

NA-1119

BLF578 at 405-465 MHz

Rev. 3 — 05 October 2015

AMPLEON

Application Measurement
Report

Document information

Info	Content
Keywords	NA-1119
Abstract	Measurement results of a demo board for 405-465 MHz with 1x BLF578.

Revision history

Rev	Date	Description
1	20110224	
2	20150424	Update for web publication
3	20151005	The format of this document has been redesigned to comply with the new identity guidelines of Ampleon. Legal texts have been adapted to the new company name where appropriate.

1. Introduction

1.1 General Description

This document contains measurement results of a 405-465 MHz demo amplifier (Board NA-1119) with 1x BLF578.

1.1.1 Test object details

Transistor type: BLF578 (Pressed down)

Production code:

Package: SOT539

Board: BLF578 rev1 - Input
BLF578 rev1 - Output

Demo number: NA-1119

1.2 Used Test signals

Pulsed CW: Pulsed CW, Pulse Width 100us, Duty Cycle 10%

1.3 Testcircuit

A description of this circuit can be found in **chapter 3**. The test circuit has been designed on Taconic RF35, $h=0.762\text{mm}$, $er=3.48$, $2\times 35\mu\text{m}$. Supply voltage (drain-source) is typical 50V. Increase V_{gs} until the total I_{dq} will be 200mA.

NOTE: Use an electrolytic capacitor of 10000uF parallel to the V_{ds} as close as possible to the demo board. This delivers the current peaks to the demo board.

