AR181082

BLA9H0912L(S)-1200P, 960 to 1215MHz

v1.0 — 23 July 2018

AMPLEON

Application Report

Document information	
Status	Company Public
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Abstract	Measurement results of a Class-AB design for the 960 to 1215MHz band with the BLA9H0912L(S)-1200P

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20180723	Initial document	Hans Mollee

2. Contents

3. List of figures

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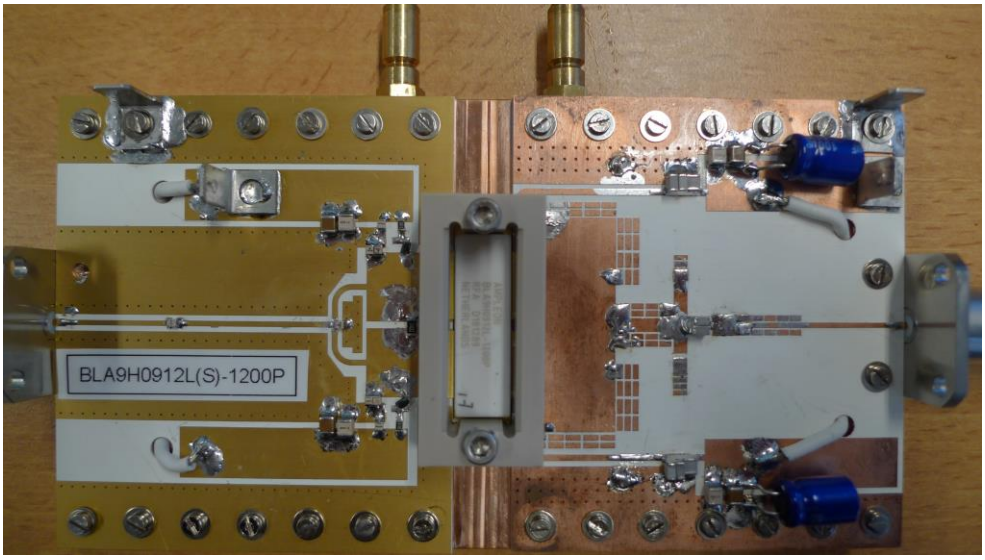
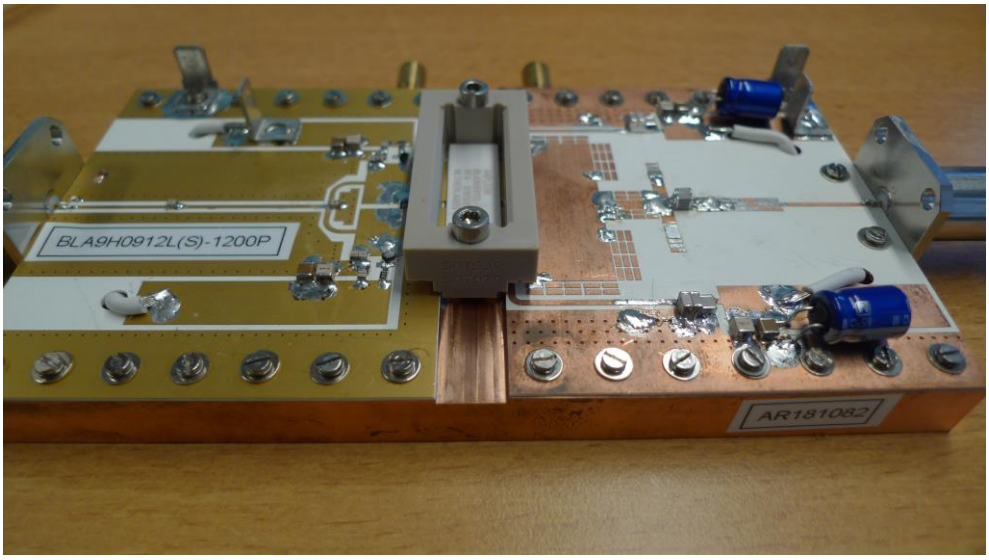
5. General description

This report presents the measurement results of the Class-AB demo AR181082. The device used is a BLA9H0912L(S)-1200P, 9th generation LDMOS in a push-pull package, the BLA9H0912L(S)-1200P. The presented demo is designed for the frequency band 960 to 1215MHz

The PCB has been designed on Rodgers RO4360G2, h=0.61mm, ε_R=6.15, 35um double sided copper. Supply voltage (drain-source) is 51.6V, this is slightly higher than the specified supply voltage. This is done to compensate for the voltage drop in the supply lines of the test set-up. Gate bias voltage is connected to the Vg 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.





