

AR191162

BLP0427M9S20, 902-928MHz

v1.0 — 22-October-2019

AMPLEON

Application Report

Document information

Status	Company Confidential
Author(s)	Harrie Rahangmetan
Abstract	Measurement results of a Class AB design for the 902-928MHz band with the BLP0427M9S20

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20191023	Objective test report	Harrie Rahangmetan

2. Contents

1. Revision History	2
2. Contents	2
3. List of figures	2
4. List of tables	2
5. Introduction	3
5.1 General description	3
5.2 Test object details	3
5.3 Used Test signals	3
5.4 Test circuit	3
6. Measurement Results	4
6.1 Summary CW Power Sweeps Vds=28V, Idq=60mA (AR191163)	4
6.2 Gain & Efficiency @ Frequency=902-915-928MHz, Vds=28V	4
6.3 Summary CW Power Sweeps Vds=25V, Idq=60mA (AR191162)	5
6.1 Gain & Efficiency @ Frequency=902-915-928MHz, Vds=25V	5
7. Appendix A – PCB Layout	6
7.1 PCB Layout Drawing	6
7.2 Component list	6
8. Photo's Demo Board	7
9. Legal information	8
9.1 Definitions	8
9.2 Disclaimers	8
9.3 Trademarks	8
9.4 Contact information	8

3. List of figures

Figure 1 CW	Gain and Efficiency vs Pout [W] at Vds=28V	4
Figure 2 CW	Gain and Efficiency vs Pout [W] at Vds=25V	5
Figure 3 PCB	Layout Drawing	6
Figure 4 Picture	Top View Demo Board	7
Figure 5 Picture	Side View Demo Board	7

4. List of tables

Table 1:	Report revisions	2
Table 2:	Component list	6

5. Introduction

5.1 General description

This document shows the measurement results of a 902-928MHz demo amplifier (BoardAR191162) with 1xBLP0427M9S20.

5.2 Test object details

Transistor type:	BLP0427M9S20(Soldered down)
Production code:	TNH1830
Package:	SOT1483-1
Board:	BLP0427M9S20_902-928MHz_PCB (BLP0408H9S30_PCB_470-860MHz)
Demo number:	AR191162

5.3 Used Test signals

CW:	CW
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5.4 Test circuit

A description of this circuit can be found in Appendix A.

Supply voltage (drain-source) is typical 28V. The total Idq will be 60mA. (start with Vgs=1.5V and increase until Idq=60mA)

6. Measurement Results

6.1 Summary CW Power Sweeps $V_{ds}=28V$, $I_{dq}=60mA$ (AR191162)

Freq [MHz]	P1dB [dBm]*	P1dB [W]*	G@P1dB [dB]*	Eff@P1dB [%]*	P3dB [dBm]*	P3dB [W]*	G@P3dB [dB]*	Eff@P3dB [%]*	S11 [dB]@20W
902.00	44.3	26.96	21.9	72.6	44.8	30.31	19.9	75.4	-10.7
915.00	44.1	25.44	22.3	73.1	44.6	28.79	20.3	75.7	-21.2
928.00	43.8	23.92	22.1	73.2	44.4	27.35	20.1	75.8	-16.7

