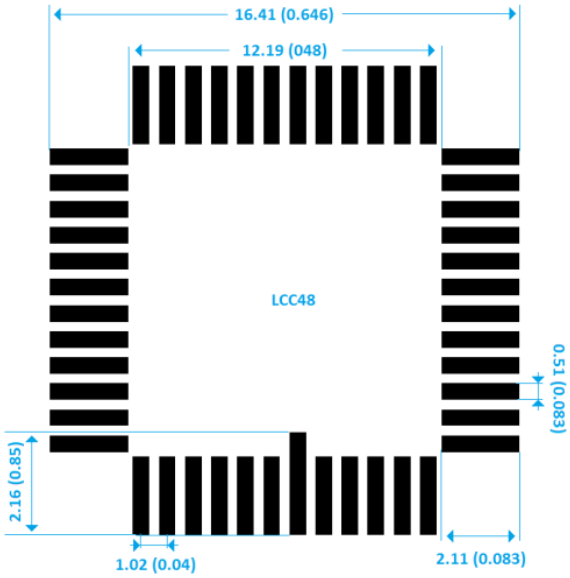

Fig1: Dimension outline of LCC-48. Units are mm(inch)

Note: All accelerometers of the 8000 series have LCC-48 housings.

LCC-20 package

The outline dimensions of the LCC-20 are presented in the figure 2. Typical pitch between pins is 1.27mm. To insure the right orientation of the product during mounting, the length of pin 1 is longer (see bottom view of figure 2). To improve the control of this orientation from the top, an extra point is printed on the lid of the LCC package in the side corresponding to pin 1 location.

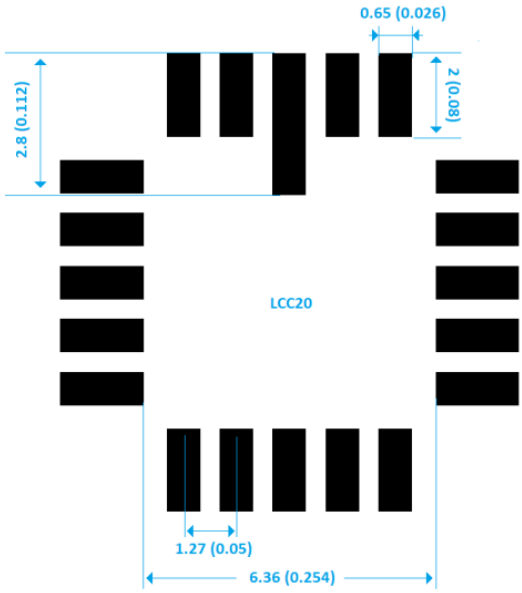

Fig 2: Dimension outline of LCC-20. Units are mm(inch)

Note: All accelerometers of the 9000 and 1000 series have LCC-20 housings.

Soldering

Reflow profile

Colibrys' accelerometers (LCC-48 or LCC-20 packages) are suitable for Sn-Pb and Pb-Free soldering processes. Typical temperature profiles recommended by the solder manufacturer can be used with a maximum ramp-up of 3°C/second and a maximum ramp-down of 6°C/second: The exact profile depends on the used solder paste.

