Application Report
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TRF3761 QFN Installation Using a Hakko Hot Air Rework Station

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ABSTRACT

The TRF3761 devices are typically sampled separately from the board provided. This guideline is designed to help the user evaluating these parts install the sample device.

The EVM board has an immersion gold plating. Because gold leaches into the solder joint, it is best to tin the pads, and wick off the extra solder. Using a solder with silver content helps, but is not necessary.

Apply solder paste to each pad including the center ground; don't skimp when applying paste to the center ground. (TI uses a type 6 Sn62Pb36Ag2 alloy with an 82% loading in an EFD dispensing system. Solder paste can be applied manually with a dental pick).

Under a microscope, place the device inside the square silkscreen labeled U2. Pin one of the device is designated by a round dot on the package. Pin one on the board is designated by an asterisk, and a slightly mitered corner.

Use a tool like a dental pick or the point of a hobby knife (such as X-ACTO™) to position the part so that the device leads are centered on the traces. The solder paste can smear; this isn't an issue.

Place the board in the Hakko Omnivise, and position it over the Hakko pre-heater. With the pre-heater set at 200°C, let the part heat up for 30 seconds. Place the Hakko Hot air nozzle (A1130, this is a 0,44 mm diameter Nozzle)) over the device. With the temperature set at 343°C, and the air flow set at 15 liters/min, turn on the hot air rework station. This setting can be adjusted lower if adjacent components are being disturbed. Letting the board thermally soak over the pre-heater in conjunction with letting the hot air come up to temperature while blowing on the part, provides a thermal ramp profile. This helps to ensure a good solder joint.

Watch the device as it heats up, when the solder paste reflows, let the part continue to heat for 15 seconds. Remove the device from the heat. Inspect the part immediately, and verify that there are no solder shorts, and that there are connections at all pins. A soldering iron with a tip radius of 0.008 at 370°C works well for this. Add extra flux when doing re-work.

To clean the flux residue from the board, spray the board with a flux cleaner. Lay a thin absorbent tissue over the board, and brush the board through the tissue. The absorbent tissue will wick up the flux contaminated solvent. Blow the board dry with compressed air. If spurs are present, additional cleaning in an ultra-sonic cleaner, and subsequent baking may be necessary.

USEFUL LINKS

Hakko products
http://www.hakkousa.com/2006/default_1.asp?Assistant=Dinky

Solder Paste, Flux, Dispenser
http://www.efd-inc.com/mikros/index.html
http://www.efdsolder.com/

X-ACTO is a trademark of Elmer's Products Inc..

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