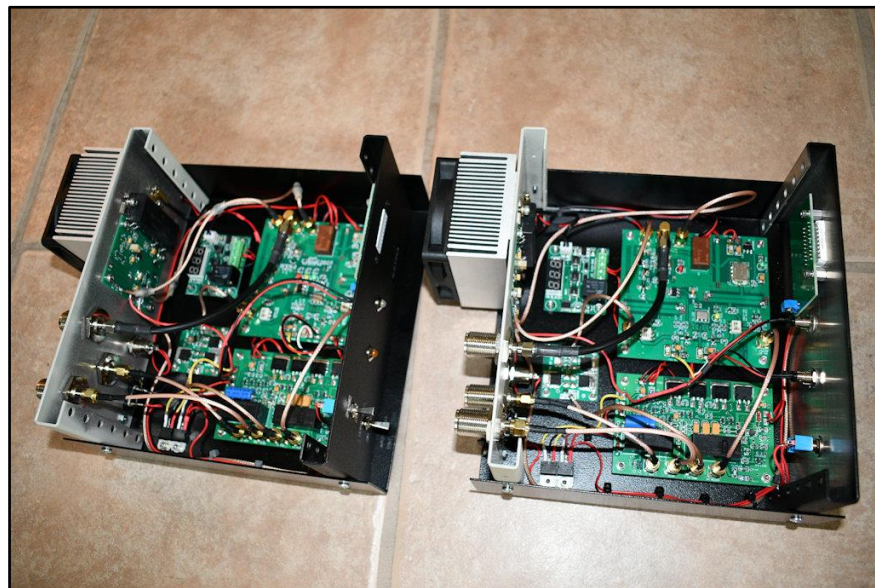


902 & 1296 MHz Mitsubishi PAs

*DESIGNS and LAYOUTS USED IN
K5TRA 33cm and 23cm TRANSVERTERS*

1296 and 902 MHz PA BOARDS



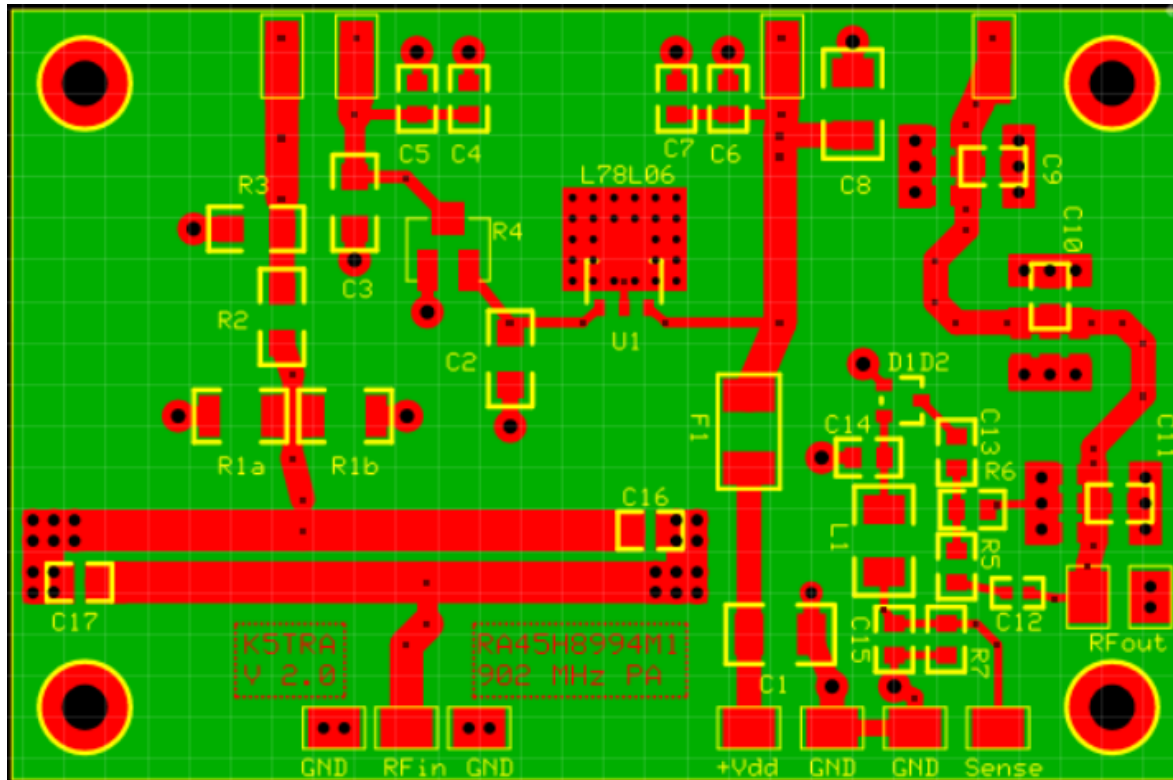
PA OVERVIEW

- Designs used in K5TRA 902 and 1296 transverters
- +12v DC operation
- L78L06 bias regulator and setup pot
- BPF input filter: printed 2 resonator interdigital
- LPF output filter: printed inductor 5th order
- Input pad option provided
- Output detector provided
