

# CA-029-12

CLF1G0035-50 at 3100-3500 MHz

Rev. 3 — 05 October 2015

AMPLEON

Application Measurement  
Report

## Document information

Info	Content
<b>Keywords</b>	CLF1G0035_50, AB, Pulse
<b>Abstract</b>	RF Performance CLF1G0035-50; 3100-3500 MHz; Board 1841

## Revision history

Rev	Date	Description
1	20120206	Original
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. Demo and Transistor Details

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Frequency Band	3100-3500 MHz
Modulation	Pulsed 100uSec 10%
Transistor	CLF1G0035-50 (soldered down)
Date Code	D114802
Board Number	1841

## 2. Introduction

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This report gives the test results for a CLF1G0035-50, 55W, GaN, single ended class AB demo amplifier. The following tests have been performed.

- Pulsed Gain and Return loss
- Pulsed Peak Power sweep

All testing has been performed at  $V_{DS} = 50V$ ,  $I_{DQ} = 100mA$ , and  $T_H = 25^{\circ}C$

## 3. Test Circuit

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A description of this circuit can be found in **chapter 6**. The test circuit has been designed on Taconic RF35 30mil  $\epsilon_r=3.5$

Supply voltage (drain-source) is typically 50V. An external bias module supplies the sequenced gate bias voltage and can be found in application note: **AN11130**

4. RF Performance

Frequency (MHz)	Gain (dB)		Eff(%)	P <sub>3dB</sub> (dBm)	P <sub>PEAK</sub> (W)
	@ Pout= 55W (47.5dBm)				
3100	11.5		54	47.8	60.6
3200	11.7		55	48	62.5
3300	12.4		55	48	62.8
3400	12.4		54	48	62.6
3500	11.5		56	47.8	60.6

