10F-4 No.63, Wen Hwa 3rd Road, Gueishan, TAOYUAN, TAIWAN
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# INSTALLATION PROCEDURE FOR DROP-IN ISOLATORS/CIRCULATORS

1.0 Scope- The scope of this document is to provide general guidlines for the installation of Nova Microwave drop-in isolators and circulators.

2.0 Required Installation Materials:

2.1 Nova Microwave Isolator/Circulator (referred to as the "device)

2.2 Isopropyl Alcohol, Best Commercial Grade, 99% Pure

2.3 Acetone Kardol #5072 (Or Equivalent)

2.4 Kester Liquid Rosin Flux # 145 (Or Equivalent)

2.5 Kester SN63PB37 (Core 66, .020" Dia. ), Kester WRMAP-2, Kester WRMAP-3 (Or other solder types per QQ-S-571)

2.6 Chemtronics Flux-Off

3.0 Preperation to Installation- All isolator and/or circulator tabs shall be correctly positioned and free of debris and/or contaminats, which could inhibit the solderability to the user trace pad.

A. Upward Tab Deflection: The isolator or circulator tabs shall not be deflected upward (away from the user trace pad) more than .005" beyond the tab height specification. Tabs which exhibit excessive deflection can be adjusted to the specified tab height, manually, by means of gently pushing downward until the tab is approximately parrallel to the bottom device. See Figure 1.

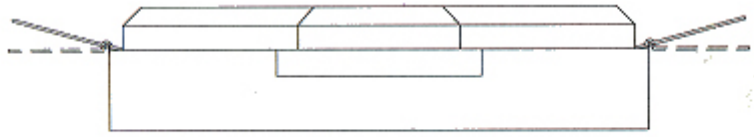

FIG.1

B. Downward Tab Deflection: The device can exhibit downward deflection of .025" before constituting an excessive level. If more than .025" is viewed, the tab can be manually adjusted by gentle pushing upward to approximately parallel with the bottom of the device. See Figure 2.

FIG.2

C. Cleaning: Tabs can be cleaned using a cotton swab, pipe cleaner or non-abrasive absorbent cloth or pad and an appropriate solvent. Acetone, alcohol, or equivalent is acceptable. Under no circumstance shall the device be submersed or sprayed with any cleaning agent or solvent. Do not use an ultra-sonic device for cleaning. Remove any extraneous fibers prior to soldering.

D. Mounting Surface: The mounting surface is generally the bottom of the device. It should be free of any contaminants. The device shall not be submersed or sprayed with any cleaning agent. Do not use an ultra-sonic device for cleaning. Apply the cleaning agent to the absorbent

material, then wipe the mounting surface.

E. Mounting Area: The mounting area should be designed so that when the unit is mounted, the bottom of the tab leads contact the top of the user traces. Also, the bottom of the unit must make proper ground to mounting surface. Tapped holes in the mounting area are necessary for installing devices with mounting clearance holes. Use appropriate fasteners when installing the device.

F. The mounting area cut-out should be kept minimal and the user trace as close as possible to the side walls of the device, without the risk of short-circuting the device. The mounting area should be designed so that no other part of the user's application will interefere with or block the installation of the device.

G. User Trace: The user trace should be tinned in close proximity to where the device tab will be located. A small amount of liquid flux should then be applied to the user trace, prior to installation of the device.

4.0 Installation: Since power is applied to the device, heat dissipation is a factor. For better heat dissapation, a conductive thermal grease can be used. Applying a thin, even coating to the bottom of the device will help dissipate the heat, evenly. If thermal grease is used, remove any extraneous fibers or debris prior to mounting.

4.1 Place the device into the user base (gently push down to spread the thermal grease, if used). Position the unit symmetrically in the base and align the input/output tabs over the soldering traces. If used, ensure that no thermal grease touches the circuit tabs of the device or user traces.

4.2 Install approprate fastners when mounting the device to the user base. See Figure 3.

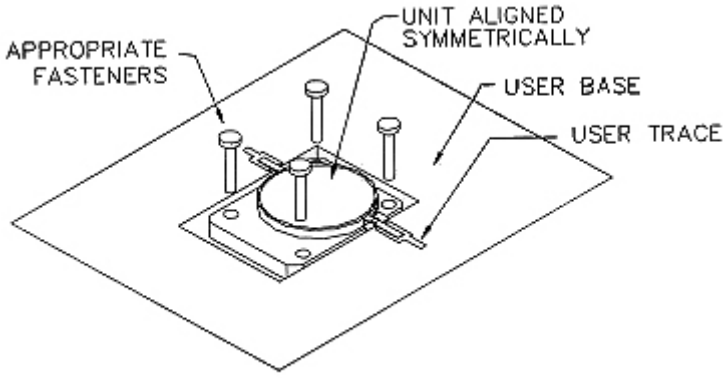


FIG. 3

4.3 Solder joints should be stress-relieved as much as possible. Follow standard methods of incorporating stress relief when soldering tab leadds. If stress-relief is required on the device tab, it shoukd be located as close as possible to the edge of the device housing. See Figure 4.

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FIG. 4

4.4 Ensure that the circuit tabs make contact with the user traces.

4.5 Apply a thin, even coating of liquid flux to the areaof the user trace where the circuit tab makes contact. Methodology of flux application is discretionary. However, any flux, which may backflow into the device, can impair the electrical performance. Proper caution should be exercised when using any liquid flux.

4.6 Heat the device tav lead in close proximity to the user trace with the end of a soldering iron. The temperature of the iron shall not exceed +750$^{o}$F. Apply a small amount of cored solder, evenly, where the soldering iron contacts the circuit tab lead. Allow for sufficient wetting to occur and proper solder flow prior to removing the soldering iron. The process should not exceed 5-10 seconds due to potential damage of bonded and/or thick-filmed surfaces. Do not allow flux or solder to splatter wher internal parts of the isolator/circulator are exposed.

4.7 Allow solder to cool. Clean solder joint with approved cleaning solvents.

4.8 Installation is complete.