

AR161065

BLS9G2735L-50, 2700 to 3100MHz

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AMPLEON

Application
Report

2700 to 3100MHz Document information

Status Company confidential

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Abstract Measurement results of a Class-AB design
for the 2700 to 3100MHz band with the BLS9G2735L-50

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20160330	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
Performance Details	4
5.1 Hardware	7
5.2 Board material.....	8
5.3 Device markings.....	8
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

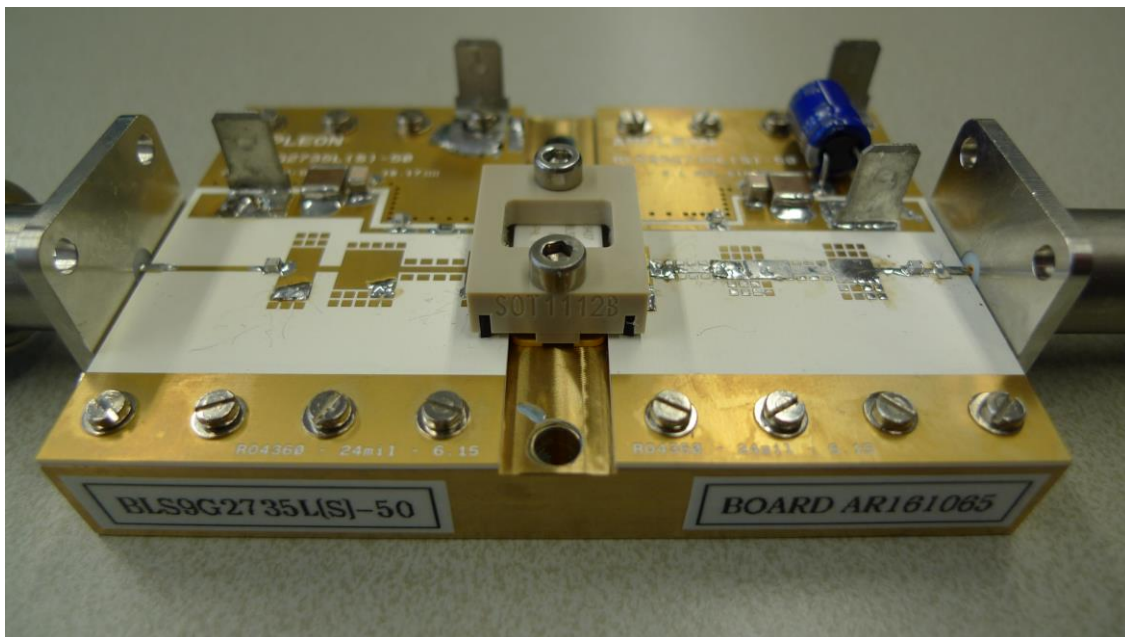
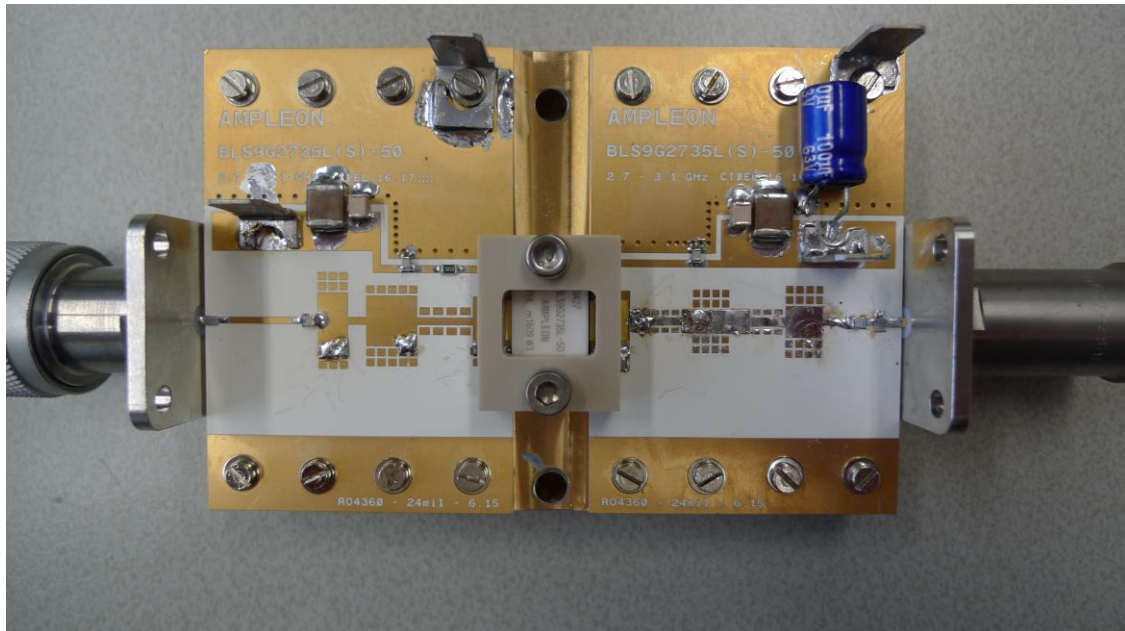
Figure 1 P _{LOAD} vs P _{IN}	4
Figure 2 Gain vs P _{LOAD}	4
Figure 3 Drain efficiency vs P _{LOAD}	5
Figure 4 Compressed Power	5
Figure 5 Performance at 50 W.....	6

