

CA-294-12

BLA6H0912L-1000 at 900-1250 MHz

Rev. 3 — 05 October 2015

AMPLEON

Application Measurement
Report

Document information

Info	Content
Keywords	BLA6H0912L-1000, AB, Pulse
Abstract	RF Performance BLA6H0912L-1000; 900-1250MHz; Board 2119

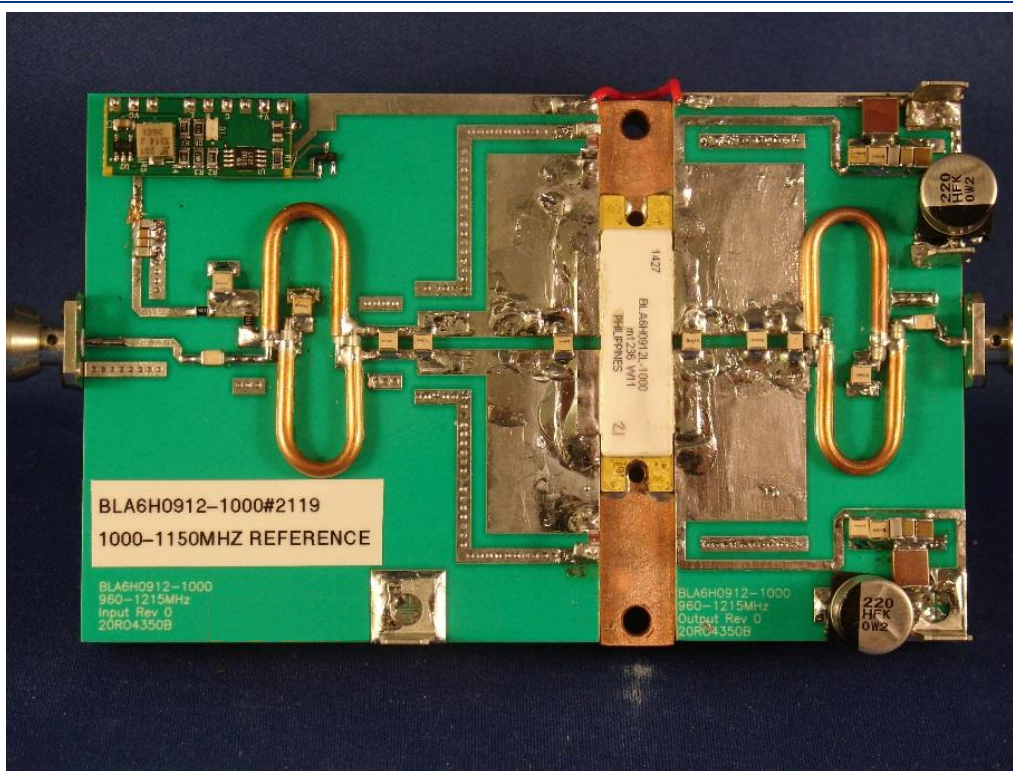
Revision history

Rev	Date	Description
1	20121113	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	900-1250 MHz
Modulation	Pulsed 50uSec 5%, Pulsed 10uSec 1%
Transistor	BLA6H0912L-1000
Date Code	M1236
Board Number	2119

2. Introduction



This report gives the test results for a BLA6H0912L-1000, 1000W, LDMOS, push-pull class AB demo amplifier.

The following tests have been performed:

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

All testing has been performed at $V_{DS} = 50V$, $I_{DQ} = 500mA$, and $T_H = 25^{\circ}C$ unless otherwise specified

3. Test Circuit

A description of this circuit can be found in **chapter 5**. The test circuit has been designed on Taconic RF35 30mil er=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)
	@ Pout= 800W (59dBm)				
900	14.2		34	60.6	1150
950	15.2		36	60.5	1125
1000	15.7		37	60.6	1140
1050	15.9		40	60.8	1215
1100	16.1		45	60.8	1190
1150	15.5		47	60	980
1200	NA		NA	58.7	740
1250	NA		NA	57.5	560

Table 1. RF Performance Summary Vds = 50V, Idq = 500mA, Pulsed 50usec 5% duty cycle