Performance Details

The pulse format used is a 50 μs pulse with a duty cycle of 5%. The power sweep was performed up to 1.2 dB gain compression. The device used is from the first batch made in the new wafer-fab.

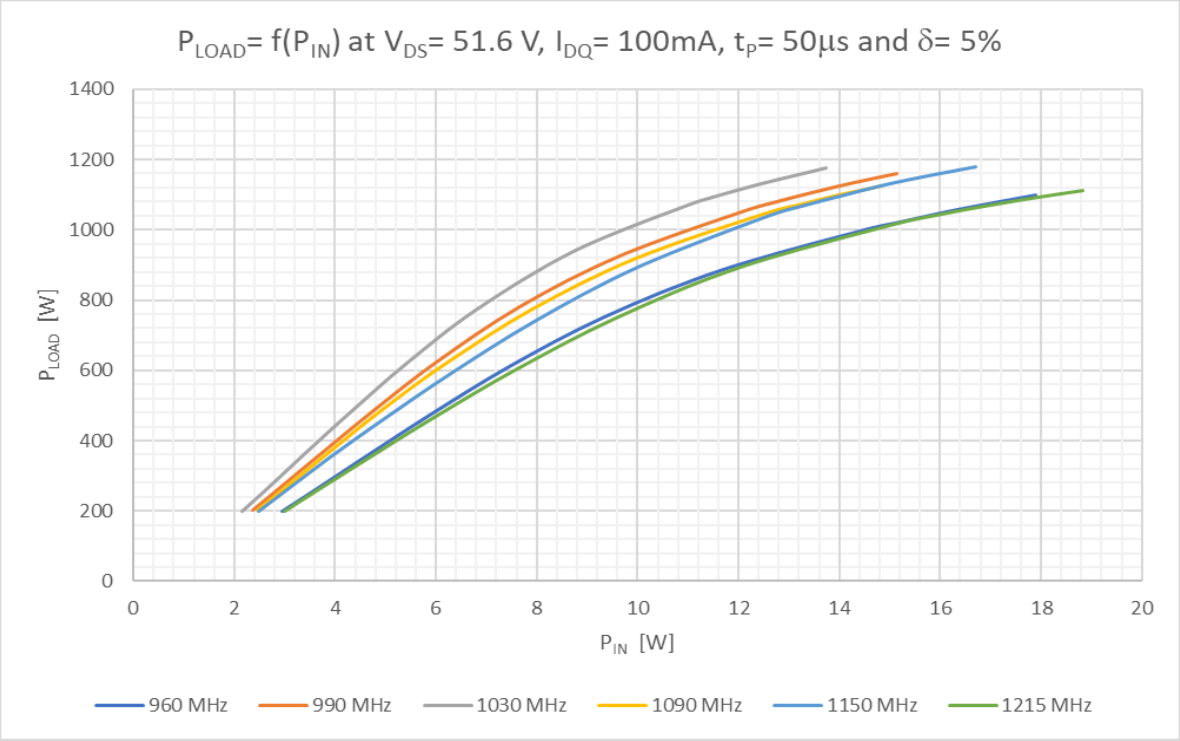


Figure 1 P_{LOAD} vs P_{IN}

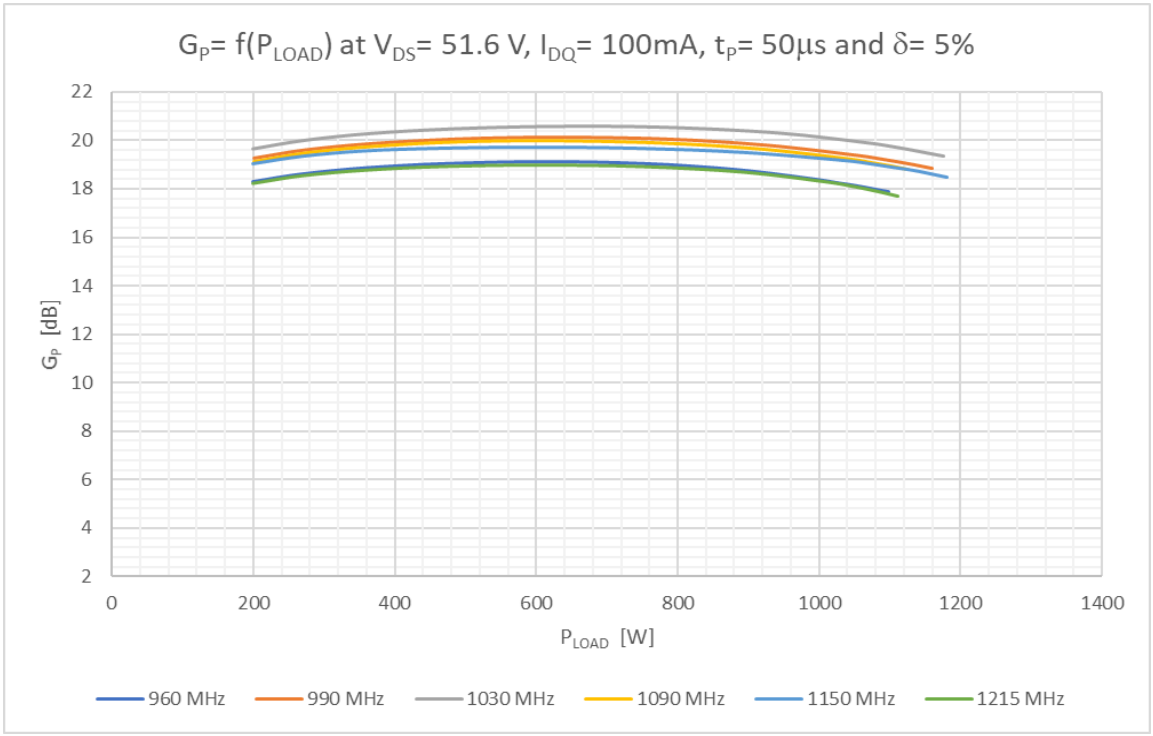


