Initial Investigatiom: MMIC Microwave OSC-1; Mechanism

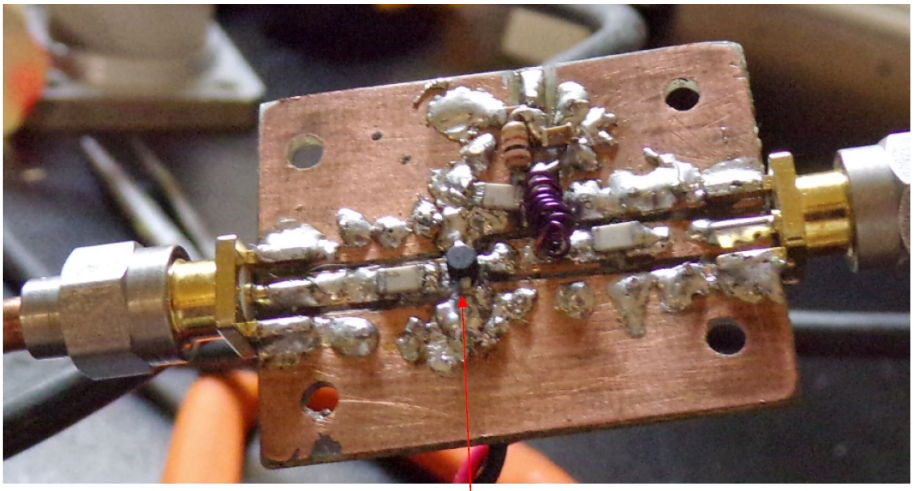
INTRO:

This note attempts to examine possible ways the unit oscillates; and identify a possible associated common OSC configuration

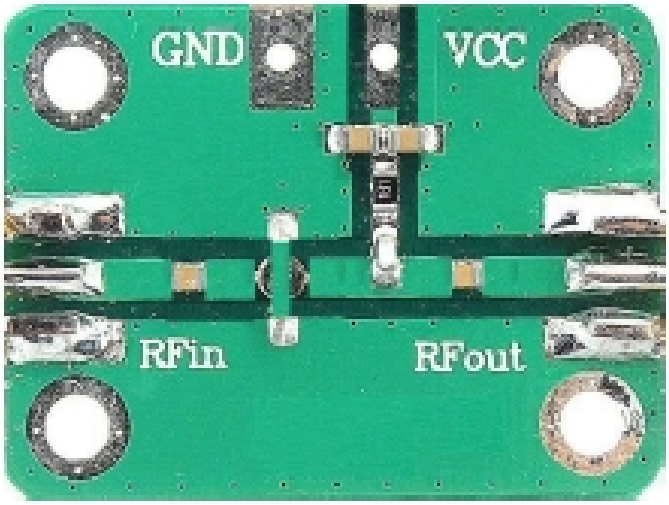
ANALYTICAL BREAKDOWN For POSSIBLE OSC CONFIGURATION:

Looking at the OSC physical layout:

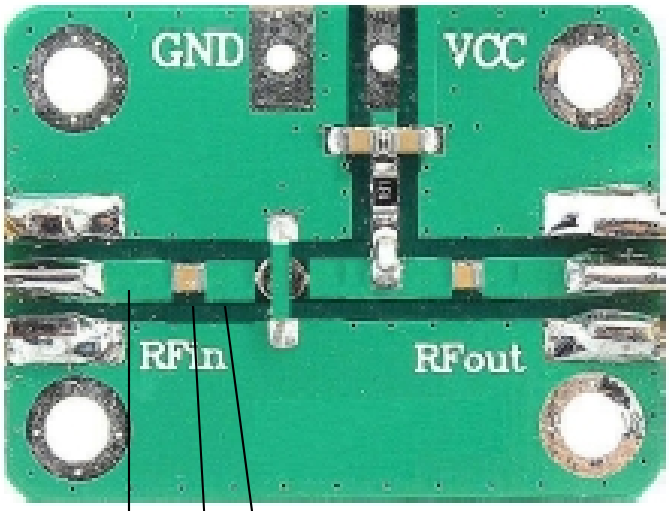
2nd unit built: my EXPERIMENTAL NOTES 21 June 19

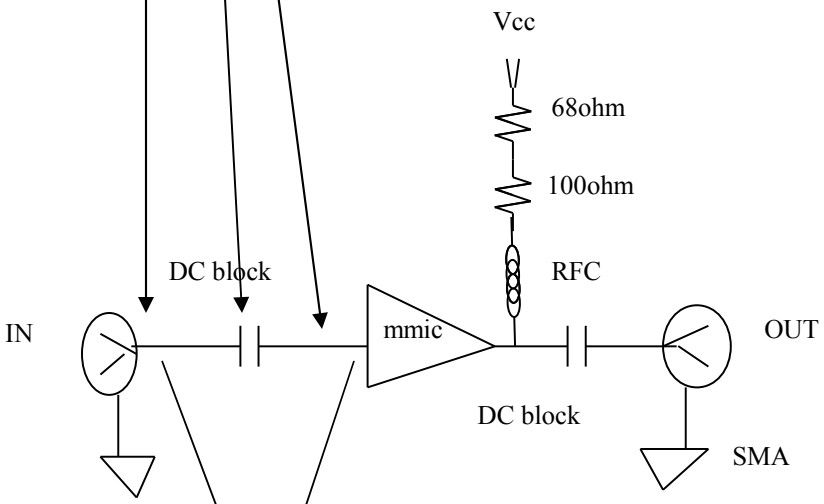


The above photo layout was based on the layout design found on eBay mmic amplifiers modifying the pad layout ie:

