Digital Barometric Pressure Sensor_ Package Handling

Infineon Technologie AG Date: 02.05.2016

SUPPLIER	Infineon Technologies AG
DEVICE	DPS280 & DPS310

Supplier Contact Name	Mr. Kanthan Kuruvan

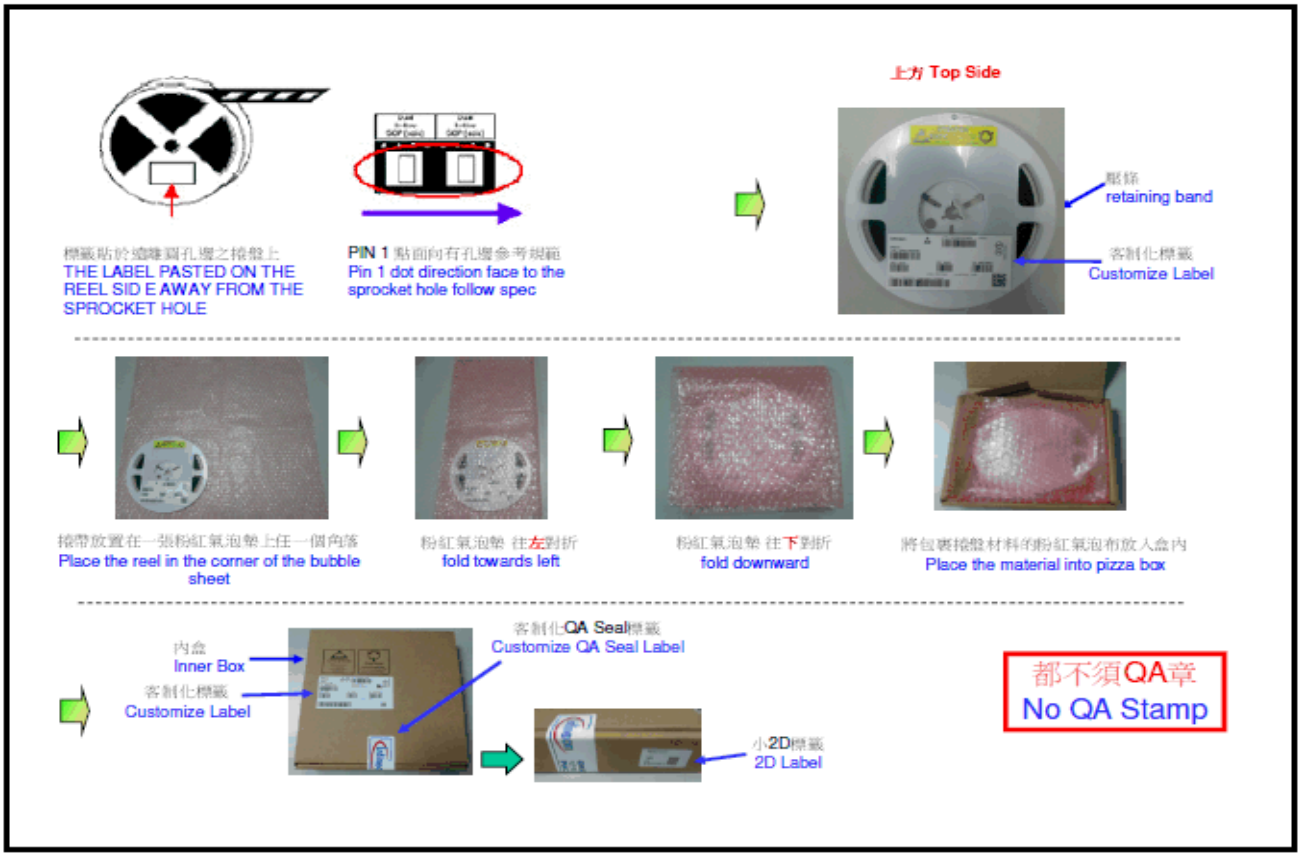
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revision.:	Rev.1.0

Item	Requirements	note
1.1 ESD Caution 	ESD (Electrostatic discharge) sensitive device.	Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.
2.1 Packing	Tape-and-Reel Packaging	For shipping, IFX products in product-specific tape-and-reel carriers. Each method may include internal padding, boxes, and packing labels. The following figures outline the packing sequence for each packaging method **(See attachement A 2.1)**
3.1 Handling Instructions	Pick and Place Equipment	The pressure sensor can be handled using standard pick and place equipment. Care should be taken to avoid damage to the pressure sensor structure as follows: 1. Do not pick up the pressure sensor with vacuum tools that make contact with the pressure sensor port. 2. Do not blow air into the pressure sensor port. 3. Do not use excessive force to place the pressure sensor on the PCB. 4. The device is sensitive to particle contamination. Handling in Clean room is mandatory. 5. The device should not be exposed to the X-ray radiation.
3.2 Reflow Solder Profile for pressure sensor module assembly on PCB		For pressure sensor package: It is recommended that the solder reflow profile does not exceed the limit conditions specified in JSTD-020-C. (**See attachement A 3.2**) Note: For best results, the soldering profile should be in accordance with the recommendations of the manufacturer of the solder paste that is used to attach the pressure sensor to the PCB
3.3 Board Cleaning and other surface treatment		Air Blow and ultrasonic cleaning procedures must not be used. When washing the PCB and any other surface treatment, ensure that water and other contaminants do not enter the pressure sensor port.

