

# AR161065

BLS9G2735L-50, 2900 to 3300MHz

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**AMPLEON**

Application  
Report

Document information	
<b>Status</b>	Company Public
<b>Author(s)</b>	Hans Mollee
<b>Abstract</b>	Measurement results of a Class-AB design for the 2900 to 3300MHz band with the BLS9G2735L-50

## 1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20160330	Initial document	Hans Mollee

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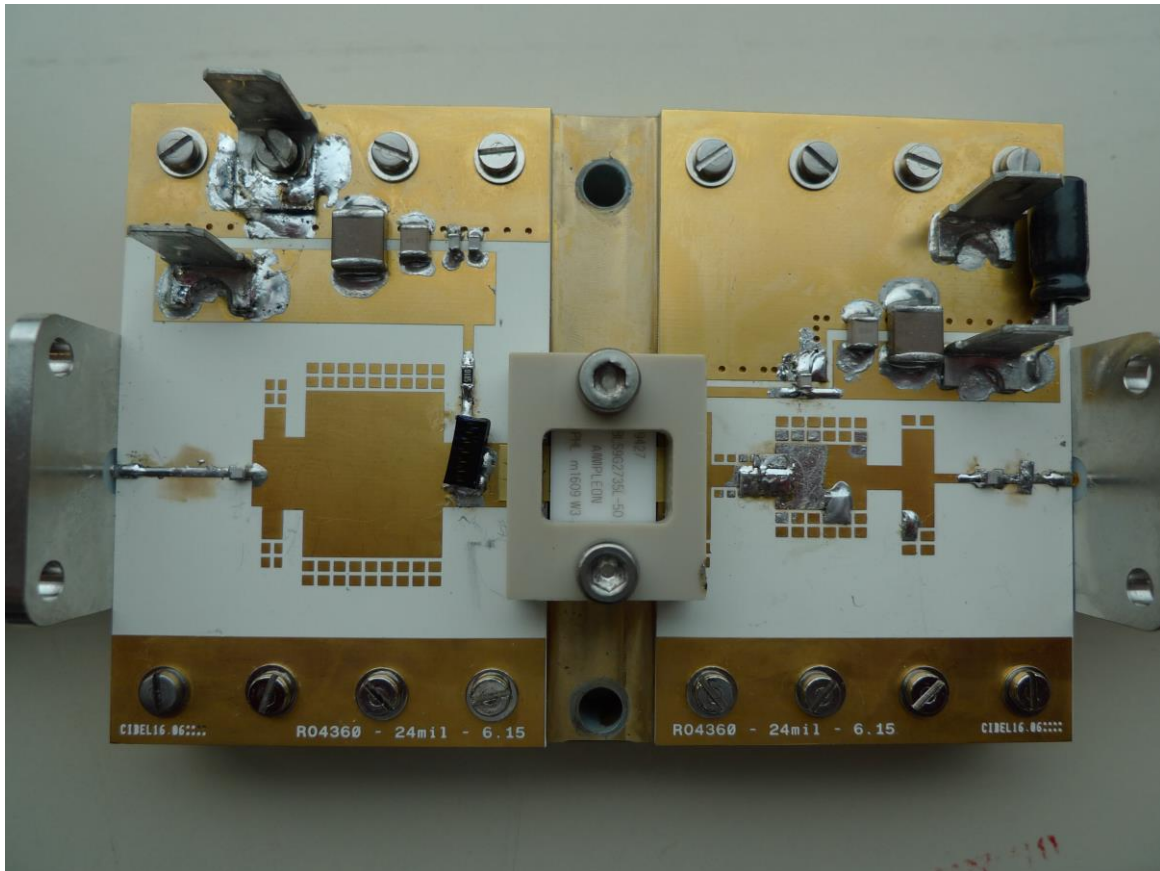
## 5. General description

This report presents the measurement results of the Class-AB demo AR161065. The device used is a 9<sup>th</sup> generation LDMOS single ended package, the BLS9G2735L-50. The presented demo is tuned for the frequency band 2900 to 3300MHz.

The PCB has been designed on Rodgers RO4360G2, h=0.61mm, ε<sub>R</sub>=6.2, 35um double sided copper. Supply voltage (drain-source) is 32V. Gate bias voltage is connected to the V<sub>G</sub> terminals on the input board. To set the drain quiescent current, slowly increase V<sub>GS</sub> until the I<sub>DQ</sub> 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 $\mu$ F SMD capacitor (C8) on the drain supply. These spikes will be reduced to virtually zero.





