Preliminary DATA SHEET

CAC60101LW

28V, 4.6-6GHz, 100Watts GaN Power Amplifier

Product overview

CAC60101LW is a 110W(P3dB) internally input & output-matched GaN power amplifier. It operates perfectly from 4.6 to 6GHz with 28 volts rail, offers a general purpose, broadband, high power and high efficiency wireless pulse or CW communication application.

CAC60101LWDF

Figure 1. NI670 4L Package

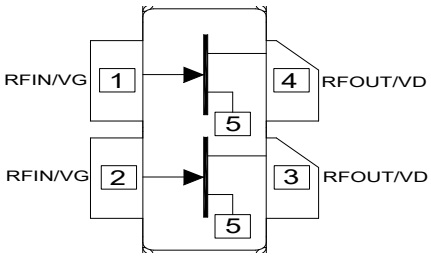


Figure 2. CAC60101LW Function Block Diagram

Key Features

- 4.6 – 6GHz
- Operating Drain Voltage: +28V
- 11.5dB small signal Gain @5.3GHz
- 10dB Gain @ 50dBm, 5.3GHz
- 51dBm CW Peak Power
- 66% Drain Efficiency @51dBm,5.3GHz
- NI670 4 Lead flange Ceramic package (MSL3, 260℃ per JEDEC J-STD-020)
- ESD Level: HBM TBD ; CDM TBD
- ROHS compatible

Applications

- 3GPP 4G LTE/5G NR massive MIMO basestation
- Driver amplifier for micro-base and macro-base Stations
- Active antenna array
- Pico/Small Cell
- Test Instrumentation
- Industrial, scientific, and medical
- Wideband amplifiers

Table 1. CAC60101LW Pinout Descriptions

Pin	Name	Description
1,2	RFIN/VG	RF input port with Gate Bias
3,4	RFOUT/VD	RF output port with Drain Supply Voltage
5	GND/Source	Grounding

Ordering Information

Part No.	Description
CAC60101LWDF	4.6-6GHz 100W GaN PA with Flange, 7’ Reel with 500pcs

Table 3. CAC60101LW Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Storage Temperature	TSTG	-55 to 125	˚C
Operating Temperature	TC	-40 to +85	˚C
Operating Junction Temperature	TJ	225	˚C
Thermal Resistance	Rθjc		˚C/W
Operating Voltage	VDD	0 to 32	V
Drain-Source Voltage	VDSS	200	V
Gate-Source Voltage	VGS	-8 to 0	V
Maximum Forward Gate Current		10	mA
Input Power	PIN	+43	dBm

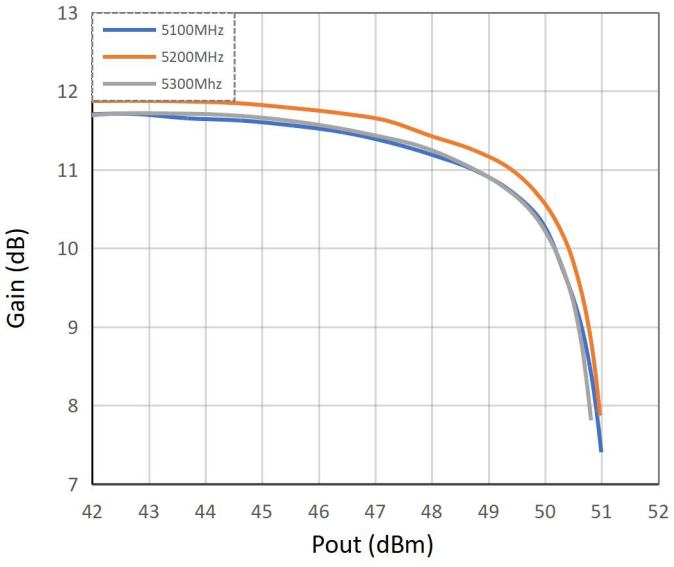
Table 4. CAC60101LW Recommended Operating Conditions

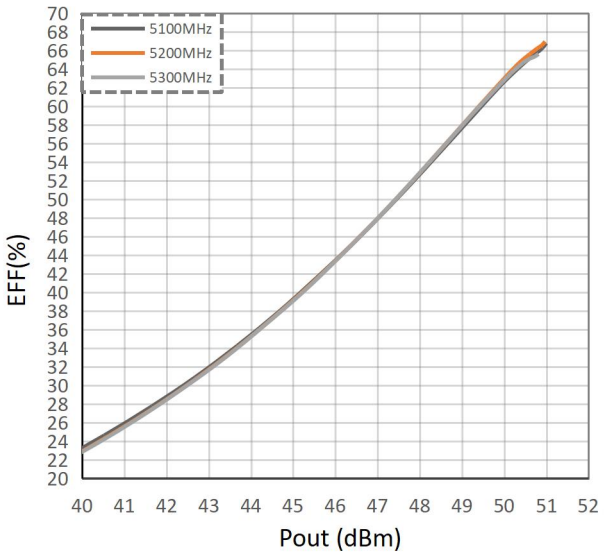
Parameter	Symbol	Min	Typ	Max	Unit
Operating frequency	f	4.6		6	GHz
Operating temperature	TC	-40	25	85	˚C
Drain Voltage	VDD		28		V
Gate Voltage	VGS		-2.1		V
Quiescent Current	IDQ		300		mA