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 AR161065. The device used is a 9th generation LDMOS single ended package, the BLS9G2735L-50. The presented demo is tuned for the frequency band 2700 to 3100MHz.



The PCB has been designed on Rogers RO4360G2, $h=0.61\text{mm}$, $\epsilon_R=6.2$, 35um double sided copper. Supply voltage (drain-source) is 32V. 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.

When switching of the RF-pulse a spike may appear on the drain supply due to the inductance and the fall time of the pulse. When using signal with a rapid fall time this spike may become (too) large. By placing a $10\mu\text{F}$ SMD capacitor (C8) on the drain supply. These spikes will be reduced to virtually zero.

Performance Details

The pulse format used is a 300 μs pulse with a duty cycle of 10%. The power sweep was performed up to 3 dB gain compression.

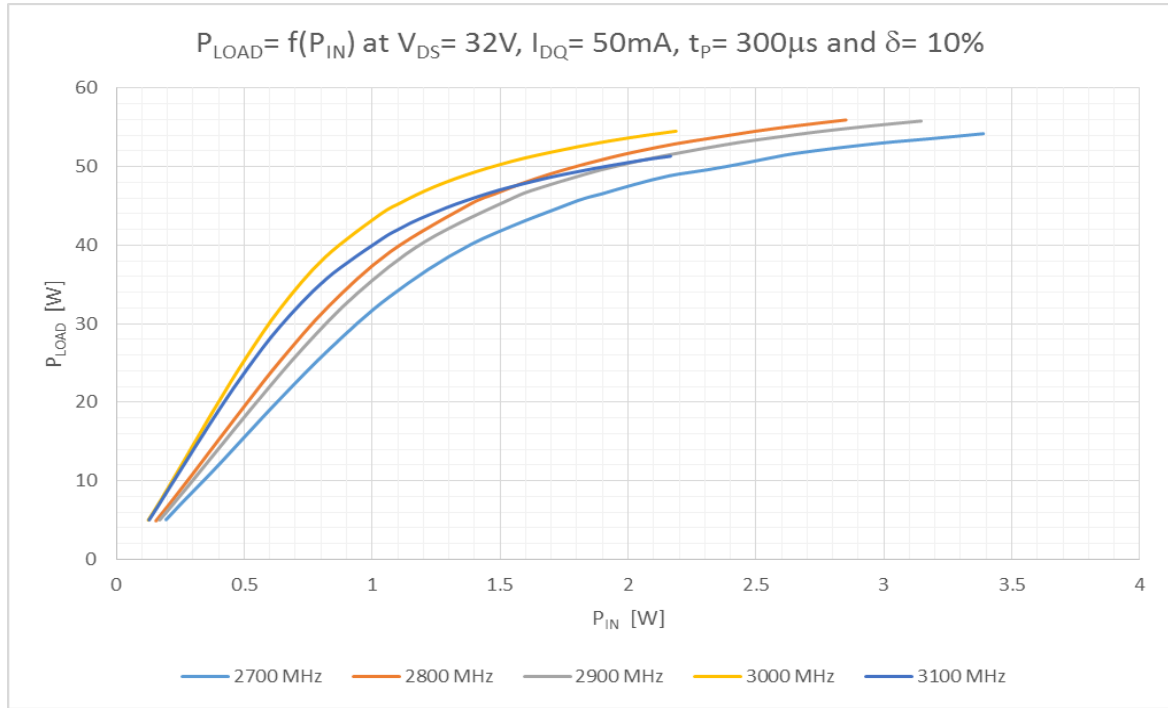


Figure 1 P_LOAD vs P_IN

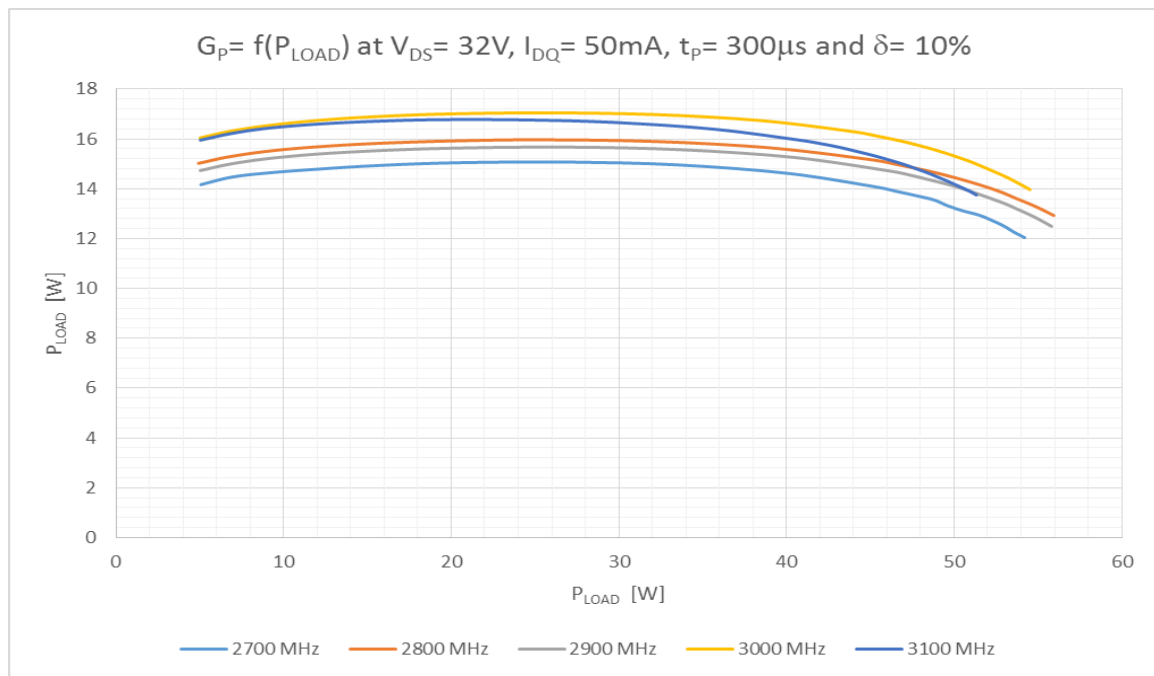


Figure 2 Gain vs P_LOAD

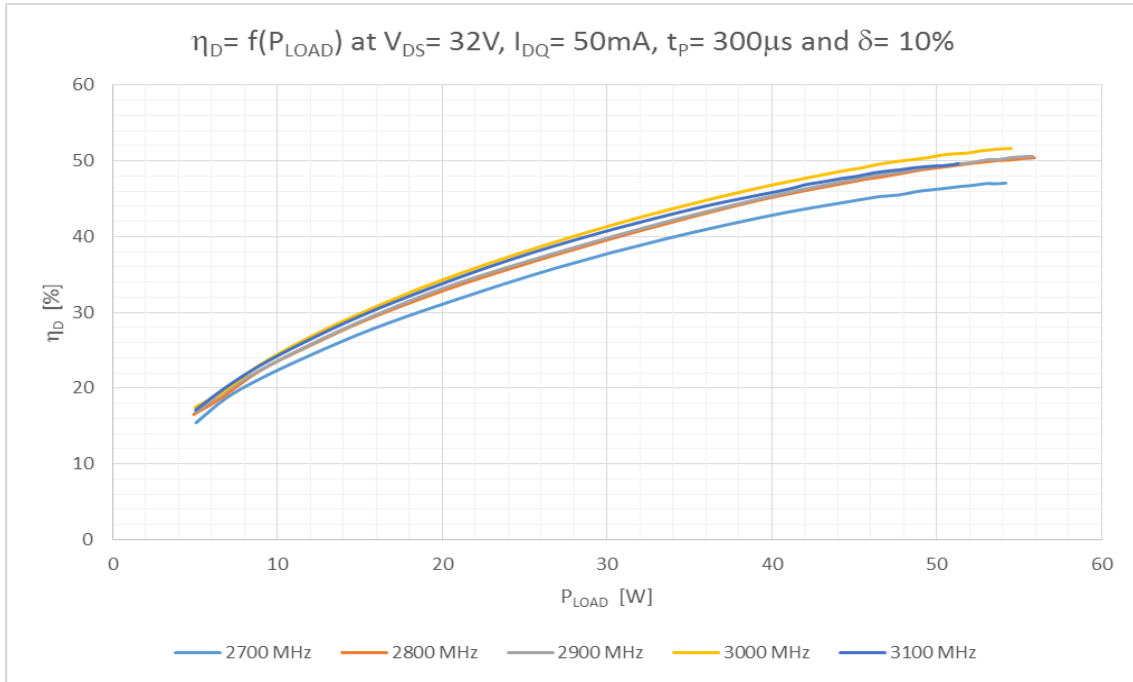


Figure 3 Drain efficiency vs P_{LOAD}

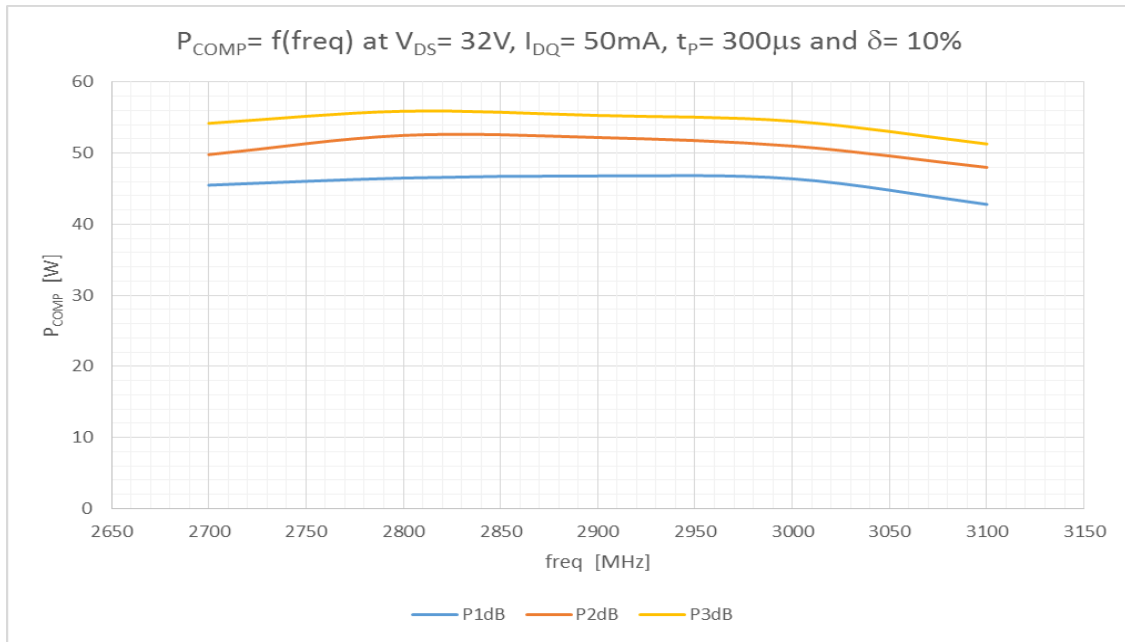


Figure 4 Compressed Power

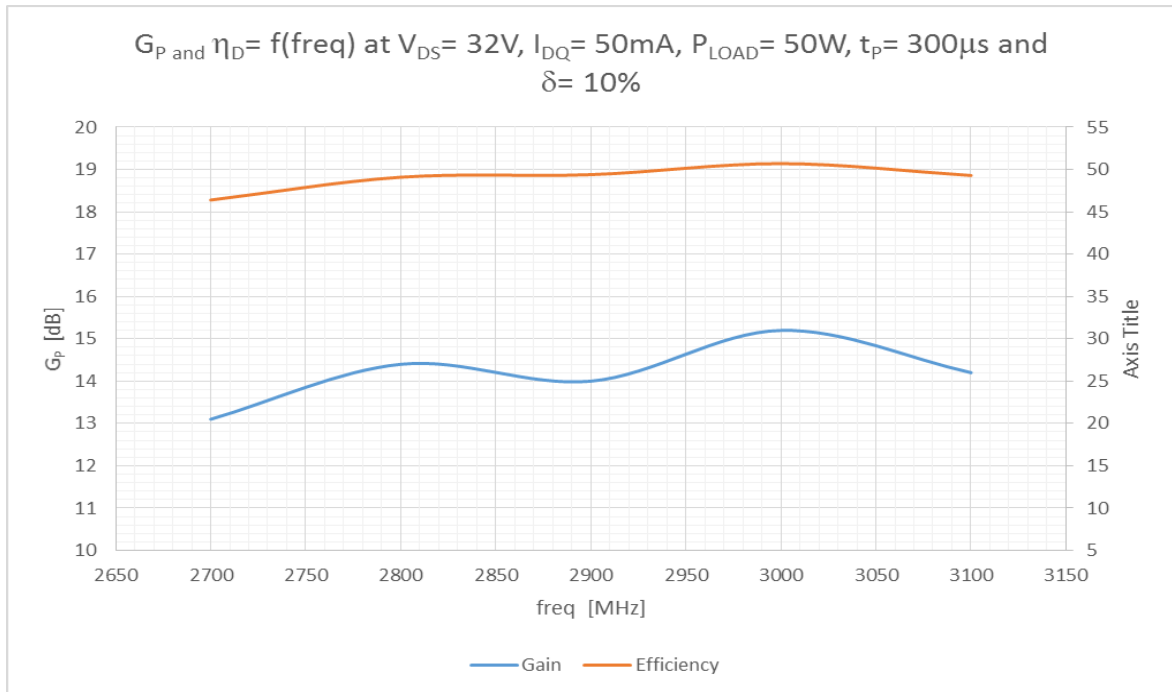
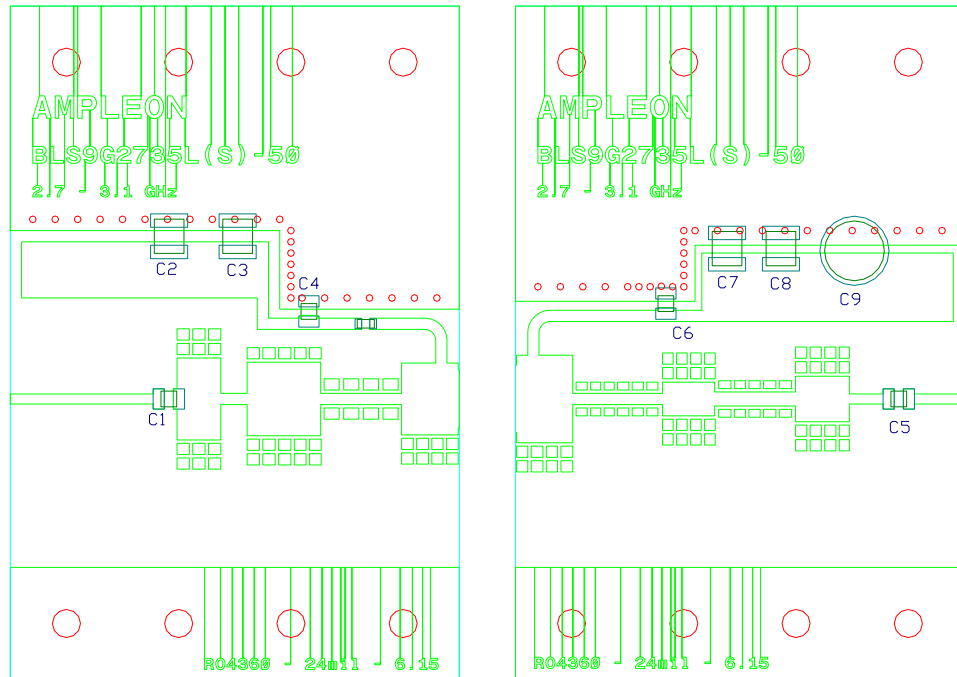


Figure 5 Performance at 50 W

5.1 Hardware



Components list application circuit.

C1, C4, C5, C6	20 pF	ATC800A
C3, C7	1 nF	ATC100B
C2, C8	10 μ F – 50V	GRM55DR61H106KA88L
C9	100 μ F – 63V	Electrolytic capacitor
R1	5 Ω	0805 SMD Resistor

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

5.2 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

5.3 Device markings

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLS9G2735LS-50
Marking	BLS9G2735LS-50, m1609 w3
Comments	Engineering sample

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