- Mitsubishi PA modules:
 - RA45H8994M1 on 902 MHz
 - RA181213G on 1296 MHz
- Surface mount assembly PC boards

CIRCUIT SUMMARY

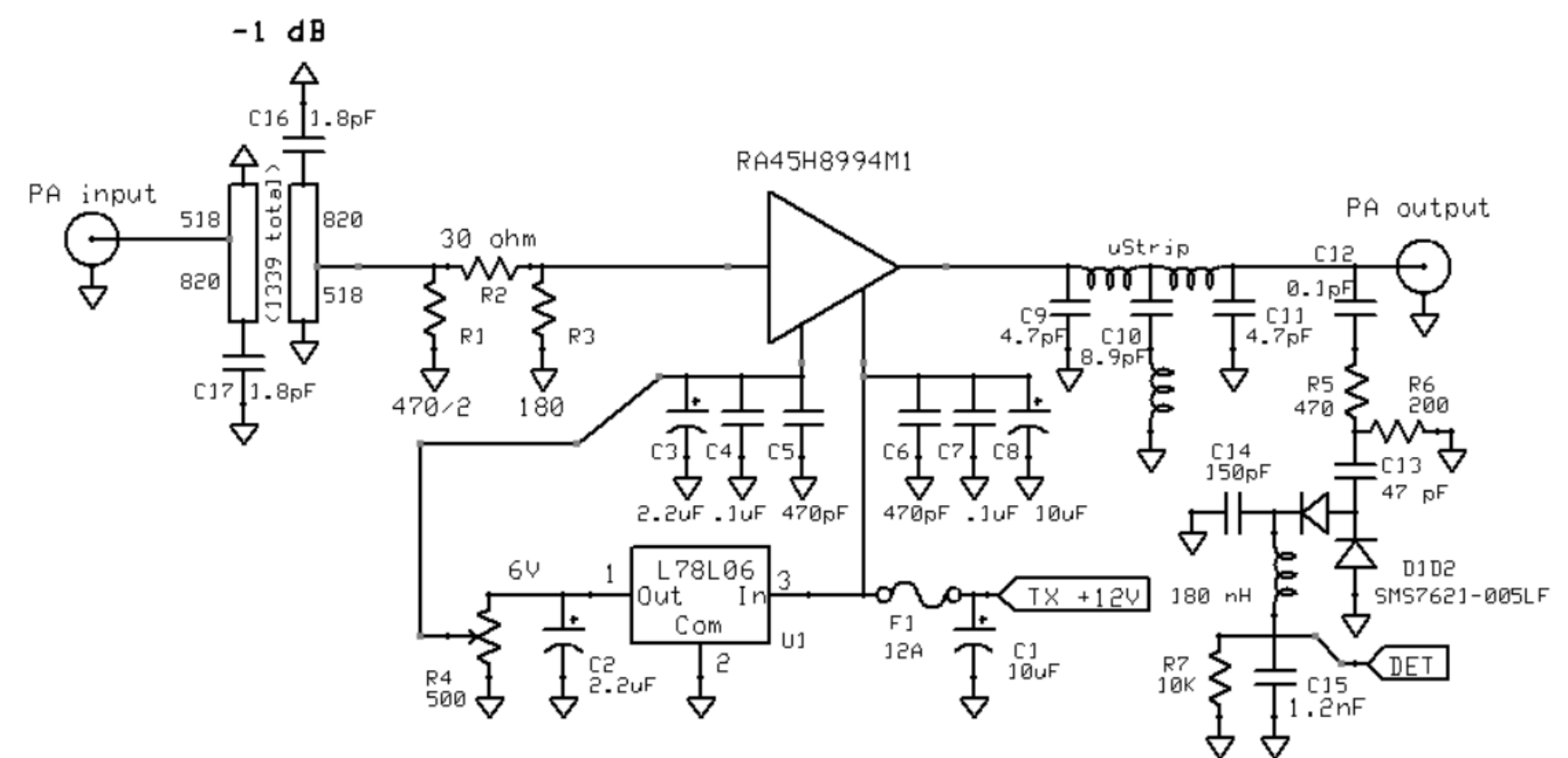
- 902 MHz
 - RA45H8994M1
 - 40 W linear power output
 - +30 dB gain with 4 dB input pad
 - DC power: +13V (9 A peak current)
 - 2.825" x 1.850" circuit board
- 1296 MHz
 - RA181213G
 - 18 W linear power output
 - +25 dB gain with 0 dB input pad
 - DC power: +13V (7 A peak current)
 - 2.500" x 1.850" circuit board

