AR181046

BLSC9G2731XS-200, 2700 to 3100MHz

v1.0 — 12 April 2018

Application Report

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 BLSC9G2731XS-200

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20170119	Initial document	Hans Mollee

2. Contents

3. List of figures

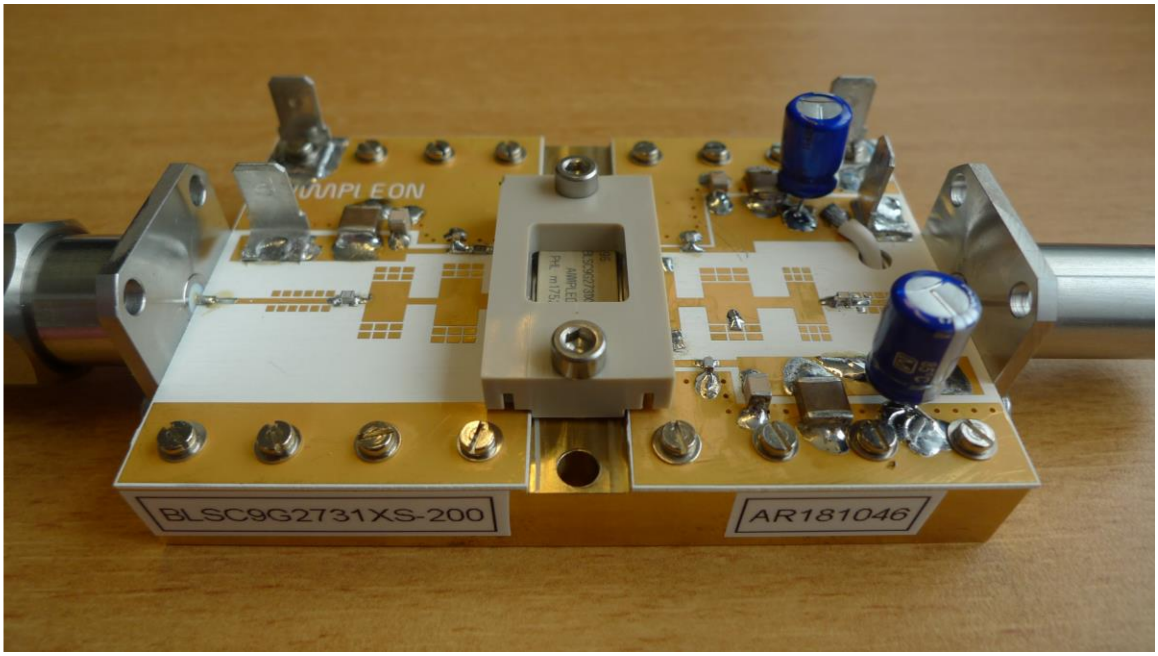
4. List of tables

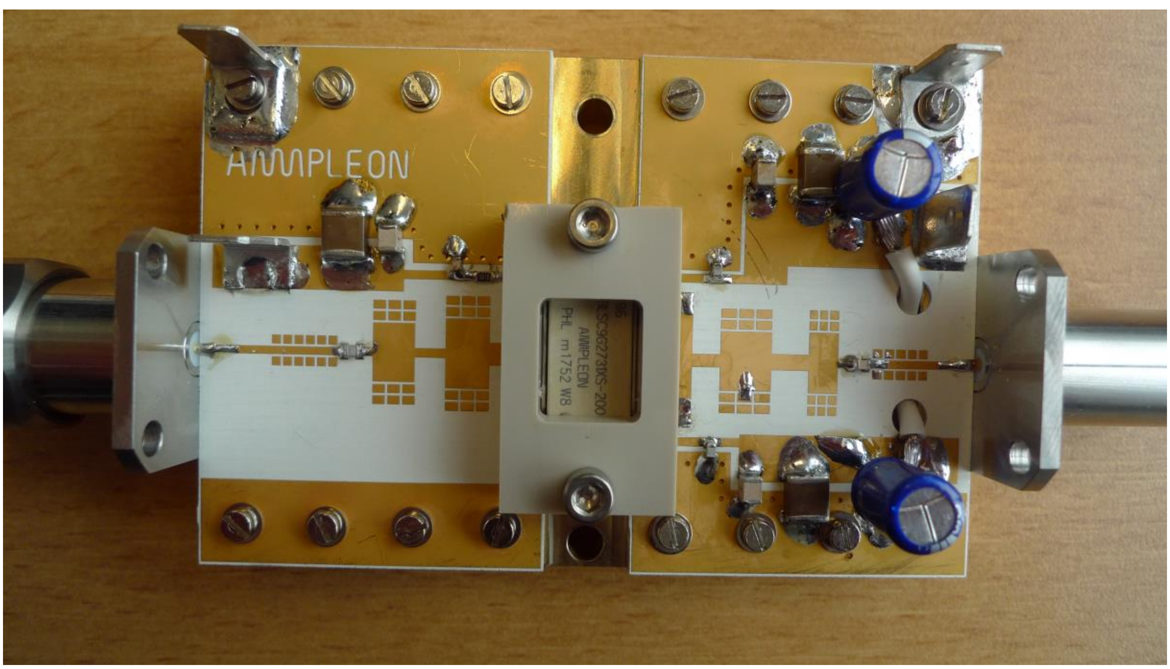
5. General description

This report presents the measurement results of the Class-AB demo AR181046. The device used is a BLSC9G2731XS-200, a 9th generation LDMOS transistor in a single ended ACP3-package. The presented demo is tuned for the frequency band 2700 to 3100MHz.

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 200 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 10µF SMD capacitors (C7 and C12) on the drain supply. These spikes will be reduced to virtually zero.


AMPLEON
BLSC9G2731XS-200
AR181046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5.1 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.