Table 1. RF Performance Summary

### 5. Gain and RL

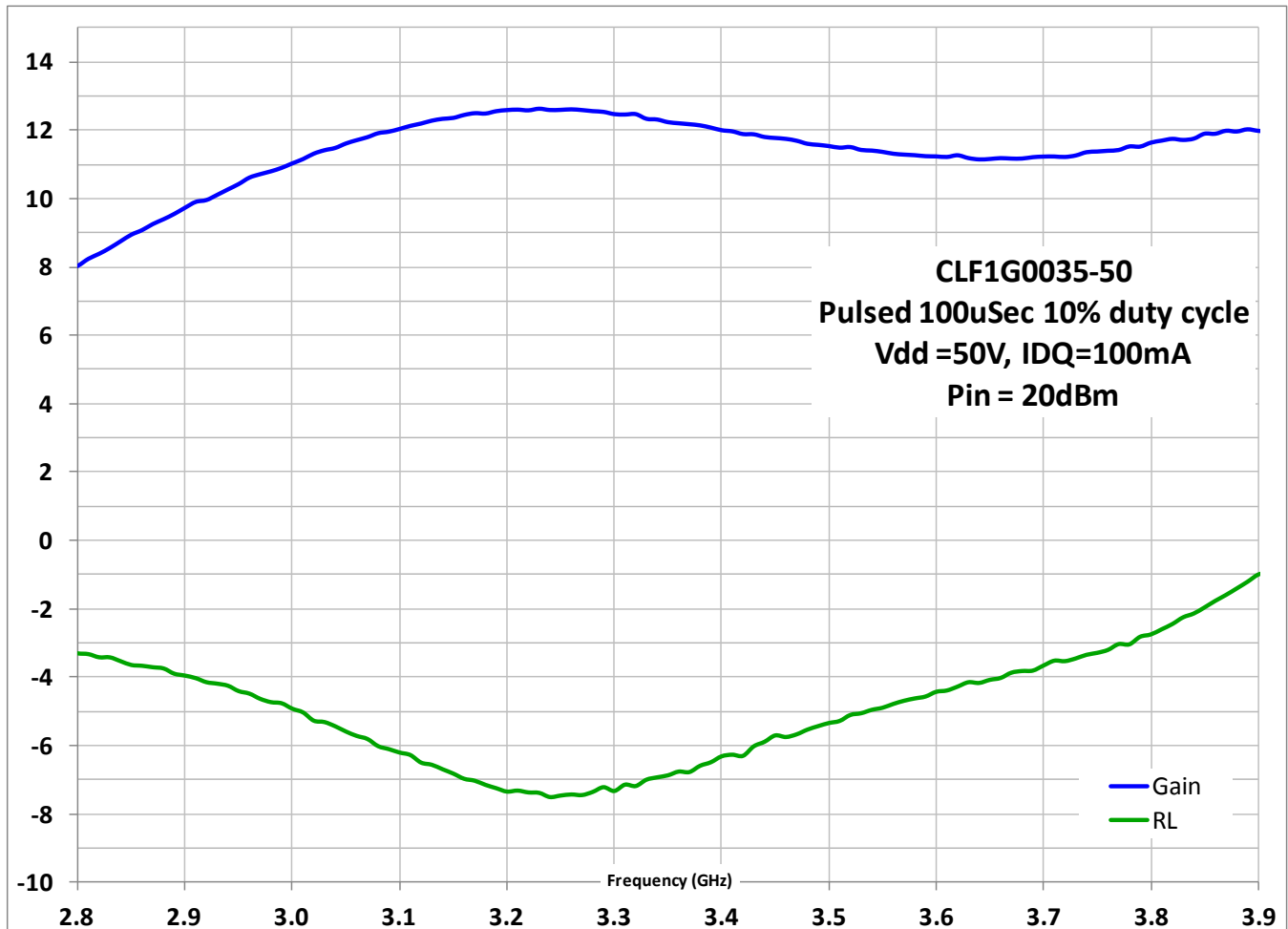


Fig 1. Pulsed Gain and Return Loss 100uSec 10% pulse

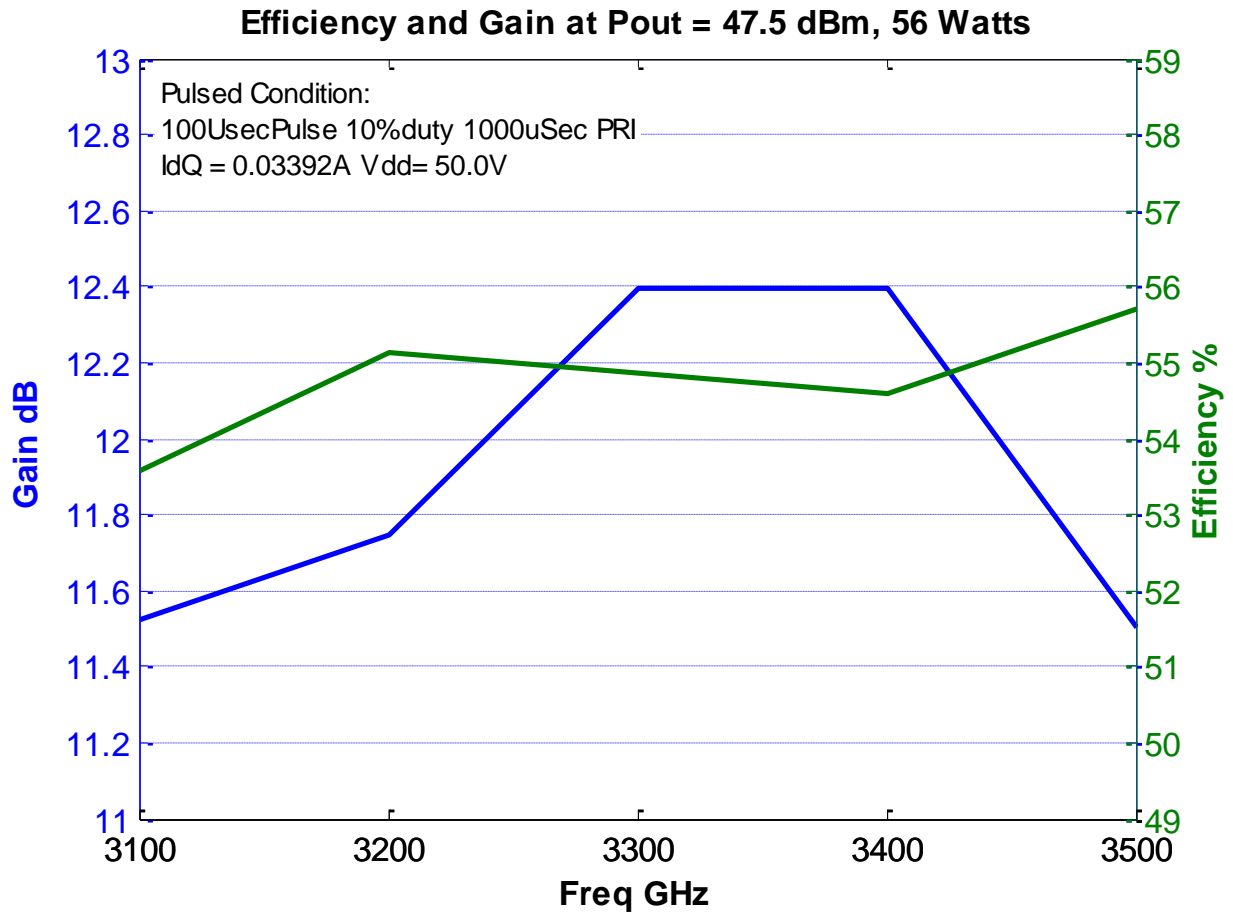


Fig 2. Pulsed Power Gain and efficiency at 55W

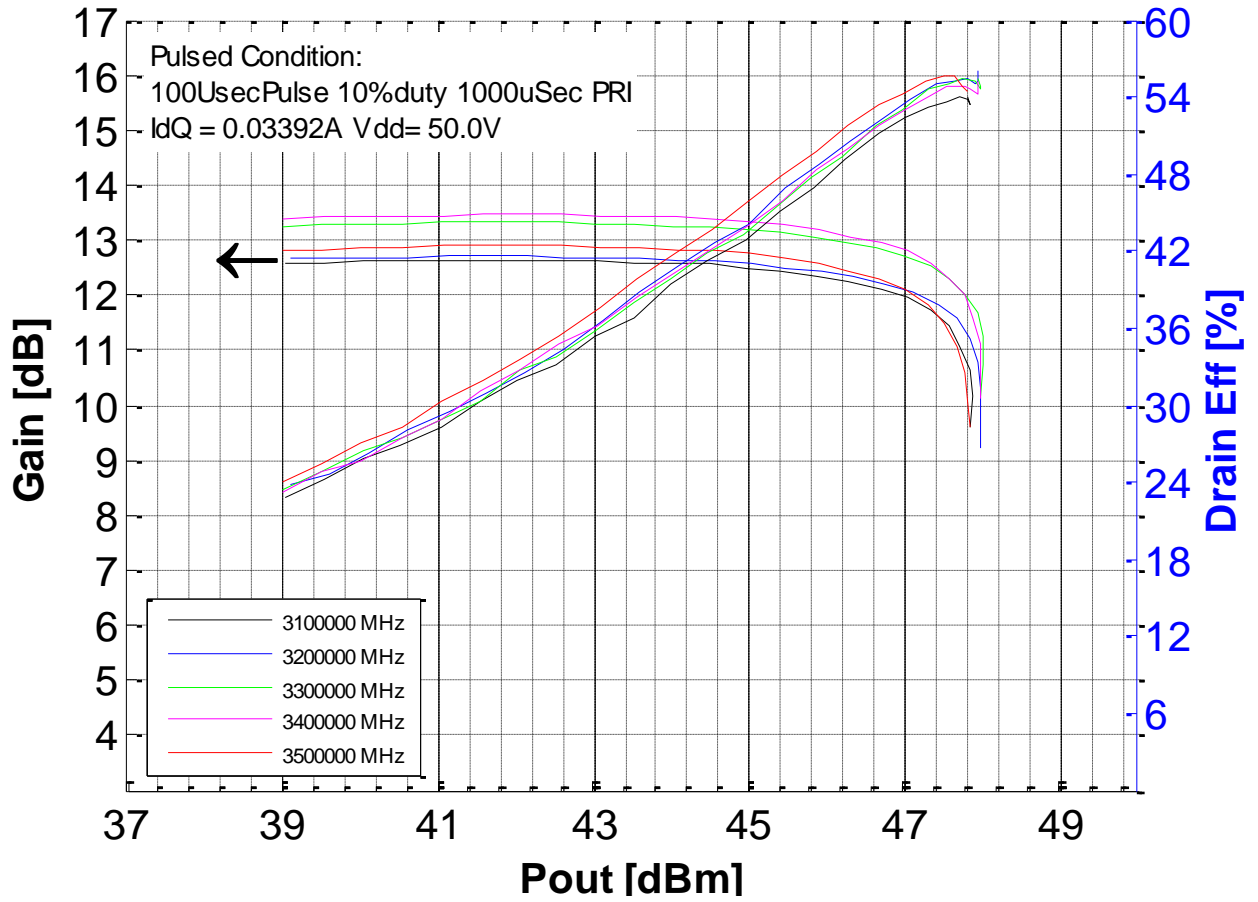


Fig 3. Pulsed Gain and efficiency

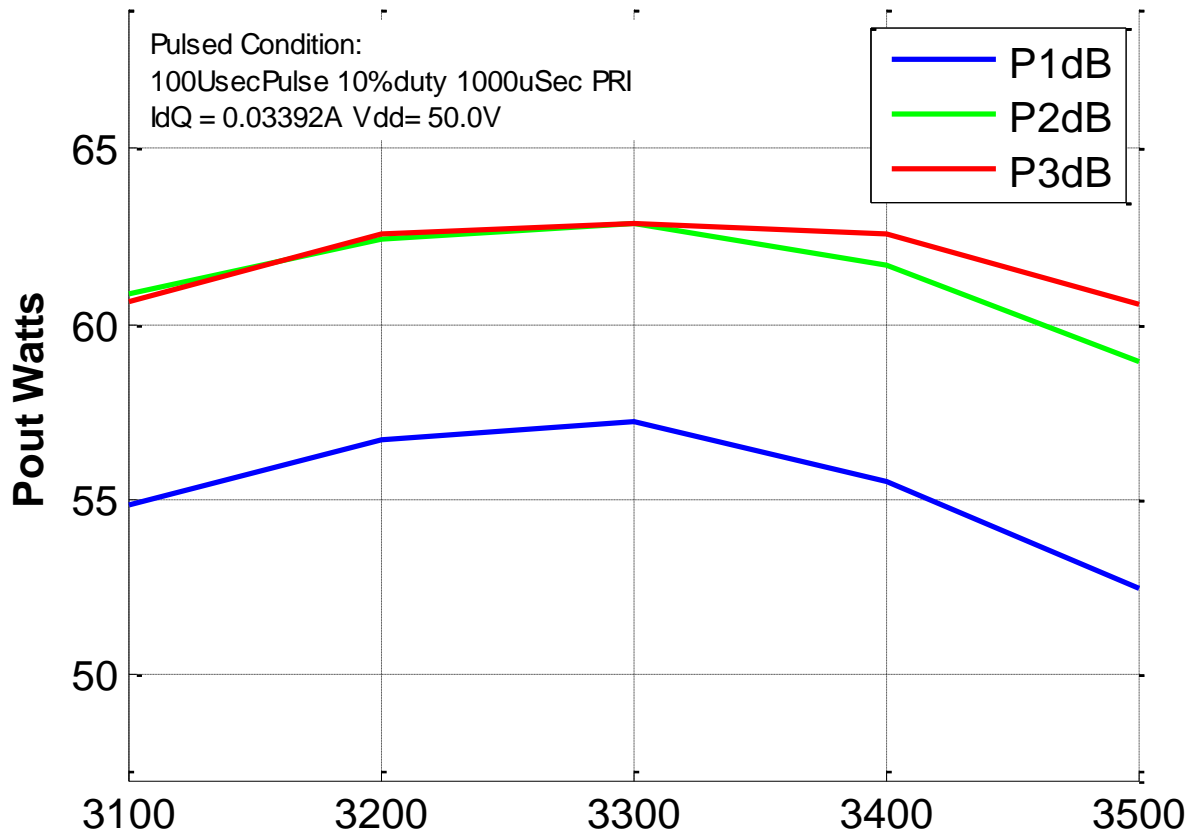


Fig 4. PxdB 100uSec 10% Pulse



