AR231024

BLS9G2934LS-400, 3000 to 3100MHz

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AMPLEON

Application Report

Document information	
Status	Company Public
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Abstract	Measurement results of a Class-AB design for the 3000 to 3100MHz band with the BLS9G2934LS-400

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20230201	Initial document	Hans Mollee

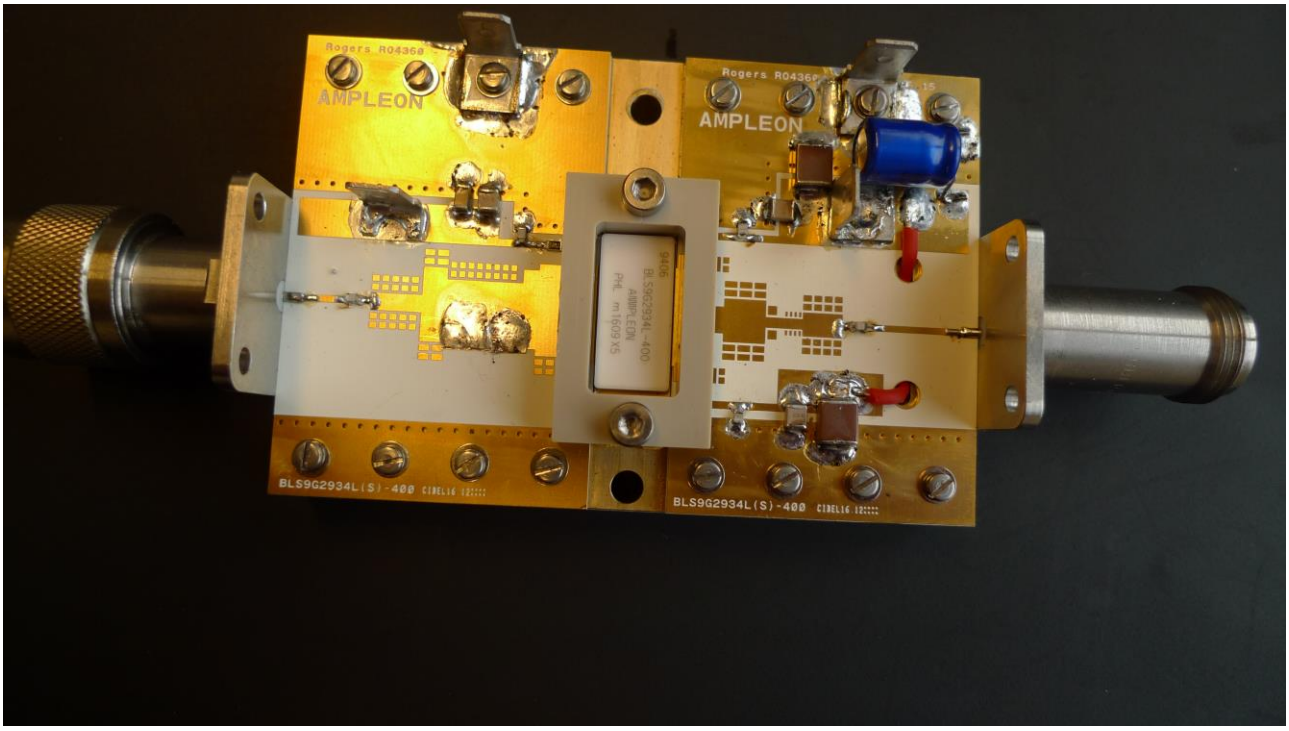
2. Contents

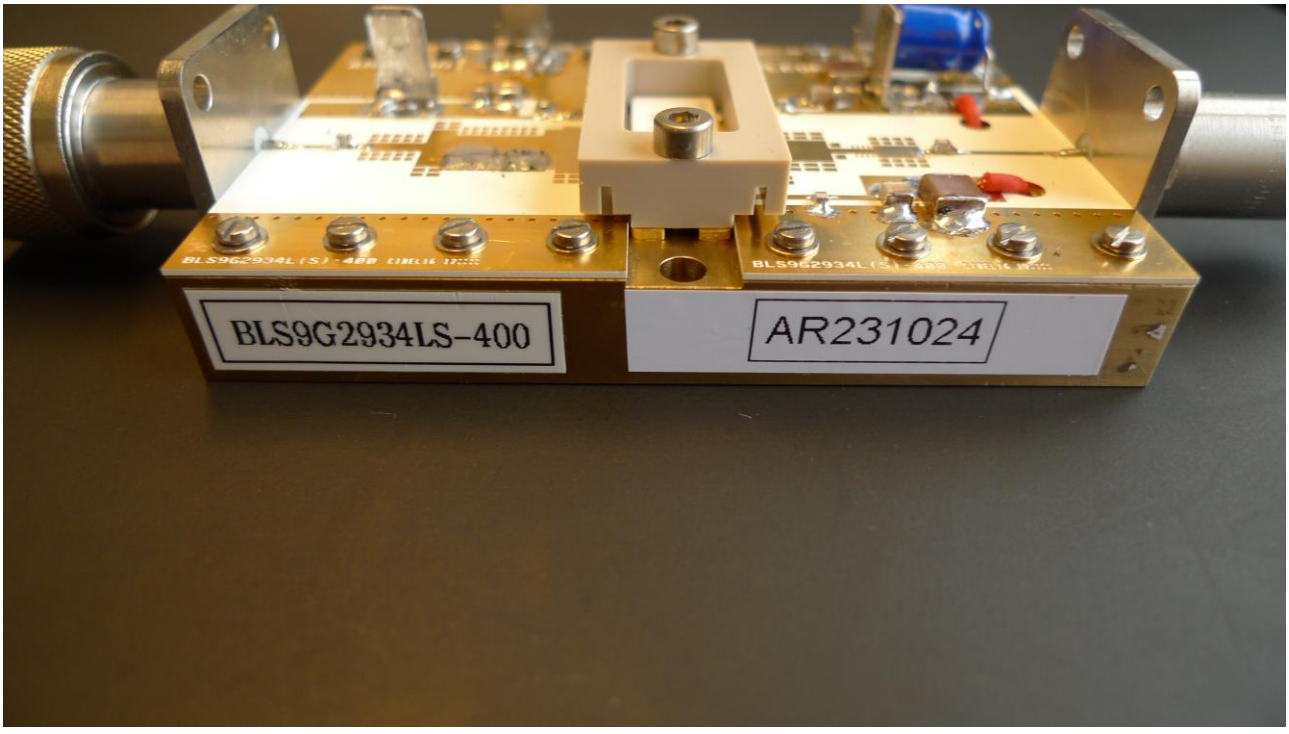
3. List of figures

4. List of tables

5. General description

This report presents the measurement results of the Class-AB demo AR231023. The device used is a BLS9G2934L-400, 9th generation LDMOS single ended package, the BLS9G2934L-400. The presented demo is tuned for the frequency band 3000 to 3100MHz, the original PCB design is intended for the 2900 MHz – 3400 MHz





The PCB has been designed on Rodgers RO4360, h=0.64mm, ε_R=6.2, 35um double sided copper. Supply voltage (drain-source) is 32V. 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 400 mA, starting at about 1V.

6. Performance Details

The pulse format used is a 20 μs pulse with a duty cycle of 2%. The pulse format used by the customer is ≈20μs – 2%, but due to software limitations this is not feasible in our set-up. Instead, the closest feasible is used 50 μs – 2%. The power sweep was performed up to 3 dB gain compression.