902 MHz LAYOUT

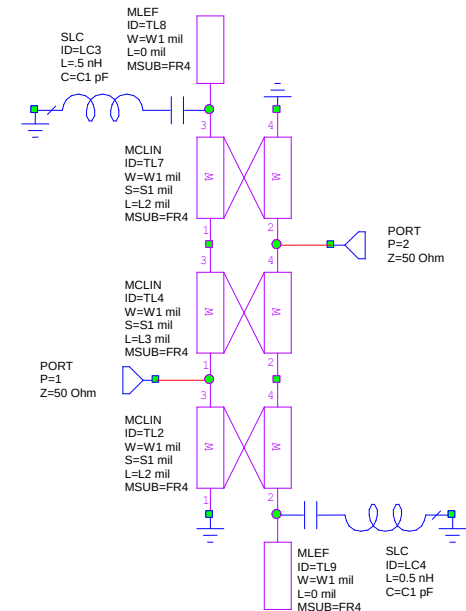
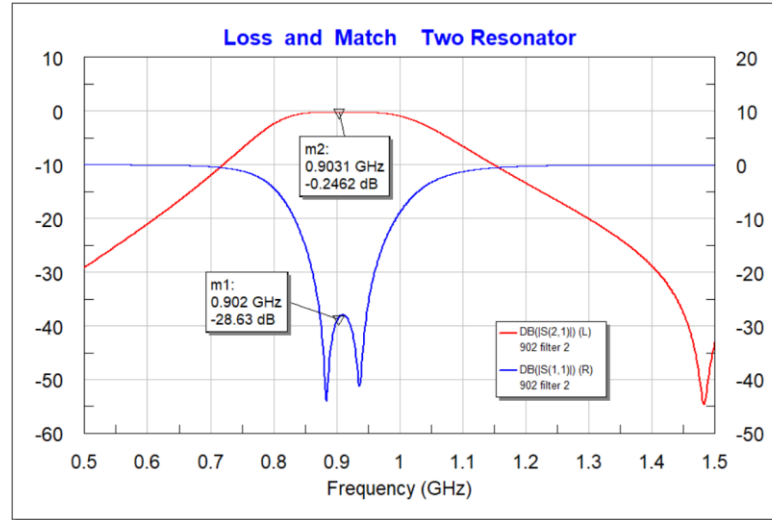
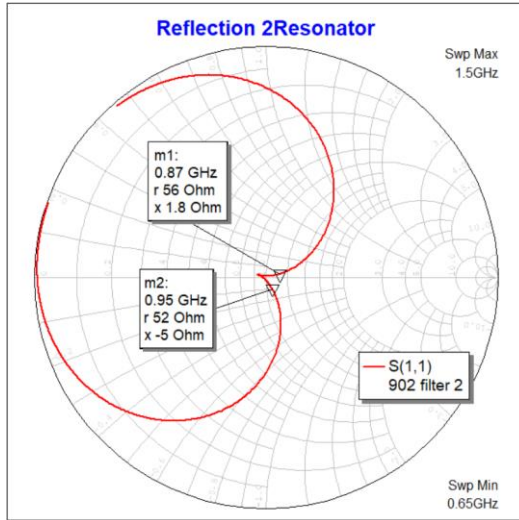


- Layout for 40 mil FR4 board
- Dimensions: 2.825" x 1.850"
- Module interface is along top edge of board

