

# CA-344-13

BLF6G13L-250P at 960-1215 MHz

Rev. 3 — 05 October 2015

AMPLEON

Application Measurement  
Report

## Document information

Info	Content
<b>Keywords</b>	BLF6G13L-250P, AB, Pulse
<b>Abstract</b>	RF Performance BLF6G13L-250P,960-1215MHz; Board 2460

## Revision history

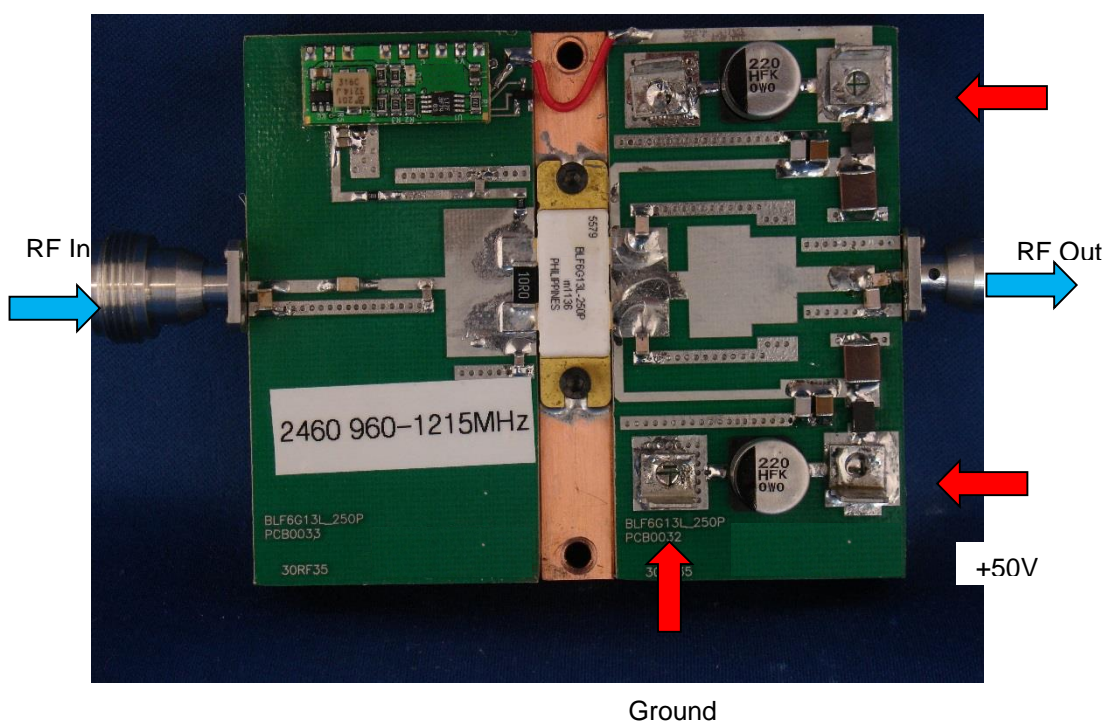
Rev	Date	Description
1	20131003	Original
2	20150424	Update for web publication
3	20151005	The format of this document has been redesigned to comply with the new identity guidelines of Ampleon. Legal texts have been adapted to the new company name where appropriate.

## 1. Demo and Transistor Details

Frequency Band	960-1215MHz
Modulation	Pulsed 40uSec 4%,
Transistor	BLF6G13L-250P
Date Code	M1136
Board Number	2460

## 2. Introduction

This report gives the test results for a BLF6G13L-250P, 350W, LDMOS, class AB demo amplifier.



The following tests have been performed:

- NWA - Gain/ Return loss (CW)
- Pulsed Peak Power sweep

All testing has been performed at  $V_{DS} = 50V$ ,  $I_{DQ} = 100mA$ , and  $T_H = 25^\circ C$  unless otherwise specified.

### 3. Test Circuit

A description of this circuit can be found in **chapter 0**. The test circuit has been designed on Taconic RF35 30mil  $\epsilon_r=3.5$

Supply voltage (drain-source) is typically 50V. An external bias module supplies the gate bias voltage and can be found in CA-330-11.

