Chapter 1

Soldering the Ground Pads Underneath the HSMC Contact

The High-Speed Mezzanine Card (HSMC)-connector has several ground pads underneath the connector itself, making it impossible to reach when soldering by hand. The solution was to use a solder oven with solder paste on the pads. The solder paste was applied on the pads with the help of the dispenser module on the *Martin Rework Station*, which was available in the lab. The dispenser module forces the solder paste out of the syringe using pressurized air. By pressing a foot pedal connected to the dispenser, you apply a controlled air pulse that pushes on the piston of the solder paste syringe. The force of the air pulse can be adjusted using the dispenser GUI. For the ground pads, a force of 2.50 CMM (Cubic Meter per Minute) was suitable.

The solder oven that was used had the option to set up a *Ramp-Soak-Spike* type thermal profile. Samtec, the manufacturer for the HSMC contact, recommends a maximum peak temperature of no more than 260 $^{\circ}C$ with no more than 30 seconds above $255^{\circ}C$. The thermal profile setup is based on the profile recommended by EFD, the manufacturer for the particular solder paste used (see figure 1.1). After some trial and error with a dummy-PCB, the oven was set to a activation temperature of $150^{\circ}C$ for 60 *seconds*, and then a reflow temperature of $220^{\circ}C$ with a climb-time of 120 *seconds*.

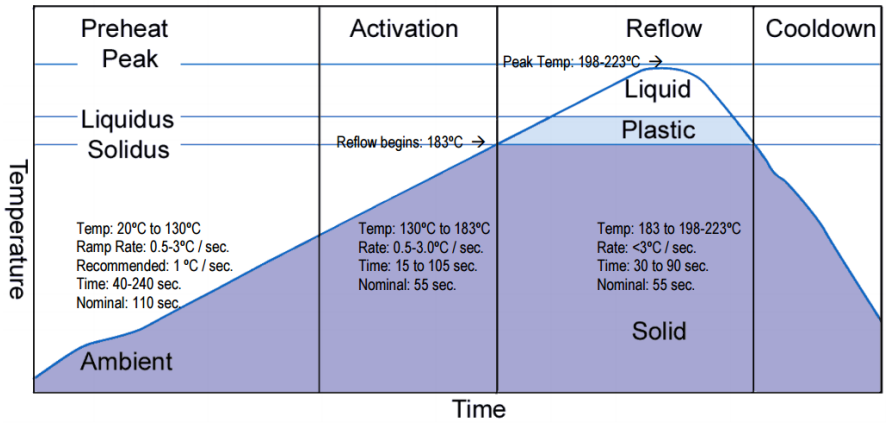

Figure 1.1: EFD reflow thermal profile recommendations [**?**].