PRECISION RESISTOR CO., INC.

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SMD/SMT COMPONENT PROCESSING GUIDELINES FOR HAND SOLDERING WITH STANDARD SOLDER IRON

OPERATIONS: Production, Re-Work/Touch-Up, Prototyping/Breadboarding

COMPONENT TYPE: The following hand soldering technique is recommended for proper installation & re-work of PRC's (2) & (4) terminal surface mount resistors across (2) or (4) land areas (pads) of a Printed Circuit Board (PCB) or similar substrate.

BACKGROUND: Hand soldering with a solder iron is an individual process, unlike re-flow or wave soldering, where the soldering conditions are controlled. During hand soldering each soldering operation can see different different temperatures, stresses & amounts of solder. The most important part of the hand soldering method is the **operator.** The operator must fully understand the operation he/she is performing. Care should be taken not only in soldering but also in correct & proper component handling.

INSTALLATION:

(A) The component & PCB/Substrate must be clean. The PCB/Substrate land areas (pads) should be pre-tinned with solder prior to installation.

(B) Pick up the component with a pair of tweezers, preferably the stainless steel or ceramic-tipped variety. The components will sustain no damage if handled correctly & carefully.

(C) Apply a drop of flux on each termination of the component.

(D) Place the component on the PCB/Substrate bridging the (2) or (4) land areas. For the best results, and to minimize the occurence of thermal of thermal shock, it is recommended that the PCB/Substrate be slowly pre-heated (less than 2°C. / second) to a temperature approximately 125°C.

(E) Compare the size of the (2) or (4) land patterns. The smaller of the (2) or (4) should be soldered first. (See Figure 1 on following page)

(CONTINUED ON NEXT PAGE)

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INSTALLATION: (CONTINUED FROM PAGE 1)

(F) Assuring the component is lying flat on the PCB/Substrate, place the soldering iron tip adjacent to the termination-land interface (See Figure 2). The soldering iron tip temperature should be controlled not to exceed 315°C. (600°F). When the solder starts to flow, slowly move the tip of the soldering iron towards the component. Add any additional solder needed to generate a solder fillet. As the solder re-flows onto the component termination, remove the soldering iron from the PCB/Substrate entirely.

(G) Examine the component to assure that it is flat on the PCB/Substrate. Repeat step 'F' on the opposite termination of the component.

(H) Visually inspect both solder joints. The solder fillet should be clean & continous.

(I) The assembly operation is now complete. Any flux residue should be cleaned off the PCB/ Substrate has been allowed to cool to room temperature or approximately 25°C. Accelerated cooling, or quenching, is strongly discouraged as this may result in thermal stress.

(J) As long as you hand solder the components while ensuring careful handling & take steps to ensure the components specified internal temp ceilings are observed(printed on shipping memo) of 150°C. for tolerances up to 0.1%, 125°C for tolerance closer than 0.1% the parts should not sustain permanent damage, regardless of which hand solder system or tip configuration you choose to utilize.

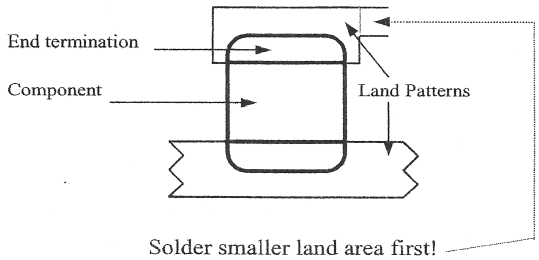

Figure 1

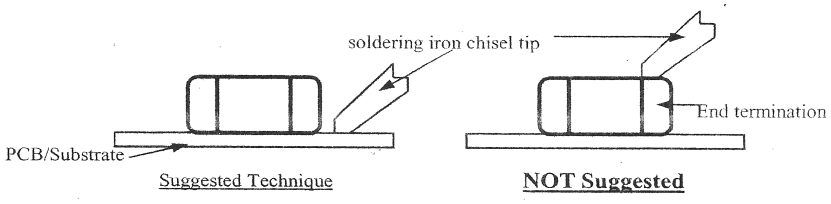

Figure 2