**General Assembly Instruction Guide:**

1.RECOMMENDED STENCIL THICKNESS - 4MIL

2.MARK APPROPRIATE DASH, REV. AND SERIAL NO. CHARACTERS TO BE PERMANENT AND LEGIBLE.

3.WORKMANSHIP OF ELECTRONIC ASSEMBLIES SHALL CONFORM TO IPC-A-610, CLASS 2.

4.ASSEMBLY IS STATIC SENSITIVE ALL PROCESS/HANDLING OPERATIONS MUST CONFORM TO E.S.D.PRACTICES CONTAINED WITHIN IPC-A-610.

1. **MIC(M1,M2,M3) Assembly Instruction Guide:**

MIC Handling and Storage Notes:(**Read Page No. 31 to 35 of AN24 Sisonic Design Guide v1 for more assembly information**)

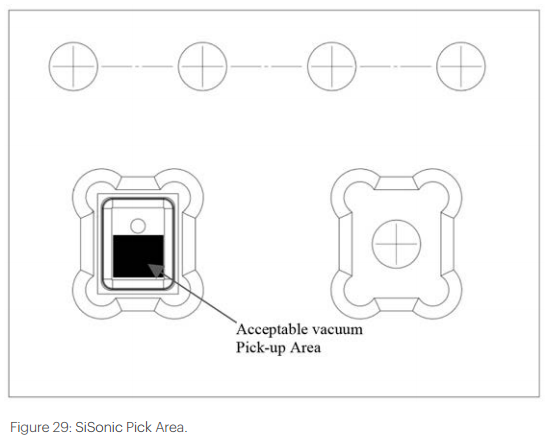


SiSonic microphones are surface mount microphones intended for installation with standard pick-and-place machinery for reflow onto a PCB with other surface mount components. Because SiSonic microphones are elecro-acoustic components, they have some unique requirements in an automated assembly line.

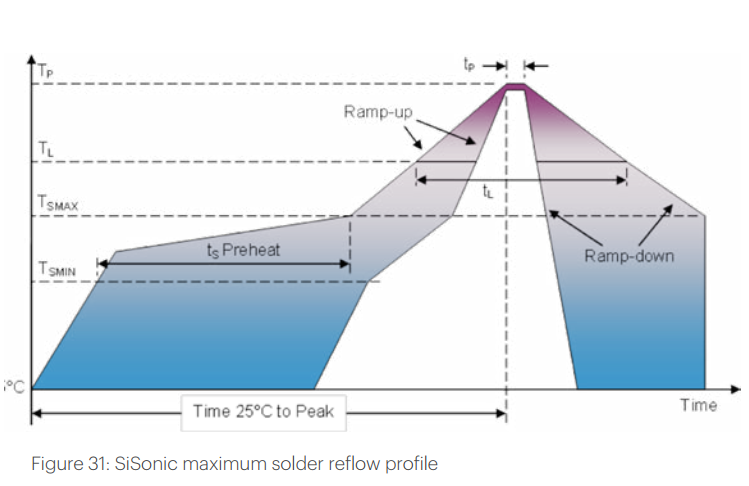
**PICK-AND-PLACE SETTINGS:**

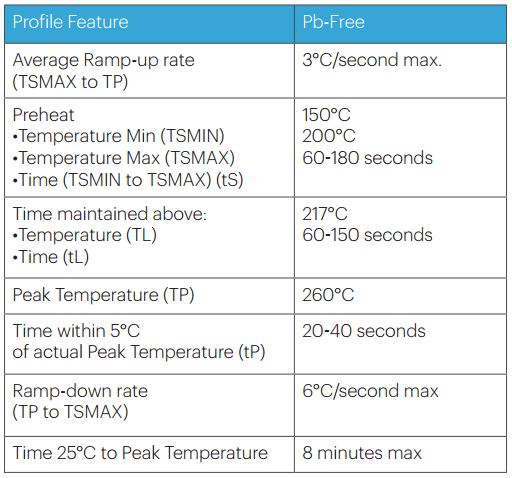
SiSonic microphones come in various size reels for use in auto pick-and-place machines. The pick location for top-port models must be chosen so the pick nozzle does not overlap the port hole of the microphone, while taking into account the microphone and pocket tolerances and the pick nozzle shape, size, and placement accuracy. Bottom-port models may be picked anywhere on the lid. The recommended pick area for the SPW package is shown in the figure below. Exact packaging information, including pocket size, spacing and pick-and-place area, is shown in each model’s datasheet.

1. Ingress protection. Make sure to minimize the risk of any contamination ingress through the port hole of the microphone.
2. Shelf life: Twelve (12) months when devices are to be stored in factory supplied, unopened ESD moisture sensitive bag under maximum environmental conditions of 30ºC, 70% R.H.
3. MSL (moisture sensitivity level) Class 1.
4. Do not pull a vacuum over port hole of the microphone. Pulling a vacuum over the port hole can damage the device.
5. Do not board wash after the reflow process. Board washing and cleaning agents can damage the device. Do not expose to ultrasonic processing or cleaning.
6. Do not brush board after the reflow process. Brushing the board with/without solvents can damage the device.
7. Do not insert any object in port hole of device at any time as this can damage the device.
8. Number of reflows - Recommend no more than 3 cycles.
9. Do not vacuum seal static bags used to store unused portions of reels.
10. Do not directly expose to ultrasonic processing, welding, or cleaning.
11. Do not apply over 30 psi of air pressure into the port hole.



**REFLOW**:





1. **Audio Amplifier(U5) Assembly Instruction Guide:**

**Refer AN10365 “Surfacemount reflow soldering description” for assembly of U5.**

**Board mounting:**

Board mounting of a WLCSP requires several steps:

1. Solder paste printing on the PCB

2. Component placement with a pick and place machine

3. The reflow soldering itself

**Stand off:**

The stand off between the substrate and the chip is determined by:

• The amount of printed solder on the substrate

• The size of the solder land on the substrate

• The bump height on the chip

The higher the stand off, the better the stresses are released due to TEC (Thermal Expansion Coefficient) differences between substrate and chip.

**Quality of solder joint:**

A flip-chip joint is considered to be a good joint when the entire solder land has been wetted by the solder from the bump. The surface of the joint should be smooth and the shape symmetrical. The soldered joints on a chip should be uniform. Voids in the bumps after reflow can occur during the reflow process in bumps with high ratio of bump diameter to bump height, i.e. low bumps with large diameter. No failures have been found to be related to these voids. Solder joint inspection after reflow can be done with X-ray to monitor defects such as bridging, open circuits and voids.