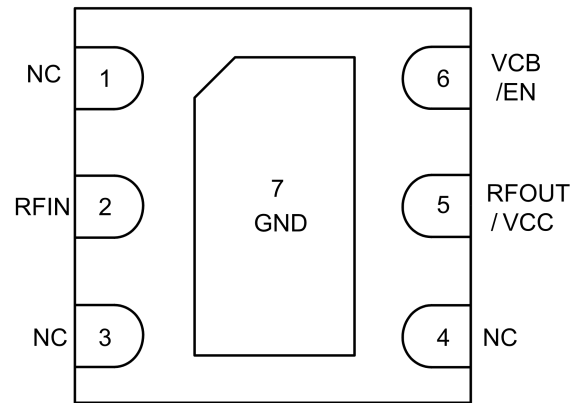


Features

- 1MHz to 3GHz operational
- Typical +30dBm P1dB
- 18dB Gain at 900MHz
- Typical +43 dBm OIP3
- 5V typical supply, 68mA Current at VCB=3V
- ESD protection all ports above 1000V HBM
- Industry Standard DFN1.5x1.5-6L Package
- Linearity and thermal compensation with Integrated Active Bias Circuit



Functional Block Diagram

Applications

- | | |
|-----------------------------------|----------------------------|
| ■ IOT | ■ HaLow |
| ■ BTS High Power Amplifiers | ■ GSM / CDMA / PCS |
| ■ LoRa | ■ ISM |
| ■ GPS / COMPASS / BDS / WALK TALK | ■ General Purpose Wireless |

Product Description

The YG401530C is an InGaP/GaAs MMIC linear amplifier targeted for use as a driver amplifier in wireless infrastructure where high linearity, medium power, and high efficiency are required. The YG401530C delivers high performance across a broad range of frequencies. At 900MHz, the YG401530C typically provides 18dB of gain, 30dBm P1dB and 43dBm OIP3 while drawing 68mA quiescent current from a 5V supply. The YG401530C is assembled in an industry standard DFN1.5x1.5-6L package with internally integrated ESD protection unit.

Pin Description

Pin No.	Symbol	Description
6	VCB/EN	Supply voltage for bias/ 0V disable PA
2	RFIN	RF input
1,3,4	N/C	No Connection
5	RFOUT/ VCC	RF output and Supply voltage
7	GND	Ground

Notes: The Current, Gain and Linearity can be controlled by VCB.

Absolute Maximum Ratings

Parameter	Rating	Unit
Input RF Power	+20	dBm
Supply Voltage	8	V
Device Current	1000	mA
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-40 to +150	°C



Caution!

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

Electrical Specifications

Parameter	Condition	Specification			Unit
		Min.	Typ.	Max.	
Operational Frequency Range		1		3000	MHz
Test Frequency			900		MHz
Small Signal Gain			18		dB
P1dB Output Power			30		dBm
S11			-15		dB
OIP3	Pout=20dBm/ tone, Δf = 1MHz		43		dBm
Supply Voltage		3	5	6	V
Quiescent Current, Icq	VCC=5V, VCB=3V		68		mA