6. Test Circuit and Component List

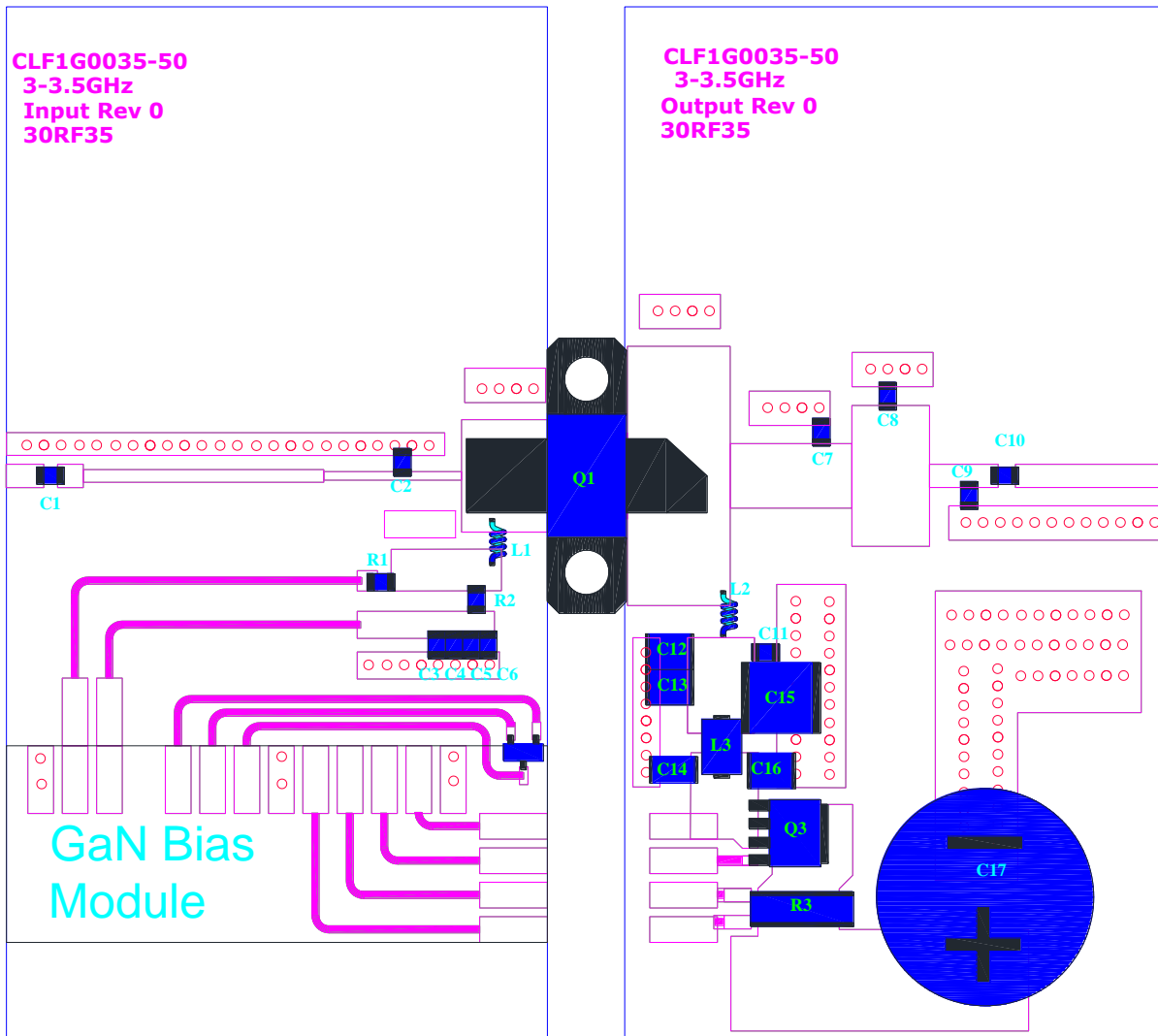


Fig 5. Test Circuit

Designator	Description	Manufacturer	Part #
Input PCB	CLF1G3035-50 Input Rev0	Metro Circuits	
Output PCB	CLF1G3035-50 Output Rev0	Metro Circuits	
Q1	50W GaND114802	Ampleon	CLF1G0035-50
Q2	Transistor, PNP 45V 100mA GP	NXP	BC857B
Q3	Transistor, N-ch MOS 80V 80A	NXP	BSMN8R2-80YS
R1	10kΩ	Vishay Dale	
R2	10Ω	Vishay Dale	