### 4. RF Performance

Frequency (MHz)	Gain (dB)	Eff(%)	$P_{3dB}$ (dBm)	$P_{PEAK}(W)$	$\eta_{pk}(\%)$
	@ Pout= 100W (50dBm)				
960	14.76	24.76	55.91	389.942	42.74
1010	16.37	28.04	56.14	411.1497	46.91
1060	16.21	29.09	56.28	424.6195	49.8
1088	15.84	29.42	56.2	416.8694	49.57
1110	15.54	28.74	56.13	410.2041	47.97
1160	15.24	27.56	55.9	389.0452	45.42
1210	15.45	29.33	55.01	316.9564	42.7
1215	15.5	30.36	54.75	298.5385	42.23

**Table 1. RF Performance Summary  $V_{ds} = 50V$ ,  $I_{dq} = 100mA$ , Pulsed 40usec 4% duty cycle**

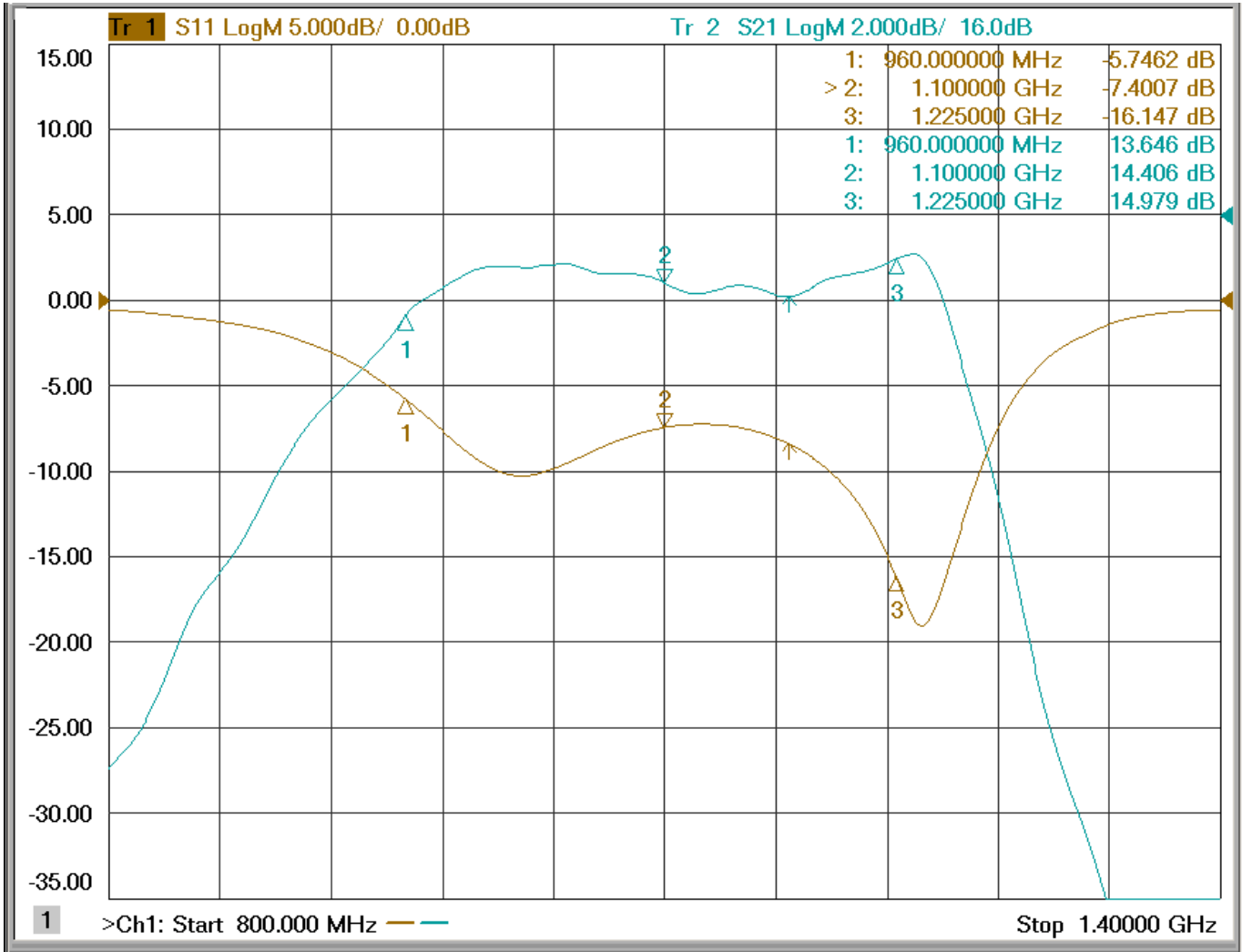