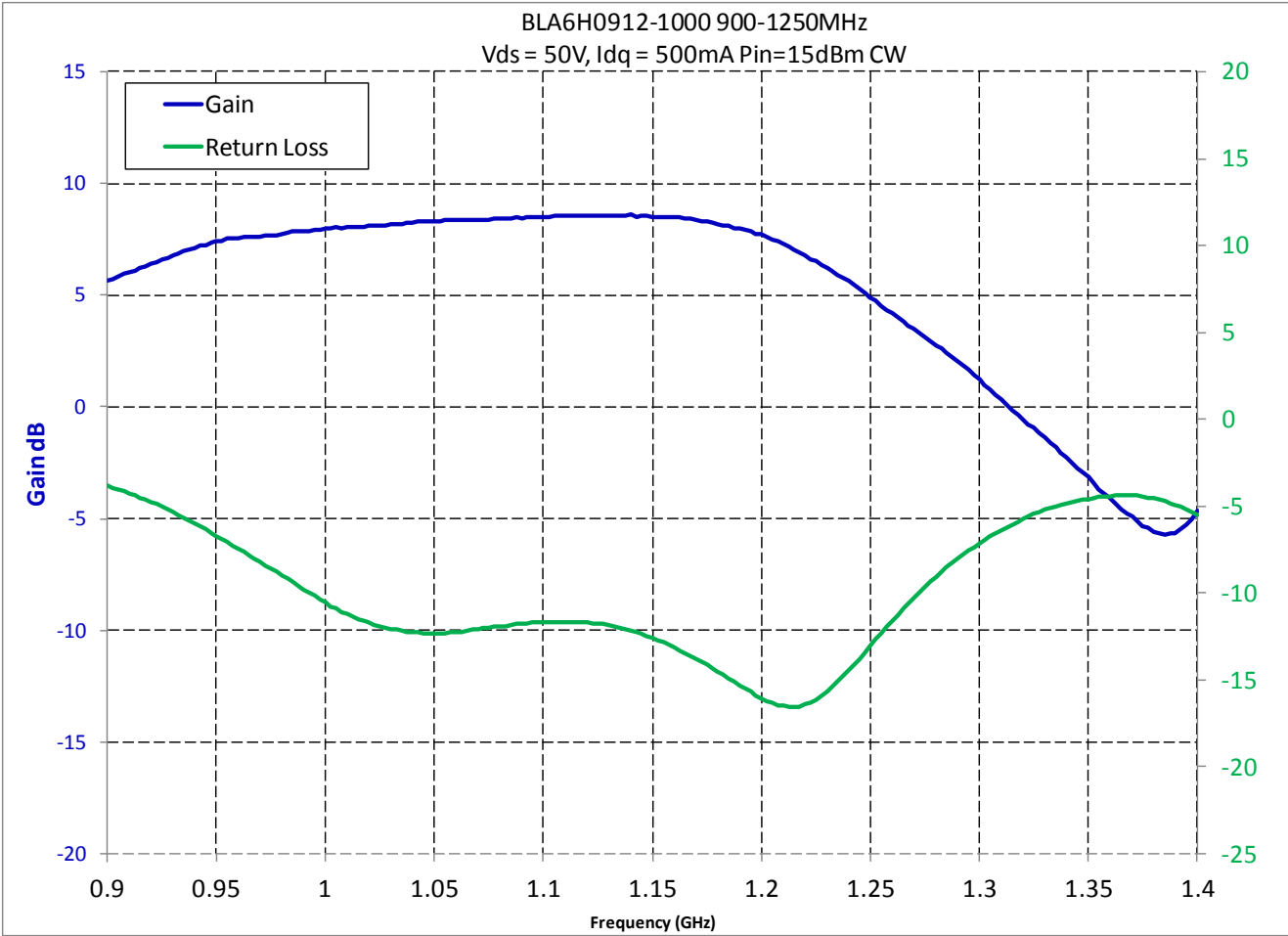


Fig 1. Gain RL pin = 15dBm CW

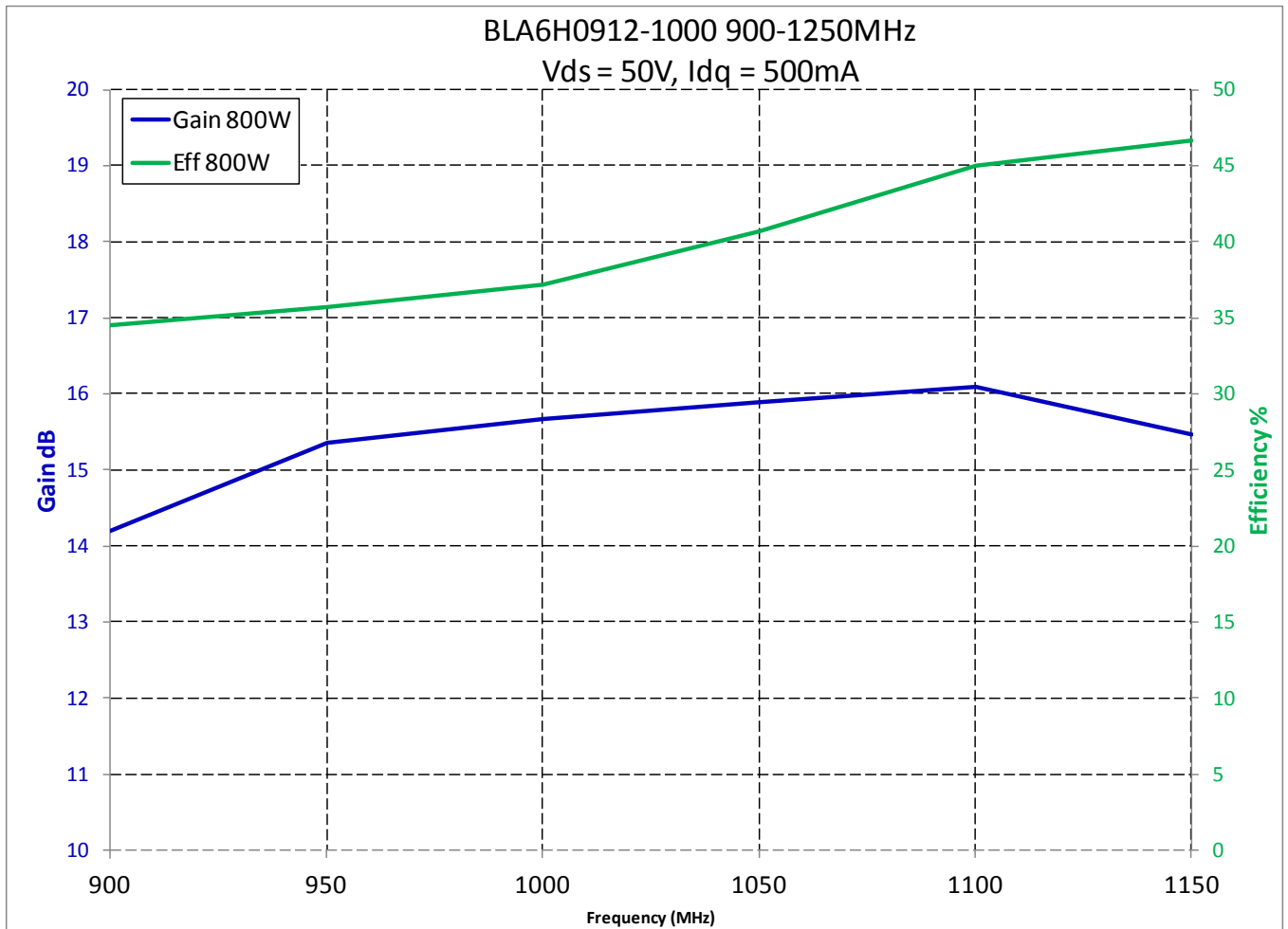


Fig 2. Gain and efficiency at Pout = 800W

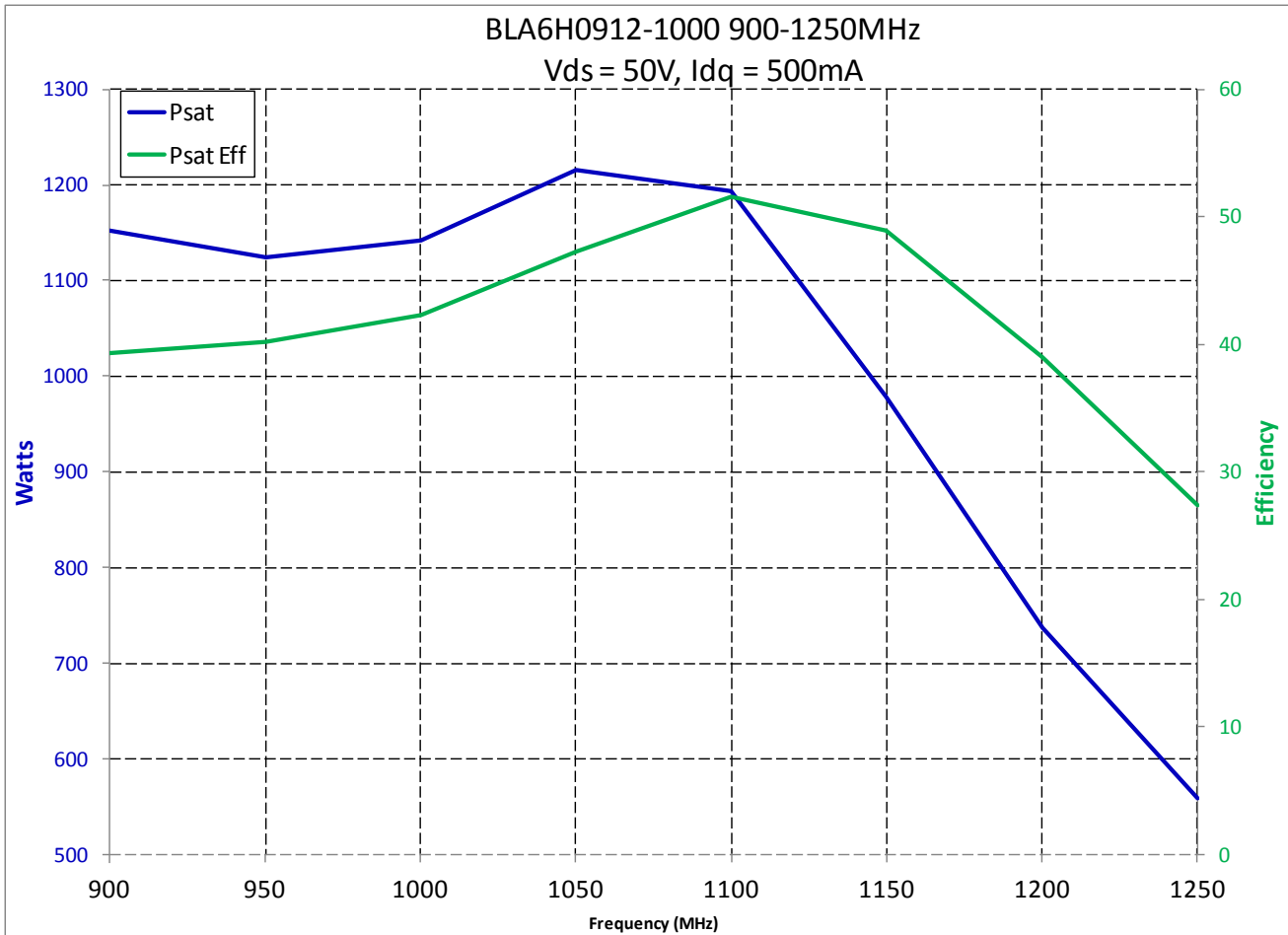


Fig 3. Peak Power / peak efficiency Pulsed 50usec 5% duty cycle

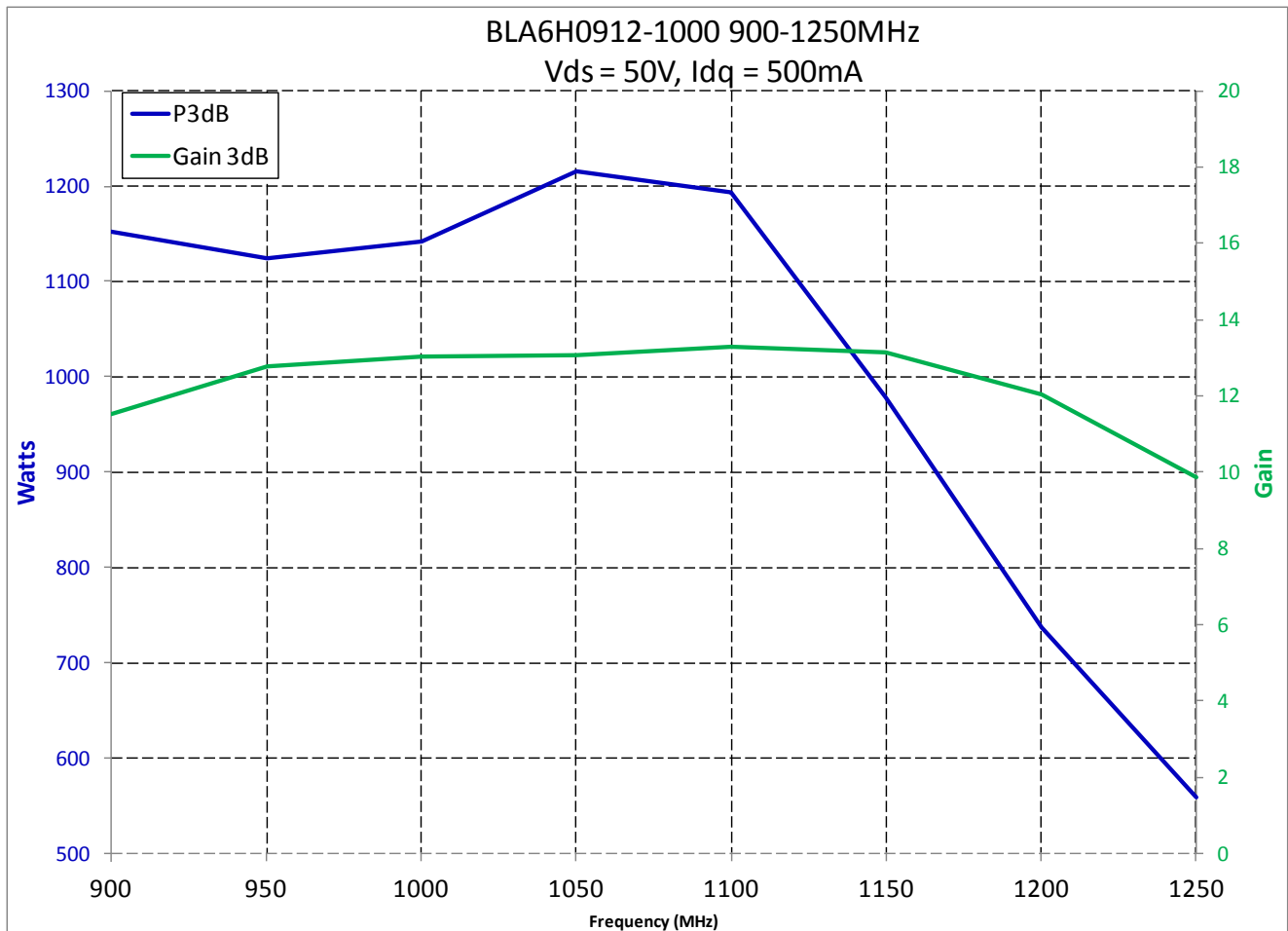