902 MHz PA SCHEMATIC



902 MHz BANDPASS FILTER



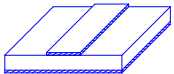
902 MHz Filter - 2 Resonator

ER1=4.45 MSUB
E=ER1
H=40 mil
T=1.8 mil
Rho=0.708
Tand=.03
ErNom=ER1
Name=FR4

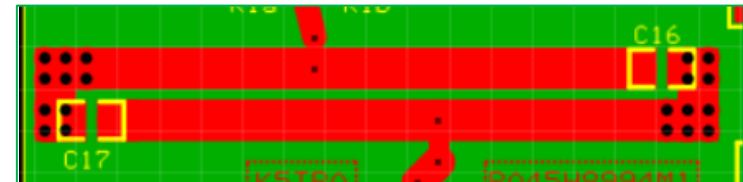
L1=1339
L2=518.8
L3=L1+2*L2
L4=L2+L3

W1=100
S1=25
C1=1.8

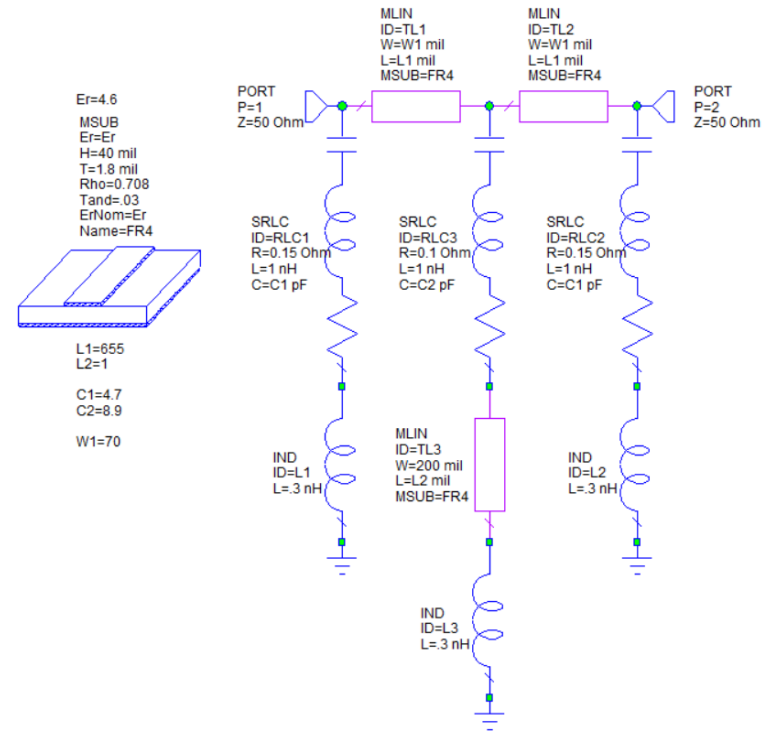
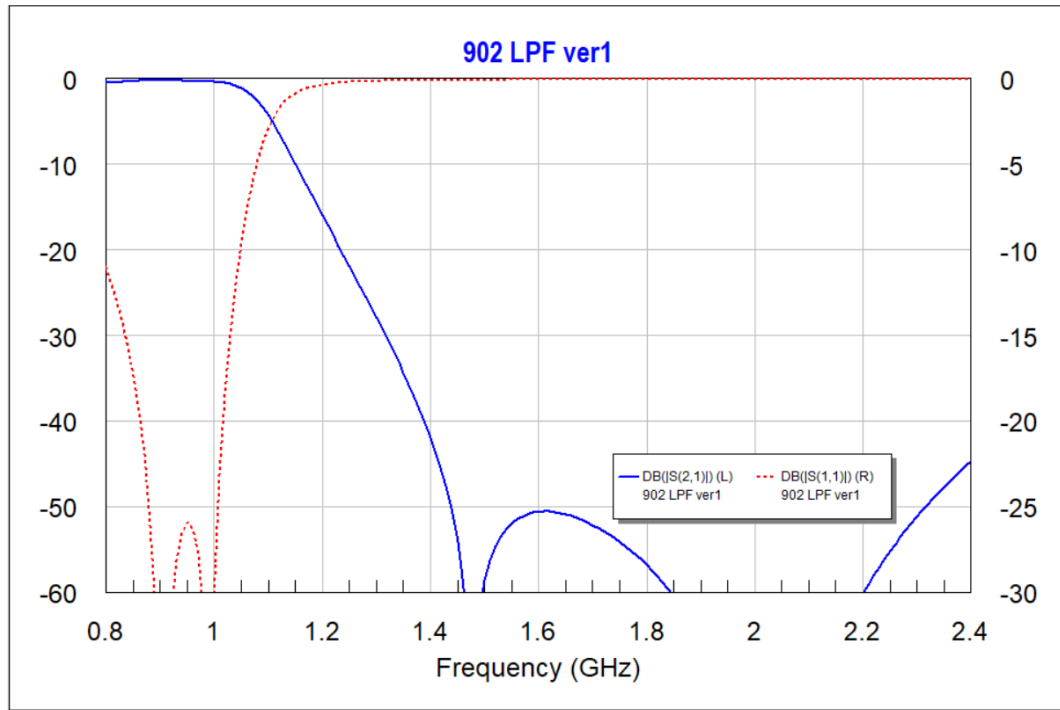
L1: 1339
L2: 518.8
L3: 301.4
L4: 820.2