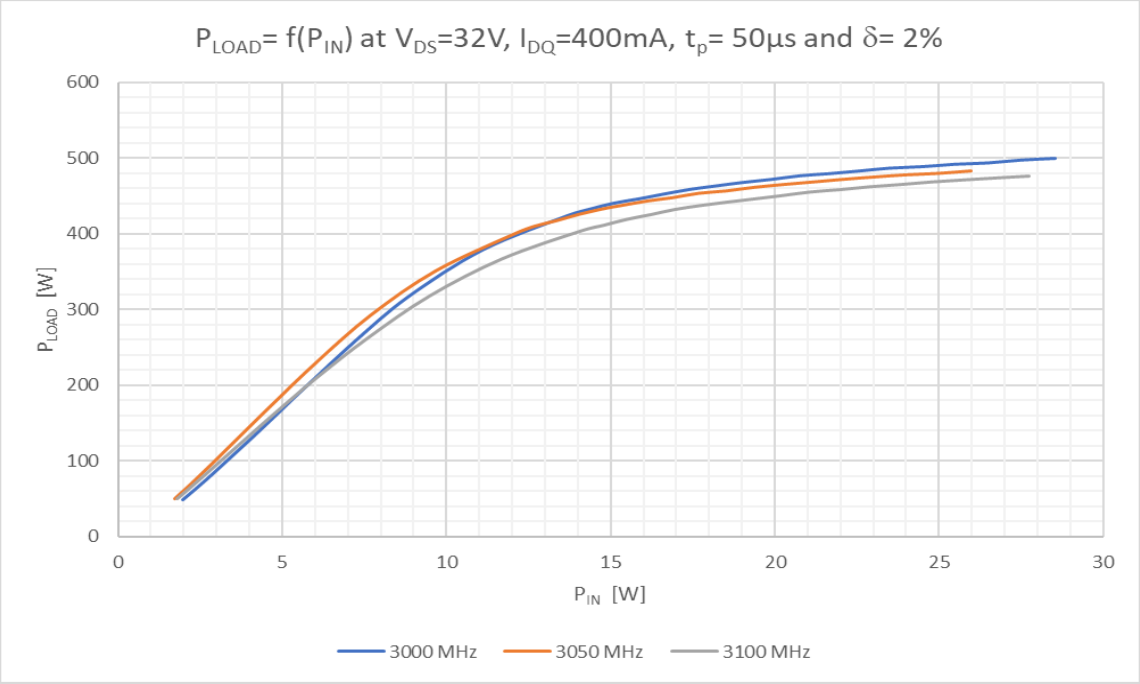


Figure 1 P_{LOAD} vs P_{IN}

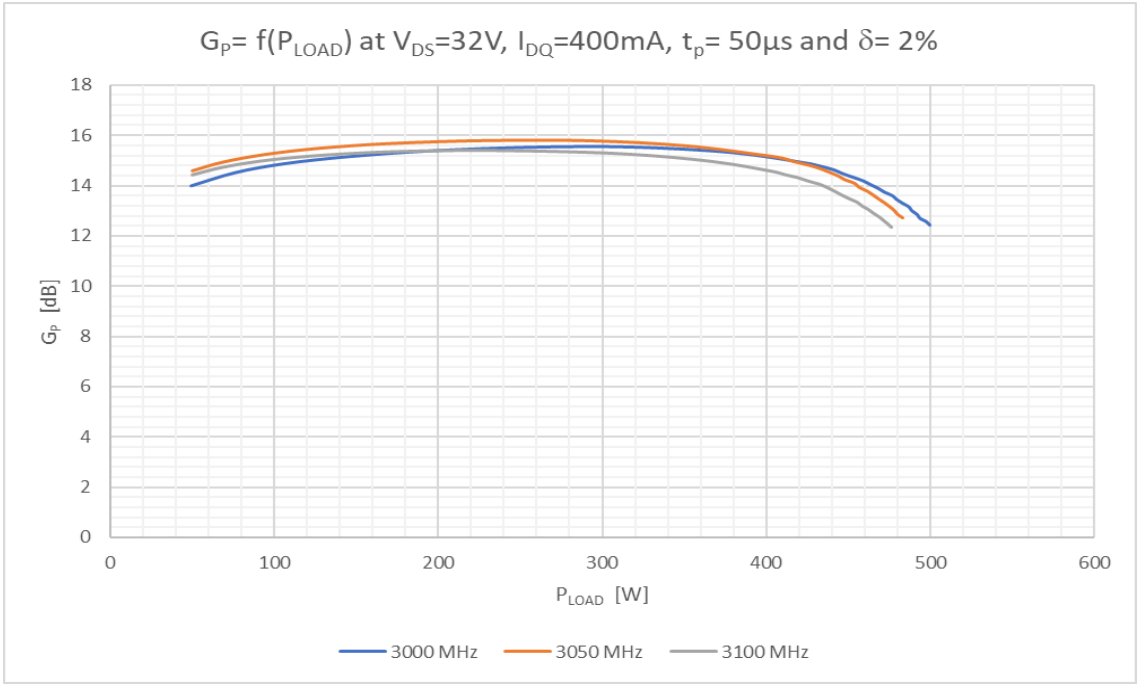


Figure 2 Gain vs P_{LOAD}

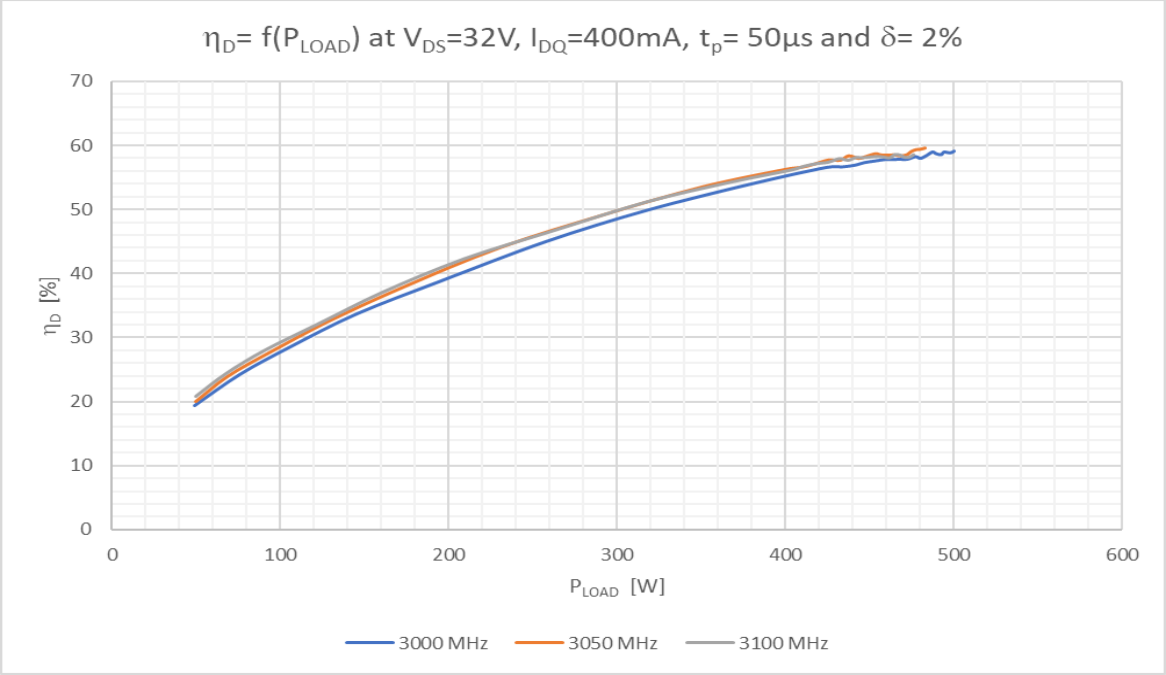


Figure 3 Drain efficiency vs P_{LOAD}

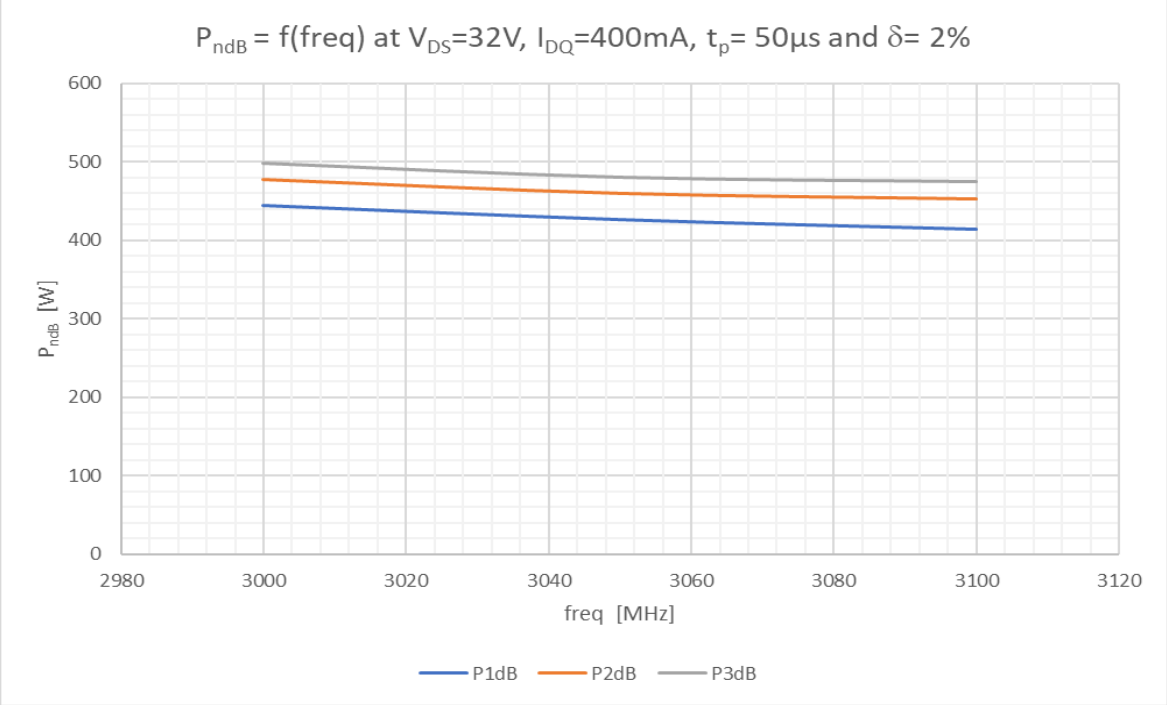