Figure 2 Gain vs P_{LOAD}

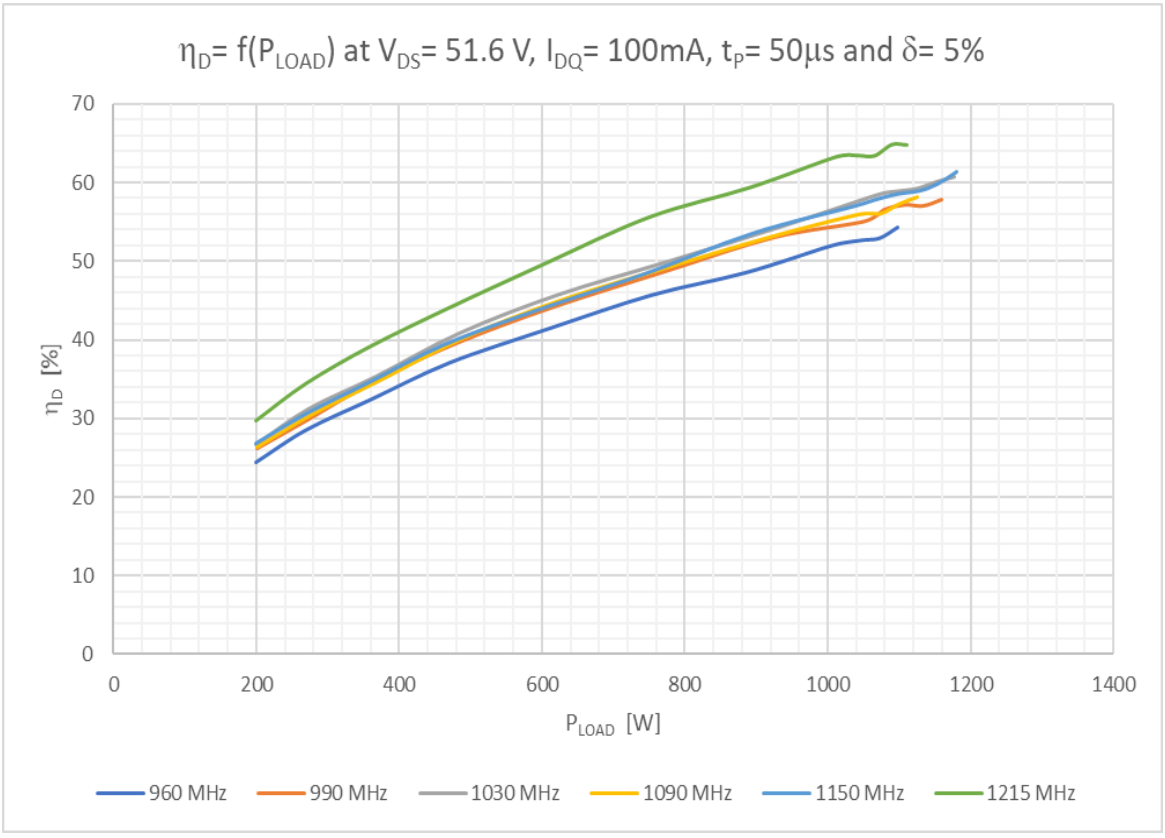


Figure 3 Drain efficiency vs P_{LOAD}

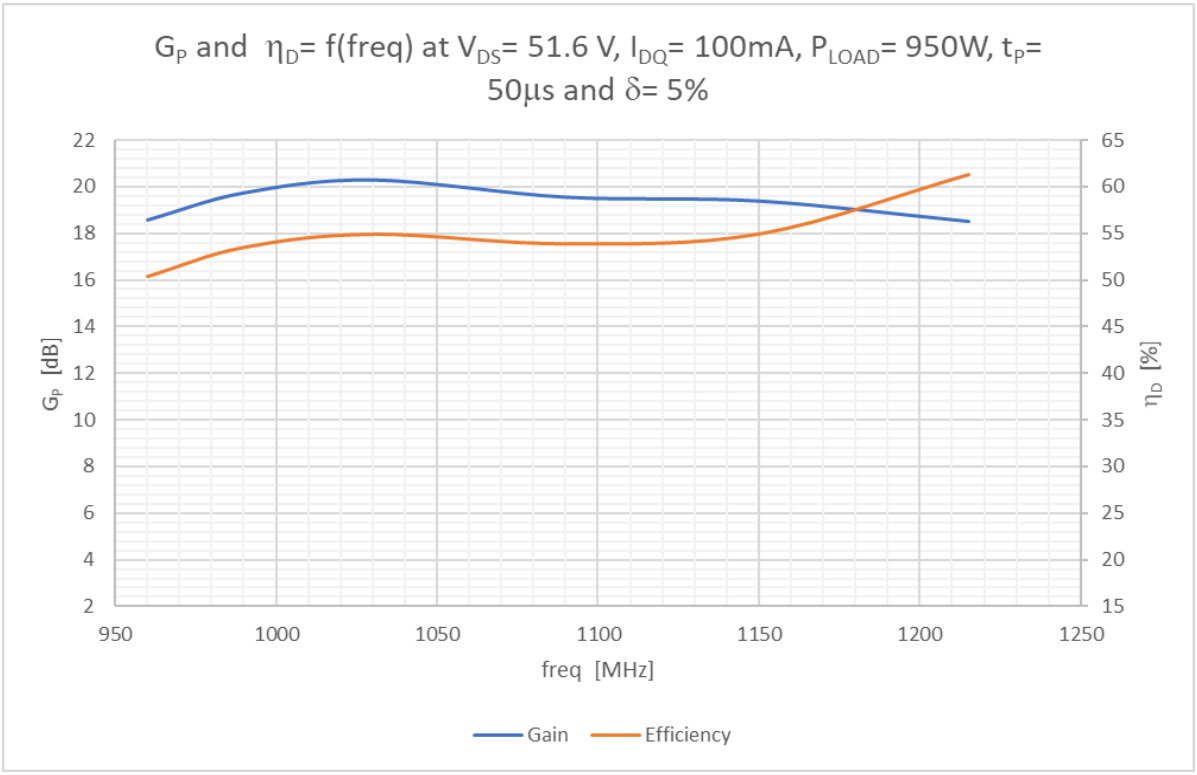


Figure 4 Gain and efficiency performance at 950 W

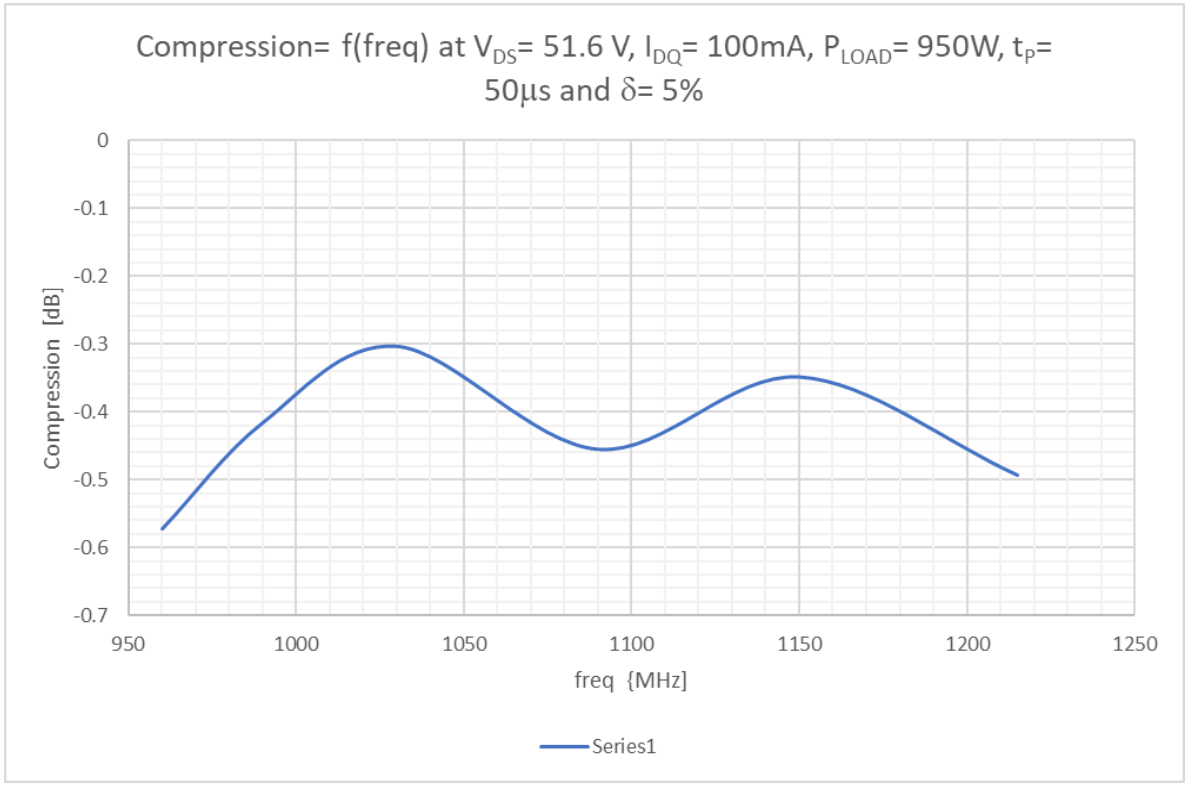


Figure 5 Compression at 950 W

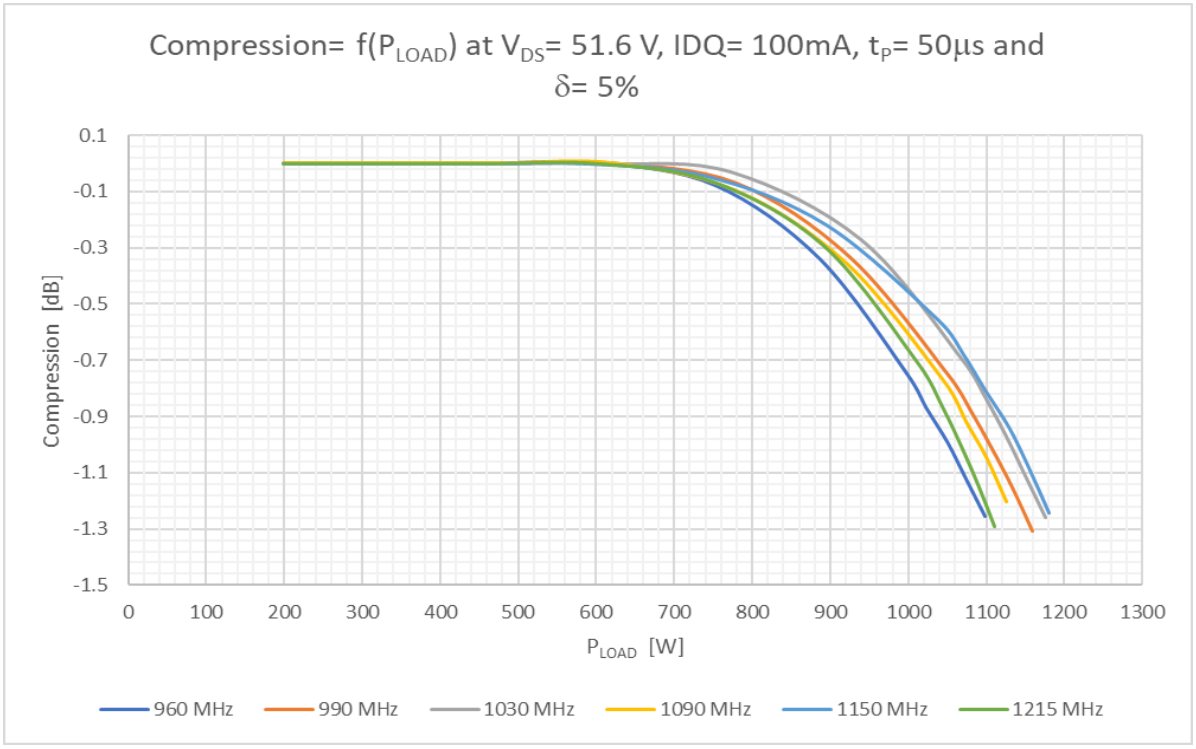
