

1 Introduction

This document provides handling instructions for the digital temperature sensors TEEEx.

2 Processing Information

2.1 Storage Instructions

The digital TEEEx series are highly accurate temperature sensors. Therefore the storage instructions should be precisely followed. Pursuant to IPC/JEDEC J-STD-020 the Moisture Sensitivity Level (MSL) is 1. It is recommended to further process the sensors within 1 year after date of delivery.

It is advisable to keep the sensor package in the original manufacturing packaging. If it is necessary to remove the packaging, ESD trays made from PS (Polystyrol) are recommended, keeping the storage temperature in the range of 0...+55 °C. In addition, sealed ESD bags are recommended.

2.2 Soldering Instructions

For mechanical as well as electrical connection the pads have to be soldered to the PCB. The center pad (die pad) may be left floating, anyway it is recommended to connect it to the PCB for accurate measurement results.

For the exact dimensions of the land pattern, please see the product datasheet.

For soldering, a standard convection reflow soldering oven may be used (no vapour phase and no wave soldering). For this purpose, a lead-free, air and nitrogen reflowable no-clean type 3 solder paste, which meets the requirements of the RoHS Directives 2011/65/EU and (EU) 2015/863, as well as the standards by J STD 004 is recommended. Figure 1 below shows a typical soldering profile.

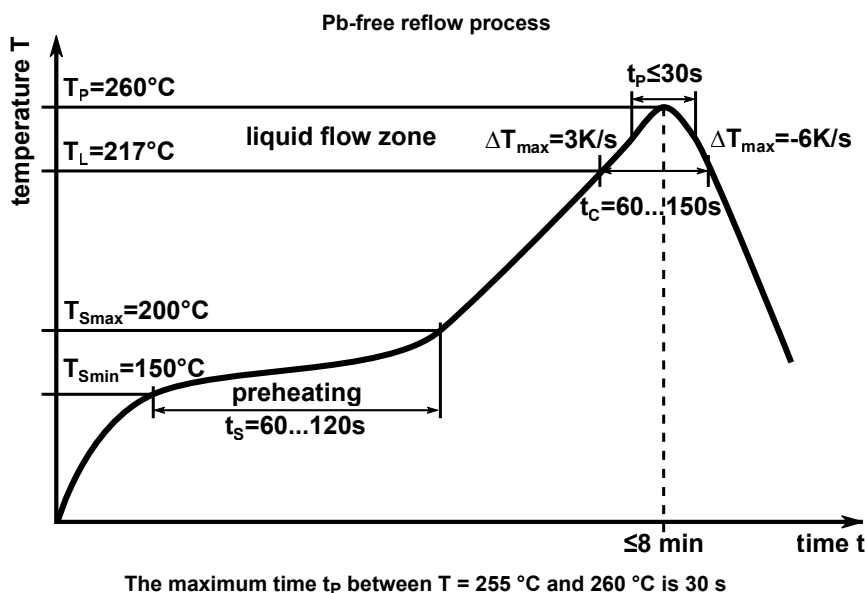


Fig. 1 Recommended reflow profile using a standard reflow soldering oven

**PLEASE NOTE**

The sensor is rated MSL 1 according to JEDEC J-STD-020. The sensor package is qualified to withstand the profile given in JEDEC J-STD-020 for lead-free soldering with a peak temperature of 260 °C and a time in the critical zone above ($T_{\text{peak}} - 5$ °C) of up to 30 seconds. The packages passed the tests according to: J-STD-002¹⁾, AEC Q100, method AEC-Q005²⁾, IEC 60068-2-58³⁾, MIL-202 M210⁴⁾ and IEC 60068-2-21⁵⁾, respectively.

- 1) Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires: Tests B1 and S1.
- 2) Wearout reliability tests, Table 2: Qualification Test Methods, Test E12: lead- (Pb-) free.
- 3) Environmental testing – Part 2-58: Test Td: Test methods for solderability, resistance to dissolution of metallisation and to soldering heat of surface mounting devices (SMD) – Test Td1 (group 3), Td2 (group 3).
- 4) Resistance to soldering heat – Test conditions B and K.
- 5) Environmental testing – Part 2-21: Tests – test U: Robustness of terminations and integral mounting devices - Tests Ue2 and Ue3.

2.3 General Information

During the whole transportation process, the sensor should not be exposed to high concentrations of chemical solvents for longer time periods. Otherwise the advice in chapter 2.4 Recommended Packaging Materials shall be followed.

2.4 Recommended Packaging Materials

The best packaging is the original manufacturer packaging. If the sensor has to be removed from this packaging ESD trays made from PS (Polystyrol) or sealed ESD bags are recommended.

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