R3	0.005 Ω 1% 100ppm MF, 2W, 3008	Susumu	RL7520WT-R005-F
C17	470uF, 63V Electrolytic SM	Panasonic	PCE3667CT-ND
C1,C10,C11	10pF	ATC	ATC 600F
C2	0.1pF	ATC	ATC 600F
C8	8.2pF	ATC	ATC 600F
C9	0.2pF	ATC	ATC 600F
C12	1nF Capacitor, 100V 10% NP0	ATC	700B
C7	0.4pF	ATC	ATC 600F
C3	100nF Capacitor, 50V 10% X7R, 0805	Generic	
C4	10nF Capacitor, 50V 10% X7R, 0805	Generic	
C5	22pF Capacitor, 100V 5% NP0, 0805	Generic	
C6	1nF Capacitor, 100V 5% NP0, 0805	Generic	
C14	1uF Capacitor, 100V 10% X7R, 1206	Generic	
C13,C16	10nF Capacitor, 200V 5% NP0, 1210	Generic	
C15	10uF Capacitor, 100V 10% X7S, 2220	TDK	C5750X7S2A106M
L1	10nH	Coil Craft	1008CS-100XJB
L2	Ferrite bead, 5A	Fair Rite	2743019447
L3	Inductor, air core	1T 18 AWG 2.5mm ID	
PC-board Material: Taconic RF35, εr = 3.5 , thickness 30mils, 1oz copper each side			

