

AR161075

BLS9G2731LS-400, 2700 to 3100MHz

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AMPLEON

Application
Report

Class-AB 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 BLS9G2731LS-400

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20160314	Initial document	Hans Mollee

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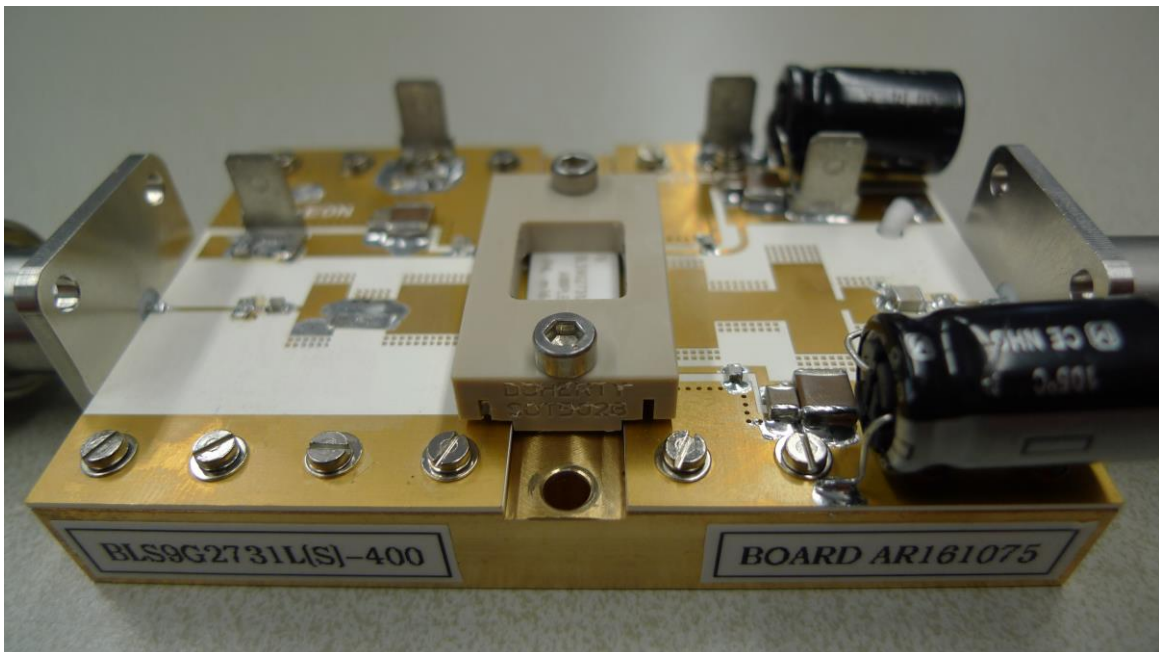
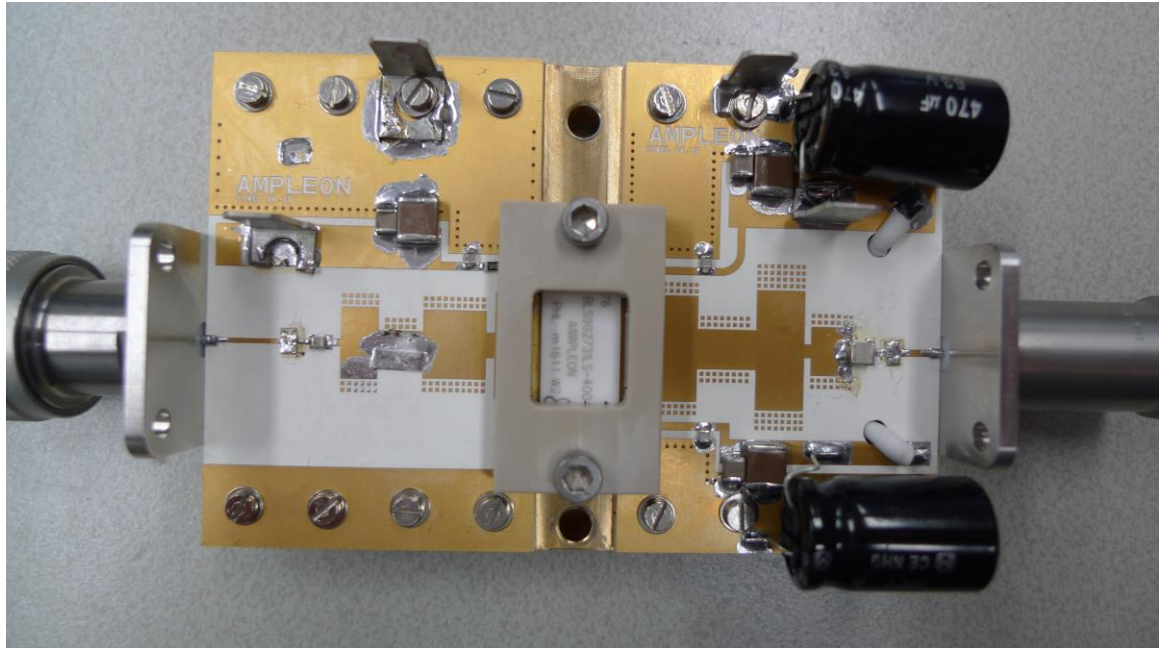
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5. General description