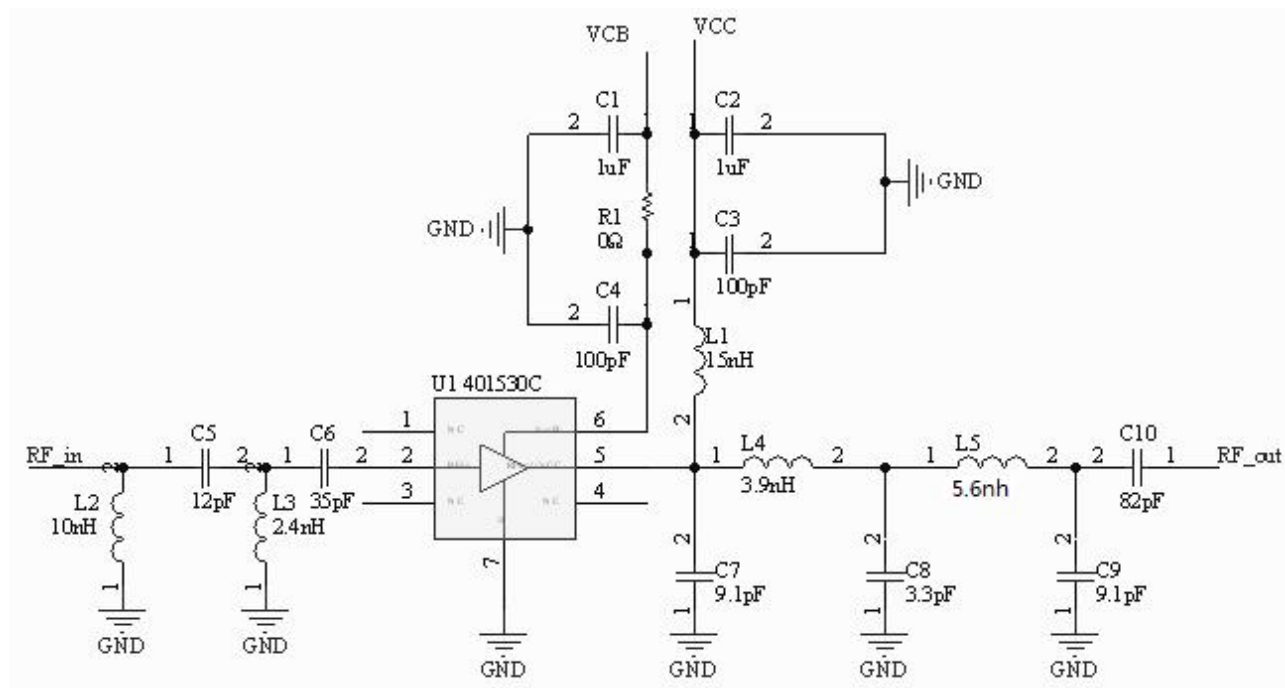
Device Quiescent Current (Icq) vs. VCB at VCC=5V

VCB (V)	0	2.5	3	3.5	4	4.5	5
Icq (mA)	0	7	68	124	171	210	243

NOTE: VCB<2V, YG401530C shut-off

Reference Evaluation Board

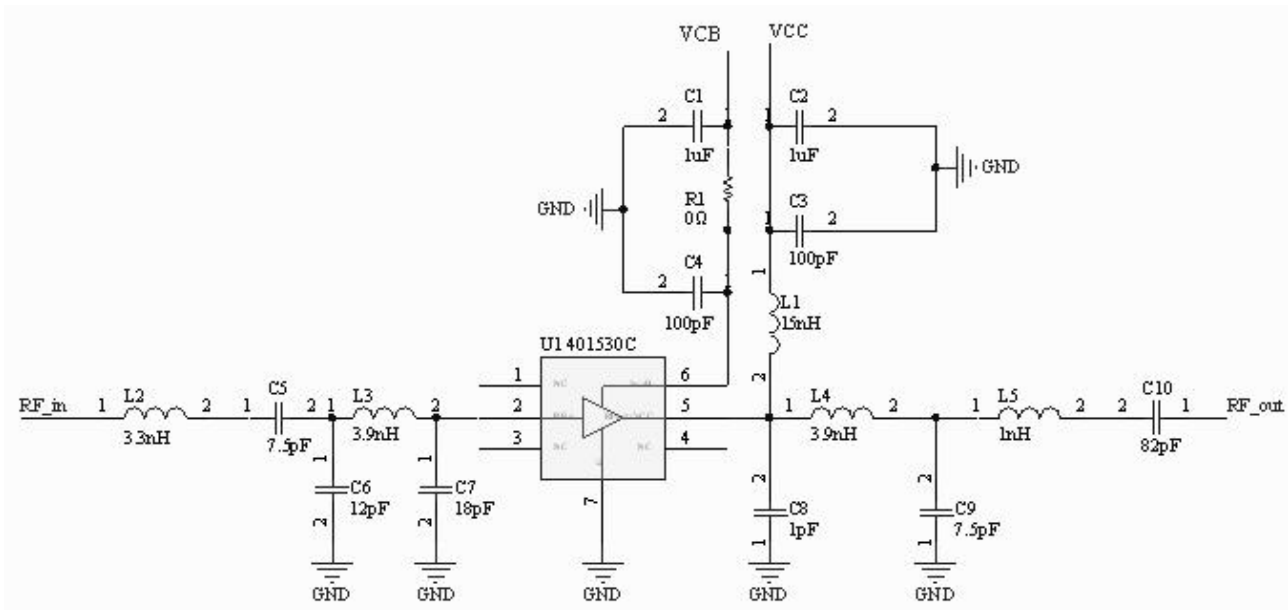
400MHz~470MHz Application



Bias: VCB=3V , I_{BQ}=68mA

VCC(V)	Frequency(MHz)	Gain(db)	Pout(dbm)	Icc(mA)	Efficiency(%)
3.7	400	22	27	225	60
	435	22	27	221	61
	470	22	27	225	60
5	400	22	30	320	62.5
	435	22	30	315	63.4
	470	22	30	345	57.9

