



Tech Note

SMD PRODUCT SOLDERING  
PROCEDURE

DOC00381 REVISION F

Written by:	Manufacturing
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## REVISION HISTORY

**REVISION A – 5/8/08 – OBSOLETE**

New Procedure for MP00001, 2 & 4 Products

**REVISION B – 9/29/08 – OBSOLETE**

Revised and Updated Procedure

**REVISION C – 1/20/09 – OBSOLETE**

Updated Formatting

**REVISION D – 1/30/15 – OBSOLETE**

Updated Formatting

**REVISION E – 10/27/20 – RELEASED**

Revised and Updated Procedure

**REVISION F – 11/3/20 – RELEASED**

Minor Corrections

## TABLE OF CONTENTS

Revision History .....	2
Table of Contents .....	3
1.0 Scope.....	4
2.0 Required Components, Materials, and Tools.....	4
3.0 Precautions .....	4
4.0 Procedure.....	4
4.1 Alignment.....	4
4.3 Tack Soldering .....	5
4.4 Soldering the Remaining SMD Pin Connections.....	5
4.5 Cleaning and Inspection .....	6

## 1.0 SCOPE

This hand soldering guideline and instruction procedure applies to the TriRate (MP00001), AccelRate (MP00002) and MAG3 (MP00004) products. The purpose of this procedure is to provide hand soldering guidelines and instructions for installing an SMD onto PCB.

## 2.0 REQUIRED MATERIALS AND TOOLS

- 2 Soldering Irons
- No-clean flux (Memsense uses Kester TSF Tacky Flux)
- Solder (Memsense uses Kester No-Clean-245, SN63Pb37, 0.020 diameter)
- Flux remover

## 3.0 PRECAUTIONS

Stresses above those listed below in Table 1 - Absolute Maximum Ratings, may cause permanent damage to an SMD. Care should be exercised in handling SMDs to avoid potential damage. Drops onto hard surfaces can cause shocks of greater than 2000 g and exceed the Absolute Maximum Rating of the device.

All Memsense SMD products are static sensitive and should only be handled in ESD-safe environments.

**Table 1.** Absolute Maximum Ratings

Parameter	Rating
Acceleration (Any Axis, Unpowered, 0.5 ms)	2000 g's
Storage Temperature	-65°C to +150°C

Memsense SMDs must be hand soldered. Soldering with a reflow oven is likely to disturb internal solder joints, permanently damaging the device. Care should be taken to minimize the amount of heat applied to the device. Its functionality is not guaranteed after it has been de-soldered from any PCB.

## 4.0 PROCEDURE

### 4.1 ALIGNMENT

Place the Memsense SMD onto the receiving pads. Note that pin 1 is marked on the top of the SMD package with an indented dot. Neither the PCB nor the SMD pads should have any solder at this time and the SMD should sit flush with the board. Note that some SMDs may have extra pieces of copper along the edges that appear to be pads when the part is viewed from the side. However, the SMD only has 11 pads per side. Make sure that board pads are aligned with the actual SMD pads and not any of these extra sections of plating. The SMD may be temporarily immobilized with fixturing.

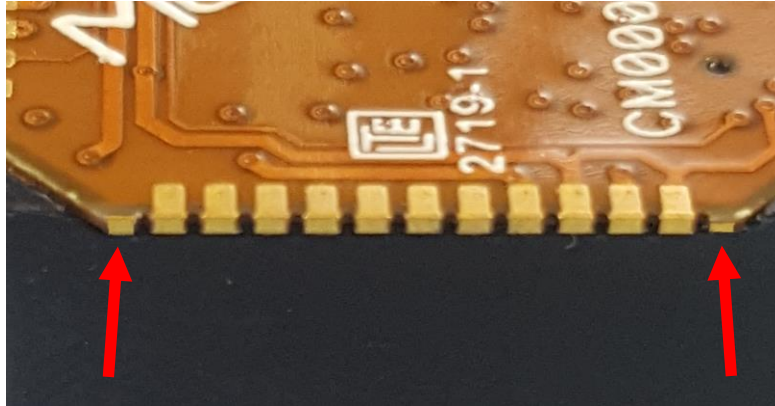


Figure 1—False Pad Toes

#### 4.3 TACK SOLDERING

For SN63PB37 solder, set the iron tip temperature to 340 degrees C.

Tack the SMD down by applying flux to pads in two opposite corners and then soldering. Re-check the alignment. If the part is misaligned, use two irons to reflow both joints at once to prevent stressing a soldered pad if the SMD rotates.

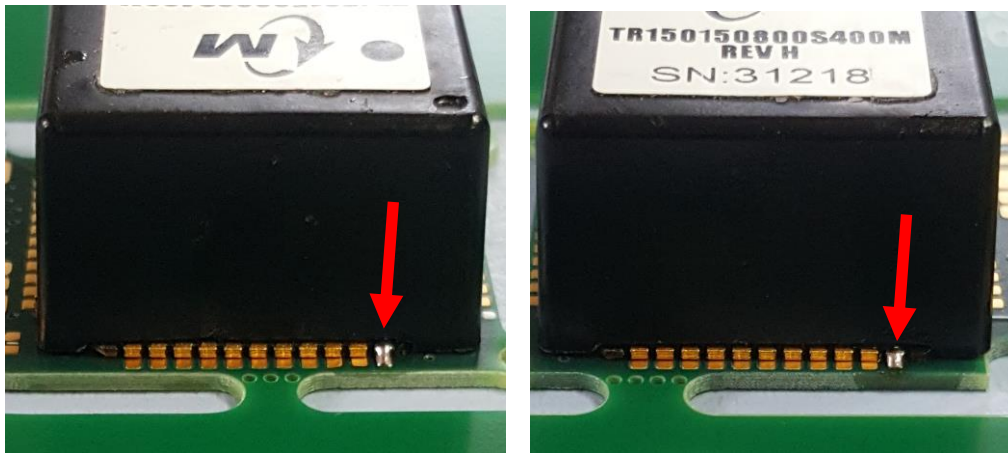


Figure 2—Two Corners Tack Soldered

#### 4.4 SOLDERING THE REMAINING SMD PIN CONNECTIONS

Apply flux to the rest of the pads and solder. Pads need to be soldered one at a time to prevent internal overheating. Leave the iron on the pad just long enough for a toe fillet to form.

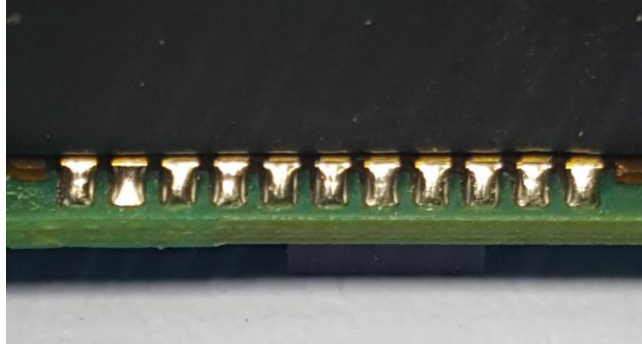


Figure 3—Completed Solder Joints

#### 4.5 CLEANING AND INSPECTION

Clean the area with flux remover or alcohol if desired.