This report presents the measurement results of the Class-AB demo AR161075. The device used is a BLS9G2731LS-400, 9th generation LDMOS single ended package, the BLS9G2731LS-400. The presented demo is tuned for the frequency band 2700 to 3100MHz.



The PCB has been designed on Rogers RO4360, $h=0.61\text{mm}$, $\epsilon_R=6.2$, 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 400 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 two $10\mu\text{F}$ SMD capacitors (C9 and C12) on the drain supply. These spikes will be reduced to virtually zero.

Performance Details

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

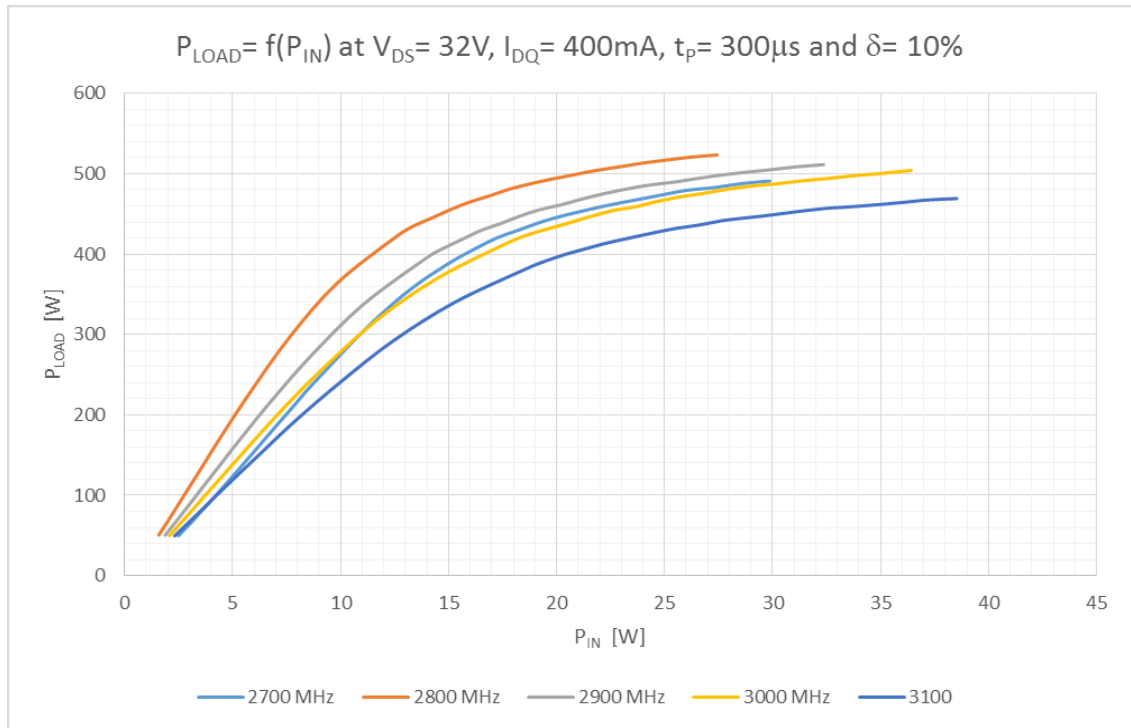


Figure 1 P_{LOAD} vs P_{IN}

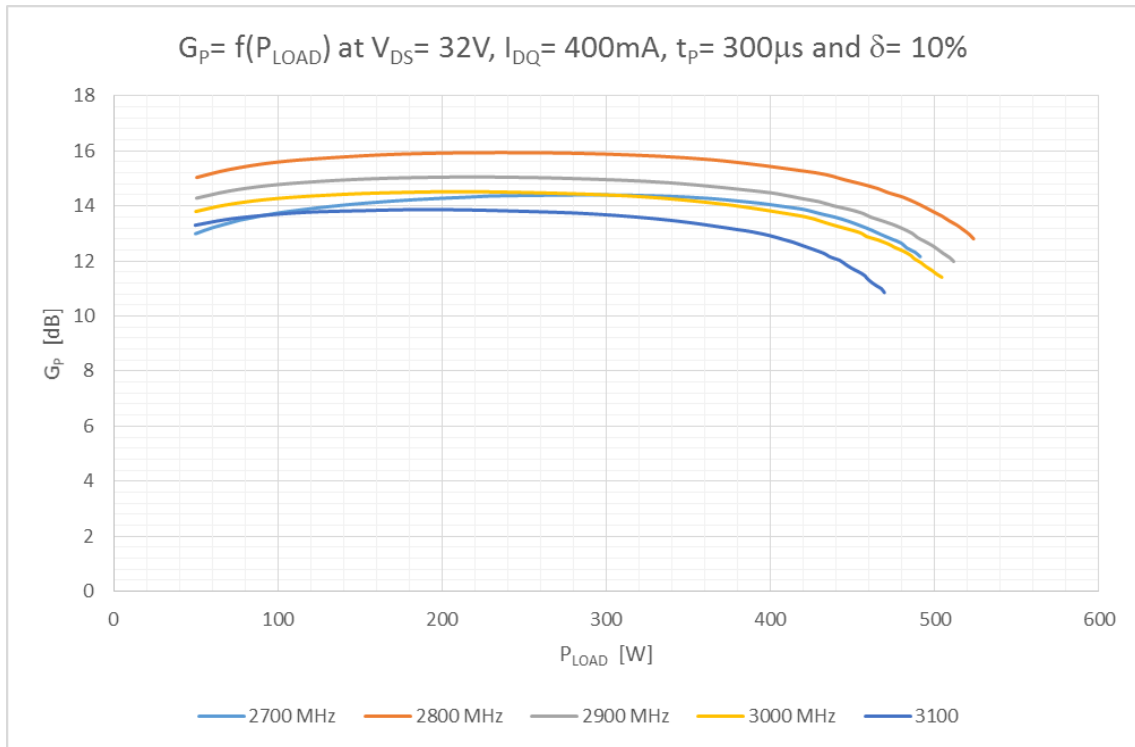


Figure 2 Gain vs P_{LOAD}

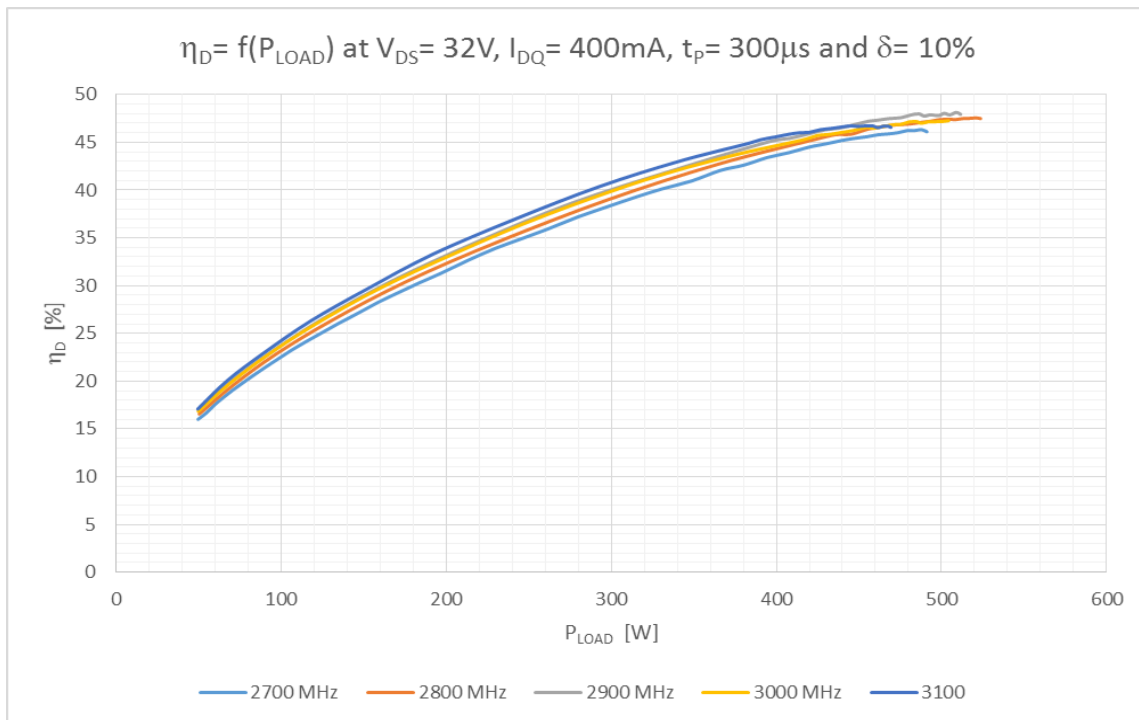


Figure 3 Drain efficiency vs P_{LOAD}

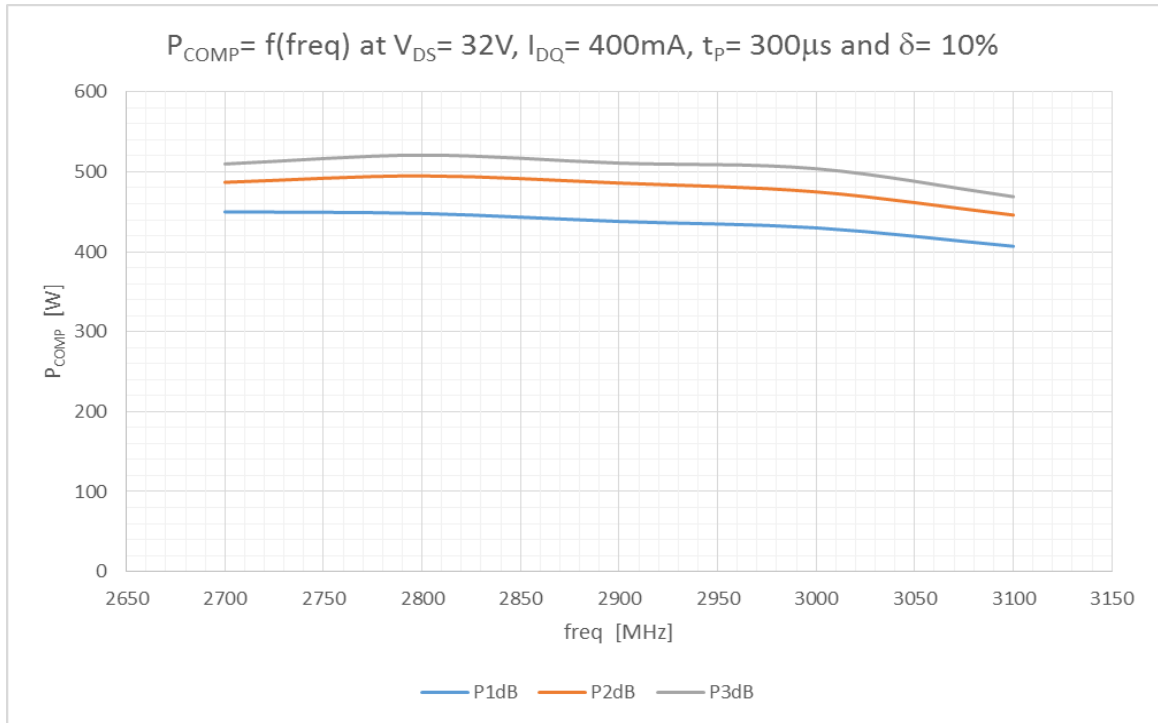