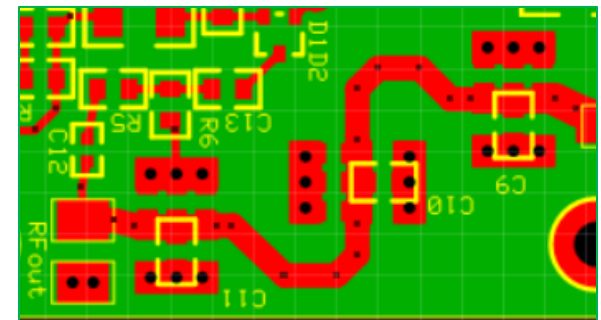
- Interdigital BPF on 40 mil FR4
- Gap = 25 mil, line width = 100 mil



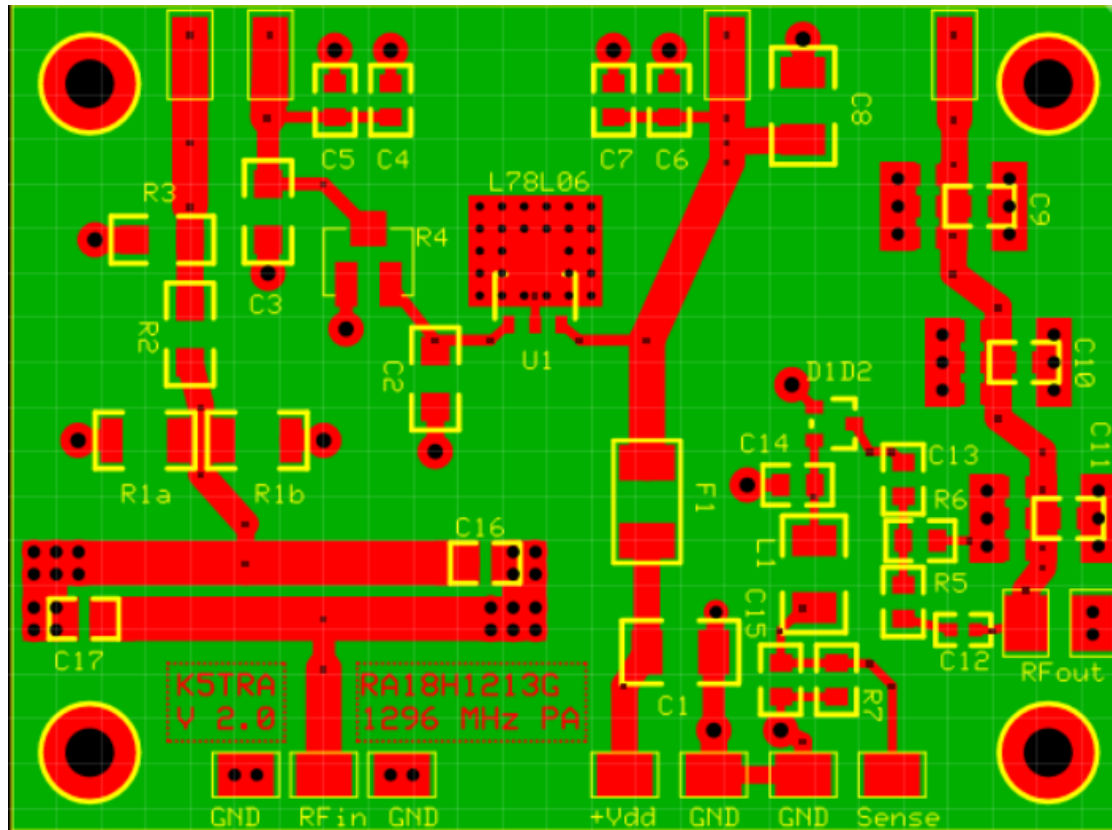
902 MHz PA SCHEMATIC