Table 5. CAC60101LW Electrical Specifications

EVB TYPICAL PERFORMANCE: EFFICIENCY TUNED AT P3dB (VD=28V, Idq=300mA, TC=+25 ˚C, Input /Output Load = 50Ω)

Parameter	Conditions	Min	Typ	Max	Unit
Frequency			5300		MHz
Output P3dB	CW		+51		dBm
Gain @ small signal	CW		12		dB
Drain efficiency @P3dB	CW		66		%





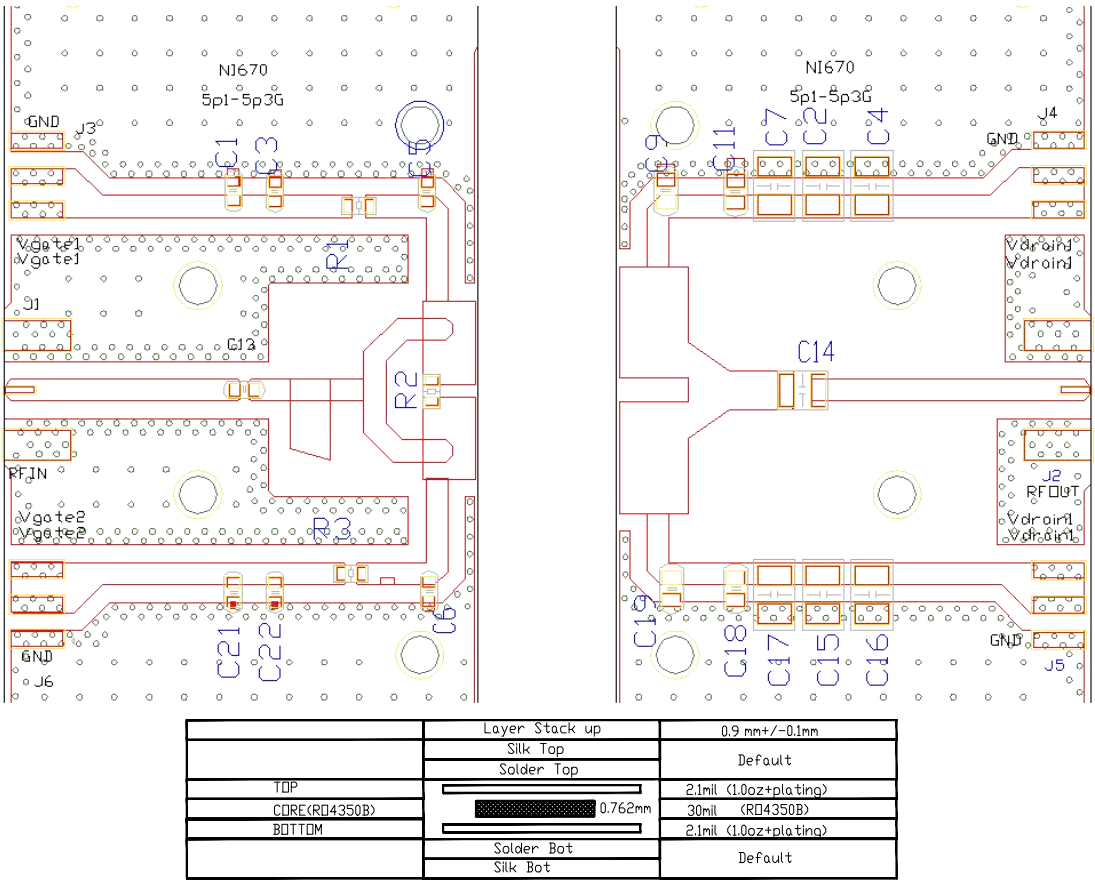
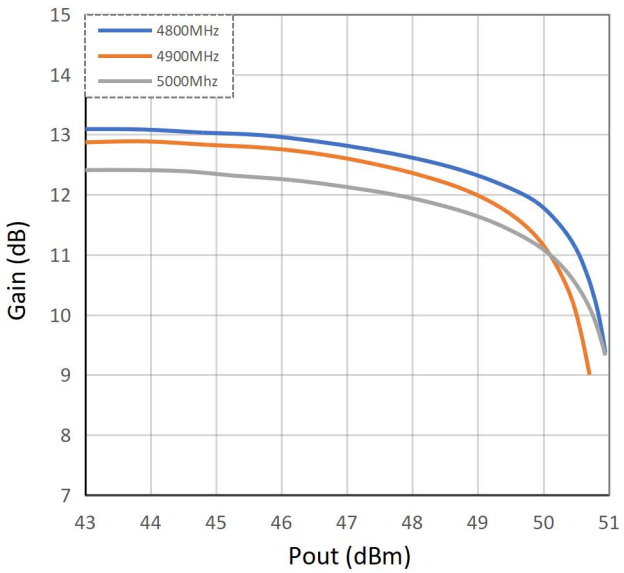


