

AR181126

BLA9H0912L(S)-700, 1030 to 1090MHz

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AMPLEON

Application
Report

Document information	
Status	Company confidential
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Abstract	Measurement results of a Class-AB design for the 1030 to 1090MHz band (TACAN) with the BLA9H0912L(S)-700

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20180829	Initial document	Hans Mollee

2. Contents

- 1. Revision History 2
- 2. Contents 2
- 3. List of figures 2
- 4. List of tables 2
- 5. General description 2
- 6.1 Performance Details 3
- 7 Hardware 7
- 6. Legal information..... 9
 - 6.1 Definitions 9
 - 6.2 Disclaimers 9
 - 6.3 Trademarks 9
 - 6.4 Contact information..... 9

3. List of figures

- Figure 1 P_{LOAD} vs P_{IN} 4
- Figure 2 Gain vs P_{LOAD}..... 4
- Figure 3 Drain efficiency vs P_{LOAD}..... 5
- Figure 4 Compression curve..... 6
- Figure 5: Performance at P_{LOAD}= 700W 6
- Figure 6: Compression level. 6

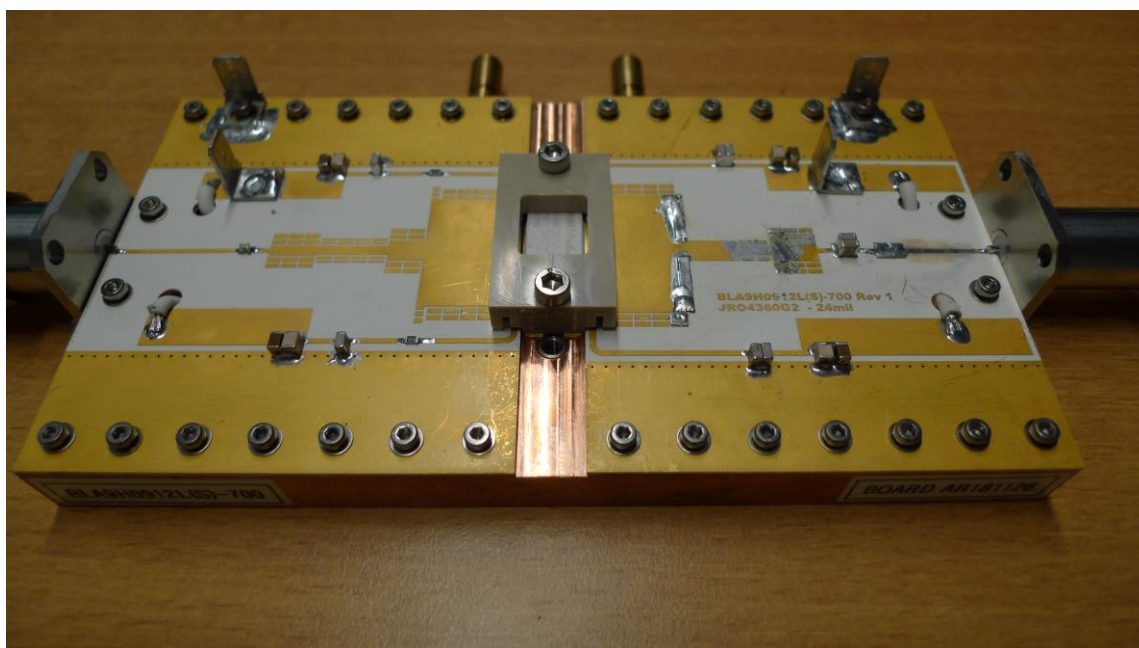
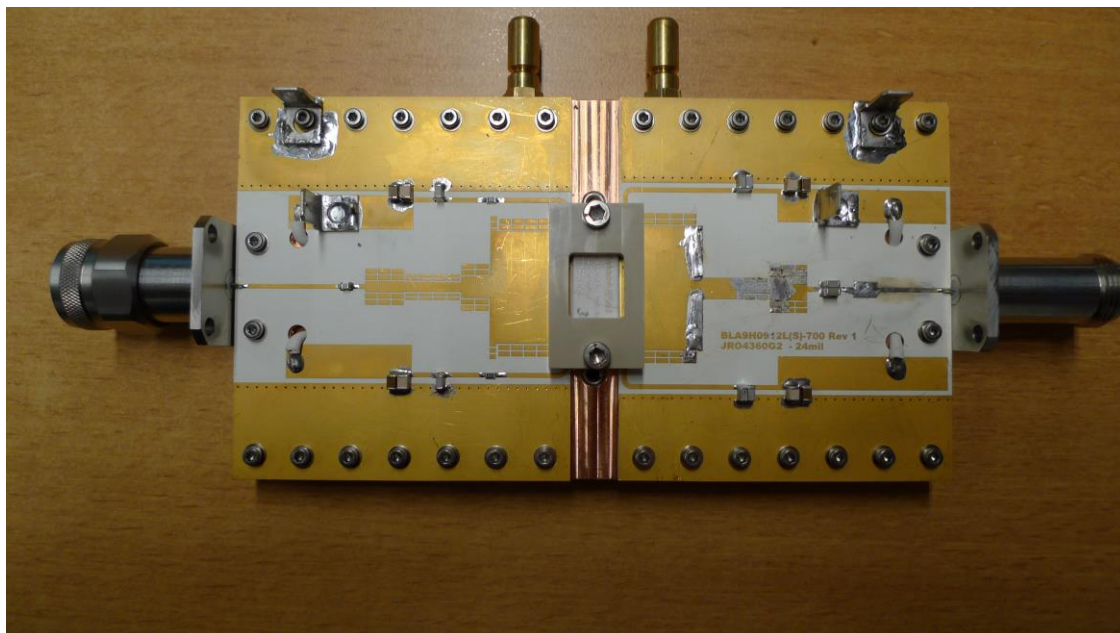
4. List of tables