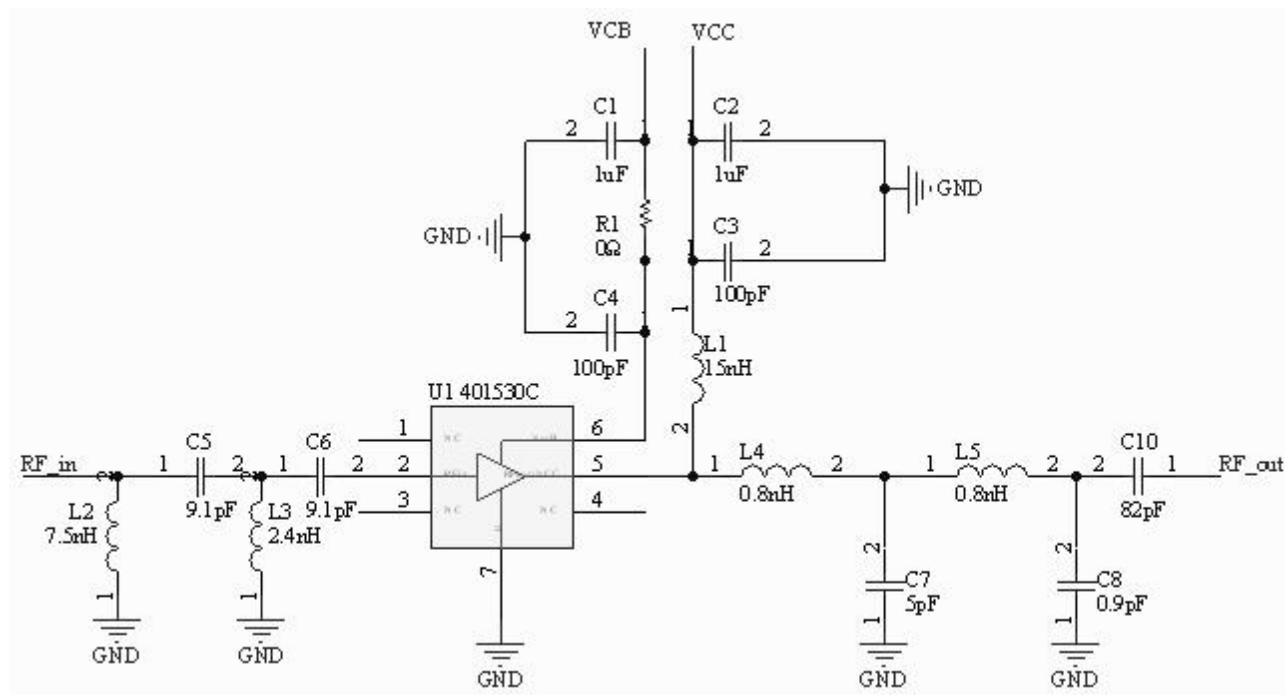
600MHz~700MHz Application



Bias: VCB=3V , IdQ=68mA

VCC(V)	Frequency(MHz)	Gain(db)	Pout(dbm)	Icc(mA)	Efficiency(%)
3.7	600	21	27	244	55.3
	650	21	27	250	54
	700	21	27	257	52.6
5	600	21	30	350	57.1
	650	21	30	367	54.5
	700	21	30	368	54.3

