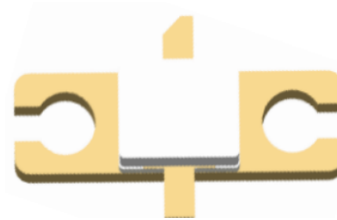


Product Overview

The MCNPA0060-P30 is a 30W(P3dB) unmatched GaN amplifier which operates from DC to 6GHz with 48V rail, offers a general purpose, broadband, high power and high efficiency wireless pulse or CW communcion application.

ROHS compliant

Evaluation boards are available upon request.



MCNPA0060-P30SF



MCNPA0060-P30SN

Figure1.

Functional Block Diagram

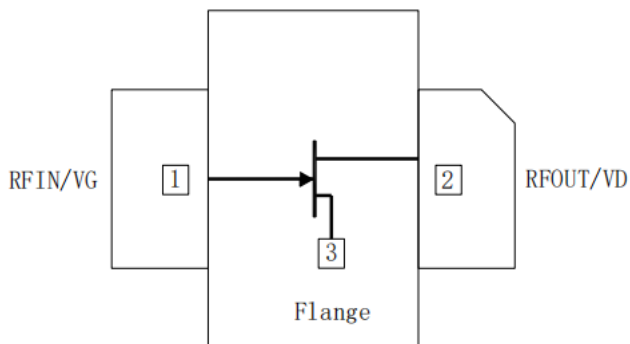


Figure2.

Key Features

- Frequency Range: DC-6GHz
- Operating Drain Voltage: 48V
- 18dB liner Gain @3.5GHz
- 45dBm Peak Power@3.5GHz
- 65% Drain Efficiency @P3dB,3.5GHz
- NI200 2 Lead flange Ceramic package (MSL3,260°C per JEDEC J-STD-020)

Applications

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

Ordering info

Part No.	Description
MCNPA0060-P30SF	with Flange,7'Reel with 500pcs
MCNPA0060-P30SN	without Flange, 7'Reel with 500pcs

Pin Description

Pin	Symbol	Description
1	RFIN/VG	RF input/Gate Bias
2	RFOUT/VD	RF output/Drain Voltage
3	GND	Grouding

Absolute Maximum Ratings¹

Parameter	Rating	Unit
Operating Temp, T _c	-40 to +105	°C
Operating Junction Temp, T _j	225	°C
Storage Temp, T _{STG}	-55 to +125	°C
Thermal Resistance, R _{θjc}		°C/W
Operating Voltage, V _{DD}	0 to 55	V
Drain-Source Voltage, V _{DSS}	200	V
Gate-Source Voltage, V _{GS}	-8 to 0	V
Maximum Forward Gate Current	10	mA
Input Power, P _{IN}	+30	dBm

Notes¹: Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of the Absolute Maximum Rating conditions to the device may reduce device reliability.

Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Frequency, F	DC		6	GHz
Operating Temp, T _c	-40	25	105	°C
Drain Voltage, V _{DD}		48		V
Gate Voltage, V _{GS}		-3.5		V
Quiescent Current, I _{DQ}		20		mA

Electrical Specifications-EVB Typical Performance¹

Parameter	Conditions	Min	Typ	Max	Unit
Frequency		3300	3800	5800	MHz
Output P _{3dB}	CW		+47.5		dBm
Gain@45dBm	CW		18		dB
Drain efficiency@P _{sat}	CW		65		%
ACPR@37dBm	WCDMA, 5MHz		-36		dB