- Printed 5th order LPF on 40 mil FR4
- Line width = 70 mil

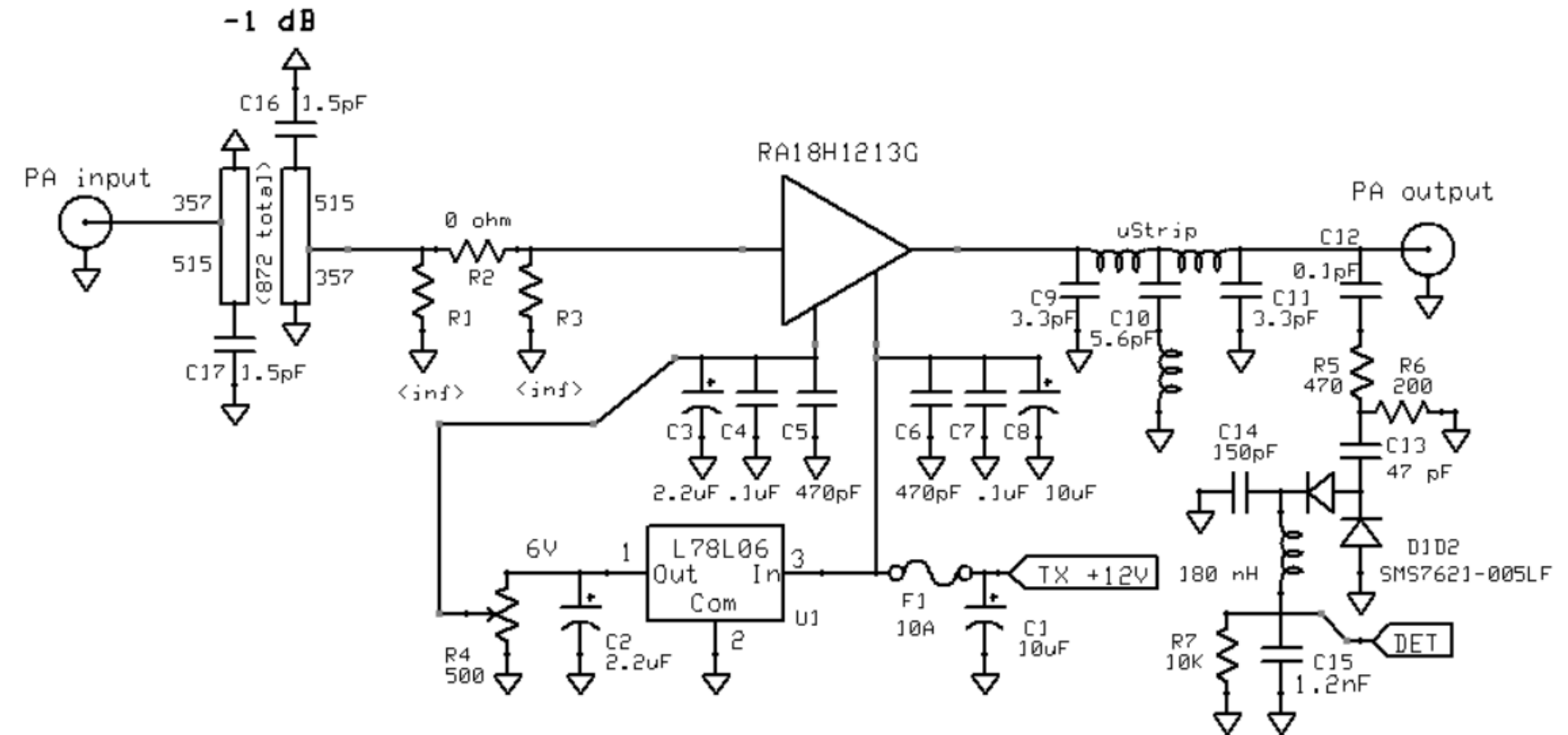


1296 MHz LAYOUT

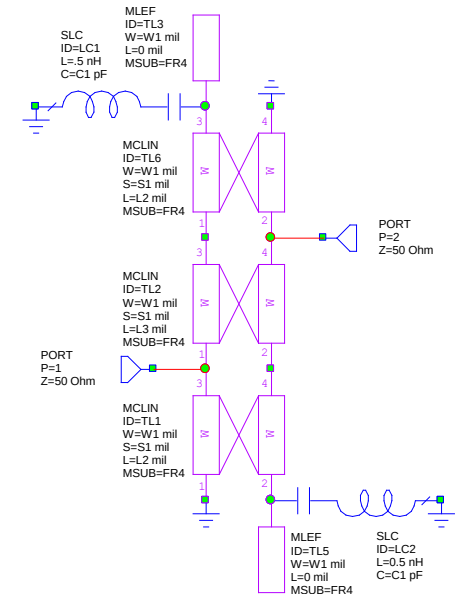
