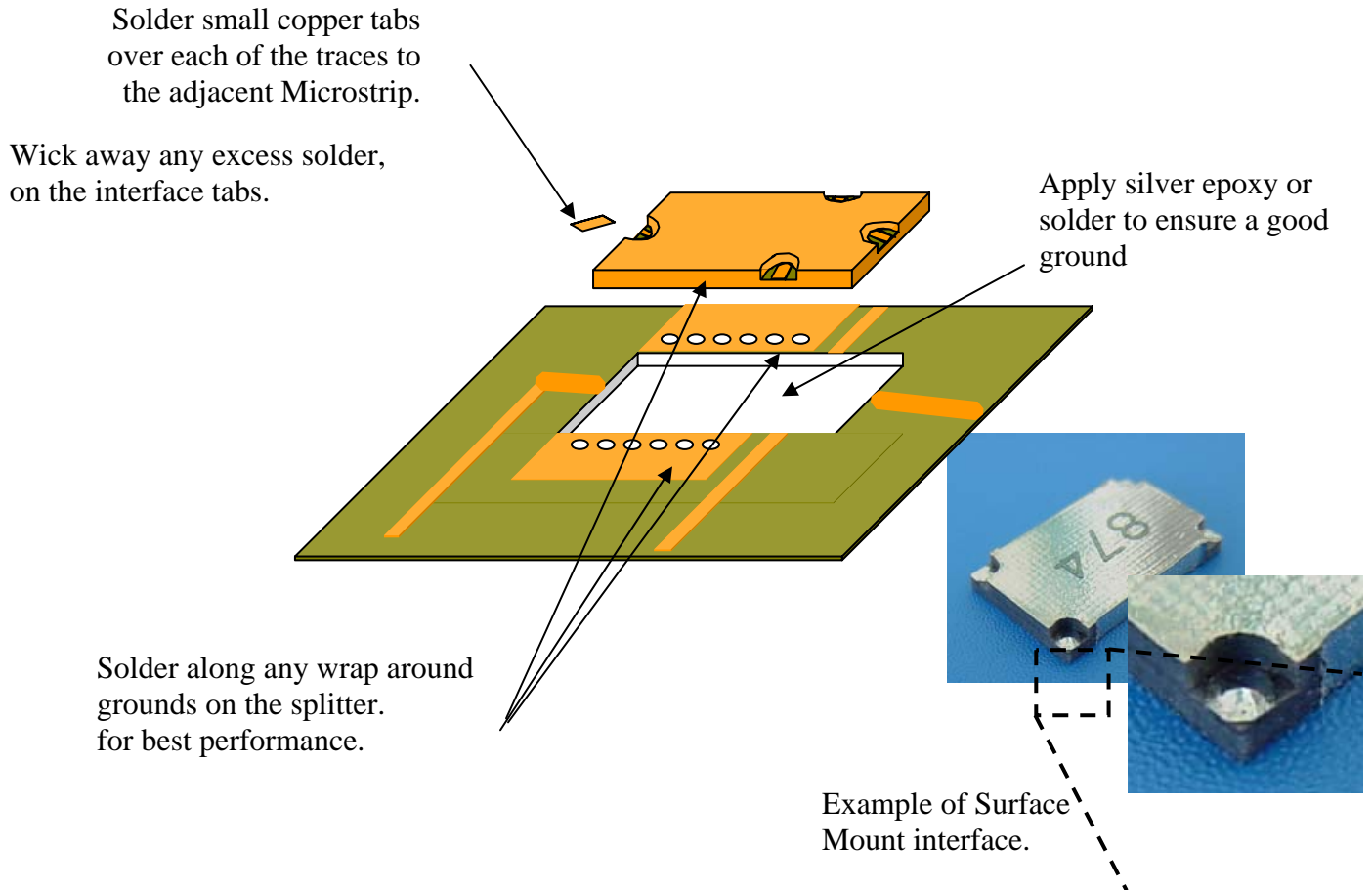


Drop-In Application Note

Couplers and Quad Hybrids, Splitters and Combiners



1. **It is assumed that a suitable cut out is made in the pc board the exact size of the drop in unit.**
 - a. Once inserted the device interconnection tabs should be at approximately the same height as the adjacent microstrip tabs. (coplanar)
 - b. **Installing:** RADITEK drop-in units must have a Microstrip interface for optimum performance. As such they are not fully surface mount per se. Apply silver epoxy or solder to ensure a good ground. Heating the unit as necessary (Hotplate or Reflow). Alternatively **conductive epoxy** can be used and then cured
2. **Ground:** It is very important to have a good ground. Ideally the device should lay flat and be soldered to the chassis.
3. **Thermal Resistance** between the device substrate and “heatsink” surface on which the device is mounted must not be higher than $10^{-4} \text{ m}^2\text{K/W}$

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4. **Connection with 50-ohm Microstrip of adjacent circuit:** Customer's microcircuits should be designed to minimize gaps between the device and adjacent circuitry and be well matched to 50 Ohm, for optimum performance.
5. **Connection tabs** Tabs are typically gold on copper, they can be made or cut from ribbon they should be narrower (about 10% less) than the Microstrip line, (typically 0.08-0.12mm wide). And be as short as possible, they should not exceed a length of 0.2 mm over the device and should not exceed 0.4 mm. overall length. The tabs must be flat against substrate, and in no case lean over the Microstrip's edges.
6. **Soldering or Bonding:** Units are suitable for soldering (very easy with regular tin-lead solder), or thermo-compression bonding
7. **Shock:** structures can pass shock and vibration for use in the communications industry: these units have low mass and are well made, we also make devices for such adverse conditions as jet fighters and spacecraft. Please advise your spec requirements and we will verify.
8. **For Best performance:** Apply solder to well grounded (with vias or wrap arounds) adjacent circuit board, as shown. Solder small tabs as shown to each of the traces, tab should be thin tinned copper and be the same width as the Micro stripline. It is preferable to laser cut the circuit board to a precise cutout matching the size of the units, gaps or misalignment will degrade performance.
9. **A test fixture** can be fabricated out of a block of brass or aluminum with SMA connectors. Flush tabs can be carefully soldered to the four traces.