2. Measurement Results

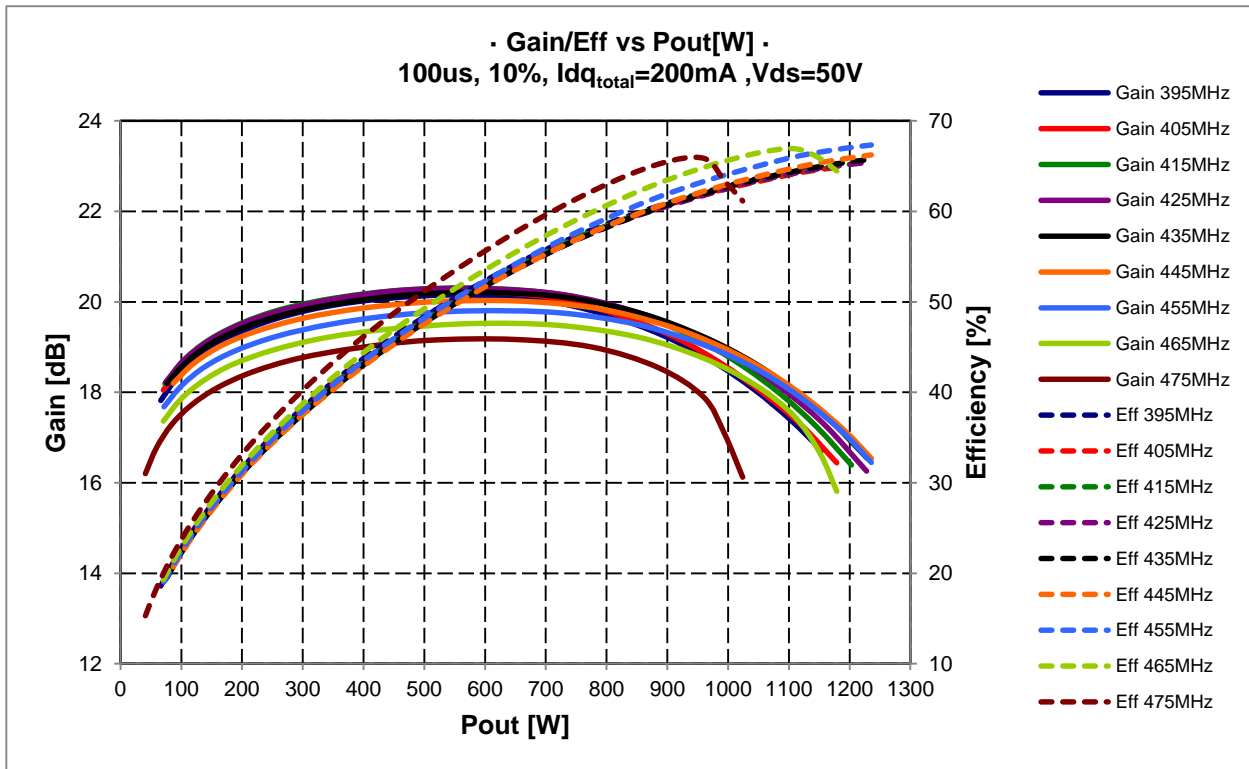
2.1 Summary Pulsed CW – Power Sweep

2.1.1 Gain & Efficiency

Freq [MHz]	MaxGain [dB]	MaxEff [%]	P1dB [dBm]*	P1dB [W]*	Eff@P1dB [%]*	P3dB [dBm]*	P3dB [W]*	Eff@P3dB [%]*
395.0	20.1	64.9	59.6	912.7	61.2	60.5	1123.8	64.5
405.0	20.2	64.9	59.6	915.2	61.0	60.5	1126.0	64.3
415.0	20.3	65.2	59.7	934.4	61.5	60.6	1142.6	64.6
425.0	20.3	65.4	59.8	945.5	61.5	60.6	1159.8	64.8
435.0	20.2	65.7	59.9	967.7	62.1	60.7	1183.4	65.3
445.0	20.0	66.2	60.0	992.2	62.9	60.8	1204.0	65.9
455.0	19.8	67.3	60.0	1009.1	64.3	60.8	1215.3	67.1
465.0	19.5	66.9	60.0	1002.4	65.6	60.6	1157.9	65.6
475.0	19.2	65.9	59.7	930.8	65.6	60.1	1023.3	61.3