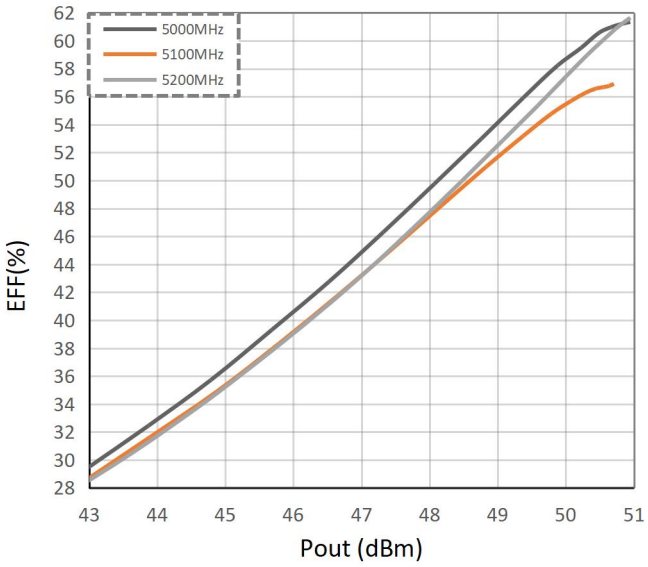
Figure 4. CAC60101LW 5.1-5.3GHz Evaluation Board Schematic

Table 6. CAC60101LW 5.1-5.3GHz Evaluation Board Bill of Materials (BOM)

Component	Description	Size
R1, R2, R3	10 Ohm Resistor	R1, R2, R3
C1, C21	1uF Capacitor	C1, C21
C2, C4, C15, C16	10uF/100V Capacitor	C2, C4, C15, C16
C3, C22	1nF Capacitor	C3, C22
C5, C6	2.8pF Capacitor	C5, C6
C9, C13, C14, C19	2.7pF/100V Capacitor	C9, C13, C14, C19
C11, C17	100pF/100V Capacitor	C11, C17

Rest of the components on the schematic are not used in this part.





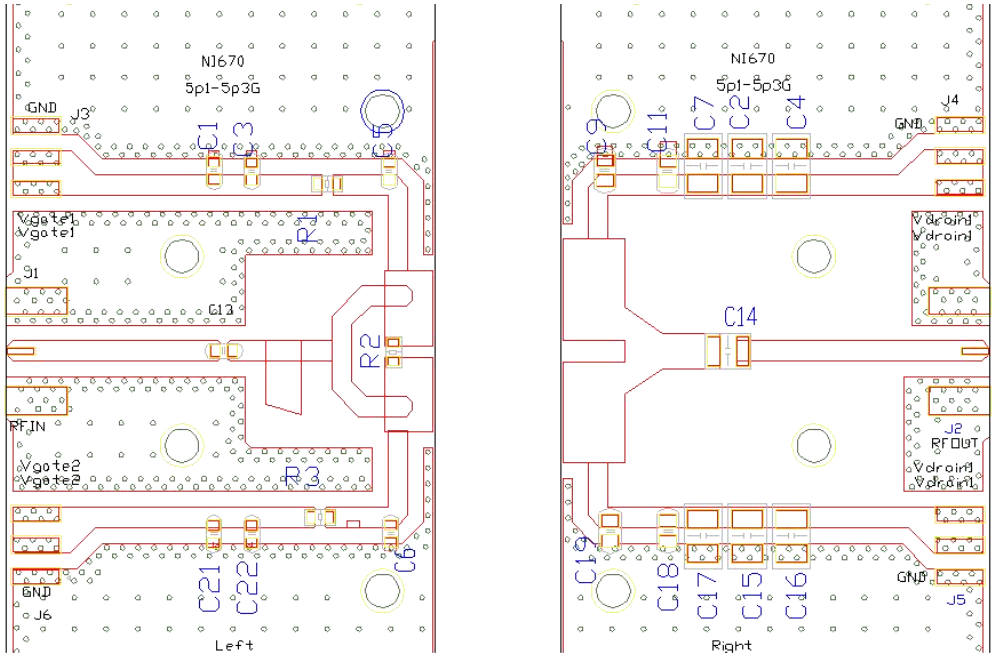


Figure 5. CAC60101LW 4.8-5.0GHz Evaluation Board Schematic

Table 7. CAC60101LW 4.8-5.0GHz Evaluation Board Bill of Materials (BOM)