6.2 Gain & Efficiency @ Frequency=902-915-928MHz, $V_{ds}=28V$

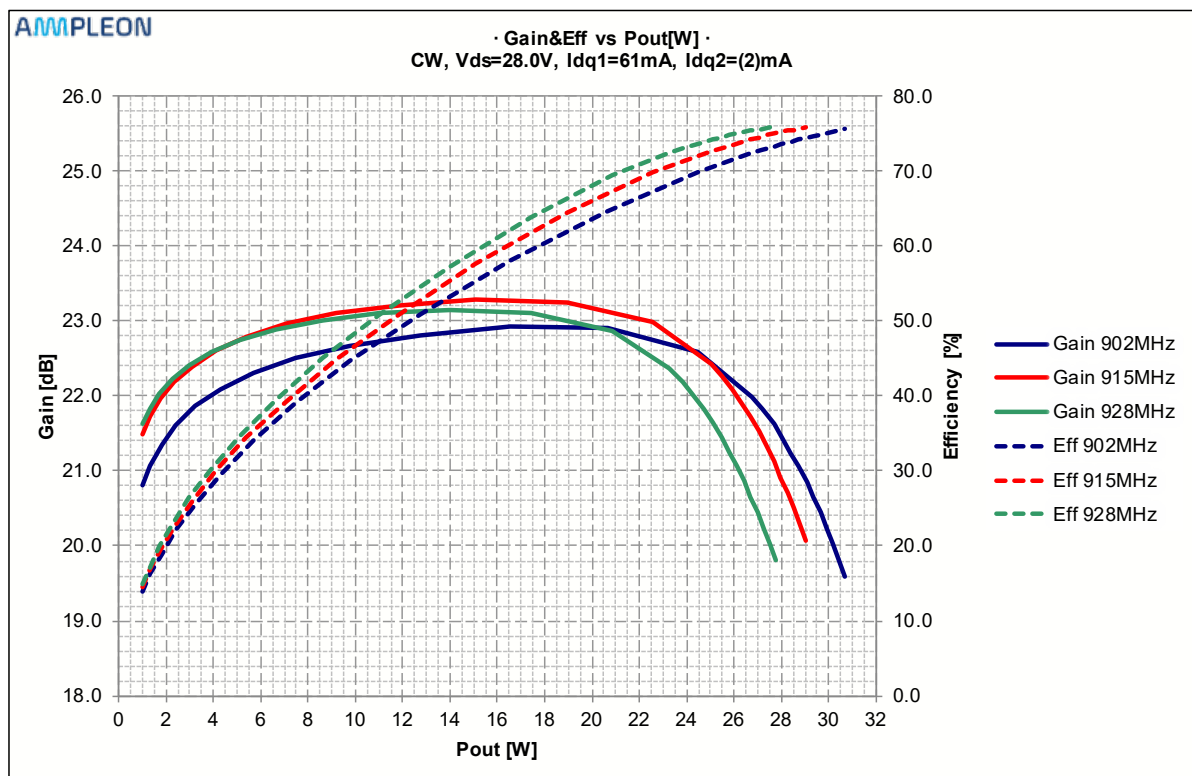


Figure 1 CW Gain and Efficiency vs Pout [W] at $V_{ds}=28V$

6.3 Summary CW Power Sweeps $V_{ds}=25V$, $I_{dq}=60mA$ (AR191162)

Freq [MHz]	P1dB [dBm]*	P1dB [W]*	G@P1dB [dB]*	Eff@P1dB [%]*	P3dB [dBm]*	P3dB [W]*	G@P3dB [dB]*	Eff@P3dB [%]*	S11 [dB]@20W
902.00	43.3	21.53	21.8	73.7	43.8	24.20	19.8	76.3	-11.0
915.00	43.0	20.16	22.1	73.7	43.6	22.90	20.1	76.2	-21.6
928.00	42.8	18.85	22.0	73.5	43.4	21.69	20.0	76.0	-15.7