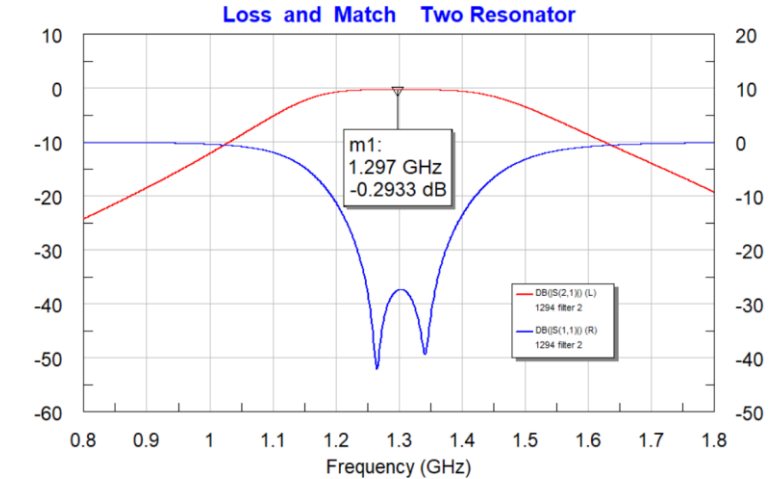
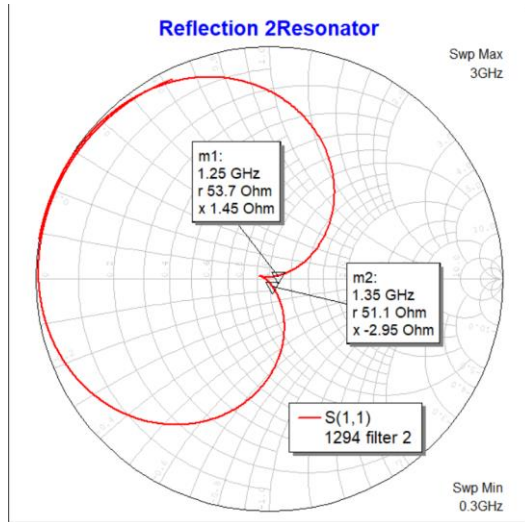


- Layout for 40 mil FR4 board
- Dimensions: 2.500" x 1.850"
- Module interface is along top edge of board