Component	Description	Size
R1, R2, R3	10 Ohm Resistor	
C1, C21	1uF Capacitor	
C2, C4, C15, C16	10uF/100V Capacitor	
C3, C22	1nF Capacitor	
C5, C6, C9, C19	2.8pF Capacitor	
C13, C14,	2.7pF/100V Capacitor	
C11, C17	100pF/100V Capacitor	

Rest of the components on the schematic are not used in this part.

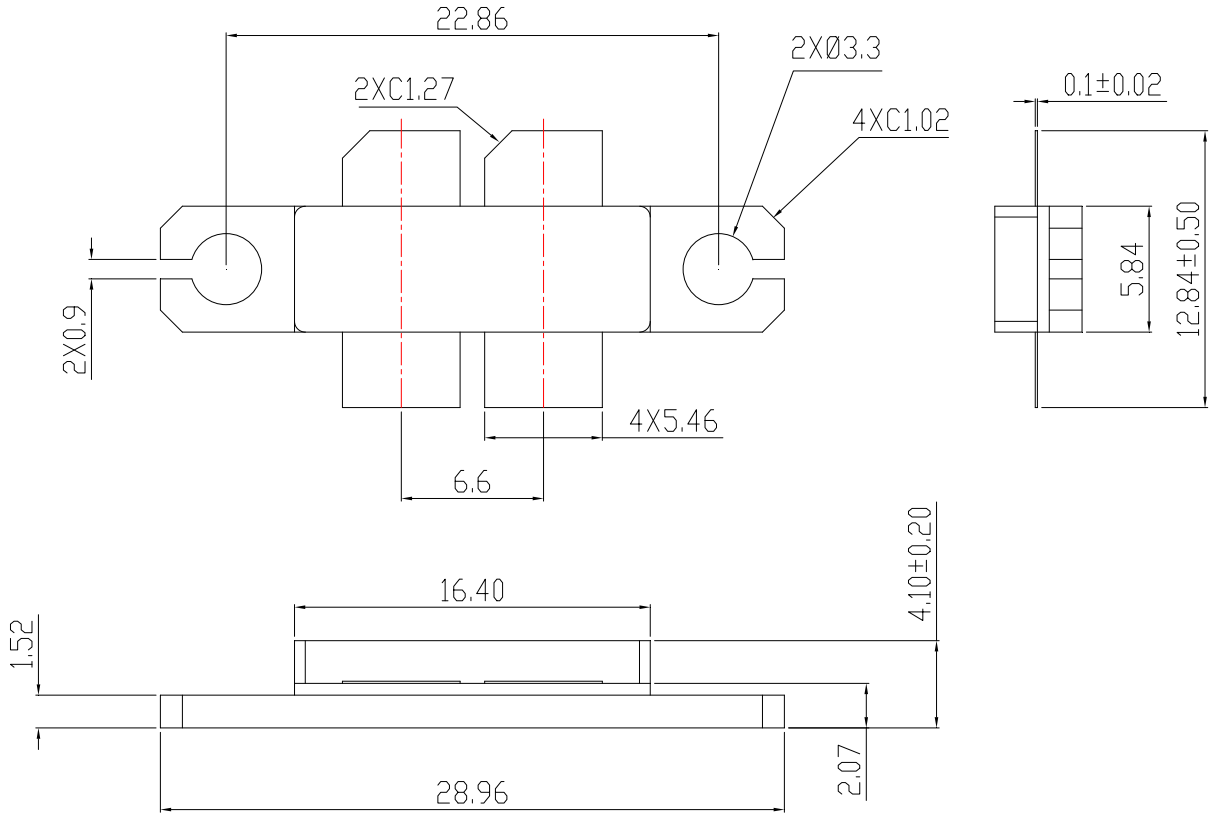
Evaluation board test procedure

Turn-on sequence

1．Connect test equipment to the input and output port of Evaluation board and then connect DC ground.
2．Turn on VG to -7V, turn on VD to 28V then tune VG to 300mA quiescent current in order.
3．Apply RF signal.

Turn-off sequence

1．Turn off RF signal.
2．Turn off VD.
3．Turn off VG.



Notes:
1. ALL DIMENSIONS ARE MM.
2. ALL TOLERANCES ±0.15mm UNLESS SPECIFIED OTHERWISE.

Figure 5. CAC60101LW Package Dimensions

CAC60101LW REVISION HISTORY

Revision	Date	Description
0.1	2025-4-24	Initial datasheet