6.1 Gain & Efficiency @ Frequency=902-915-928MHz, $V_{ds}=25V$

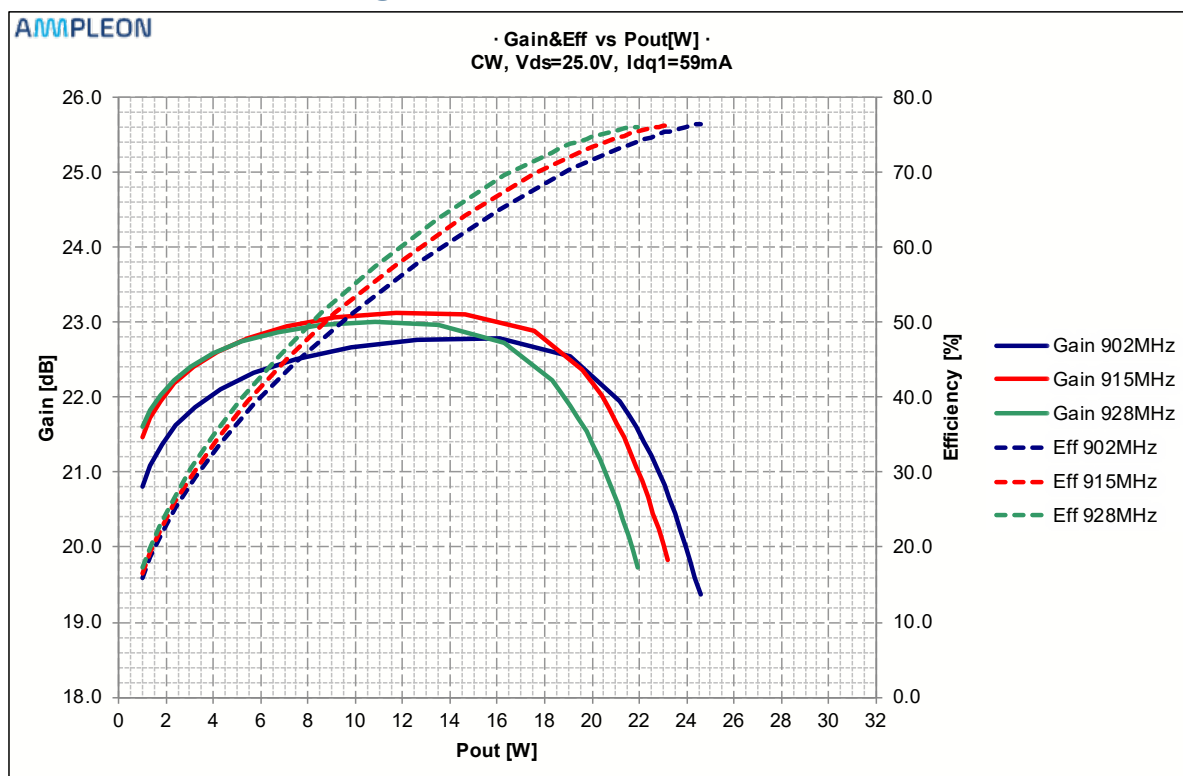


Figure 2 CW Gain and Efficiency vs P_{out} [W] at $V_{ds}=25V$

7. Appendix A – PCB Layout

7.1 PCB Layout Drawing

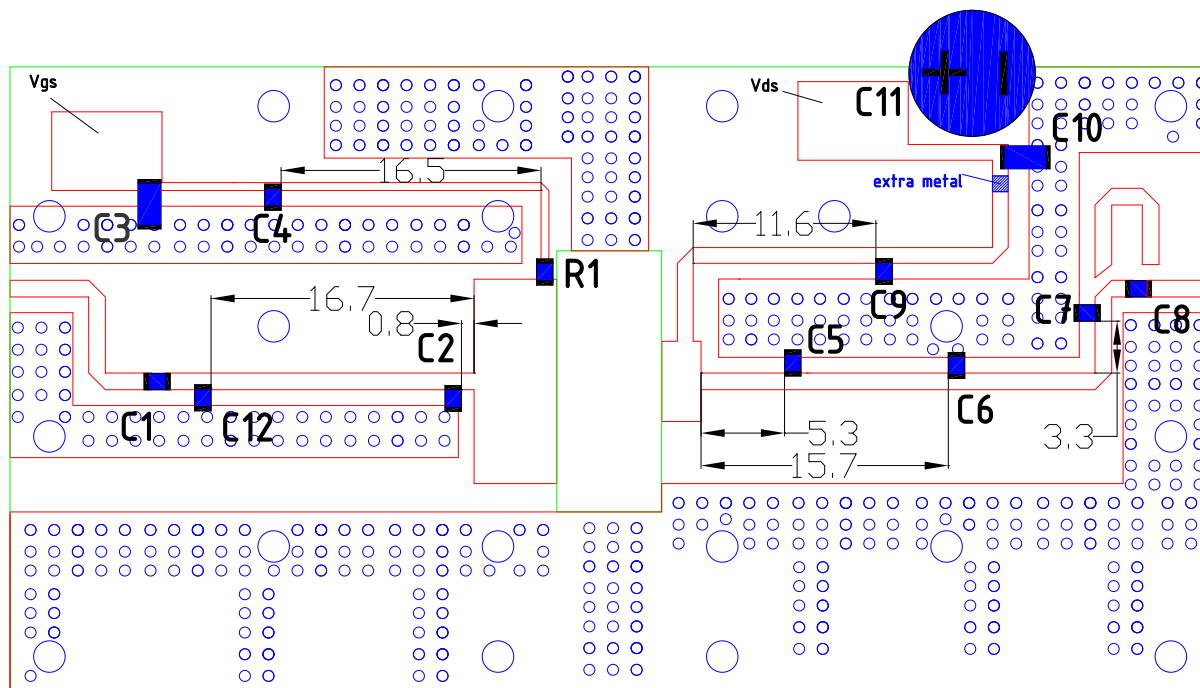


Figure 3 PCB Layout Drawing

7.2 Component list

Table 2: Component list

Designator	Description	Manufacturer	Part #
C3, C10	1uF	Murata	
C1, C4, C8, C9	100pF	ATC	800A
C2	20pF	ATC	800A
C5	15pF	ATC	800A
C6	5.6pF	ATC	800A
C7	1.5pF	ATC	800A
C11	470uF, 63 V electrolytic SMT		
C12	1.0pF	ATC	800A
R1	4k7Ohm 0805		

PC-board Material: 20 mil thick. RO4350B, 1oz copper both sides (top and bottom)