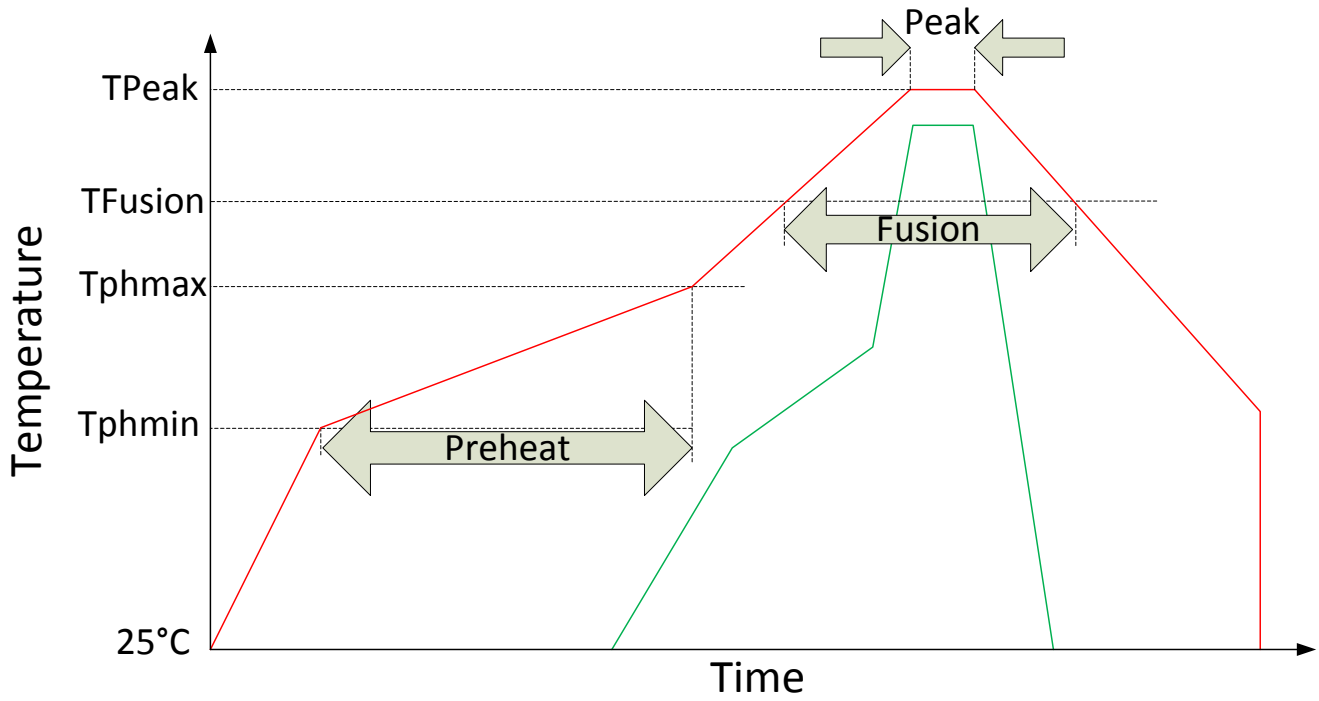

Fig 3: Soldering Temperature Profile

Phase	Sn/Pb		Pb-Free	
	Duration [sec]	Temperature [°C]	Duration [sec]	Temperature [°C]
Peak	10-30	235-240	20-40	245-250
Fusion	60-150	183	60-150	217
Preheat	60-120	Min : 100 Max : 150	60-180	Min : 150 Max : 200

Table 1: Soldering Temperatures & Times

The cleaning process of electronic boards sometimes involves ultrasounds. This is strongly prohibited on our sensors. Ultrasonic cleaning will have a negative impact on silicon elements which generally causes damages.

Note: Ultrasonic cleaning must be avoided in order to avoid damage to the MEMS accelerometer

Solder paste

A stencil thickness of at least industrial standard 100µm is recommended. This stencil thickness can be increased up to 200µm to improve the mechanical decoupling between the printed circuit board and the ceramic package.

Handling precautions

The Colibrys accelerometers are packaged in a hermetic ceramic housing to protect the sensor from the ambient environment. However, improper handling of the product can induce damage to the hermetic seal or to the ceramic package made of brittle material (alumina). It can also induce internal damage to the MEMS accelerometer that may not be visible and cause electrical failure or reliability issues. Handle the component with caution: shocks, such as dropping the accelerometer on hard surface, may damage the product.

It is strongly recommended to use vacuum pens to manipulate the accelerometers

The component is susceptible to damage due to electrostatic discharge (ESD). Therefore, suitable precautions shall be employed during all phases of manufacturing, testing, packaging, shipment and handling. Accelerometer will be supplied in antistatic bag with ESD warning label and they should be left in this packaging until use. The following guidelines are recommended:

- Always manipulate the devices in an ESD-controlled environment
- Always store the devices in a shielded environment that protects against ESD damage (at minimum an ESD-safe tray and an antistatic bag)
- Always wear a wrist strap when handling the devices and use ESD-safe gloves

This product can be damaged by electrostatic discharge (ESD). Handle with appropriate precautions.