Table 2. BOM

### 7. Photo

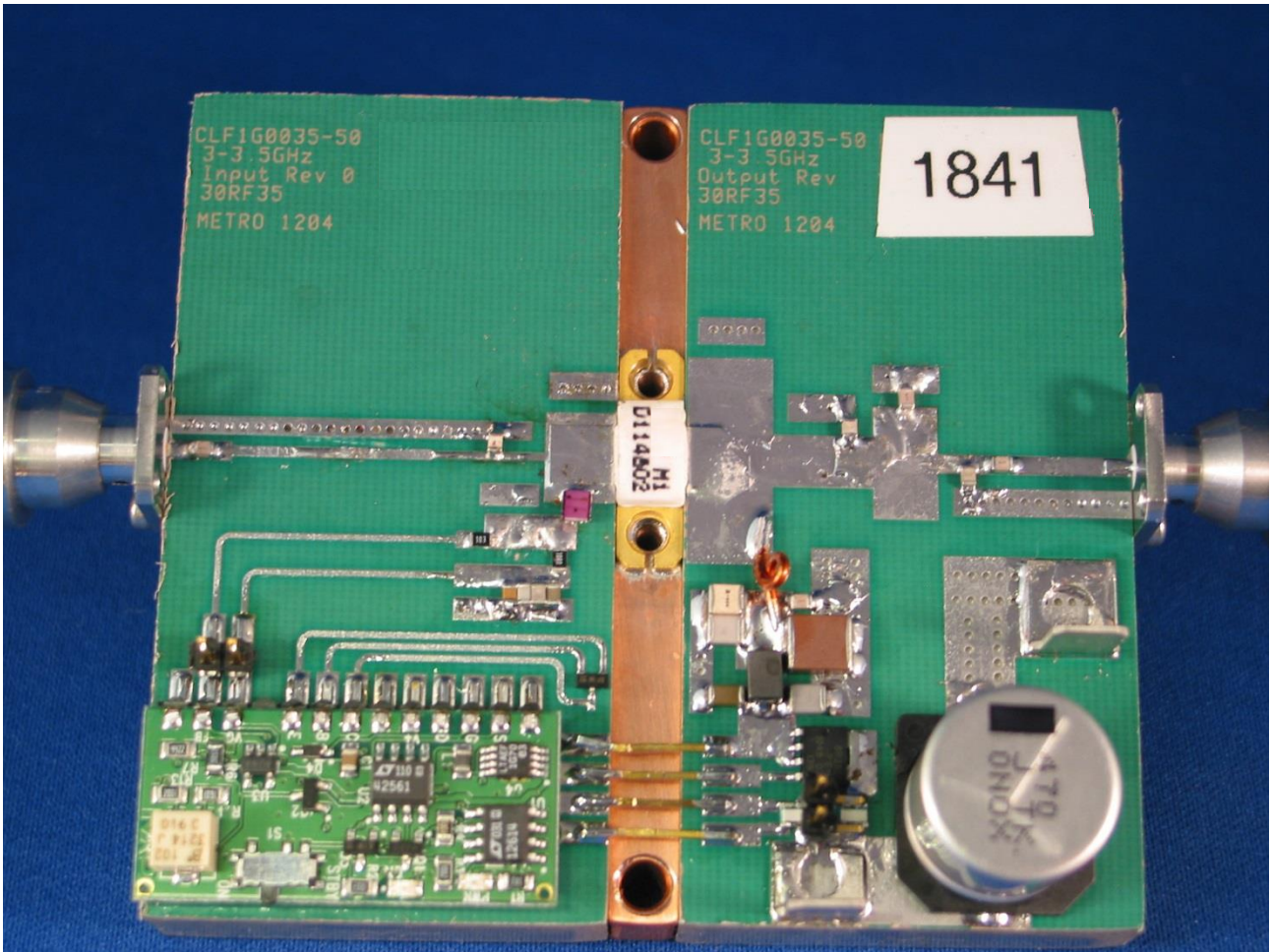


Fig 6. Photo

### 8. Attachments

Please see the attachment for the support files.

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