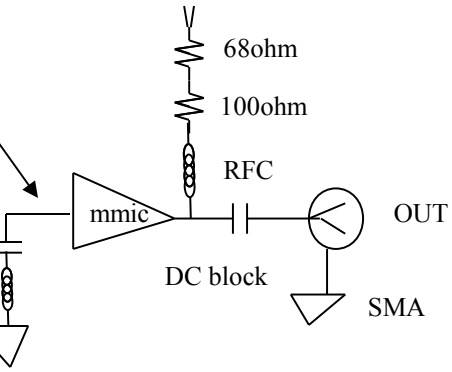


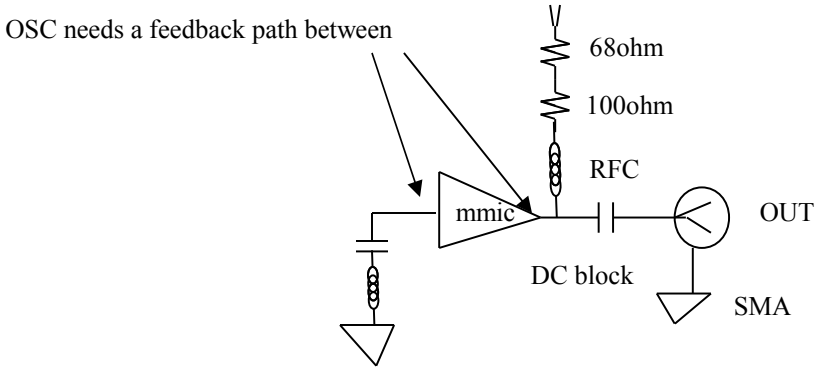
For this OSC configuration RF IN is not used



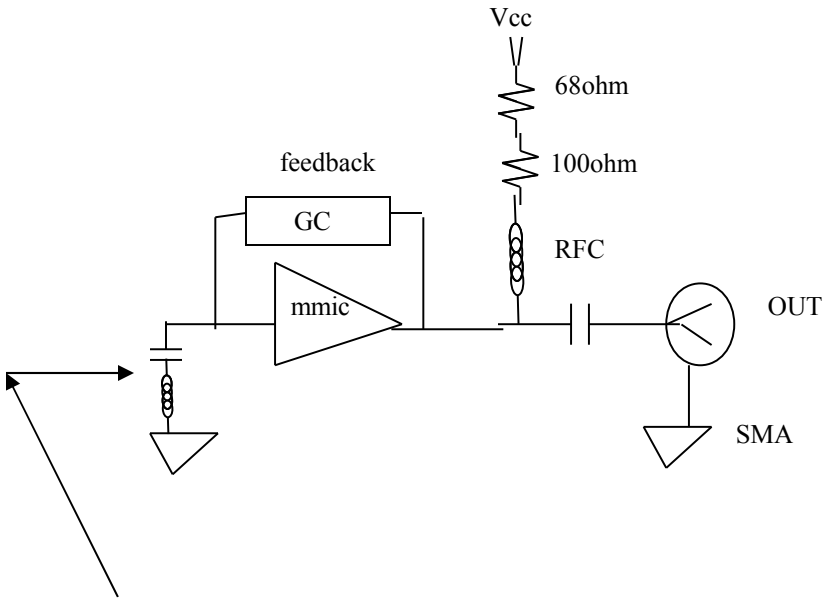


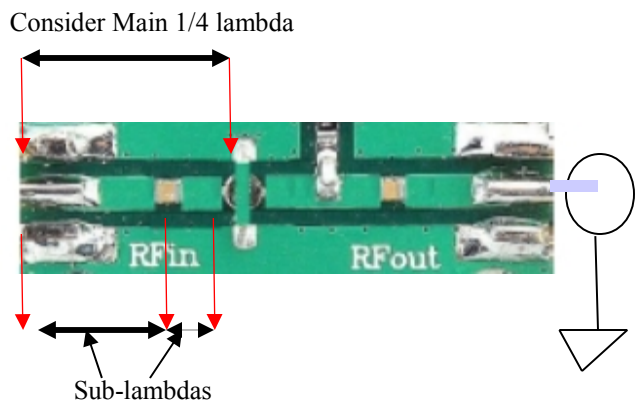
Assume entire length is an assumed transmission line. Also at resonance OSC frequency the xmission line is 1/4 wave length; and has equivalent non-resistive LC components; for the present analysis DC block CAP is assumed to be part of the center conductor





Considering OSC required feedback between the IN and OUT of the mmic; for an extreme simplified component representation (as a generalized feedback component (GC, see illustrations below); ie internal mmic feedback; stray external conductive element, etc.





Other possible configuration sub 1/4 lambda elements within the main element in question.