AR151004

BLS9G2735L-50, 2900 to 3500MHz

v2.0 — 28 June 2016

AMPLEON

Application Report

Document information	
Status	Company Public
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Abstract	Measurement results of a Class-AB design for the 2900 to 3500MHz band with the BLS9G2735L-50

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20150907	Initial document	Hans Mollee
2.0	20160330	Updated to Ampleon format	Hans Mollee

2. Contents

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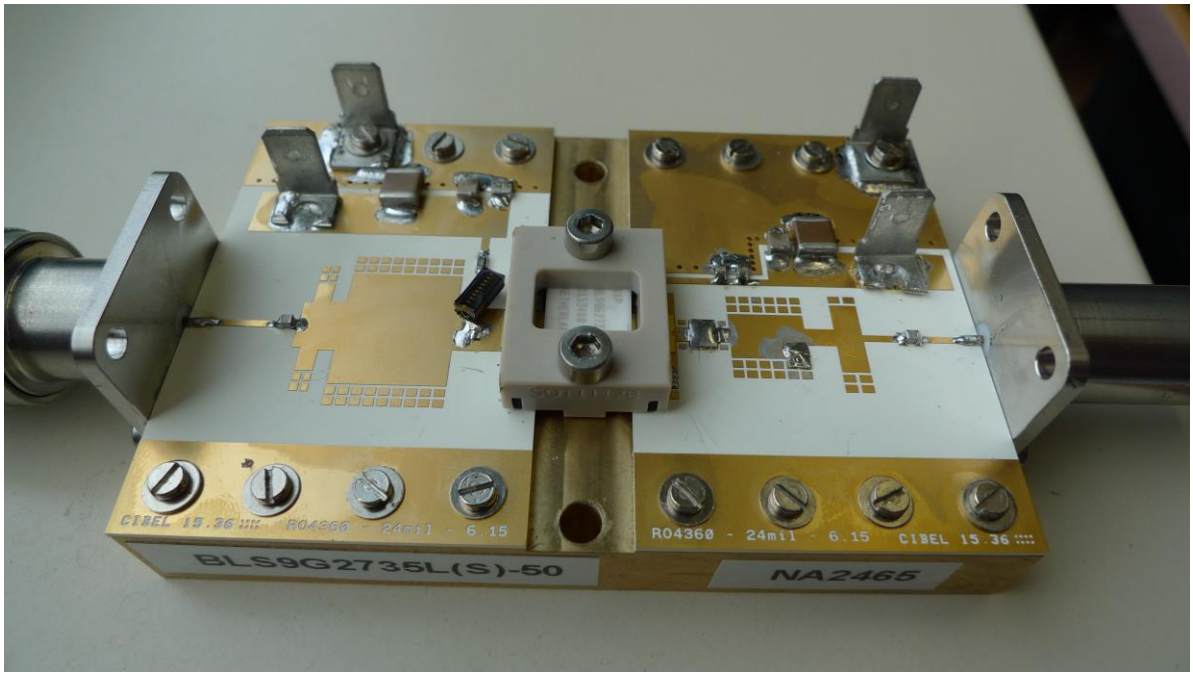
5. General description

This report presents the measurement results of the Class-AB demo AR151004. The device used is a 9th generation LDMOS single ended package, the BLS9G2735L-50. The presented demo is tuned for the frequency band 2900 to 3500MHz.



The PCB has been designed on Rodgers RO4360G2, h=0.61mm, 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 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 10µF 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.