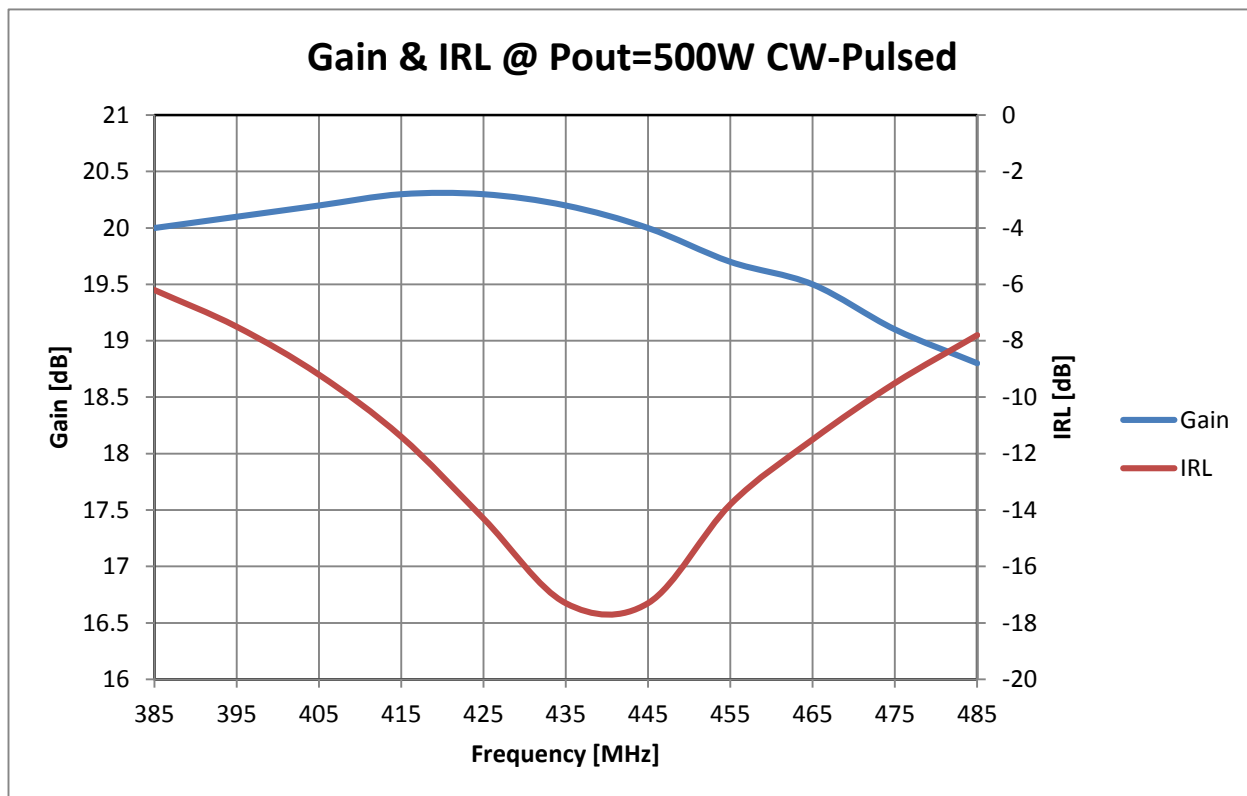
2.2 Pulsed CW – Power Sweep

2.2.1 Gain & Efficiency @ Frequency = 395-475 MHz



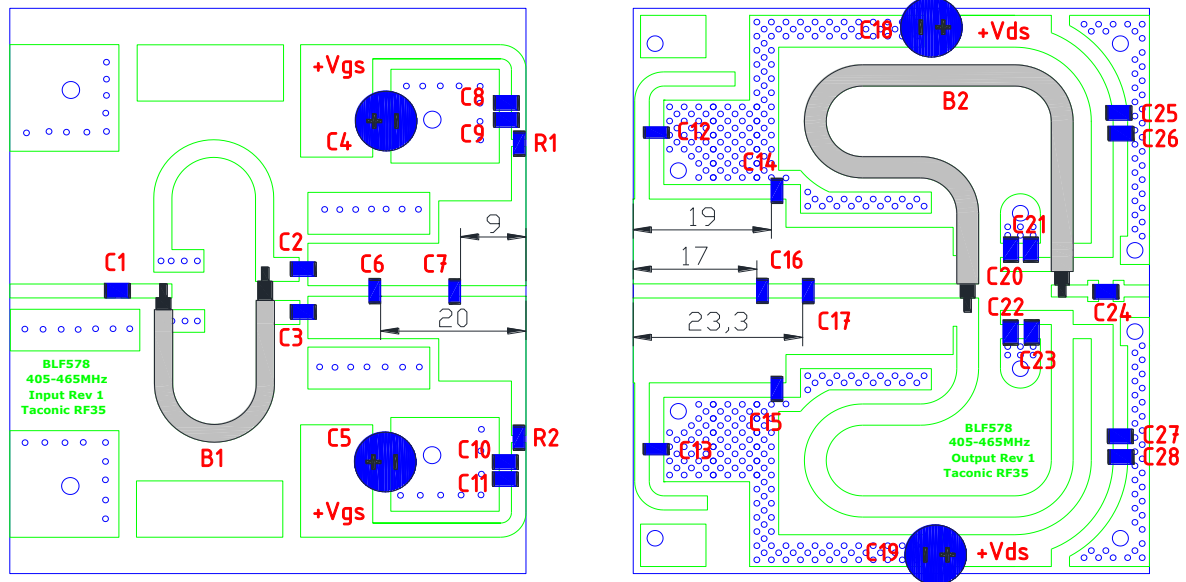
2.3 Pulsed CW – Frequency Sweep

2.3.1 Gain & IRL @ Pout = 500 W pulsed-CW



3. PCB Layout

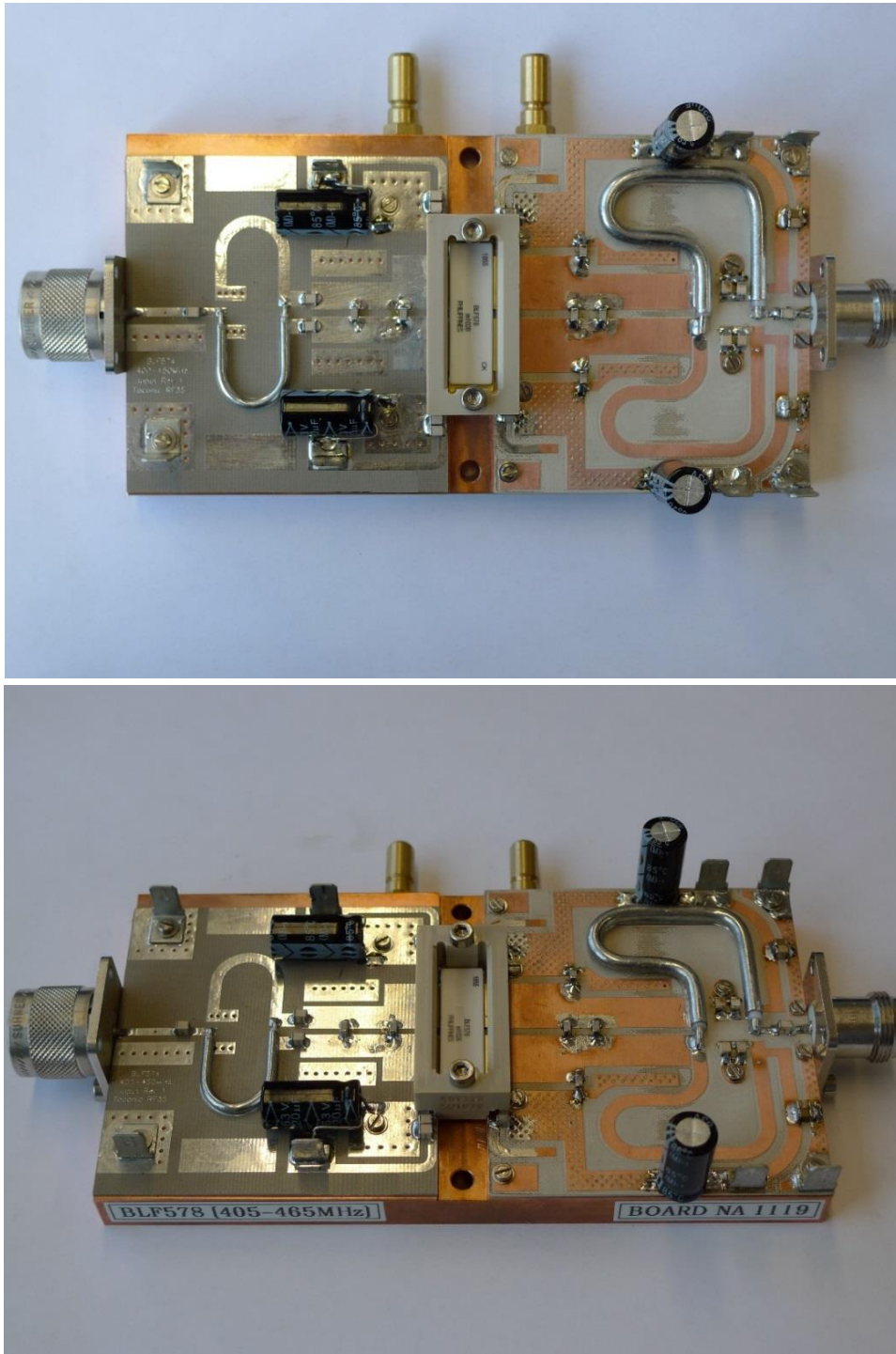
3.1 PCB Layout Drawing



3.2 Component list

Partslist Demo BLF578 405-465MHz 2x 71x80mm application circuit			
Input / Output			
no.	value	type	comment
C1,C8,C9,C10,C11,C20,C22,C24,C26,C27	1nF	ATC100B	soldered on the side
C2,C3	56pF	ATC100B	soldered on the side
C4,C5,C18,C19	220uF 63V	Electrolytic Capacitor	
C6	22pF	ATC800B	soldered on the side
C7,C14,C15	30pF	ATC800B	soldered on the side
C12,C13	100pF	ATC800B	soldered on the side
C16	15pF	ATC800B	soldered on the side
C17	18pF	ATC800B	soldered on the side
C21,C23	240pF	ATC100B	soldered on the side
C25,C28	1uF	Murata	
R1,R2	47Ω		
Balun B1	semirigid Zc=25	UT-090C-25 Length=44.3mm	
Balun B2	semirigid Zc=25	UT-141C-25 Length=101mm	
PCB	Taconic RF35	h=0.762mm, Cu=2x35um	Er=3.48 Input 71mm x 80mm Output 71mm x 80mm

3.3 Photo's Demo Board



4. Attachments

Please see the attachment for the support files.

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