Figure 4 Compressed Power

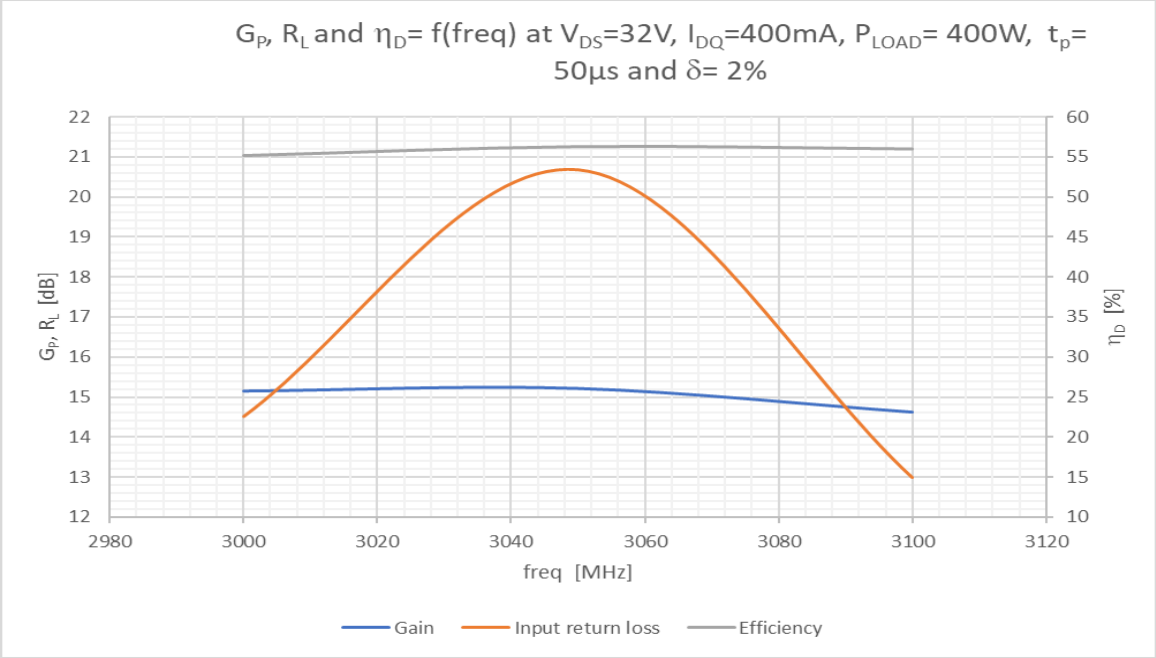
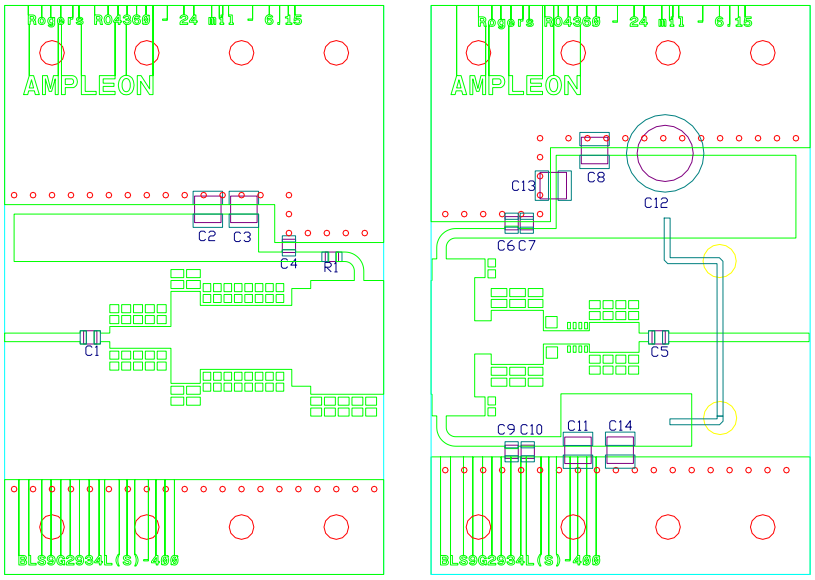


Figure 5 Performance at P_{LOAD}= 400W

6.1 Hardware



Components list application circuit.		
C1, C4	10 pF	ATC800A
C6, C9	10 pF	ATC800A
C3, C8, C11	1 nF	ATC100B
C5	5.6 pF	ATC800A
C7, C10	-	-
C13, C14	10 μF	Murata GRM55DR61H106KA88L
C12	100 μF	63 V, Electrolytic capacitor
C2	4.7 μF	
R1	5 Ω	0603 SMD Resistor

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

6.2 Board material

Table 2: Board specifications

Parameter	Value
Manufacturer	Rogers
Type	RO4360G2
Thickness	24 mil, 0.61 mm
Layers	2, top/bottom. Bottom all copper

6.3 Device markings

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLS9G2934L-400
Marking	BLS9G2934L-400, m1609, Philippines
Comments	

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