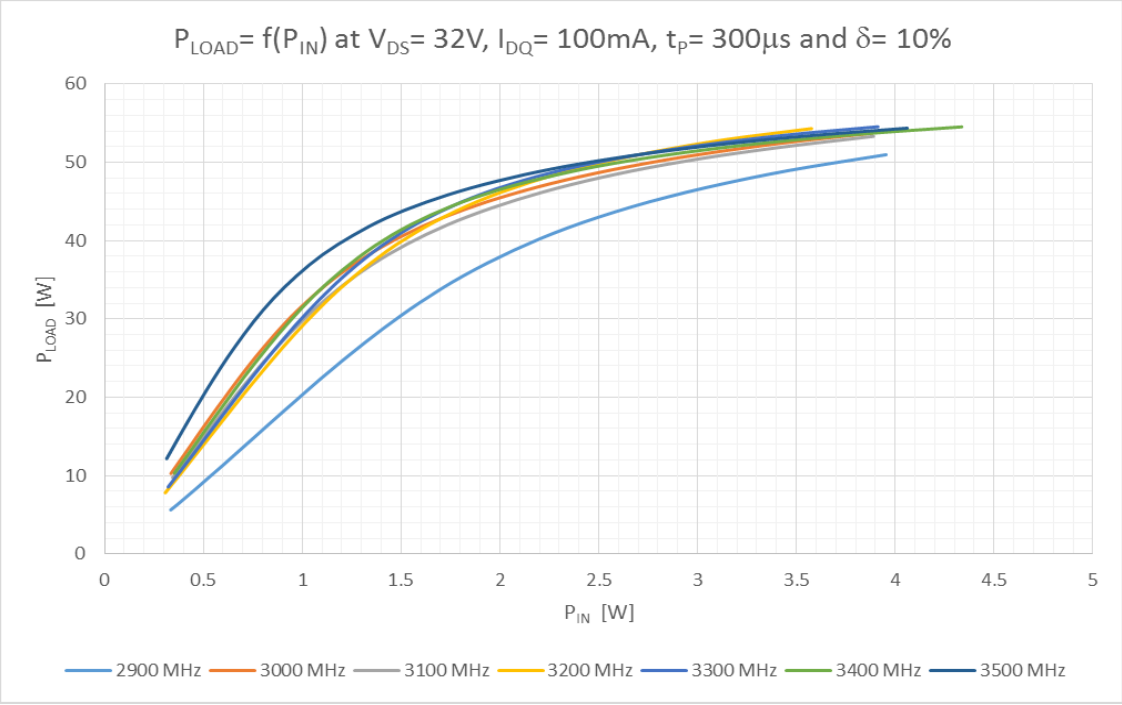


Figure 1 P_{LOAD} vs P_{IN}

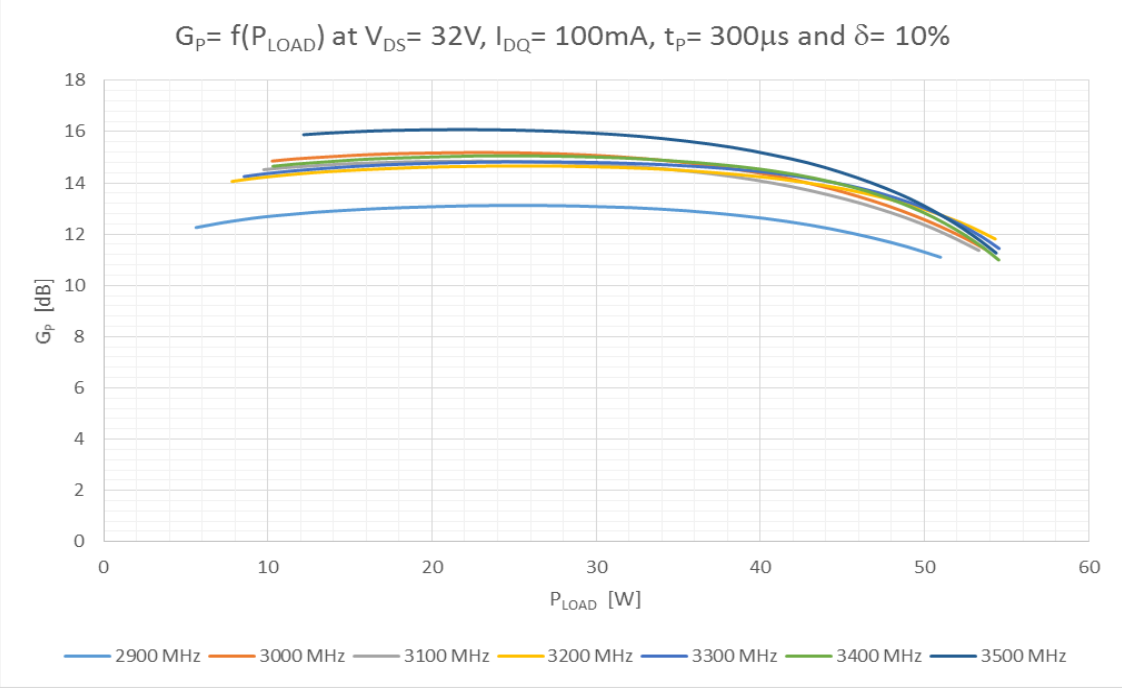


Figure 2 Gain vs P_{LOAD}

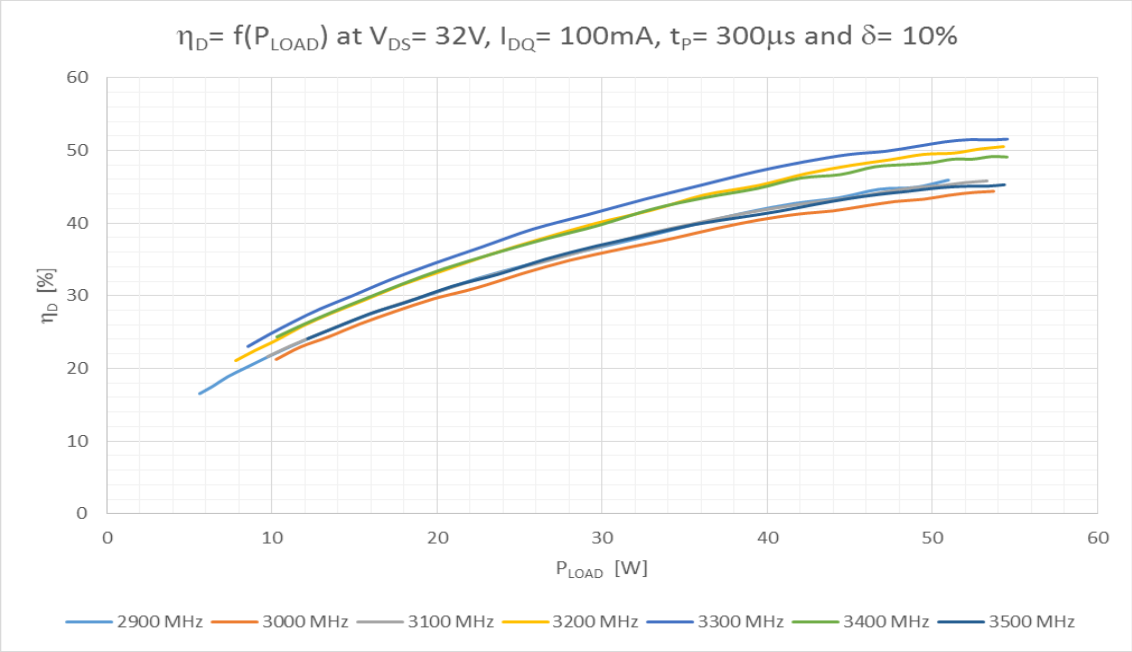


Figure 3 Drain efficiency vs P_{LOAD}

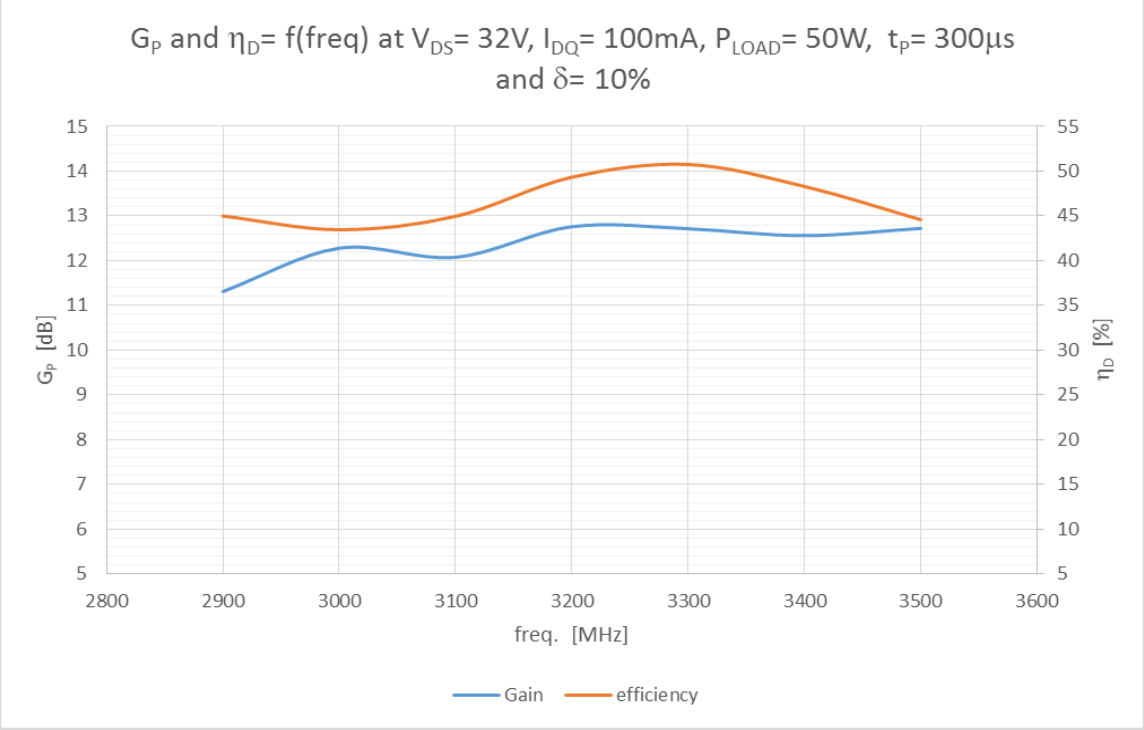
