MANUAL SOLDERING TECHNIQUE FOR Z-COMM VCOs

This note describes common manufacturing methods used to solder Z-COMM surface mount and pin mount VCOs. Following the suggested practices will ensure optimum performance and repeated product reliability.

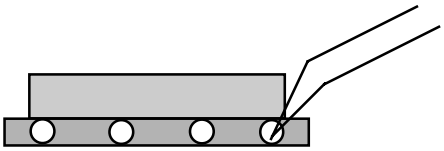
SURFACE MOUNT VCOs

The Mini, Sub-Mini, 375, USSP, and S package devices can be soldered manually or through an automated process. Recommendations for both approaches are detailed below.

Manual Process:

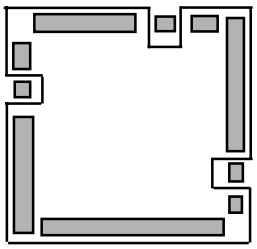
Apply solder to the half-moon connections around the periphery of the VCO package (see figure 1). Once the device's ground plane is heated, connection will normally require 5 seconds or less. For proper grounding, all of the contacts must be soldered. Care must be taken to ensure good solder connections without applying excess solder. Also, iron contact with VCO should be executed quickly to prevent heat damage.

figure 1:



Apply iron for no more than 7 seconds after ground plane is hot.

figure 2:



IR Reflow Process:

A typical solder stencil, as shown in figure 2, can be used to dispense solder at the half-moon contacts. A reflow process with appropriate IR reflow profile will ensure proper wetting and good VCO/PCB contacts. Reflow of components within the device must be avoided. All surface mount VCOs utilize Sn96.5/Sb3.5 solder with a melting temperature of 217º C.

PIN MOUNT VCOs

Z-COMM Pin Mount VCOs utilize Sn96.5/Sb3.5 internally for pin connections. During VCO installation special care must be taken not to overheat the contact pins as this will induce their upward movement into the VCO. Also, similar to surface mount devices, *the underside of the VCO must maintain intimate contact with the system PCB.* Any displacement will cause problems associated with inadequate grounding and/or loading isolation.