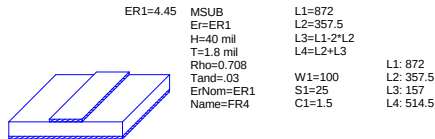
1296 MHz PA SCHEMATIC



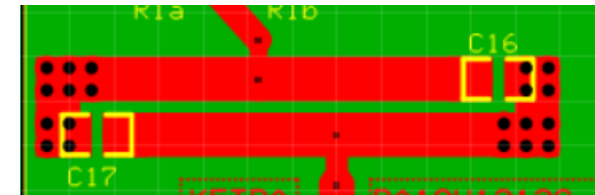
1296 MHz BANDPASS FILTER



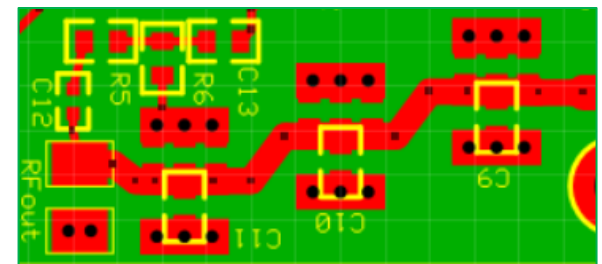
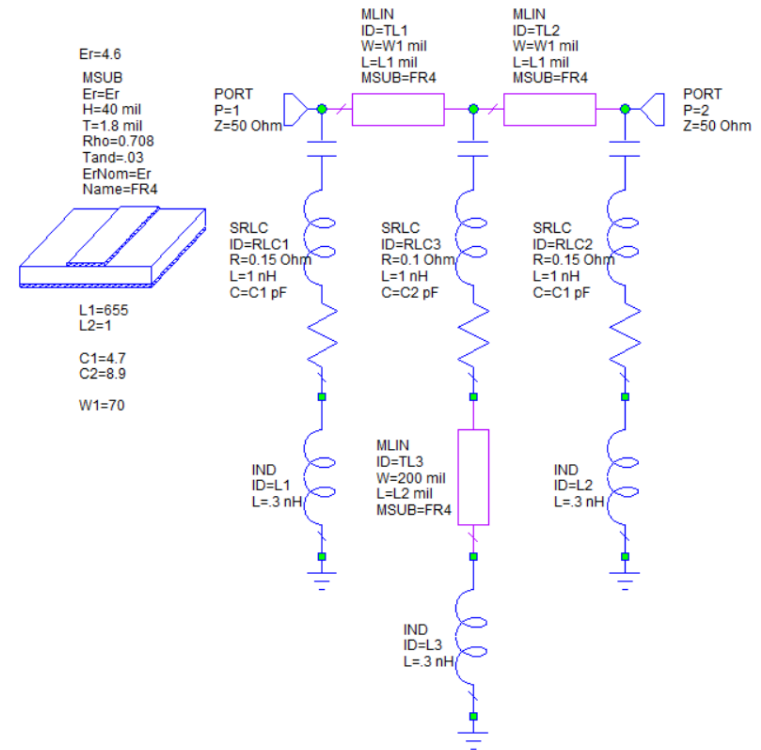
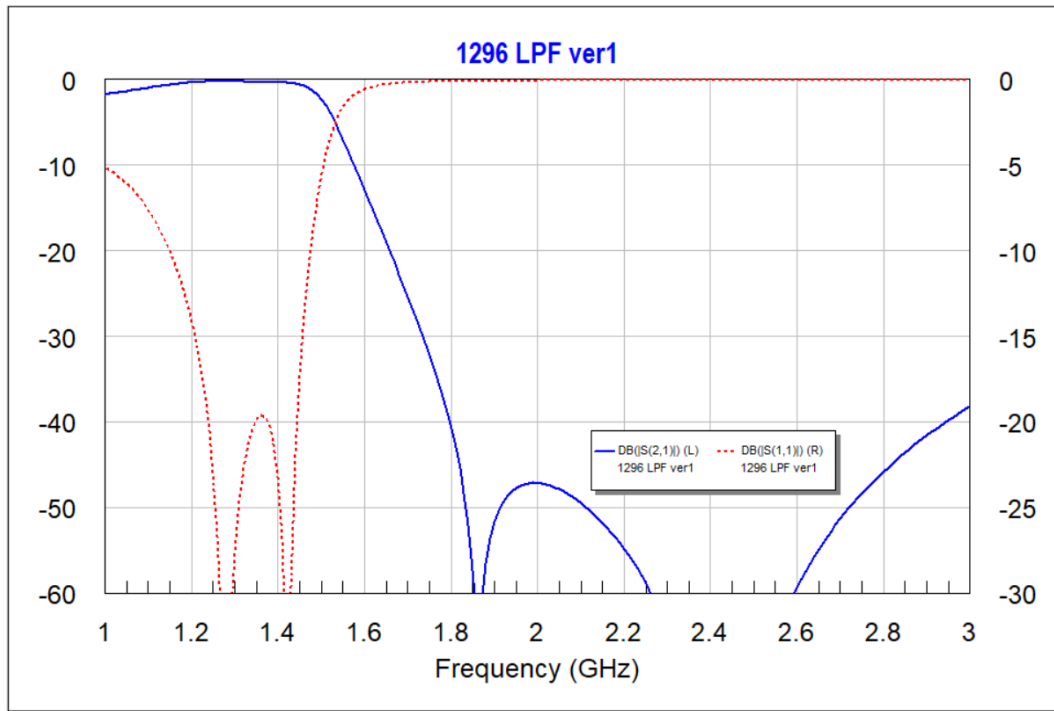
1294 MHz Filter - 2 Resonator



- Interdigital BPF on 40 mil FR4
- Gap = 25 mil, line width = 100 mil



1296 MHz LOWPASS FILTER



- Printed 5th order LPF on 40 mil FR4
- Line width = 70 mil

GERBER FILES

<https://groups.io/g/902-1296-weaksig/attachment/10/1/902%20MHz%20PA%20v2r0.zip>

<https://groups.io/g/902-1296-weaksig/attachment/9/0/1296%20MHz%20PA%20v2r0.zip>