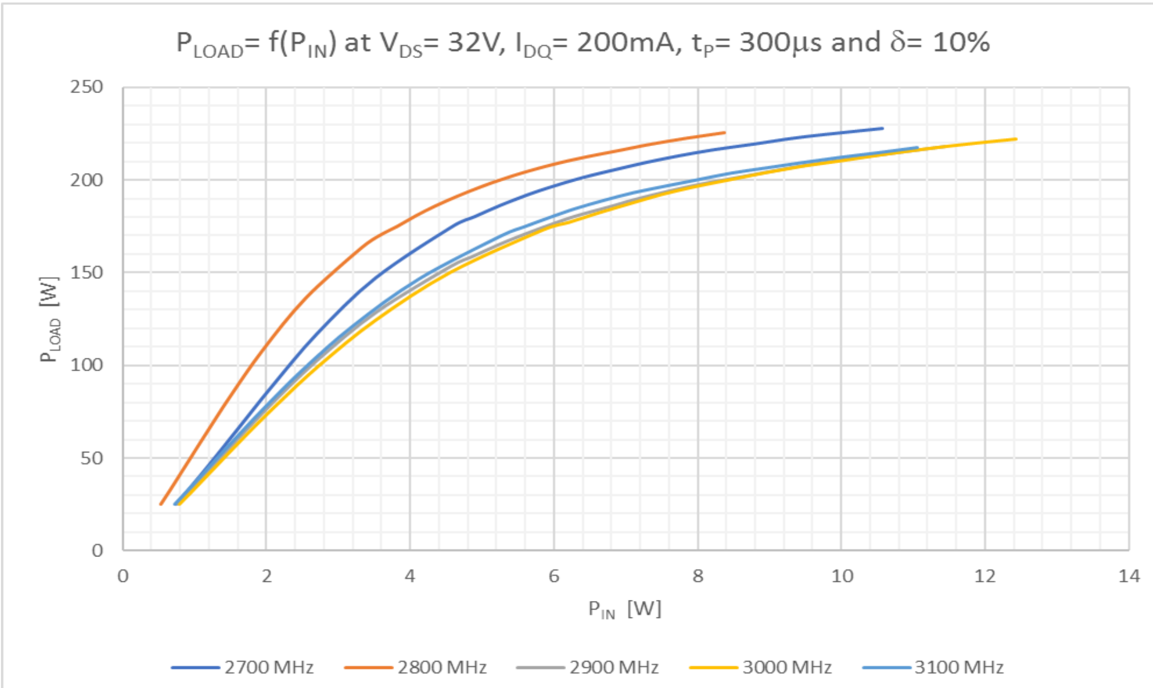


Figure 1 **P_{LOAD} vs P_{IN}**

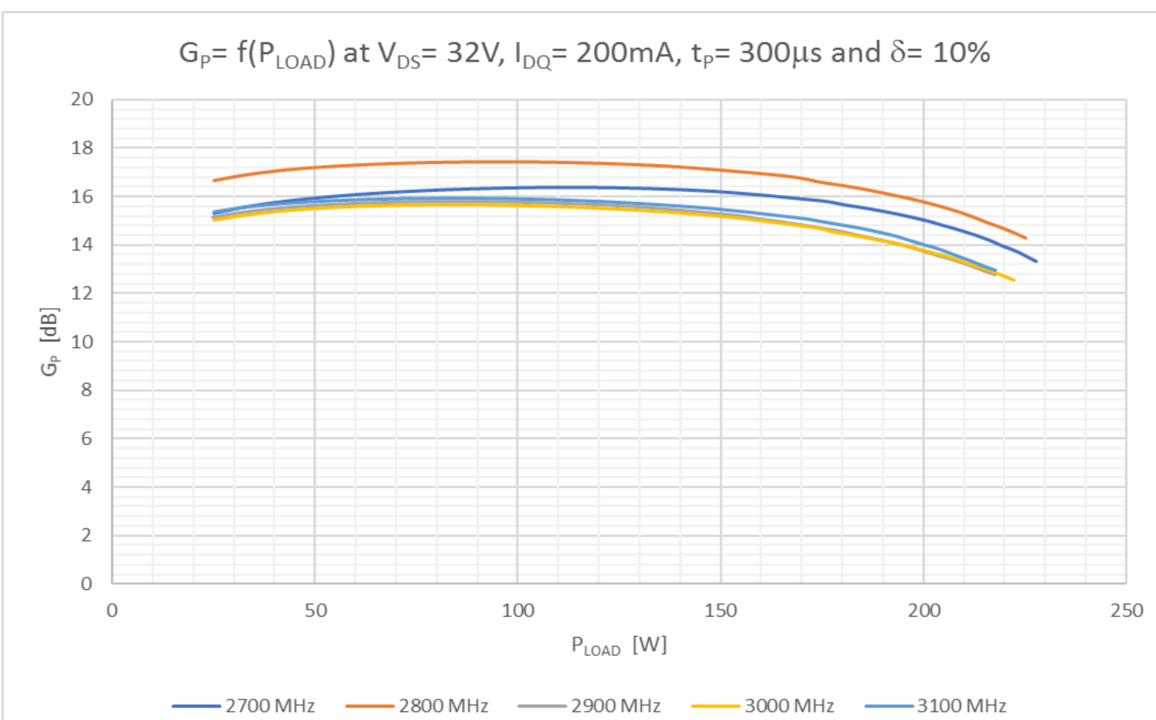


Figure 2 **Gain vs P_{LOAD}**

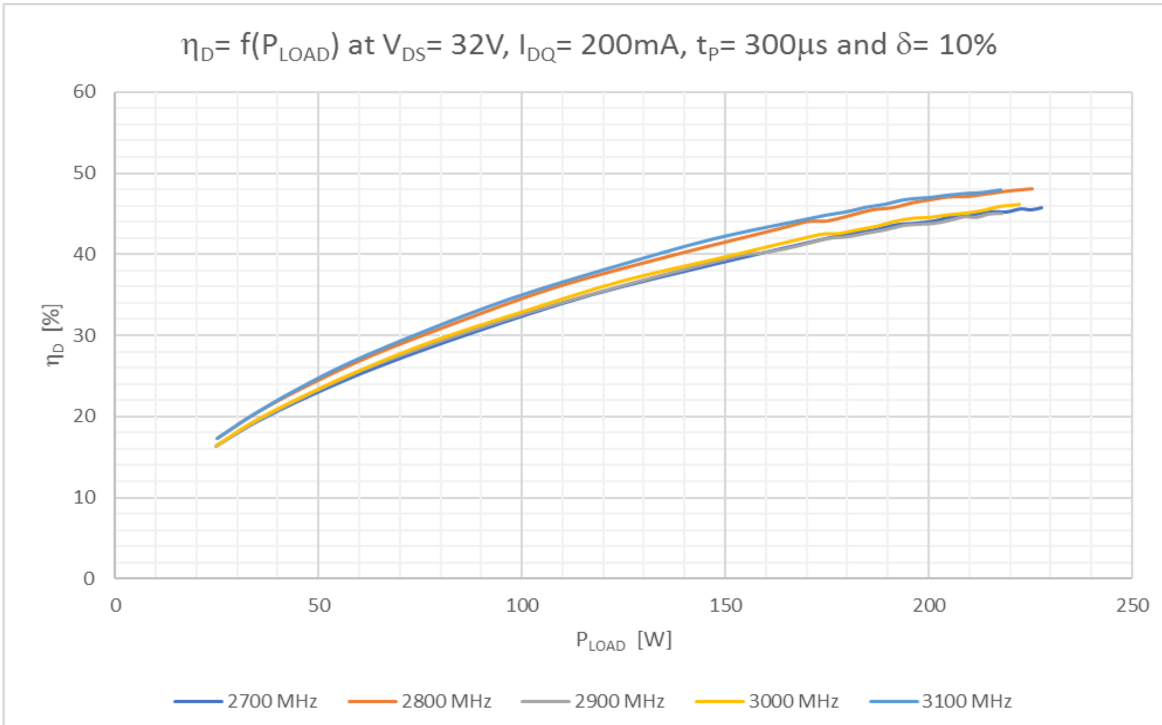


Figure 3 Drain efficiency vs P_{LOAD}

