# MCNPA4060-P60

**60W, 28V, 4-6 GHz, GaN RF UnMatched Transistor**

## Product Overview

The MCNPA4060-P60 is a 60W(P3dB)unmatched GaN power power amplifier which operates from 4 to 6GHz with 28V rail, offers a general purpose,broadband,high power and high efficiency wireless pulse or CW communction application.

ROHS compliant

Evaluation boards are available upon request.

MCNPA4060-P60SF MCNPA4060-P60SN

*Figure1.*

## Functional Block Diagram

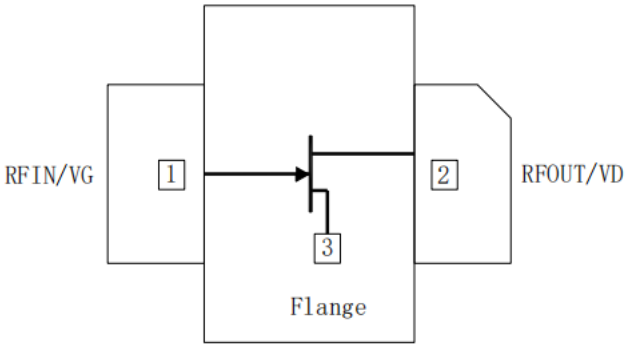


*Figure2.*

## Pin Description

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

## Key Features

- Frequency Range: 4-6GHz
- Operating Drain Voltage: 28V
- 14dB Gain @48dBm,5.8GHz
- 48.5dBm CW Peak Power
- 72% Drain Efficiency @48dBm,5.8GHz
- NI360 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 |
|---|---|
| MCNPA4060-P60SF | with Flange,7'Reel with 500pcs |
| MCNPA4060-P60SN | without Flange, 7'Reel with 500pcs |

## Absolute Maximum Ratings[1]

| Parameter | Rating | Unit |
|---|---|---|
| Operating Temp,$T_C$ | -40 to +105 | ℃ |
| Operating Junction Temp,$T_J$ | 225 | ℃ |
| Storage Temp,$T_{STG}$ | -55 to+125 | ℃ |
| Thermal Resistance,$R_{\theta jc}$ | | ℃/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 |
| Inuput Power,$P_{IN}$ | +35 | dBm |

Notes[1]: Exceeding any one or a combination of the Absolute Maxium Rating conditions may cause permanent damage to the device. Extended application of the Absolute Maximum Rating conditions to the device mayreduce device reliability.

## Recommended Operating Conditions

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Operating Frequency,F | 4 | | 6 | GHz |
| Operating Temp,$T_C$ | -40 | 25 | 85 | ℃ |
| Drain Voltage,$V_{DD}$ | | 28 | | V |
| Gate Voltage,$V_{GS}$ | | | | V |
| Quiescent Current,$I_{DQ}$ | | 30 | | mA |

## Electrical Specifications-EVB Typical Performance[1]

| Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Frequency | | | 5800 | | MHz |
| Output P3dB | CW | | +48 | | dBm |
| Gain@48dBm | CW | | 14 | | dB |
| Drain efficiency@P3dB | CW | | 73 | | % |

Notes[1]:VD=28V,IDQ=20mA,TC=25℃，Input/Output Load=50Ω

## Package Marking and Dimensions

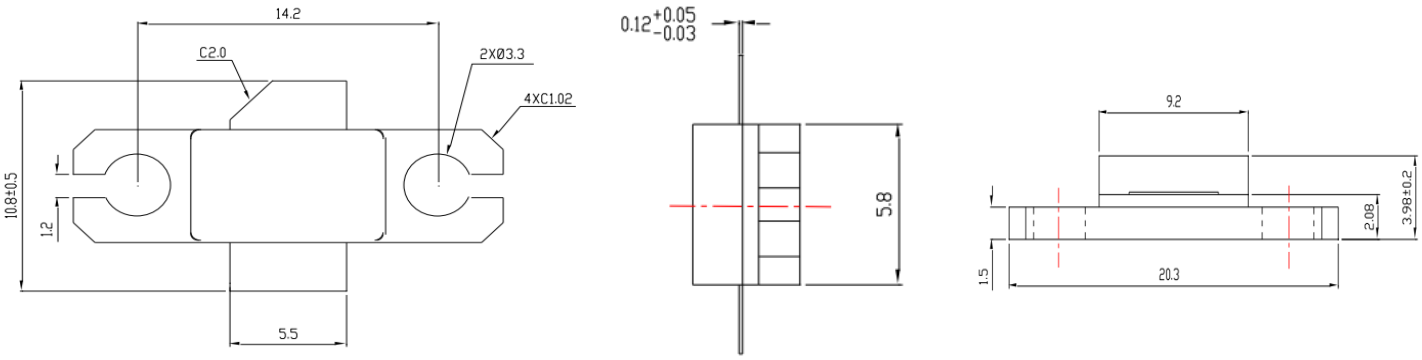


*Figure 3.MCNPA4060-P60SF Package Dimensions*

Notes:

1. All dimensions are in mm. Otherwise noted, the tolerance is ±0.15 mm.

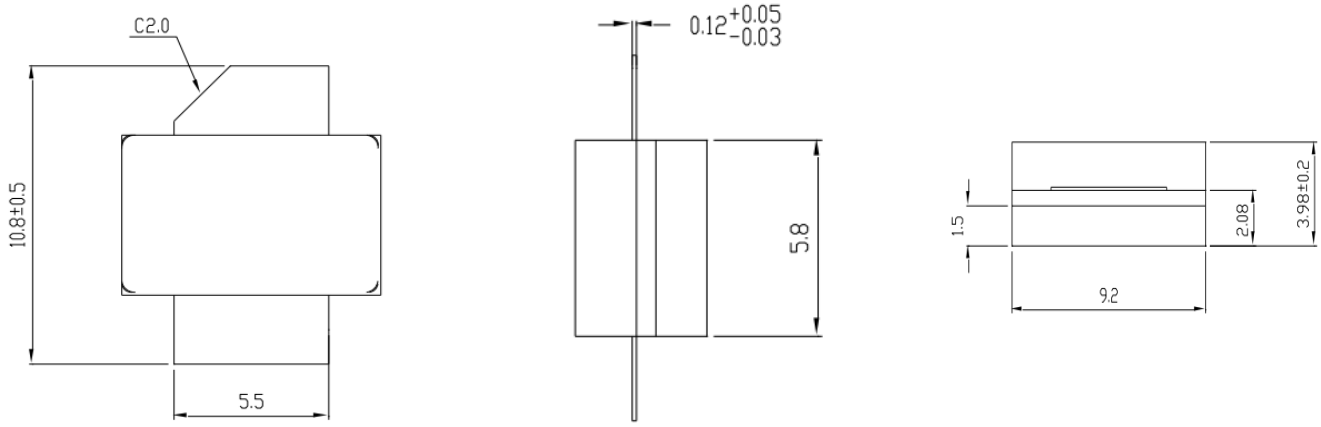


*Figure 4. MCNPA4060-P60SN Package Dimensions*

Notes:

1. All dimensions are in mm. Otherwise noted, the tolerance is ±0.15 mm.

## Tape and Reel Information

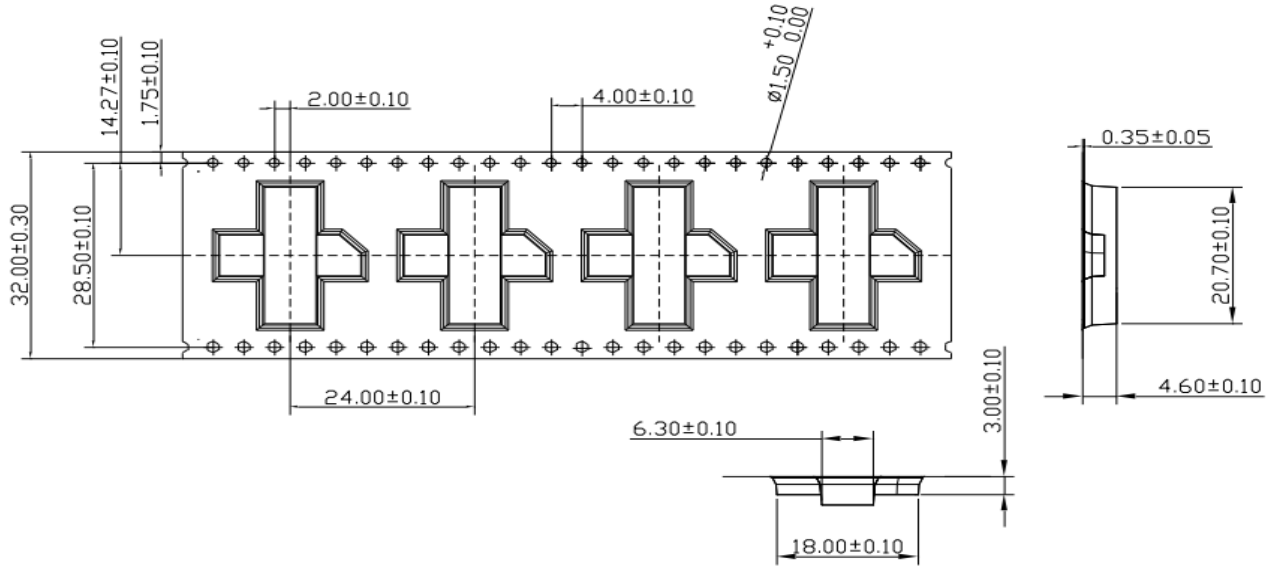


*Figure 5.*

*1.The acumulative error range of 10 chain hole center distances is within in ±0.1mm*
*2.The lateral bending of the belt along the length diection is ≤ 1mm/100mm*
*3.Roughness:Ra＜0.8 μm*
*4.Carrier tape color:Black*

## 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 20mA quiescent current in order.
3.Apply RF signal.

### Turn-off sequence

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