Figure 4 Compressed Power

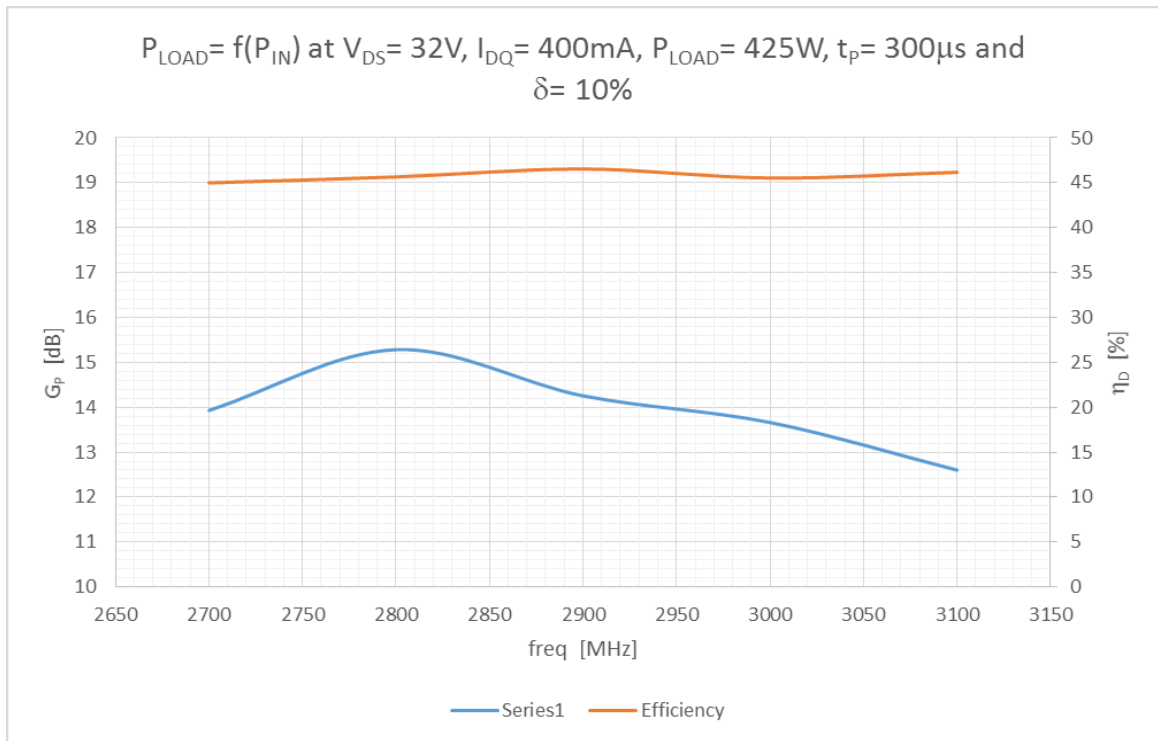
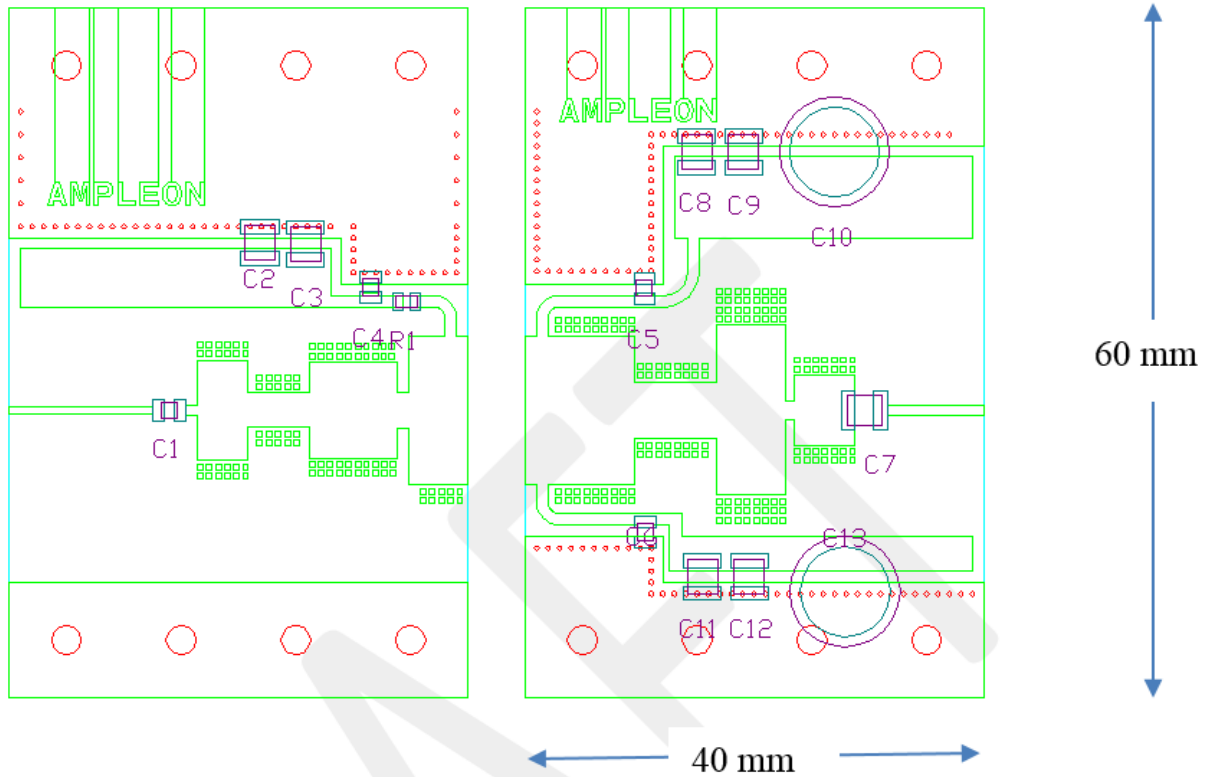


Figure 5 Performance at 425 W

5.1 Hardware



Components list application circuit.

C1	12 pF	ATC800A
C4, C5, C6	15 pF	ATC800A
C7	33 pF	ATC800B
C2, C8, C11	1 nF	ATC800B
C3, C9, C12	10 μF	Murata GRM55DR61H106KA88L
C10, C13	100 μF	63 V, Electrolytic capacitor
R1	5 Ω	0603 SMD Resistor

PCB Material: Rogers 4360G2, 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	BLS9G2731LS-400
Marking	BLS9G2731LS-400, m1611, Philippines
Comments	Engineering sample

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