

Product Overview

The MCNPA0040-P30 is a 30W(P3dB) unmatched GaN amplifier which operates from DC to 4GHz with 28V 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.



Figure1.

Functional Block Diagram

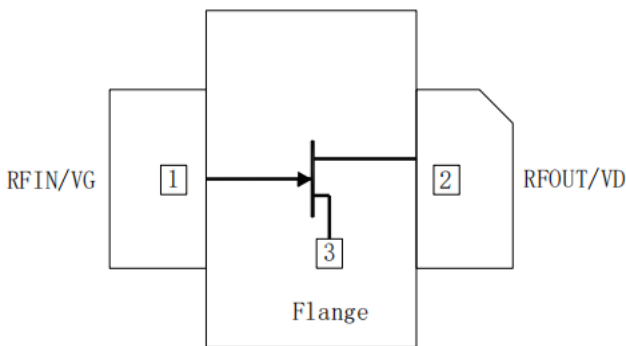


Figure2.

Pin Description

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

Key Features

- Frequency Range: DC-4GHz
- Operating Drain Voltage: 28V
- 19dB small signal Gain @0.9GHz
- 16dB Gain @45dBm, 0.9GHz
- 46.5dBm CW Peak Power
- 70% Drain Efficiency @Psat, 0.9GHz
- NI200 2 Lead flange Ceramic package (MSL3, 260 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
MCNPA0040-P30SF	with Flange, 7' Reel with 500pcs
MCNPA0040-P30SN	without Flange, 7' Reel with 500pcs

Absolute Maximum Ratings¹

Parameter	Rating	Unit
Operating Temp, Tc	-40 to +105	
Operating Junction Temp, Tj	225	
Storage Temp, TSTG	-55 to +125	
Thermal Resistance, R _{jc}		/W
Operating Voltage, VDD	0 to 55	V
Drain-Source Voltage, VDSS	200	V
Gate-Source Voltage, VGS	-8 to 0	V
Maximum Forward Gate Current	10	mA
Input Power, PIN	+35	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		4	GHz
Operating Temp, Tc	-40	25	85	
Drain Voltage, VDD		28		V
Gate Voltage, VGS		-2.8		V
Quiescent Current, IDQ		50		mA

Electrical Specifications-EVB Typical Performance¹

Parameter	Conditions	Min	Typ	Max	Unit
Frequency			900		MHz
Output P3dB	CW		+46.5		dBm
Gain @45dBm	CW		16		dB
Drain efficiency @Psat	CW		70		%

Notes¹: VD=28V, IDQ=50mA, TC=25 , Input/Output Load=50

Package Marking and Dimensions

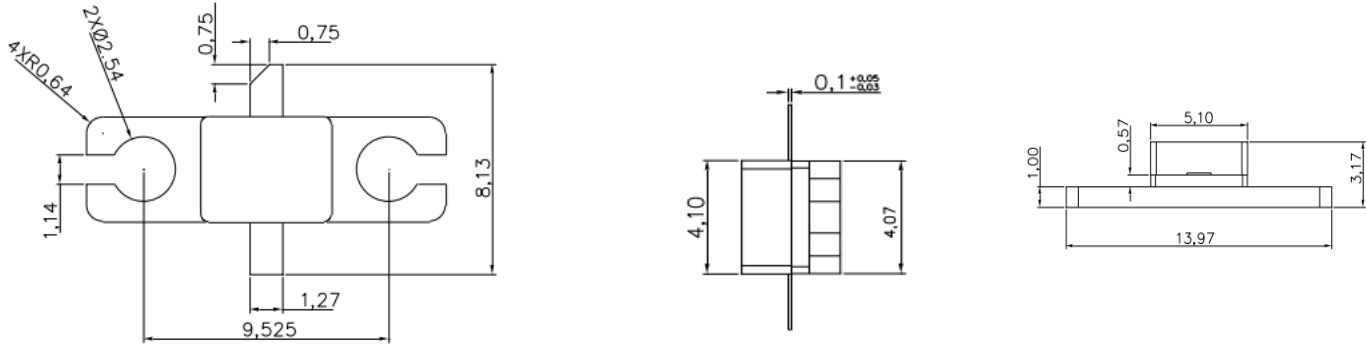


Figure 3. MCNPA0040-P30SF Package Dimensions

Notes:

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

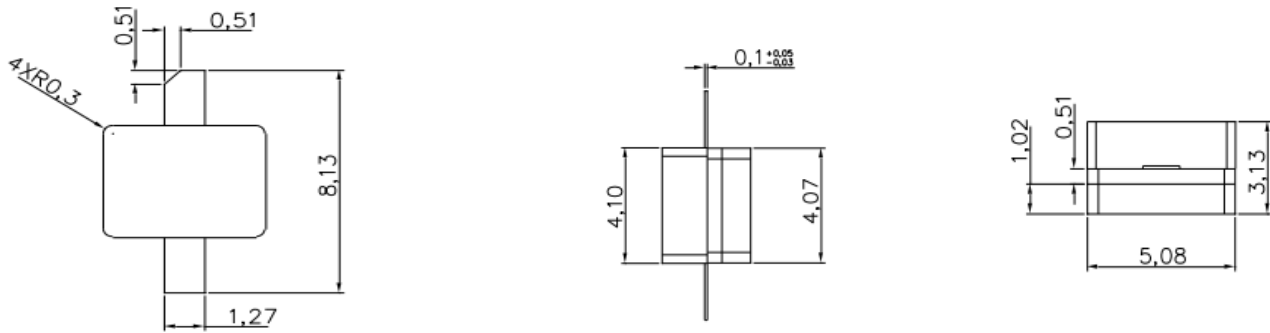


Figure 4. MCNPA0040-P30SN Package Dimensions

Notes:

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

Tape and Reel Information

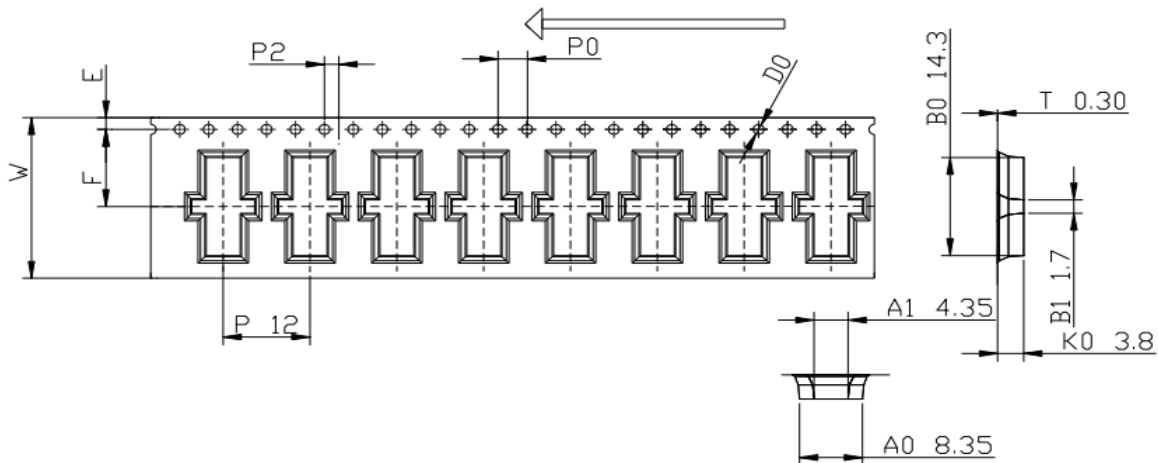


Figure 5.

1. The cumulative error range of 10 chain hole center distances is within in $\pm 0.22\text{mm}$
2. Reverse curvature at 1mm/250mm
3. Material: Black PS material ,compliant with ROHS environmental management substances
4. All dimensions meet the requirements of EIA-481-B
5. Thickness : $0.3\pm 0.55\text{mm}$
6. Protective tape: Transparent PS material

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 80mA quiescent current in order.
3. Apply RF signal.

Turn-off sequence

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