Fig 1. Gain RL pin = 34dBm, pulsed 10%, Vd=50V, Idq=100mA

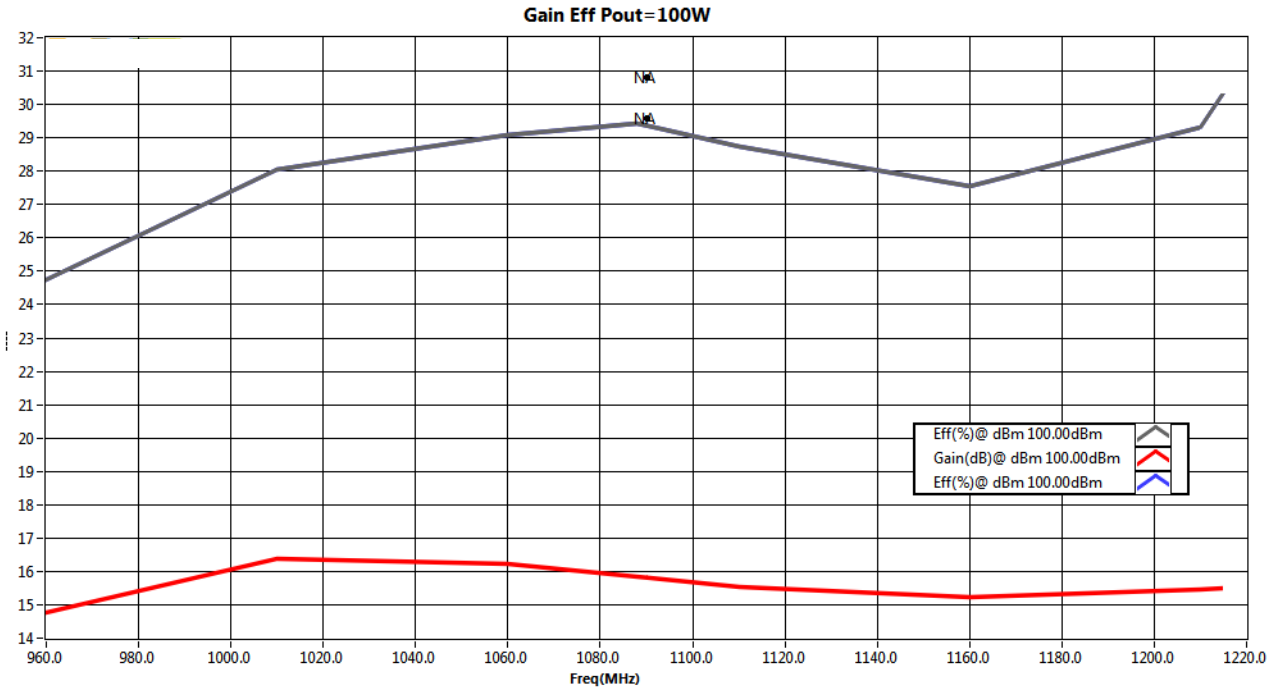


Fig 2. Gain and efficiency at Pout = 50dBm, Vd=50V, Idq=100mA

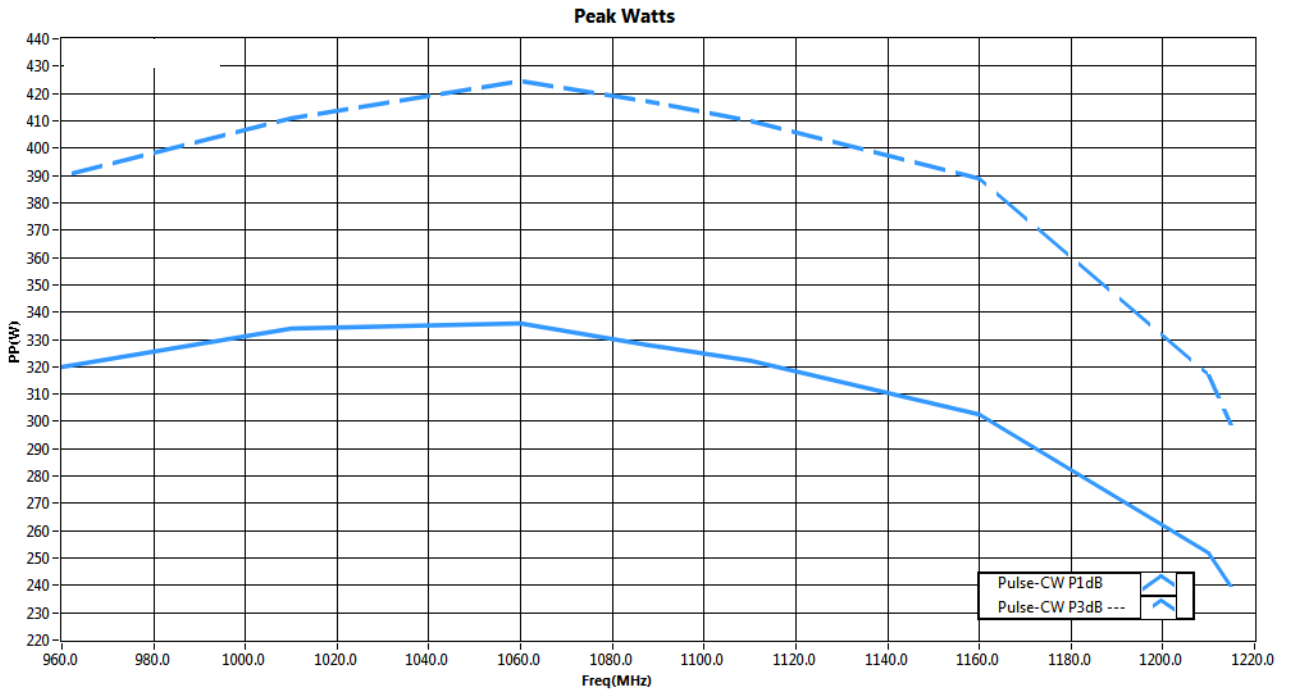


Fig 3. Peak Power / P1dB, Vd=50V, Idq=100mA

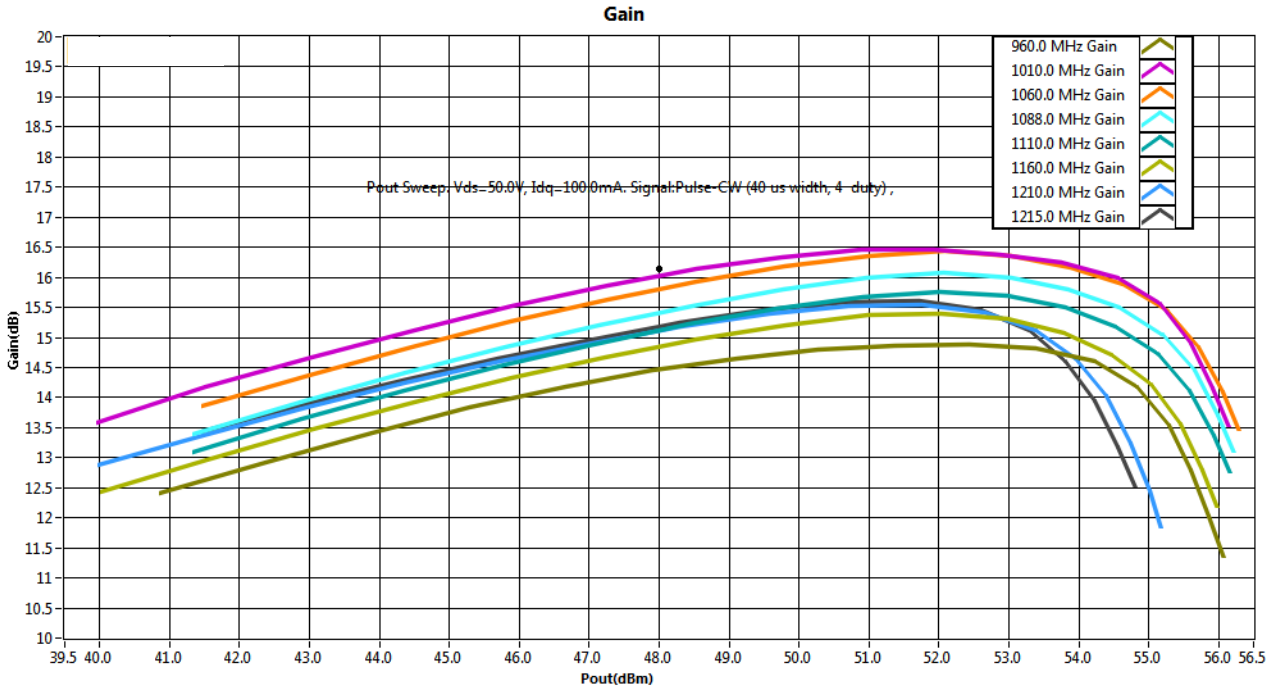


Fig 4. Gain vs Pout, Vd=50V, Idq=100mA

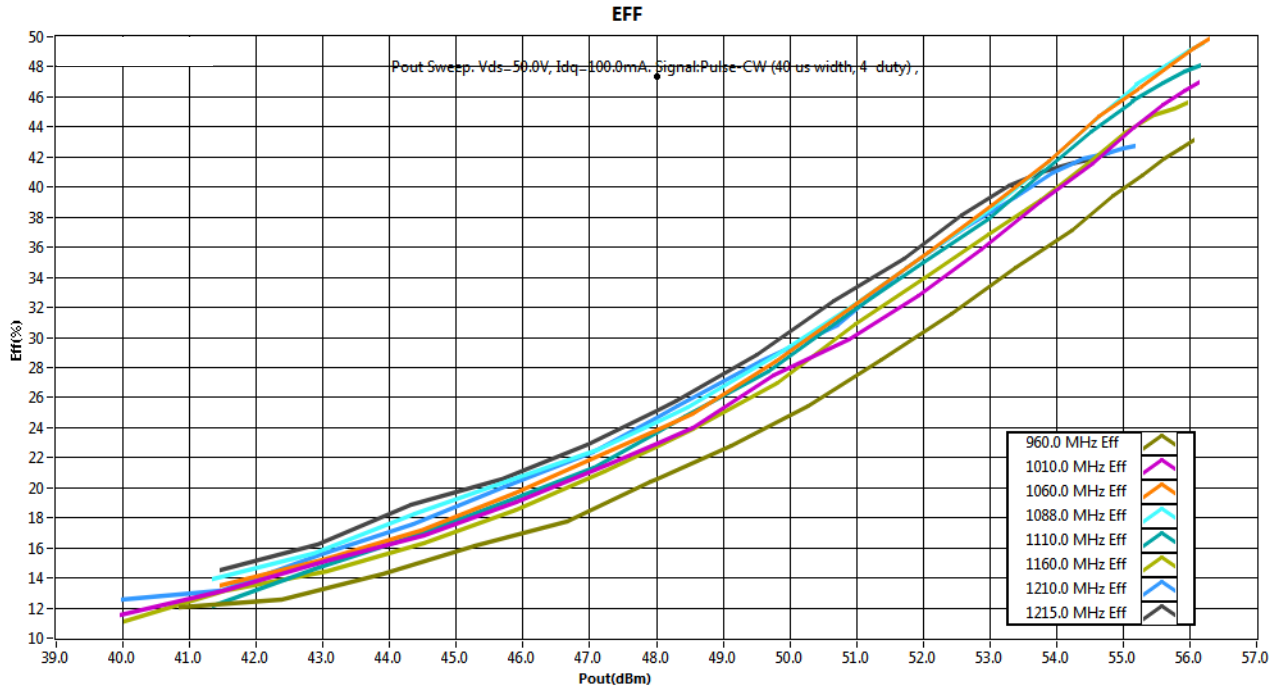


Fig 5. EFF, VDS = 50V, Idq = 100mA, Pulsed 40uSec 4% duty

5. Test Circuit and Component List

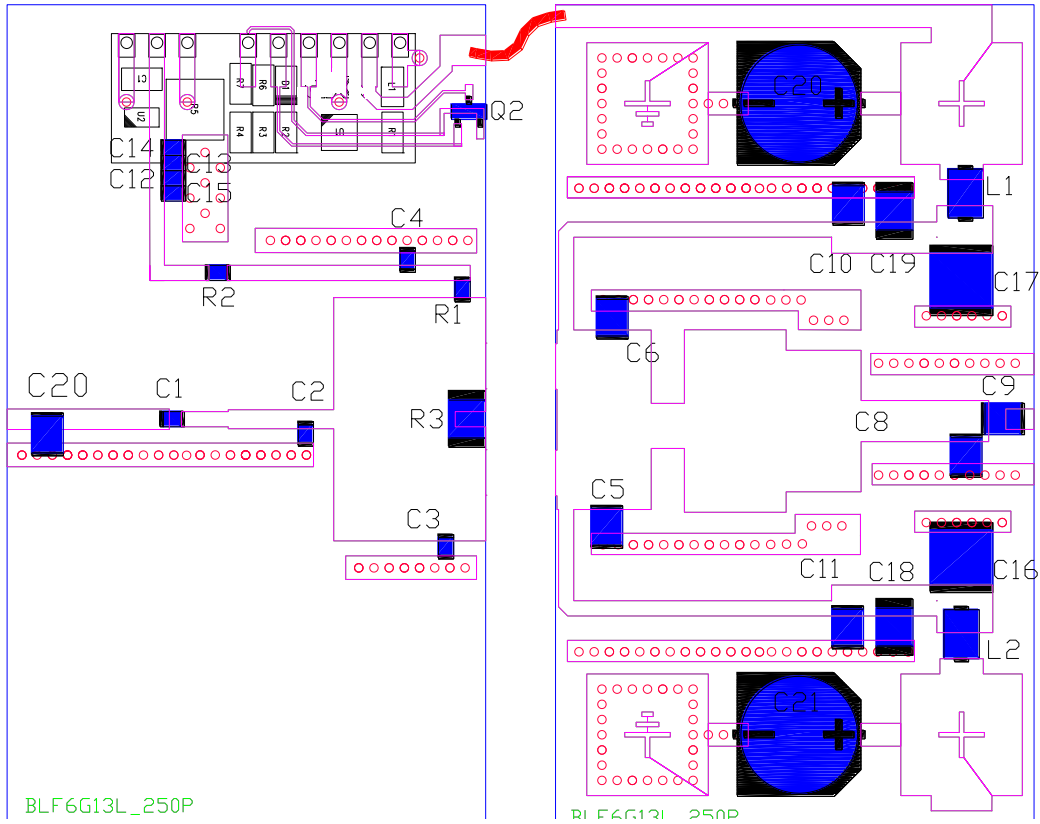


Fig 6. Test Circuit