- Table 1: ... Report revisions 2
- Table 2: ... Board specifications 8
- Table 3: ... Device specifics 8

5. General description

This report presents the measurement results of the Class-AB demo AR181126. The device used is a BLA9H0912L(S)-700, 9th generation LDMOS in a ceramic SOT502-package. The demo is designed for the frequency band 1030 to 1090MHz

The PCB has been designed on Rogers RO4360G2, $h=0.61\text{mm}$, $\epsilon_R=6.15$, 35um double sided copper. Supply voltage (drain-source) is 50V. The gate bias voltage is connected to the V_g terminals on the input board. To set the drain quiescent current, slowly increase V_{GS} until the I_{DQ} will be 100 mA, starting at about 1V. In this report tuning options are presented for TACAN applications.



6.1 Performance Details

The power sweep was performed up to 3 dB gain compression.

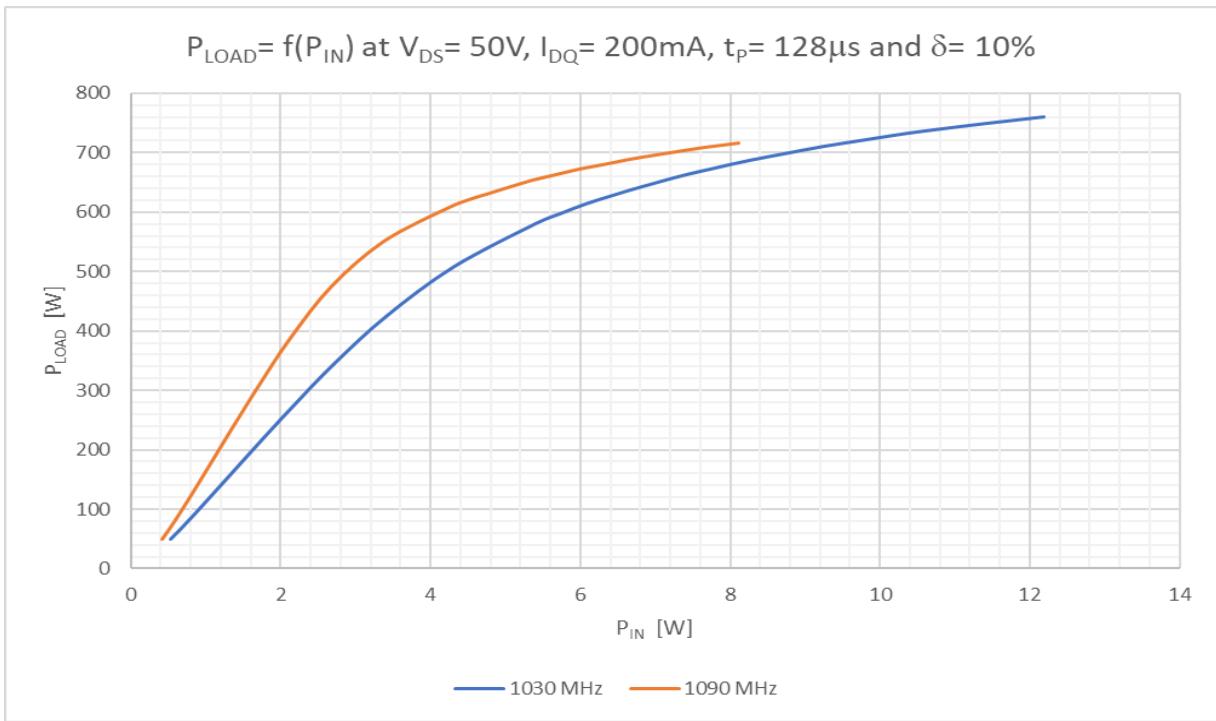


Figure 1 P_{LOAD} VS P_{IN}

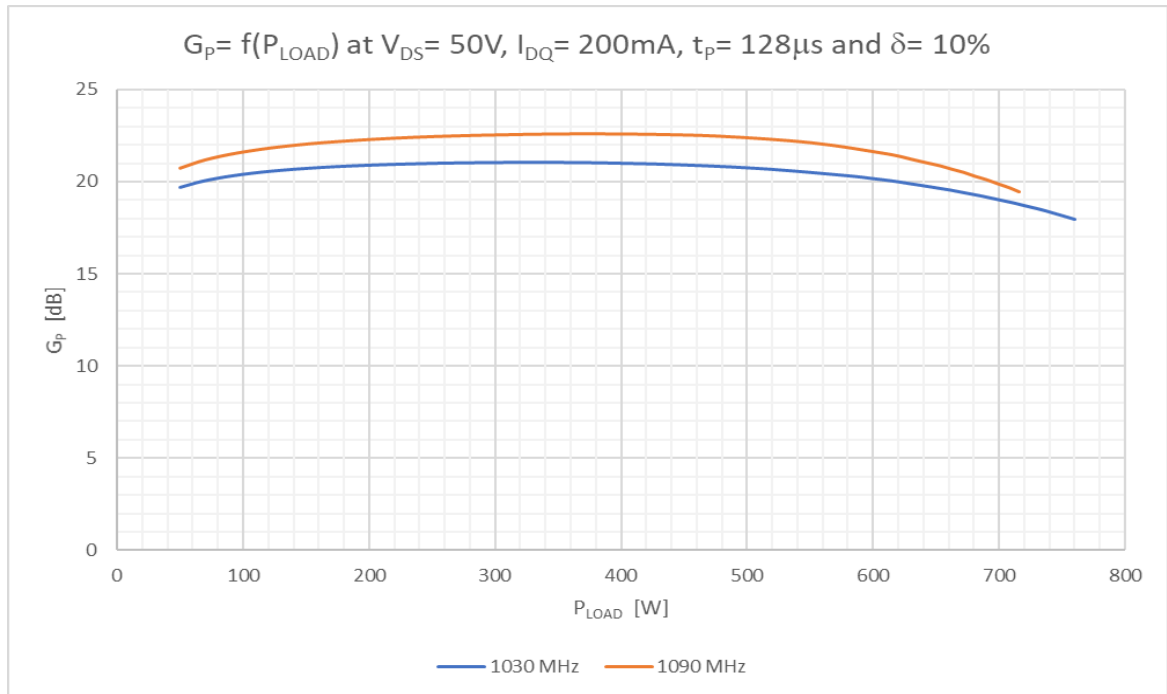


Figure 2 Gain vs P_{LOAD}

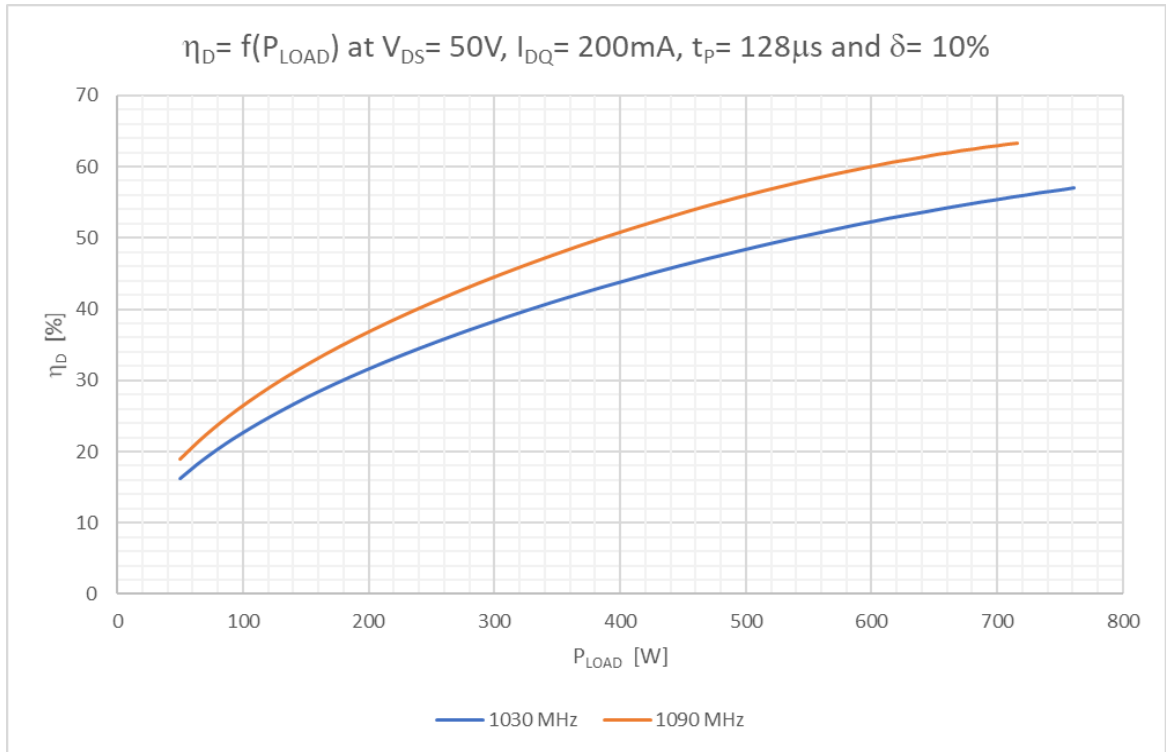


Figure 3 Drain efficiency vs PLOAD

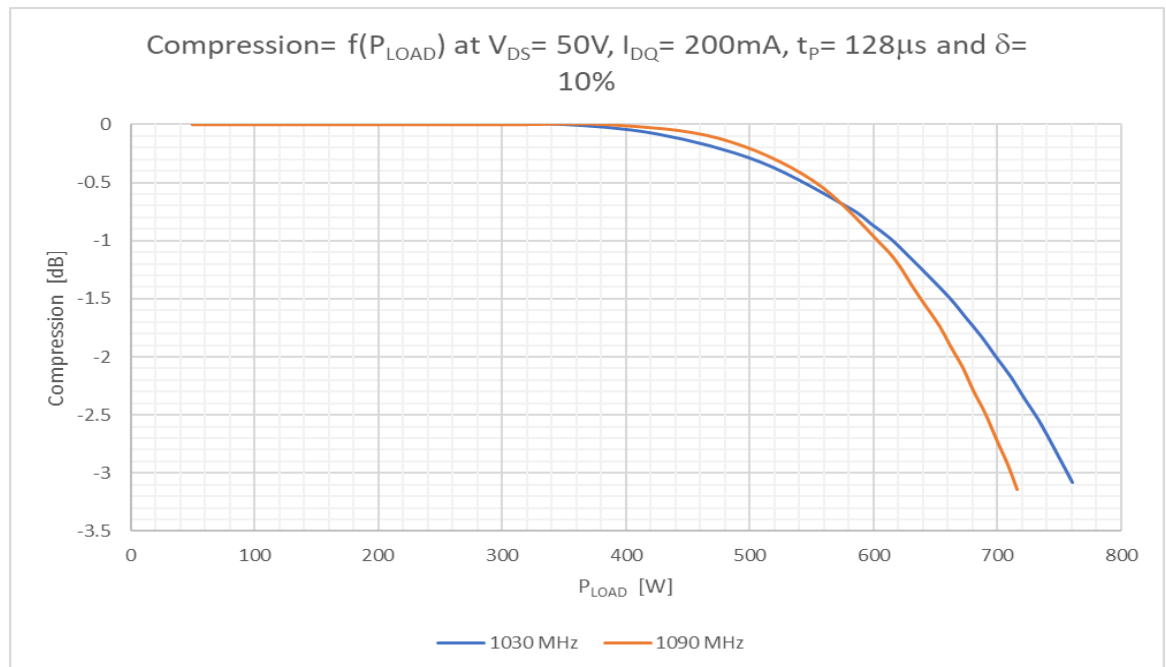


Figure 4 Compression curve

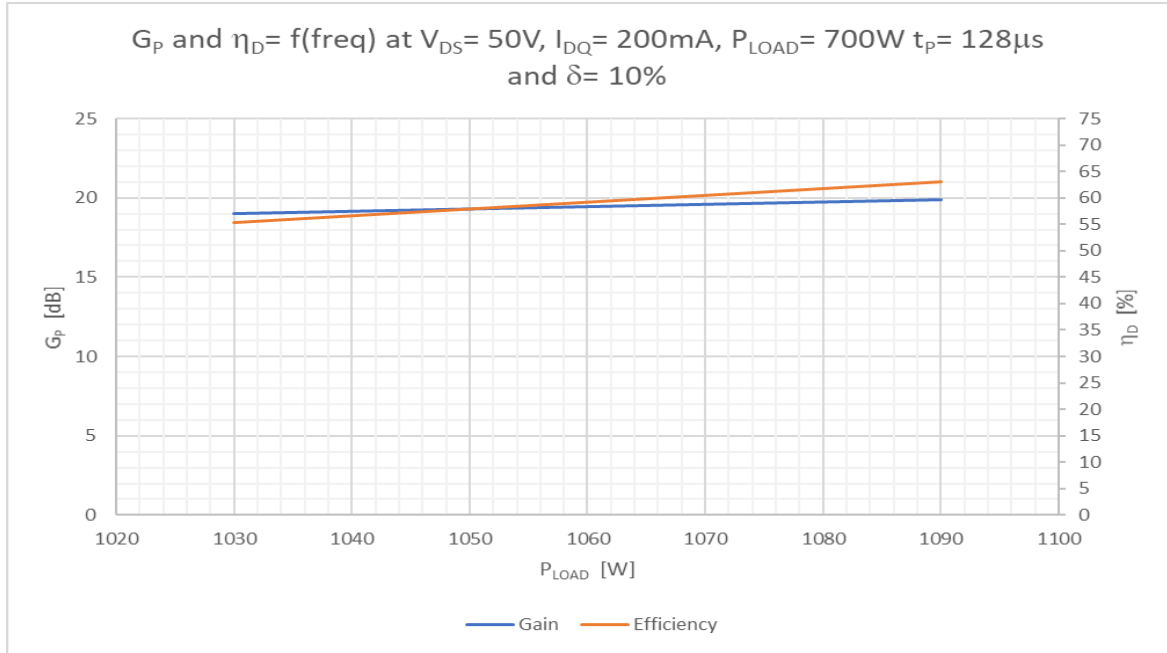


Figure 5: Performance at $P_{LOAD} = 700W$.