## 6 Performance Details

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

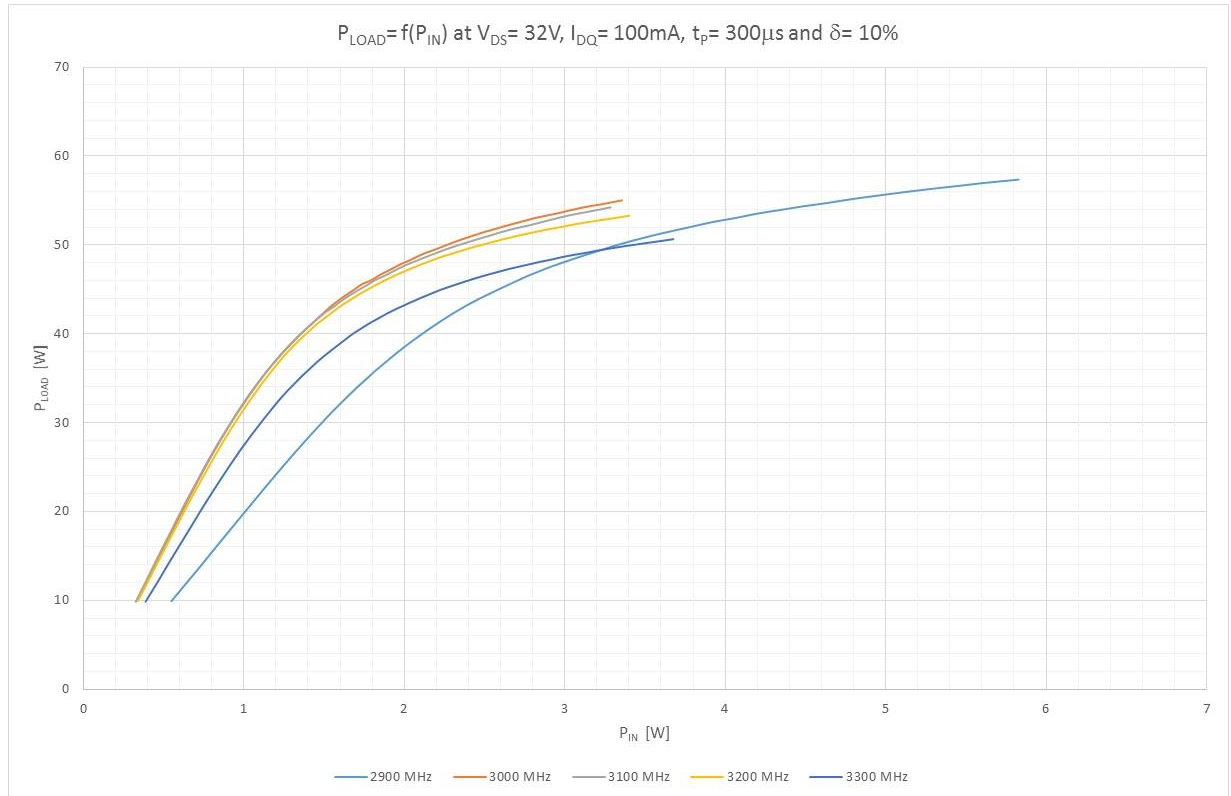


Figure 1  $P_{LOAD}$  VS  $P_{IN}$

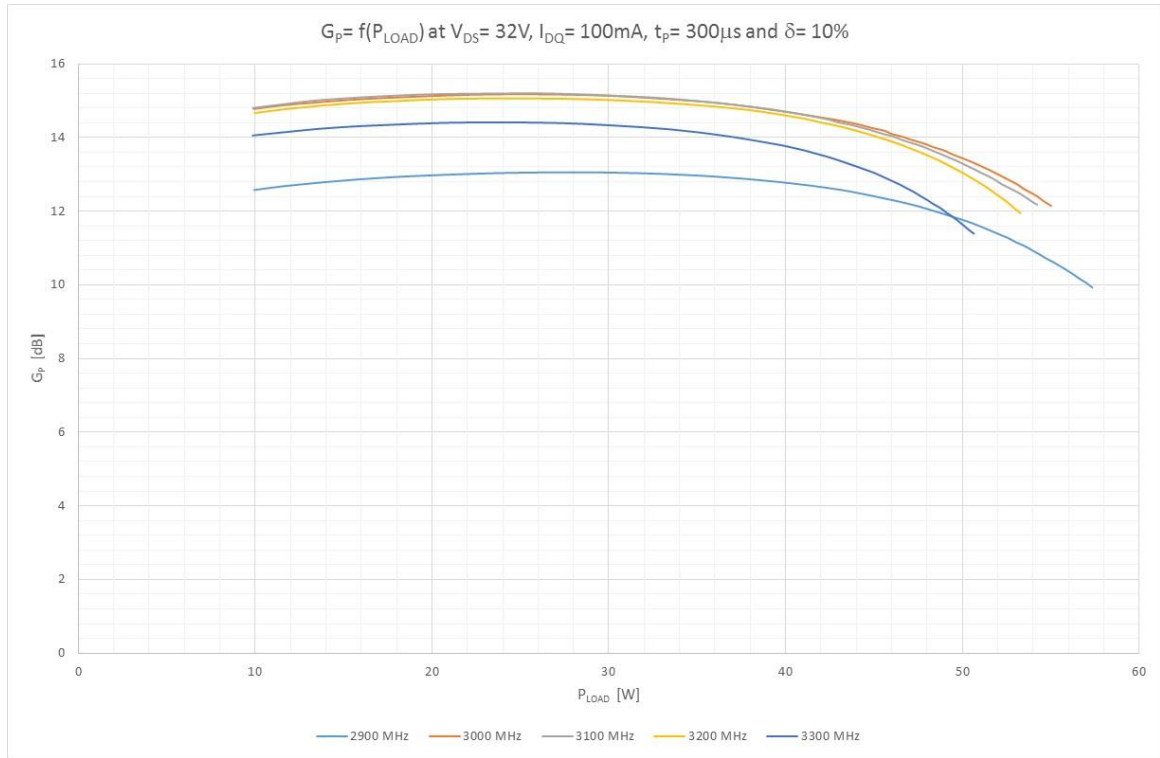