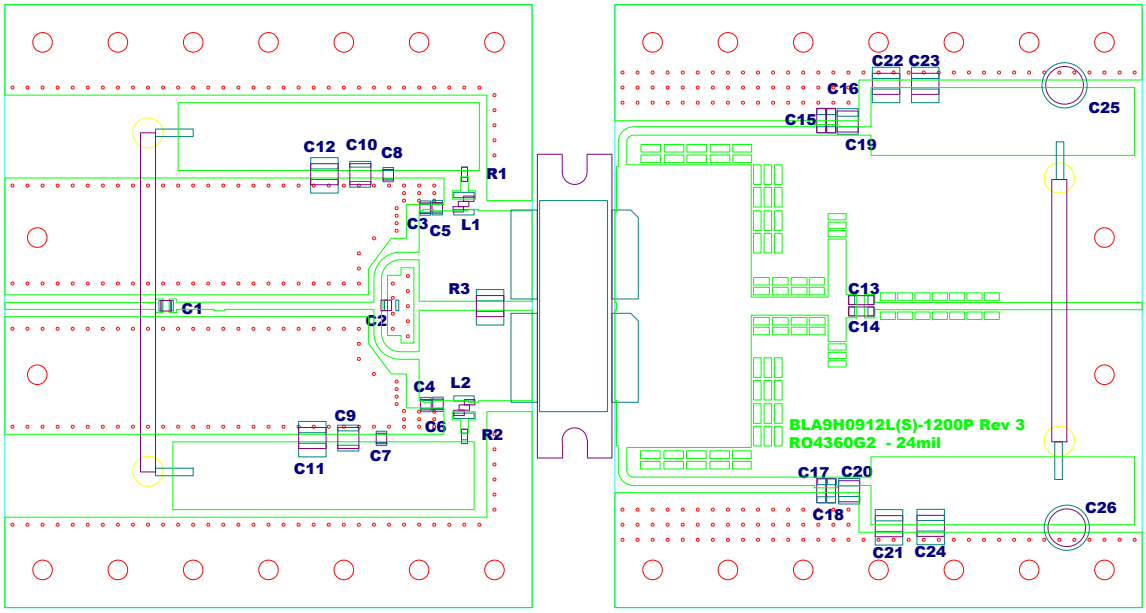


Figure 6 Compression curve

5.1 Hardware



Components list application circuit.		
C1, C7, C8	62 pF	ATC100A
C2, C3, C4	5.6 pF	ATC100A
C5, C6	1.0 pF	ATC100A
C19, C20	82 pF	ATC800B
C13, C14, C15, C16, C17, C18	68 pF	ATC800B
C9, C10, C19, C20	1 nF	ATC100B
C11, C12, C23, C24	4.7 μF	100 V
C25, C26	100 μF	63 V, Electrolytic capacitor
R1, R2	5.1 Ω	0603 SMD Resistor
R3	1 Ω	0805 SMD Resistor
L1, L2	5.4 nH	Coilcraft 0906-5GLB

PCB Material: Rogers 4360G2, thickness 0.61 mm (24 mil) or equivalent, ε_R = 6.2, Cu = 35 micron

5.2 Board material

Table 2: Board specifications

Parameter	Value
Manufacturer	Rogers
Type	RO4360Gr
Thickness	24 mil, 0.61 mm
Layers	2, top/bottom. Bottom all copper

5.3 Device markings

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLA9H0912L(S)-1200
Marking	BLA9H0912L(S)-1200, RFA D181289
Comments	Engineering sample

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