Attachements overview

Item	Attachments
2.1 Packing	See attachements A 2.1
3.2 Reflow Solder Profile for pressure sensor module assembly on PCB	See attachement A 3.2

A 2.1 Packing procedure



A 3.2 Reflow Solder Profile for pressure sensor module assembly on PCB

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (Tsmax to Tp)	3° C/second max.	3° C/second max.
Preheat - Temperature Min (Ts_{min}) - Temperature Max (Ts_{max}) - Time (Ts_{min} to Ts_{max}) (ts)	 100 °C 150 °C 60-120 seconds	 150 °C 200 °C 60-180 seconds
Time maintained above: - Temperature (T_L) - Time (t_L)	 183 °C 60-150 seconds	 217 °C 60-150 seconds
Peak Temperature (Tp)	See Table 4.1	See Table 4.2
Time within 5°C of actual Peak Temperature (tp)[2]	10-30 seconds	20-40 seconds
Ramp-down Rate	6 °C/second max.	6 °C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.
Note 2: Time within 5 °C of actual peak temperature (tp) specified for the reflow profiles is a "supplier" minimum and "user" maximum.

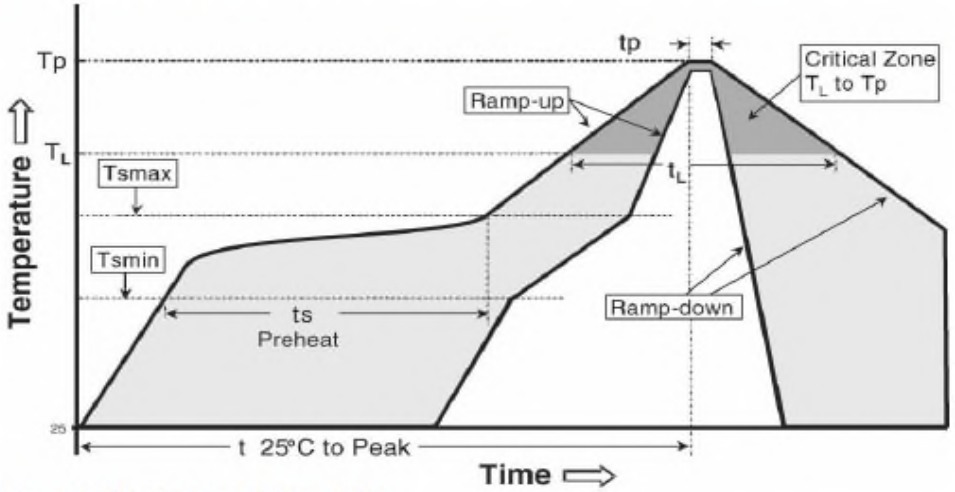


Figure 5-1 Classification Reflow Profile

Table 4-1 SnPb Eutectic Process - Package Peak Reflow Temperatures

Package Thickness	Volume mm³ <350	Volume mm³ ≥ 350
<2.5 mm	240 +0/-5 °C	225 +0/-5°C
≥ 2.5 mm	225 +0/-5°C	225 +0/-5°C

Table 4-2 Pb-free Process - Package Peak Reflow Temperatures

Package Thickness	Volume mm³ < 350	Volume mm³ 350 - 2000	Volume mm³ > 2000
< 1.6 mm	260 °C *	260 °C *	260 °C *
1.6 mm - 2.5 mm	260 °C *	250 °C *	245 °C *
> 2.5 mm	250 °C *	245 °C *	245 °C *
* Tolerance: The device manufacturer/supplier shall assure process compatibility up to and including the stated classification temperature at the rated MSL level			

Note 1: Package volume excludes external terminals (balls, bumps, lands, leads) and/or non-integral heat sinks.

Note 2: The maximum component temperature reached during reflow depends on package thickness and volume. The use of convection reflow processes reduces the thermal gradients between packages. However, thermal gradients due to differences in thermal mass of SMD packages may still exist.

Note 3: Components intended for use in a "lead-free" assembly process shall be evaluated using the "lead free" peak temperature and profiles defined in Tables 4-1, 4.2 and 5-2 whether or not lead free.