Fig 4. Gain and Psat Pulsed 50usec 5% duty cycle

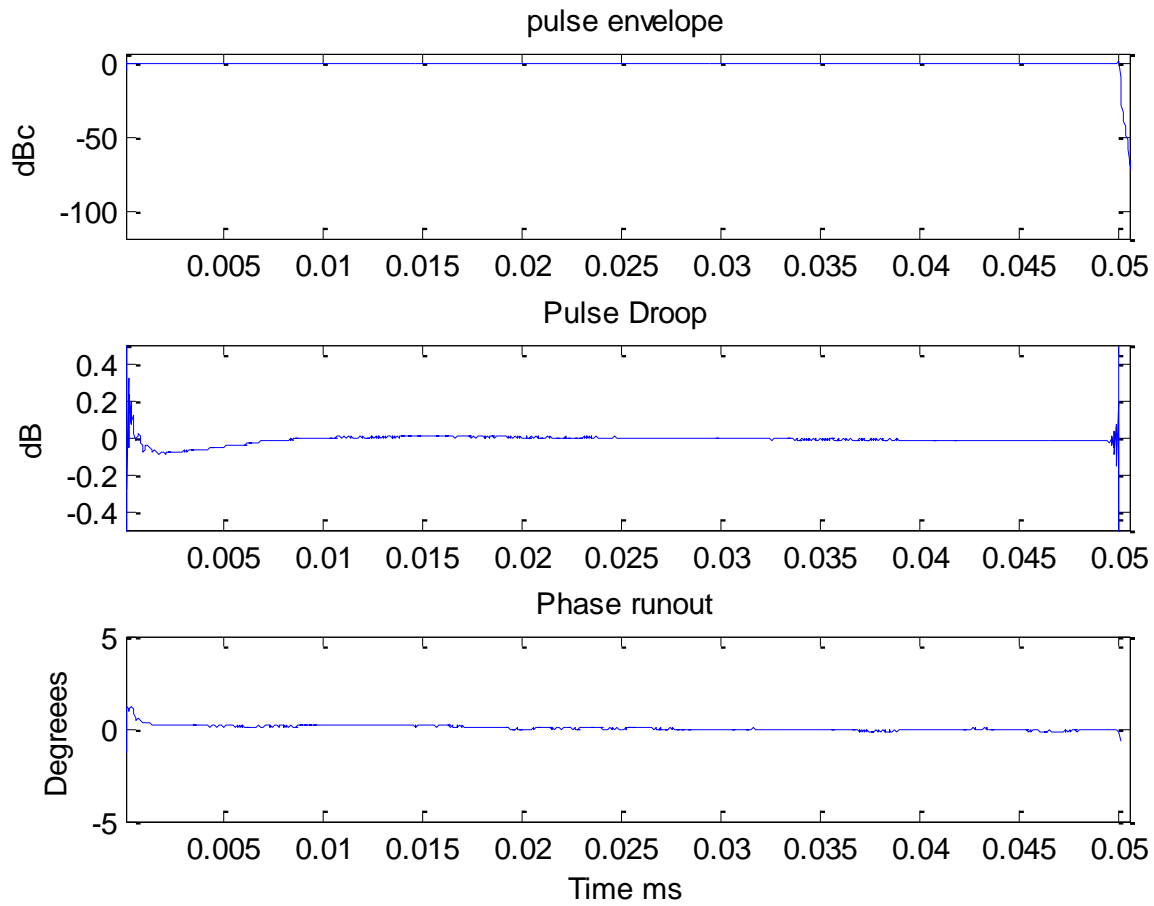


Fig 5. Pulse profile – 1.05GHz 1000W

5. Test Circuit and Component List

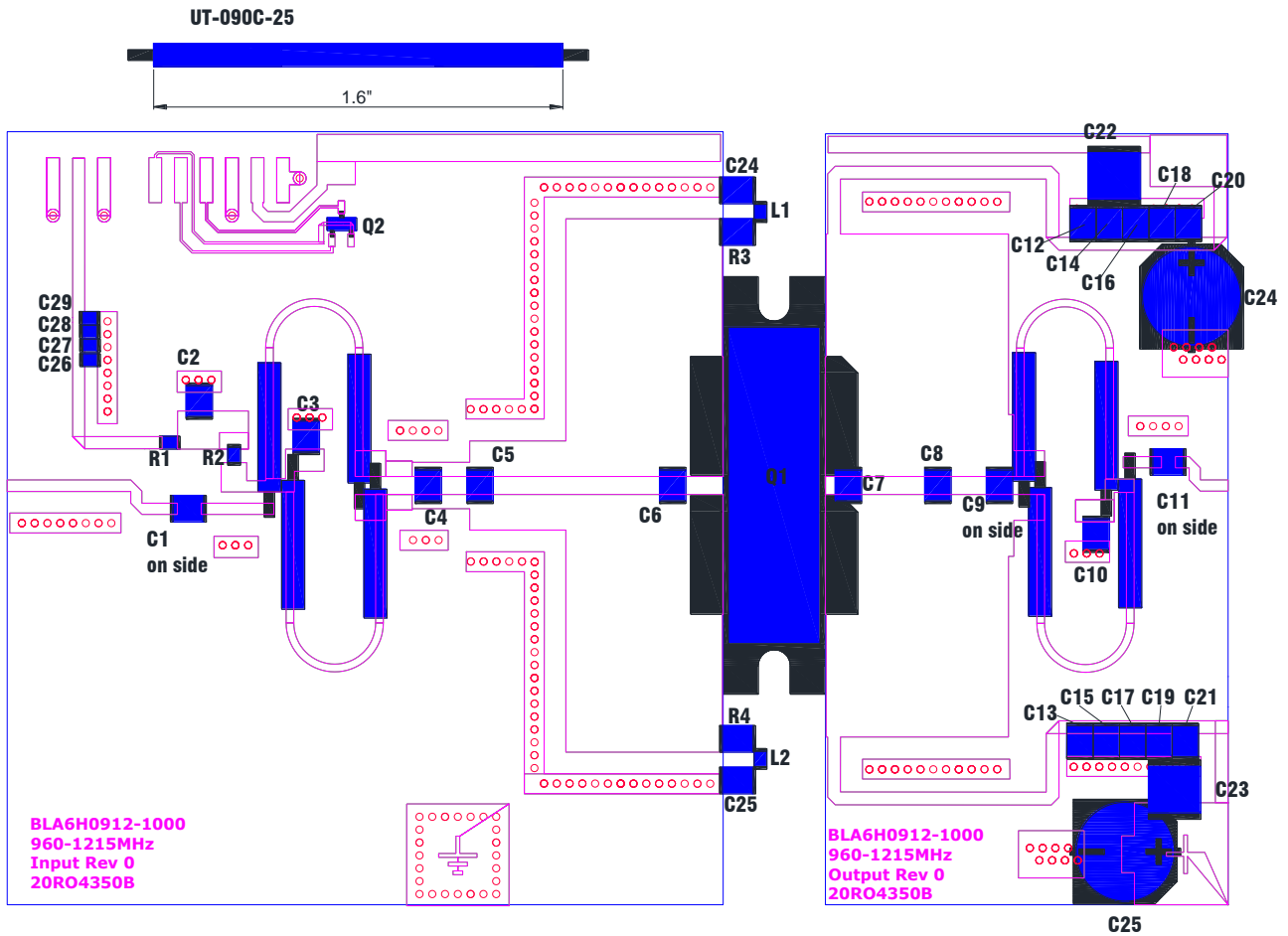


Fig 6. Test Circuit

Designator	Description	Manufacturer	Part #
Input PCB	BLA6H0912-1000 960-1215 Rev 0	Avanti	
Output PCB	BLA6H0912-1000 960-1215 Rev 0	Avanti	