Notes¹: V_D=48V, V_{GS}=-3.5V, I_{DQ}=40mA, T_C=25°C, Input/Output Load=50Ω

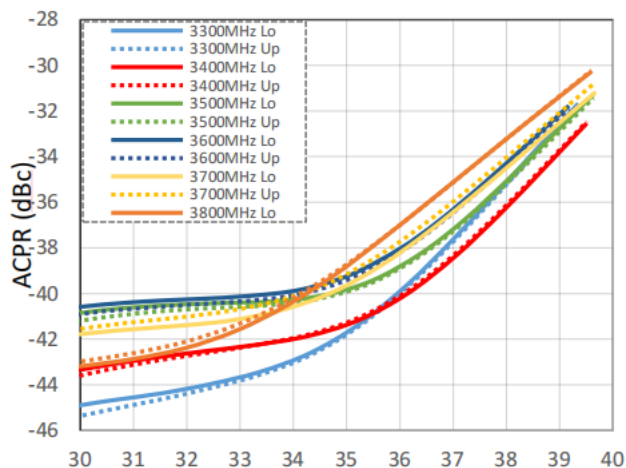


Figure3.ACPR vs Pout over Frequency

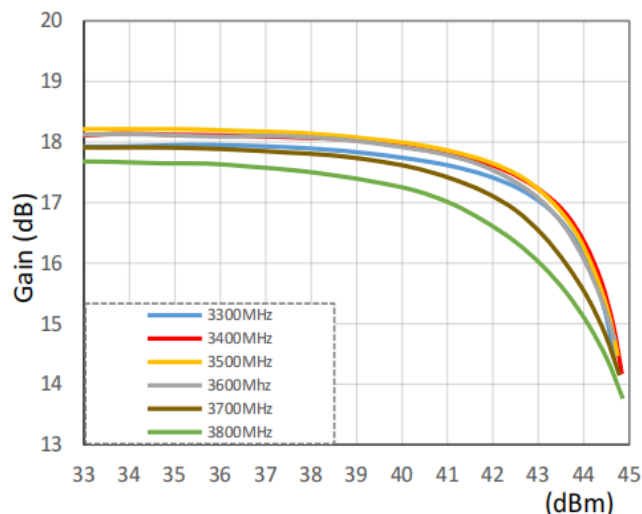


Figure4.Gain vs Pout over Frequency

Evaluation Board Reference Design

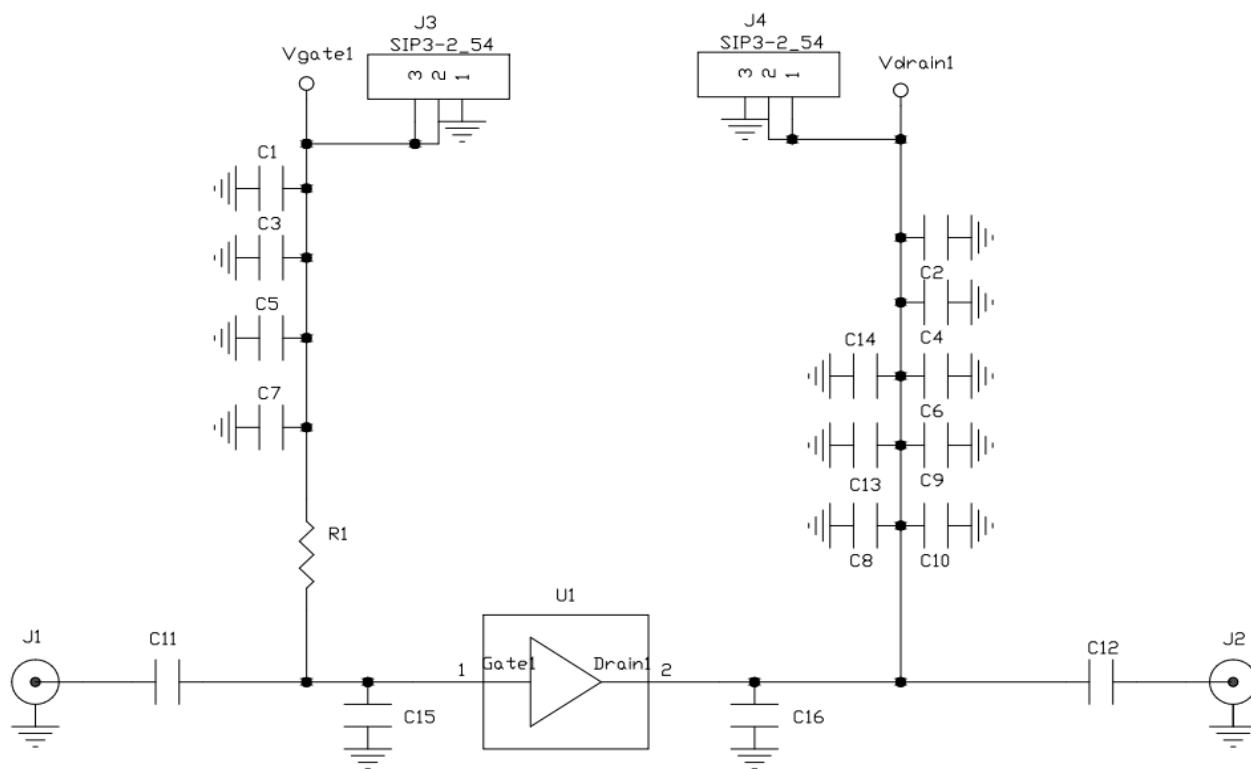


Figure5.