8. Photo's Demo Board

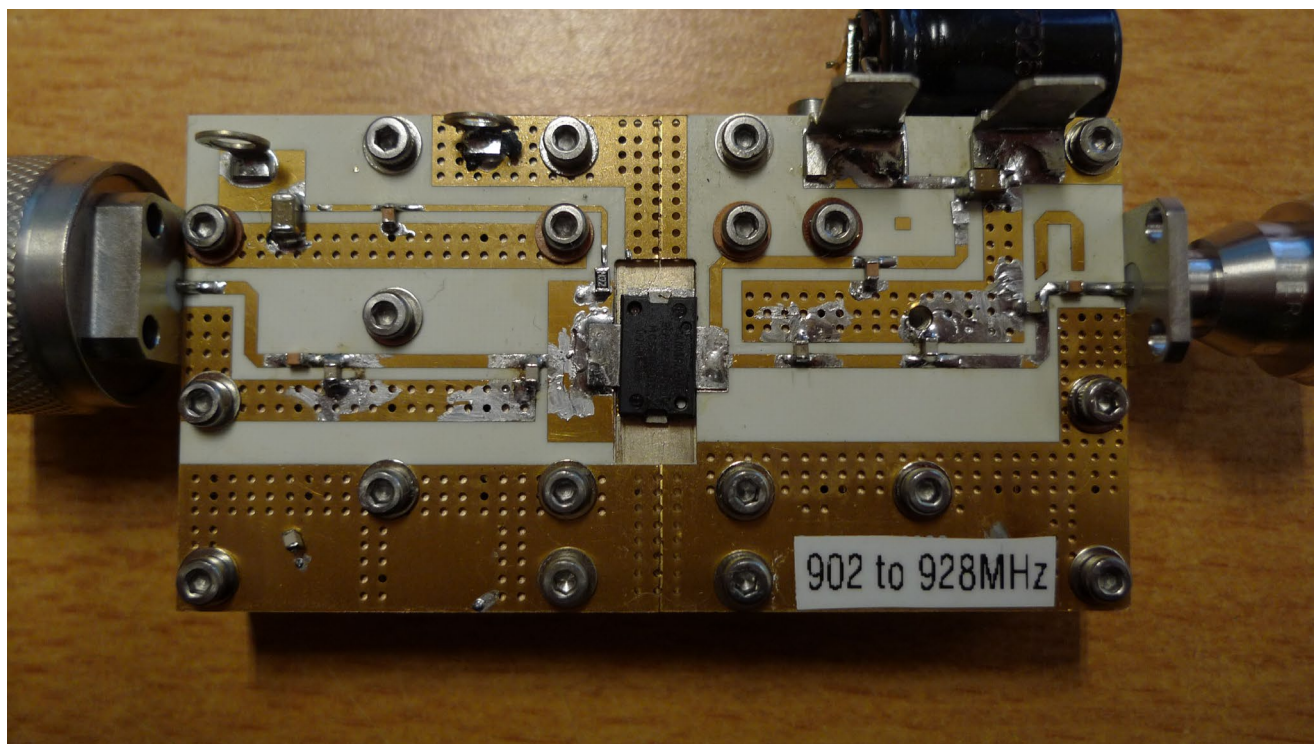


Figure 4 Picture Top View Demo Board

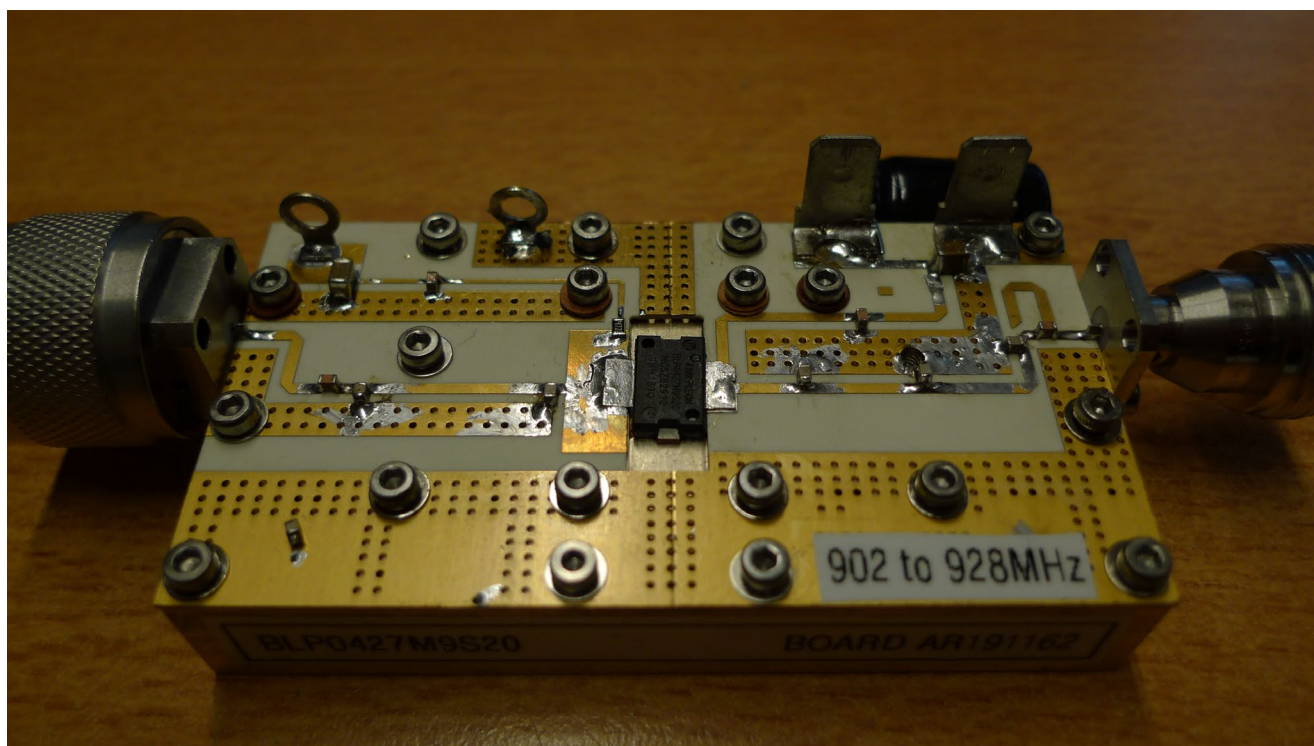


Figure 5 Picture Side View Demo Board

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