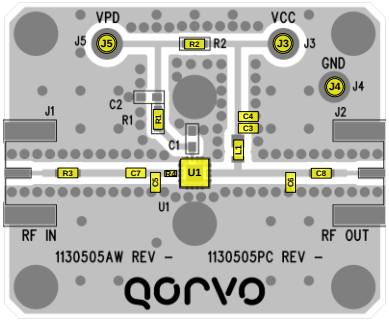
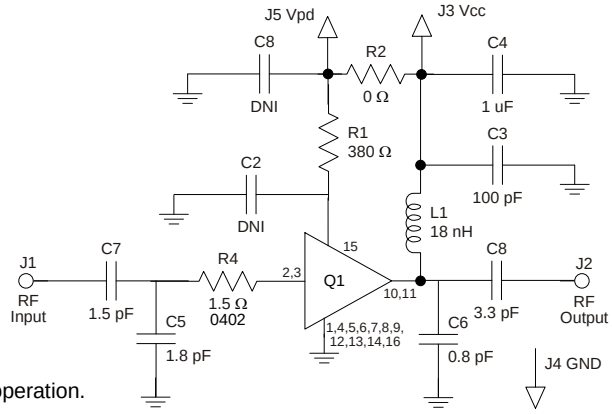
2110 – 2140 MHz Evaluation Board (QPA9119−PCB2140)





Notes:
1. See Evaluation Board PCB Information for material and stack up.
2. The recommended component values are dependent upon the frequency of operation.
3. All components are of 0603 size unless stated on the schematic.
4. Critical component placement locations:
   - Distance from U1 (left edge) to R4 (right edge): 32 mils (3.6 deg. at 2140 MHz)
   - Distance from U1 (left edge) to C5 (right edge): 70 mils (7.8 deg. at 2140 MHz)
   - Distance from U1 (left edge) to C7 (right edge): 152 mils (16.8 deg. at 2140 MHz)
   - Distance from U1 (right edge) to C8 (left edge): 380 mils (42.0 deg. at 2140 MHz)
   - Distance from U1 (right edge) to C6 (left edge): 305 mils (33.7 deg. at 2140 MHz)

Bill of Material QPA9119−PCB2140

Reference Des.	Value	Description	Manuf.	Part Number
n/a	n/a	Printed Circuit Board	Qorvo	
U1	n/a	QPA9119 Amplifier, QFN pkg.	Qorvo	QPA9119
R2	0 Ω	Resistor, Chip, 0603	various	
R4	1.5 Ω	Resistor, Chip, 0402, 1%, 1/16W	various	
R1	380 Ω	Resistor, Chip, 0603, 1%, 1/16W	various	
C3	100 pF	Cap., Chip, 0603, 5%, 50V, NPO/COG	various	
L1	18 nH	Inductor, 0805, 5%, Coilcraft CS Series	Coilcraft	0805CS-180XJLB
C7	1.5 pF	Cap., Chip, 0603, +/-0.1pF. 200V. NPO/COG	various	
C6	0.8 pF	Cap., Chip, 0603, +/-0.1pF. 200V. NPO/COG	various	
C8	3.3 pF	Cap., Chip, 0603, +/-0.1pF. 200V. NPO/COG	various	
C4	1.0 uF	Cap., Chip, 0603, 10%, 10V, X5R	various	
C5	1.8 pF	Cap., Chip, 0603, +/-0.1pF. 200V. NPO/COG	various	

Typical Performance QPA9119−PCB2140

Test conditions unless otherwise noted: V_{CC} = V_{PD} = +5V, I_{CQ} = 130 mA , I_{REF} = 7 mA , Temp.=+25 °C

Parameter	Conditions	Typical Value			Units
Frequency		2110	2140	2170	MHz
Gain		17.1	17.1	17.0	dB
Input Return Loss		13	14	14	dB
Output Return Loss		12	11	11	dB
Output P1dB		+27.4	+27.2	+27.1	dBm
OIP3	Pout= +13 dBm/tone, Δf=1 MHz	+43.5	+43.8	+43.6	dBm
LTE Channel Power(1)	−50 dBc ACLR	+18.2	+18.1	+18.4	dBm
Noise Figure		4.8	4.8	4.8	dB

Notes:
1. ACLR Test set-up: LTE, 1-CH E-UTRA, +20 MHz offset, PAR = 9.5 dB at 0.01% Probability