Bill of Material

Ref,Des	Value	Size	Part Number
C3,C10,C12	4.7pF	0603	GQM1875G2E4R7BB12
C11	0.8pF	0603	GQM1875G2ER80BB12
C15	1.6pF	0603	GQM1875G2E1R6BB12
R1	10Ω	0603	
C16	0.5pF	0603	GQM1875G2ER50BB12
C7	1nF	0603	GRM188R71H102KA01
C5	1μF	0603	GRM188R61H105HAALD
C13,C14	10μF	1210	GRM32EC72A106KE05L

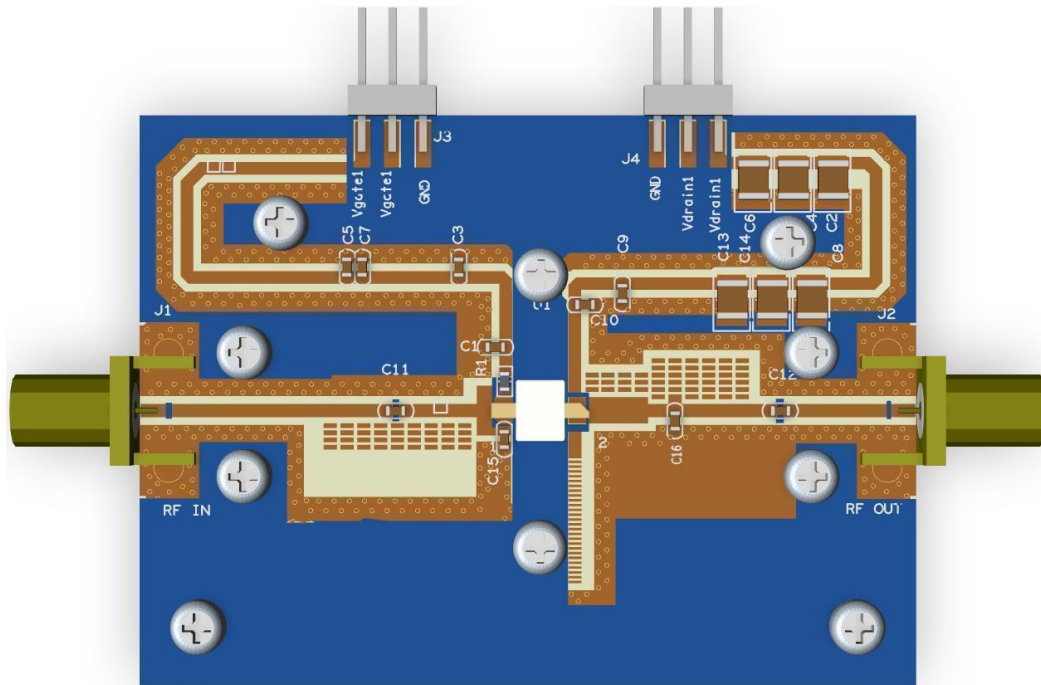


Figure6.Evaluation Board PCB

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 48V then tune VG to -2.5V in order.
- 3.Apply RF signal.

Turn-off sequence

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

Package Marking and Dimensions

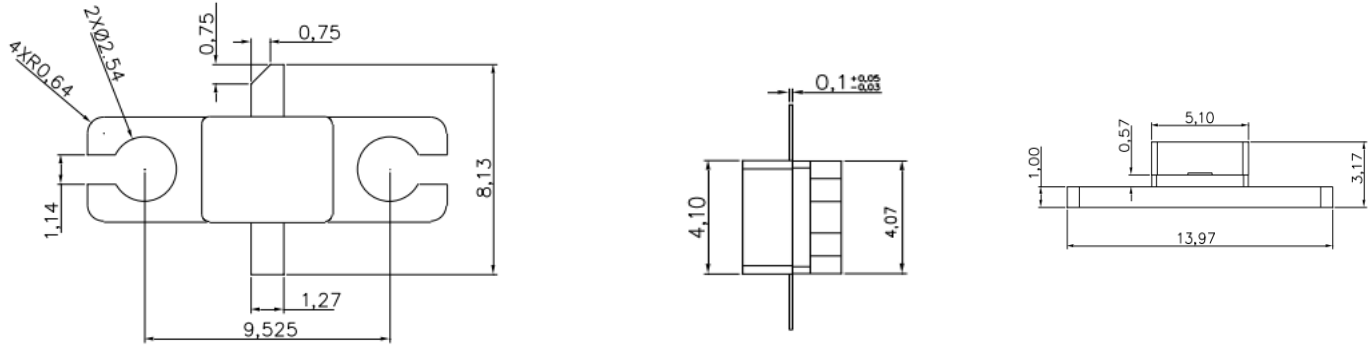


Figure 3. MCNPA0060-P30SF Package Dimensions

Notes:

1. All dimensions are in mm. Otherwise noted, the tolerance is ± 0.13 mm.
2. LEAD FINISH AU ; FLANGE FINISH AU.

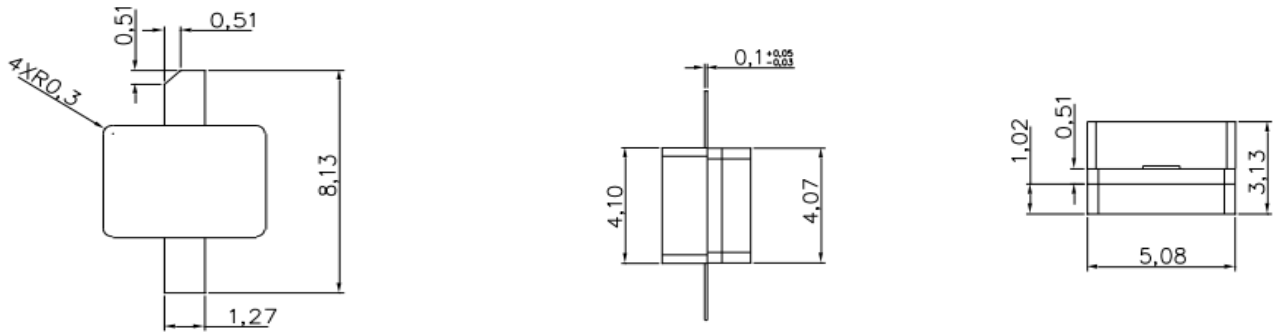


Figure 4. MCNPA0060-P30SN Package Dimensions

Notes:

1. All dimensions are in mm. Otherwise noted, the tolerance is ± 0.13 mm.
2. LEAD FINISH AU.

Tape and Reel Information

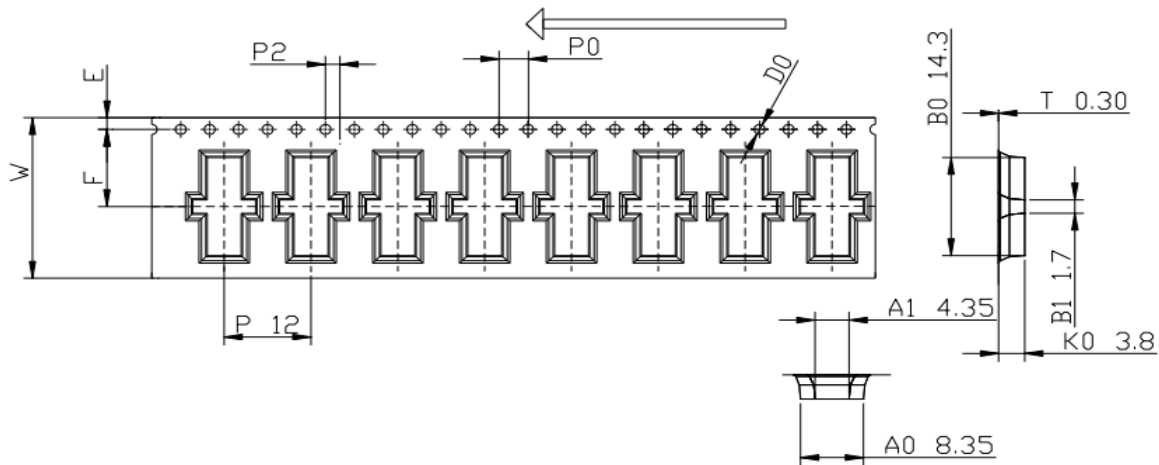


Figure 5.

1. The cumulative error range of 10 chain hole center distances is within $\pm 0.22\text{mm}$
2. Reverse curvature at $1\text{mm}/250\text{mm}$
3. Material: Black PS material, compliant with ROHS environmental management substances
4. All dimensions meet the requirements of EIA-481-B
5. Thickness: $0.3 \pm 0.05\text{mm}$
6. Protective tape: Transparent PS material