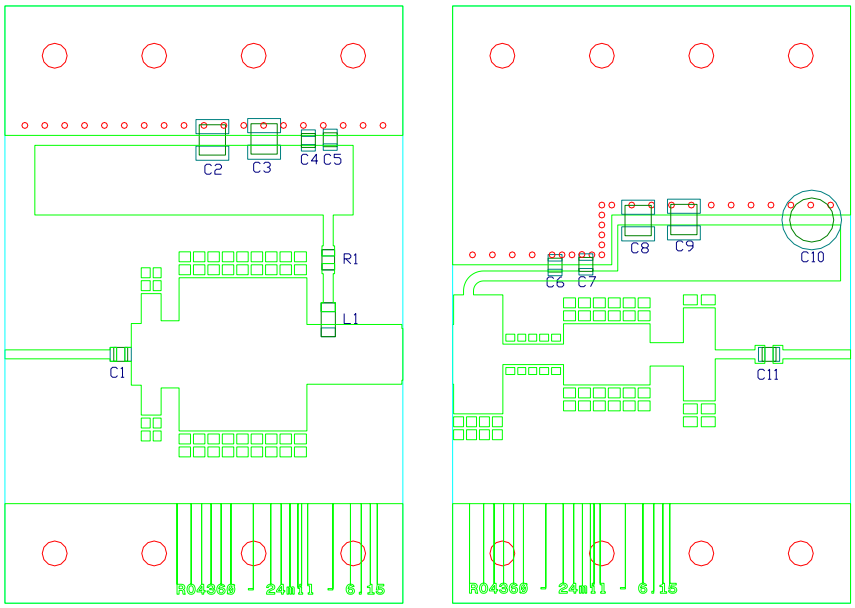


Figure 4 Performance at 50 W

5.1 Hardware



Components list application circuit.		
C1, C5, C6	5.1 pF	ATC800A
C4, C7	10 pF	ATC800A
C3, C8	910 pF	ATC800B
C11	4.7 pF	ATC800A
C2, C9	10 μF – 50V	GRM55DR61H106KA88L
C10		63 V, Electrolytic capacitor
C2		
L1	17.5 nH	Coilcraft B06TGLB
R1	5 Ω	0805 SMD Resistor

PCB Material: Rogers 4360, thickness 0.61 mm (24 mil) or equivalent, ε_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,
Comments	Engineering sample

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