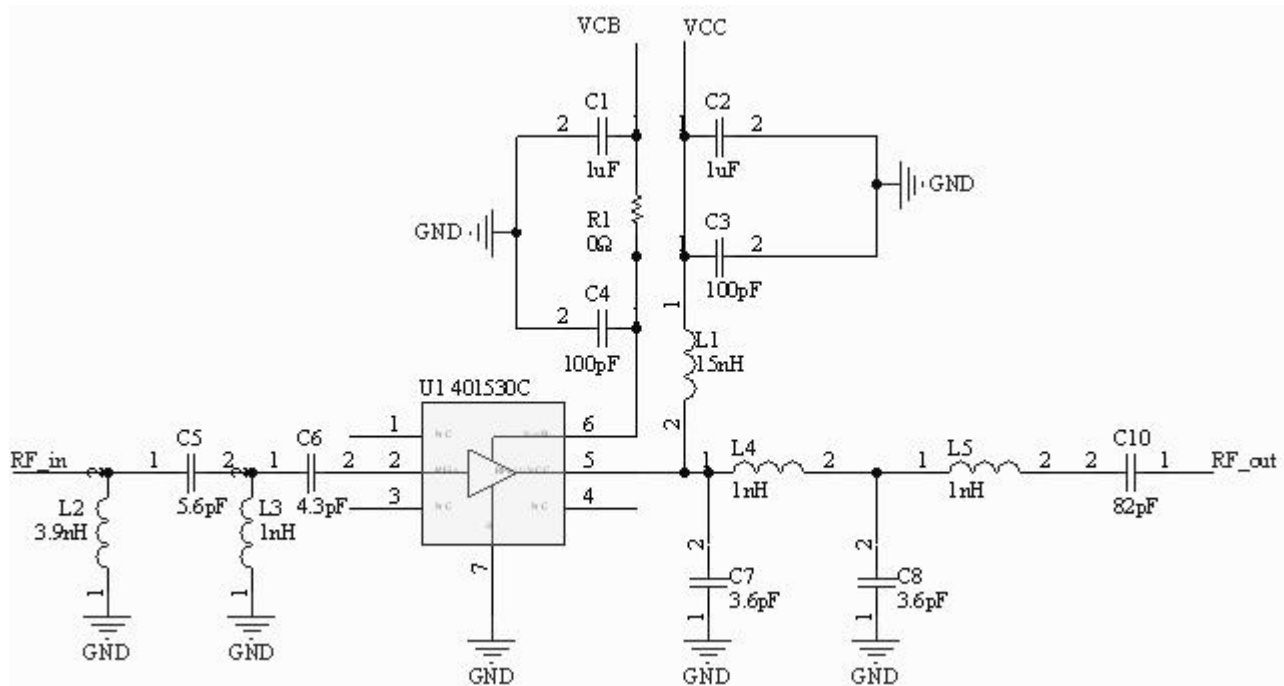
850MHz~950MHz Application



Bias: VCB=3V , I_{DQ}=68mA

VCC(V)	Frequency(MHz)	Gain(db)	Pout(dbm)	Icc(mA)	Efficiency(%)
3.7	850	18	27	232	58.1
	900	18	27	246	54.9
	950	18	27	263	51.5
5	850	18	30	374	53.4
	900	18	30	361	55.2
	950	18	30	371	53.7