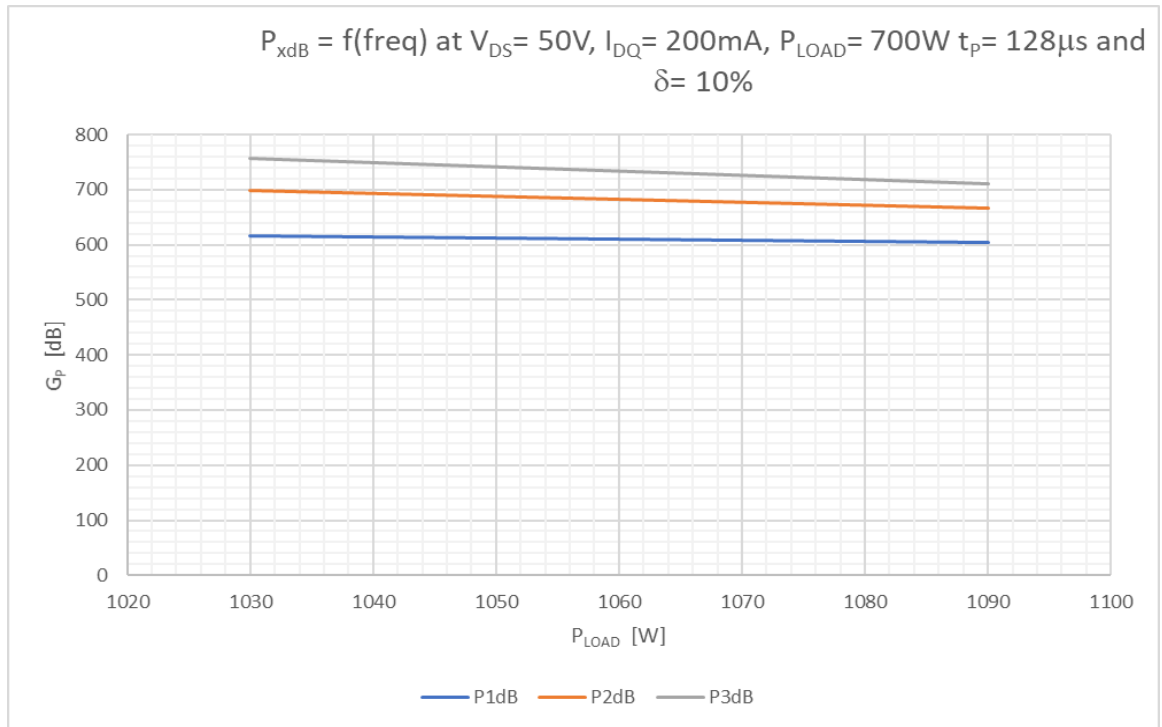
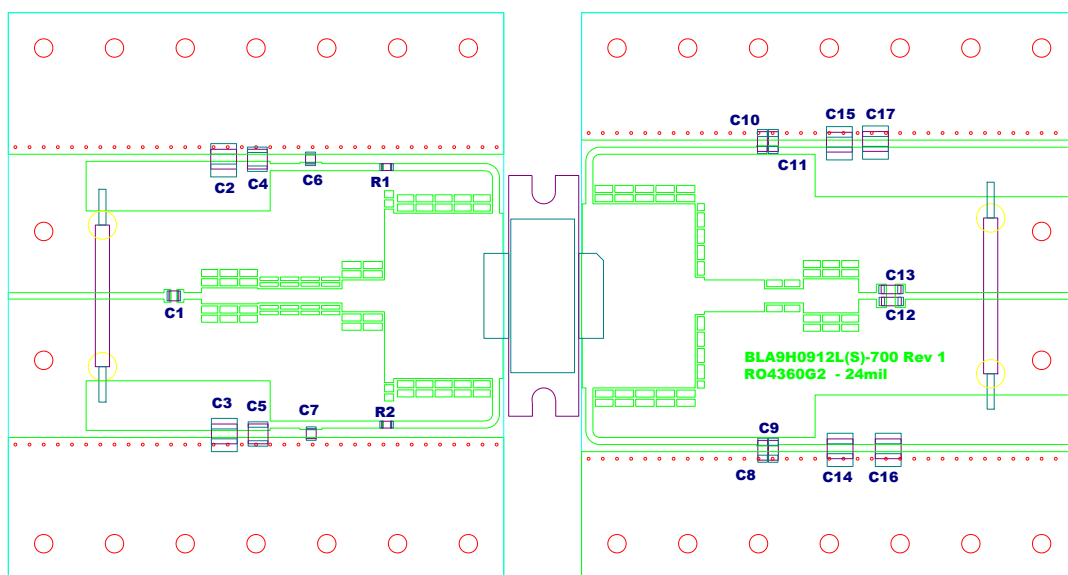


Figure 6: Compression level.

7 Hardware



Components list application circuit.

C1	62 pF	ATC100A
C6, C7	200 pF	ATC800B
C8, C9, C10, C11, C12, C13	68 pF	ATC800B
C4, C5, C14, C15	1 nF	ATC100B
C2, C3, C16, C17	4.7 μ F – 100V	GMR42 258K7S 475K 100 H53
C30, C31	100 μ F	63 V, Electrolytic capacitor
R1, R2	5.1 Ω	0603 SMD Resistor

PCB Material: Rogers 4360G2, thickness 0.61 mm (24 mil) or equivalent, $\epsilon_R = 6.15$, Cu = 35 micron

Table 2: Board specifications

Parameter	Value
Manufacturer	Rogers
Type	RO4360G
Thickness	24 mil, 0.61 mm
Layers	2, top/bottom. Bottom all copper

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLA9H0912L(S)-700
Marking	BLA9H0912L(S)-700, RFA D183051
Comments	Engineering sample

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