Q1	1000W LDMOS	Ampleon	BLA6H0912L-1000
Q2	Transistor, NPN 2N2222	NXP	BC847
R1,,R2	5.1Ω	Vishay Dale	0805
R3,R4	10Ω	Vishay Dale	2010
C24,C25	220uF, Electrolytic SM	Panasonic	PCE3474CT-ND
C1,C2	56pF	Passive Plus / ATC	1111P / 100B
C3	20pF	Passive Plus / ATC	1111P / 100B
C4	4.3pF	Passive Plus / ATC	1111P / 100B
C5	3.9pF	Passive Plus / ATC	1111P / 100B
C6	3.6pF	Passive Plus / ATC	1111P / 100B
C7,C8	8.2pF	Passive Plus / ATC	1111P / 100B
C9	5.1pF	Passive Plus / ATC	1111P / 100B
C10	33pF	Passive Plus / ATC	1111P / 100B
C11	68pF	Passive Plus / ATC	1111P / 100B
C12,C13	56pF	Passive Plus / ATC	1111P / 100B
C14,C15	1000pF	Passive Plus / ATC	1111P / 100B
C16,C17	10nF	TDK	C3225C0G2E103J
C18,C19	100nF	Murata	GRM31CR72E104KW03L
C20,C21	2.2uF	Murata	GRM32ER72A225KA35L
C22,C23	10uF Capacitor, 100V 10% X7S, 2220	TDK	C5750X7S2A106M
C24,C25	4.7uF	TDK	C4532X7R1H475M
C26	22pF	Passive Plus / ATC	0805N/ 600F
C27	100nF Capacitor, 50V 10% X7R, 0805	Generic	
C28	10nF Capacitor, 50V 10% X7R, 0805	Generic	
C29	1nF Capacitor, 100V 5% NP0, 0805	Generic	
L1,L2	15nH	Coil Craft	0805CS
Balun	1.6" x 4	Microcoax	UT-090C-25
PC-board Material: Rogers4350B, ε _r = 3.48 , thickness 20mils, 1oz copper each side			

Table 2. BOM

6. Attachments

Please see the attachment for the support files.

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