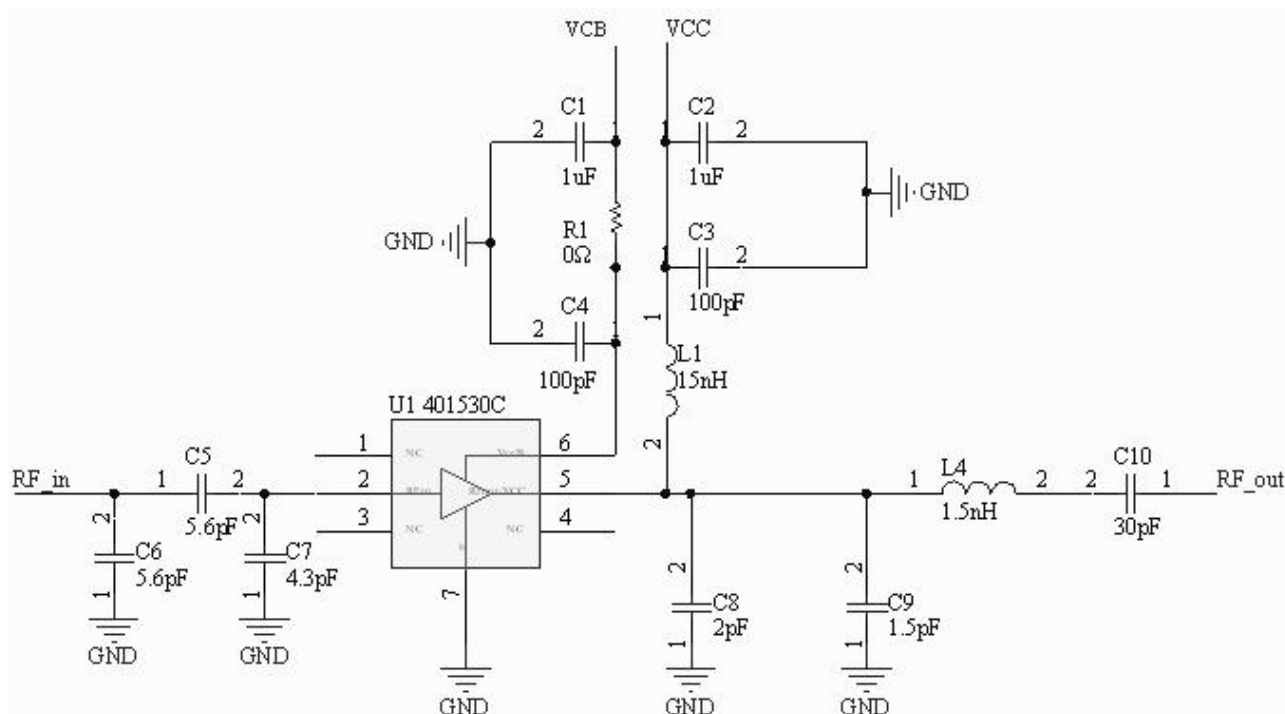
1400MHz~1500MHz Application



Bias: $V_{CB}=3V$, $I_{DQ}=68mA$

VCC(V)	Frequency(MHz)	Gain(db)	Pout(dbm)	Icc(mA)	Efficiency(%)
3.7	1400	14.5	27	319	42.3
	1450	14.5	27	308	43.8
	1500	14.5	27	300	45
5	1400	14.5	30	460	43.4
	1450	14.5	30	435	45.8
	1500	14.5	30	427	46.7

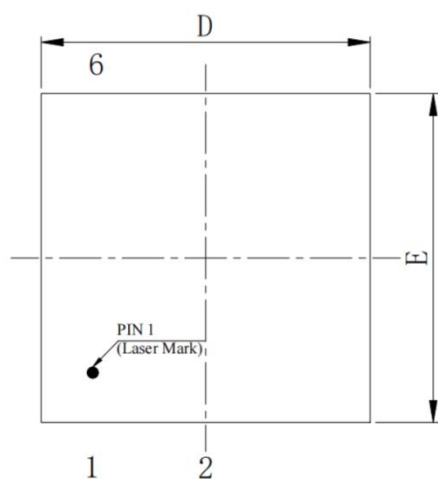
2400MHz~2500MHz Application



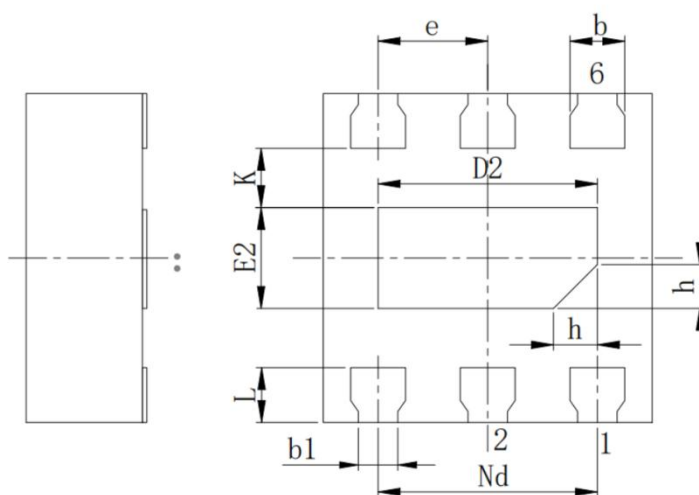
Bias: VCB=3V , I_{BQ}=68mA

VCC(V)	Frequency(MHz)	Gain(db)	Pout(dbm)	Icc(mA)	Efficiency(%)
3.7	2400	11	27	318	42.3
	2450	11	27	320	42.3
	2500	11	27	322	42
5	2400	11	30	432	46.2
	2450	11	30	444	45
	2500	11	30	445	44.8

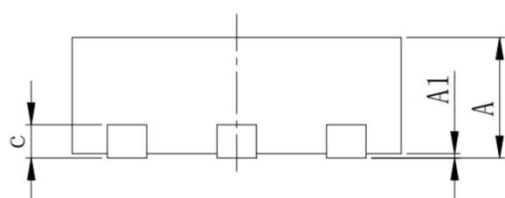
Package Diagram



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0	0.02	0.05
b	0.20	0.25	0.30
b1	0.18REF		
c	0.152REF		
D	1.45	1.50	1.55
D2	0.90	1.00	1.10
e	0.50BSC		
Nd	1.00BSC		
E	1.45	1.50	1.55
E2	0.36	0.46	0.56
L	0.20	0.25	0.30
h	0.15	0.20	0.25
K	0.27REF		