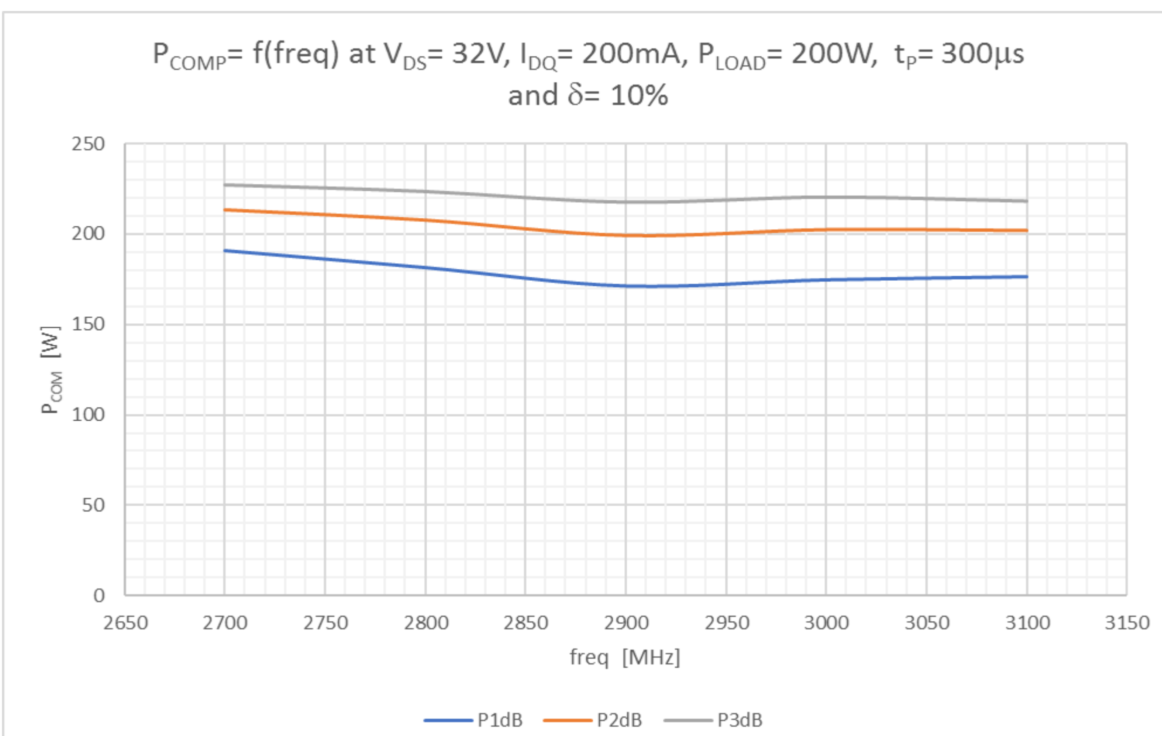


Figure 4 Compressed Power

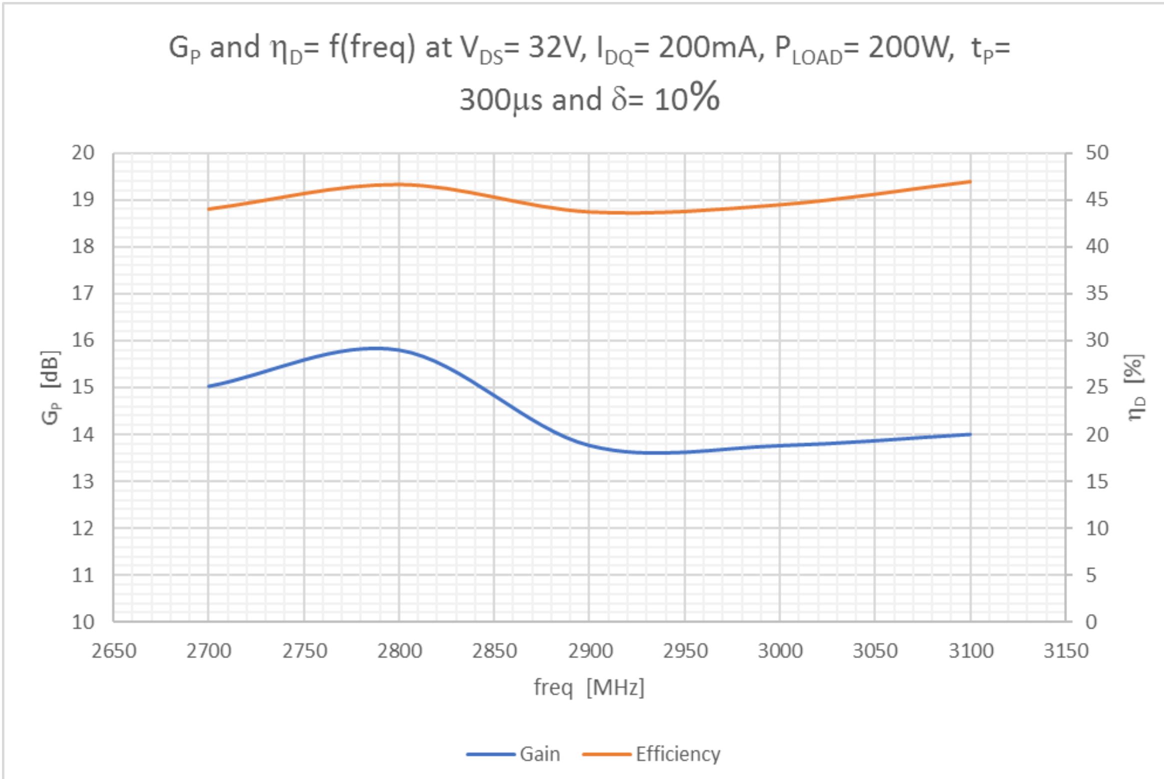
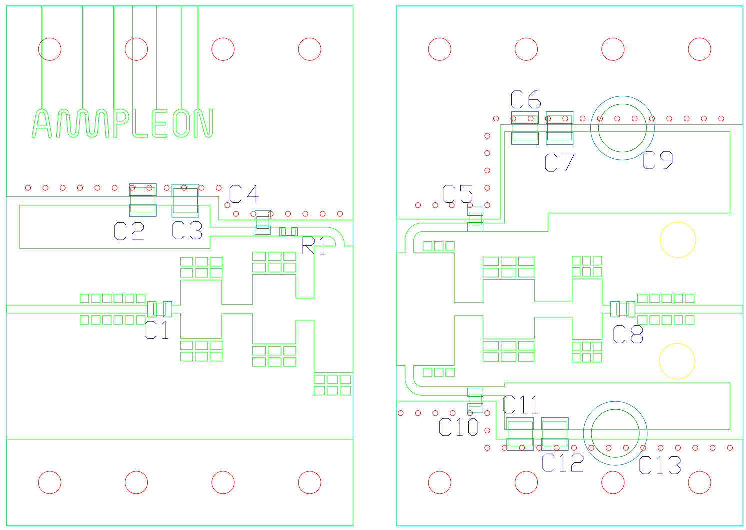


Figure 5 Performance at 200W

6. Hardware



Components list application circuit.		
C1	15 pF	ATC800A
C4	15 pF	ATC100A
C8	3.3 pF	ATC100A
C5, C10	10 pF	ATC800A
C3, C6, C11	1 nF	ATC100B
C2, C7, C12	10 μF	Murata GRM55DR61H106KA88L
C9, 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, ε_R = 6.15, Cu = 35 micron

6.1 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

6.2 Device markings

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLSC9G2731XS-200
Marking	BLSC9G2731XS-200, m1752
Comments	Engineering sample

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