MCNPA3040-P100

100W, 28V, 3-4GHz, GaN RF unMatched Transistor

Product Overview

The MCNPA3040-P100 is a 100W(P3dB) unmatched GaN power amplifier which operates from 3 to 4GHz 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.

MCNPA3040-P100SF MCNPA3040-P100SN

Figure1.

Functional Block Diagram

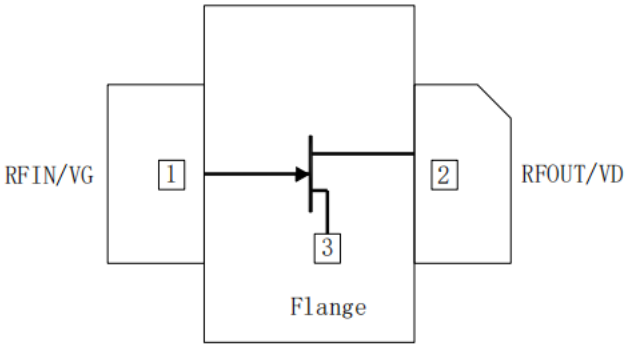

Figure2.

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: 3-4GHz
- Operating Drain Voltage: 28V
- 10dB Gain @50dBm,3.5GHz
- 50dBm CW Peak Power
- % Drain Efficiency @Psat,3.5GHz
- 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
MCNPA3040-P100SF	with Flange,7'Reel with 500pcs
MCNPA3040-P100SN	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}	+40	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	3		4	GHz
Operating Temp,T_C	-40	25	85	℃
Drain Voltage,V_{DD}		28		V
Gate Voltage,V_{GS}		-2.8		V
Quiescent Current,I_{DQ}		100		mA

Electrical Specifications-EVB Typical Performance[1]

Parameter	Conditions	Min	Typ	Max	Unit
Frequency			3500		MHz
Output P3dB	CW		+51		dBm
Gain@45dBm	CW		10		dB
Drain efficiency@Psat	CW		TBD		%

Notes[1]:VD=28V,IDQ=30mA,TC=25℃，Input/Output Load=50Ω

Package Marking and Dimensions

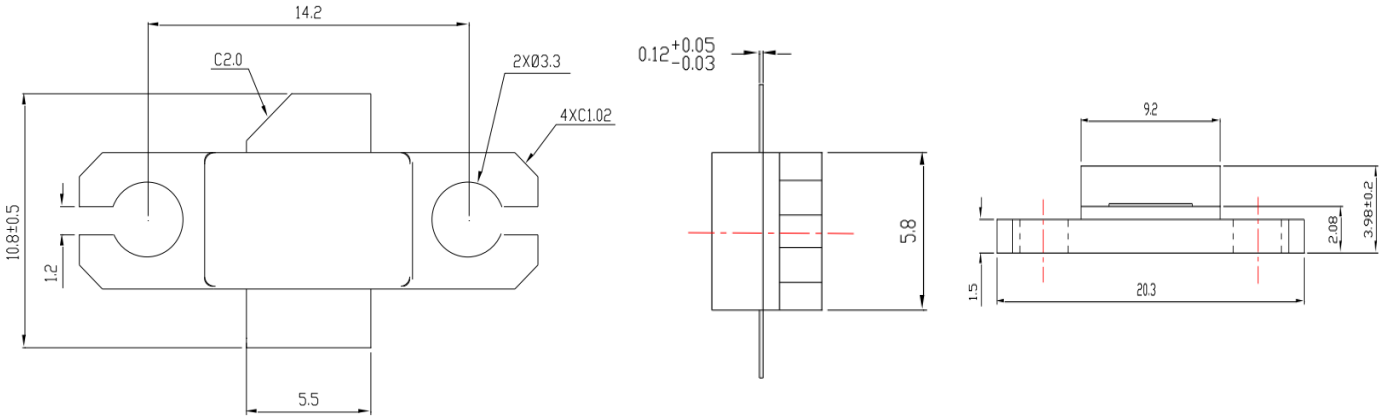

Figure 3.MCNPA3040-P100SF Package Dimensions

Notes:

1. All dimensions are in mm. Otherwise noted, the tolerance is ±0.15 mm.
2. LEAD FINISH AU ; FLANGE FINISH AU.

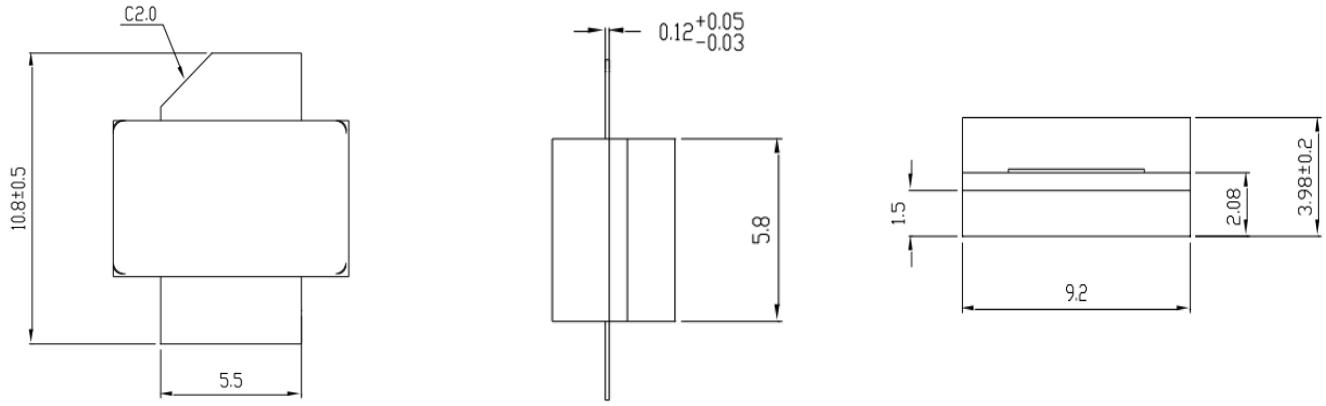

Figure 4. MCNPA3040-P100SN Package Dimensions

Notes:

1. All dimensions are in mm. Otherwise noted, the tolerance is ±0.15 mm.
2. LEAD FINISH AU.

Tape and Reel Information

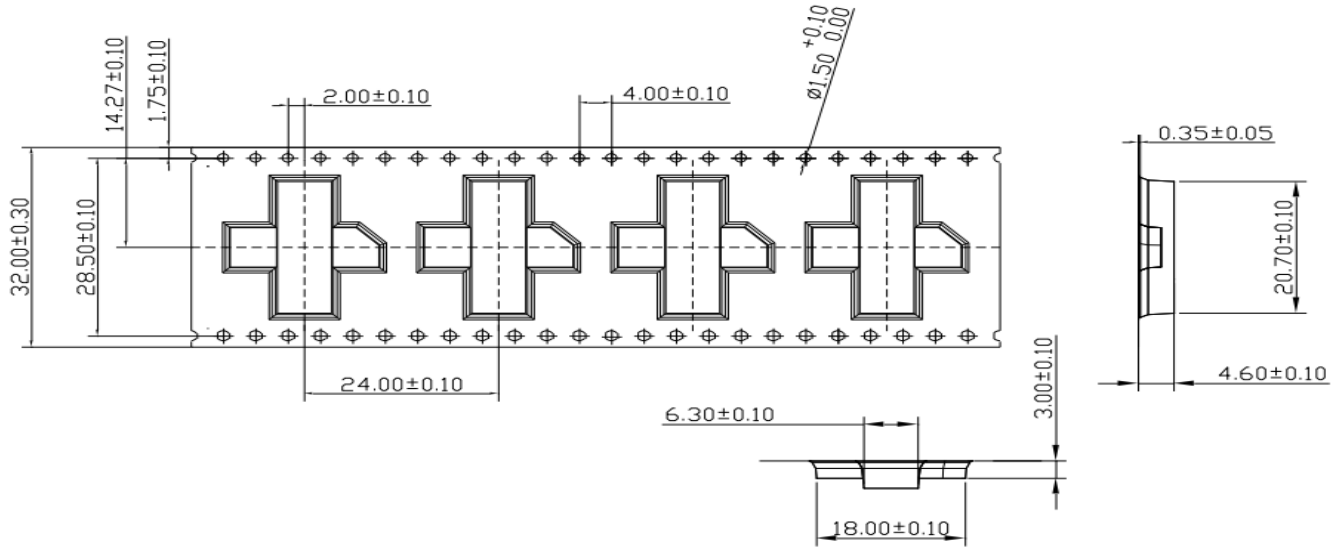

Figure 5.

1.The acumulative error range of 10 chain hole center distances is within in ±0.1mm
2.The lateral bending of the elt along the length direction is ≤1mm/100mm
3.Roughness:Ra＜0.8um
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 50mA quiescent current in order.
3.Apply RF signal.

Turn-off sequence

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