Designator	Description	Manufacturer	Part #
Input PCB	BLF6G13L_250P	Avanti	PCB0033 Input Rev0
Output PCB	BLF6G13L_250P	Avanti	PCB0032 Output Rev0
Q1	250W LDMOS	Ampleon	BLF6G13L-250P
Q2	Transistor, NPN 2N222	NXP	BC847
R1,R2	5.1Ω	Vishay Dale	0805
R3	10Ω	Vishay Dale	2512
C20,C21	220uF	Panasonic	PCE3474CT-ND
C1	4.7pF	Passive Plus/ATC	1111N/100B
C2	6.8pF	Passive Plus	0805N
C3	8.2pF	Passive Plus	0805N
C4	18pF	Passive Plus	0805N
C9	12pF	Passive Plus/ATC	1111N/100B
C13	22pF	Passive Plus	0805N
C5	10pF	Passive Plus	1111N
C6	9.1pF	Passive Plus	1111N
C8	2.2pF	Passive Plus	1111N
C10,C11	56pF	Passive Plus	1111N
C22	2.2pf	Passive Plus/ATC	1111N/100B
C15	100nF Capacitor, 50V 10% X7R, 0805	Generic	
C12	10nF Capacitor, 50V 10% X7R, 0805	Generic	
C14	1nF Capacitor, 100V 5% NP0, 0805	Generic	
C18,C19	2.2uF Capacitor, 100V, 1210	Murata	GRM32ER72A225KA35L
C16,C17	10uF Capacitor, 100V 10% X7S, 2220	TDK	C5750X7S2A106M
L1,L2	Ferrite bead, 10A		
PC-board Material: Taconic RF35A, $\epsilon_r = 3.5$ , thickness 30mils, 1oz copper each side			

Table 2. BOM

## 6. Attachments

Please see the attachment for the support files.

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**8. Contents**

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1. **Demo and Transistor Details..... 3**  
 2. **Introduction ..... 3**  
 3. **Test Circuit..... 4**  
 4. **RF Performance..... 4**  
 5. **Test Circuit and Component List ..... 8**  
 6. **Attachments..... 9**  
 7. **Legal information ..... 10**  
 7.1 Definitions ..... 10  
 7.2 Disclaimers..... 10  
 7.3 Trademarks ..... 10  
 7.4 Contact information ..... 10  
 8. **Contents..... 11**

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