Figure 2 Gain vs P\_LOAD

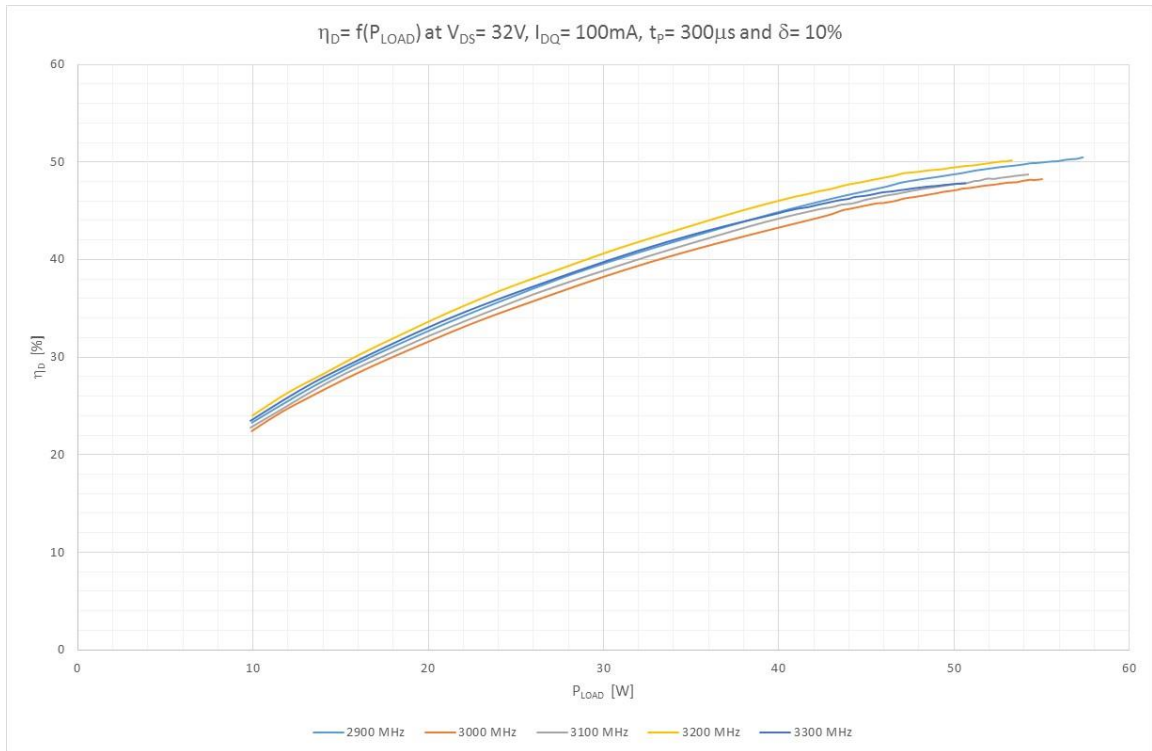


Figure 3 Drain efficiency vs P\_LOAD

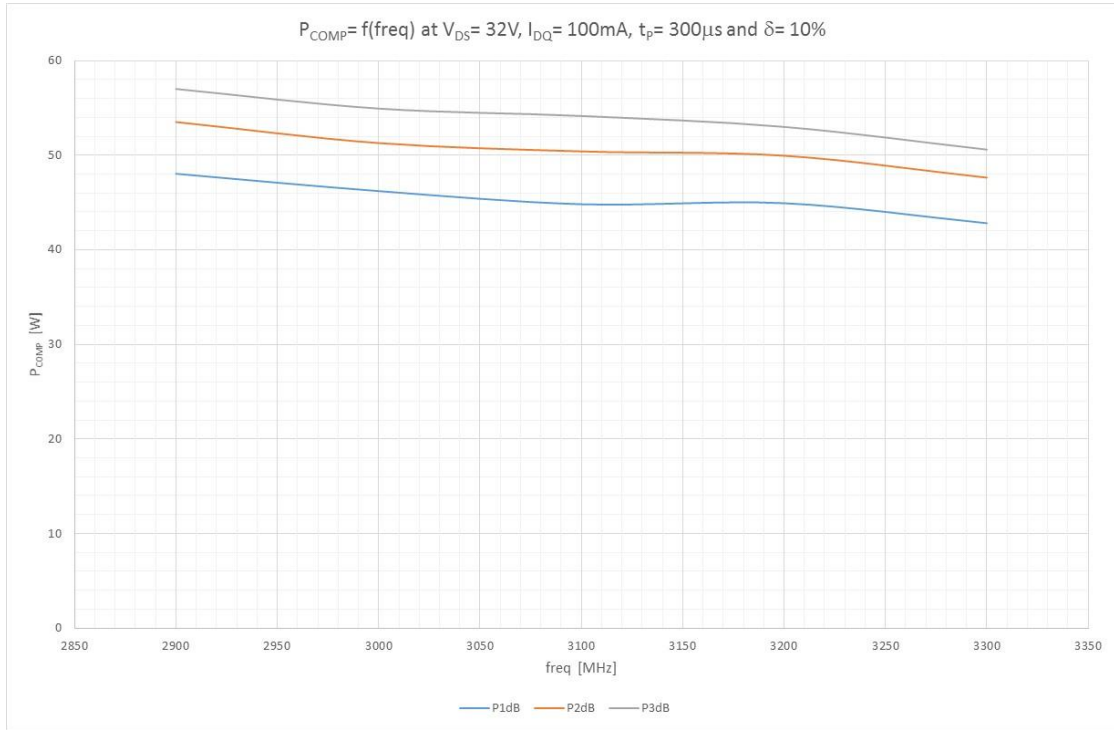


Figure 4 Compressed Power

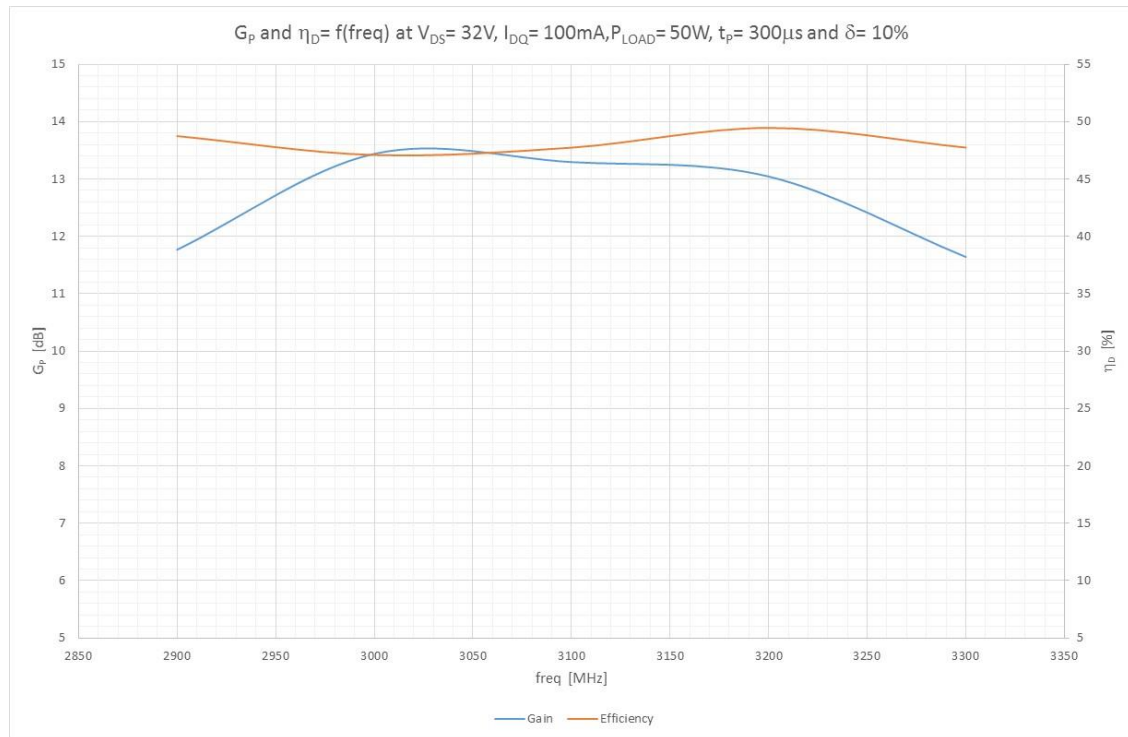
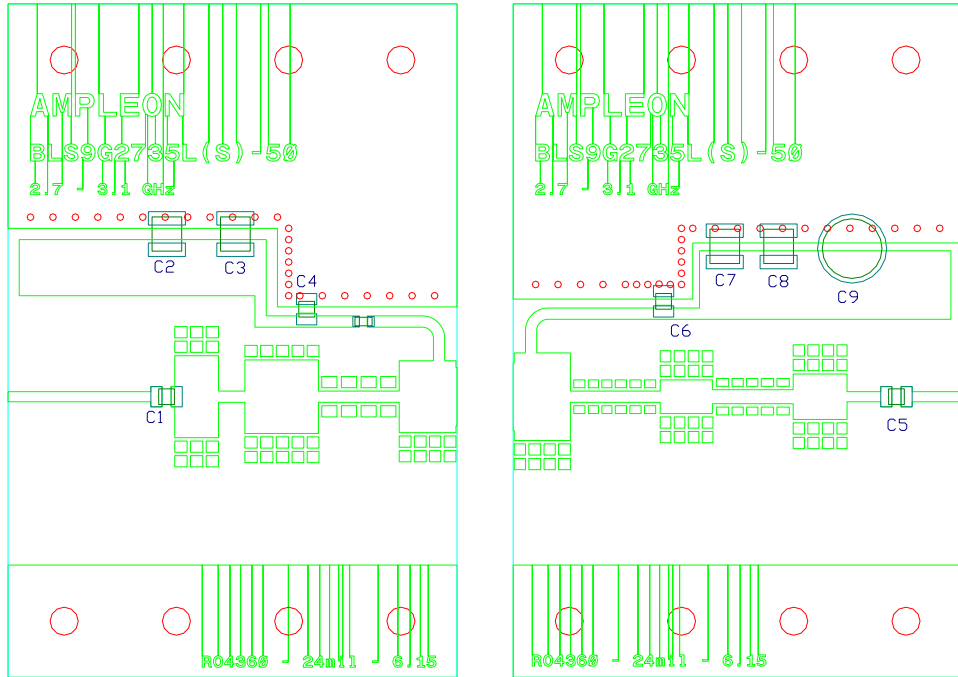


Figure 5 Performance at 50 W

5.1 Hardware



Components list application circuit.

C1, C4, C6	20 pF	ATC800A
C5	5.6 pF	ATC800A
C3, C7	1 nF	ATC100B
C2, C8	10 $\mu$ F – 50V	GRM55DR61H106KA88L
C9	100 $\mu$ F – 63V	Electrolytic capacitor
R1	5 $\Omega$	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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