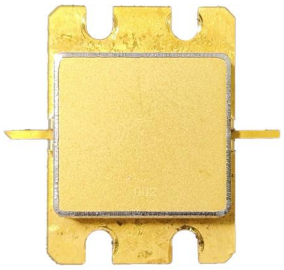
LNPA2735-50-130

50-130W, 2.7 - 3.5GHz, GaN MMIC, Power Amplifier

Description

LNPA2731-50-130 is a gallium nitride high electron mobility transistor (GaN HEMT). It is a high-power internally matched power transistor that can operate in pulse mode at saturated power and is used in standard communication and radar frequency bands. Provides optimal power and gain performance in 50Ω systems.



Features

- Coverable working frequency band range: 2.7~3.5GHz
- Good 50Ω impedance matching, easy to use in cascade
- Metal ceramic shell sealed package
- Available in screw-on flange package or welded pill package

Limit parameters

- Source-drain voltage Vds: +120V
- Gate-source voltage Vgs: -10V
- Dissipated power (Tc=25℃): 110W
- Storage temperature: -55℃~+125℃
- Operating temperature: -40℃~+75℃

Electrical performance table

Working conditions: 50Ω test system, TA = +25℃, VDS=+28V, IDS=80mA, 10% duty cycle, 200us pulse width.

Parameter	Test Conditions		Min.	Typ.	Max.	Units
Saturation power	Freq.=2.7GHz~3.5GHz VDS=28V VGS=-2.8~-4V IDsq=80mA Pulse test:200us pulse width, 10% duty cycle		51	-	-	dBm
power gain			12	-	-	dB
power added efficiency			50	-	-	%
power flatness			-	-	1	dB
Pinch-off voltage	VDS=6V	IDS≤100mA	-8	-	-4	V
Gate-source reverse current	VDS=0V	VGS=-10V	-	-	5	uA

Products with similar power specifications, higher efficiency and wider frequency bands can be customized.

Indicator test

1.Test conditions: TA = +25℃, VDS=+28V, IDS=80mA, duty cycle D=10%, pulse width τ =200us.

Frequency（GHz）	Input power（dBm）	Out power（dBm）	Gain（dB）	Efficiency（%）	Second harmonic suppression
2.7	39.0	51.2	12.2	52.4	-29
2.8	38.5	51.25	12.75	60.7	-29
2.9	38.5	51.1	12.6	62.5	-33
3.0	38.5	51.05	12.55	62.7	-35
3.1	38.5	50.7	12.2	58.4	-35
3.2	38.5	50.8	12.3	58.4	-30
3.3	38.5	50.8	12.3	54.3	-27
3.4	38.5	50.7	12.2	56	-26
3.5	38.5	50.9	12.4	57.8	-26

2.Test conditions: TA = +25℃, VDS=+32V, IDS=80mA, duty cycle D=10%, pulse width τ =200us.

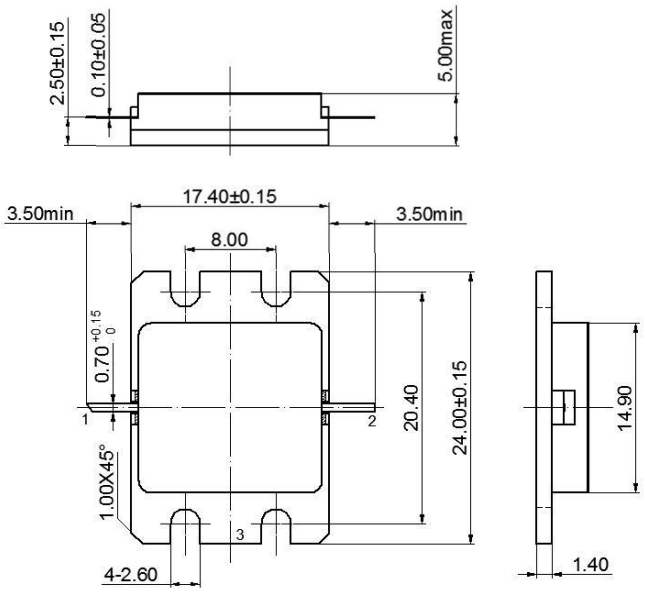
Frequency（GHz）	Input power（dBm）	Out power（dBm）	Gain（dB）	Efficiency（%）	Second harmonic suppression
2.7	39.0	51.6	12.6	57.7	-27
2.8	38.5	51.6	13.1	55.1	-29
2.9	38.5	51.7	13.2	59.6	-32
3.0	38.5	51.8	13.3	60.7	-34
3.1	38.5	51.4	12.9	56.5	-35
3.2	38.5	51.6	13.1	56.8	-32
3.3	38.5	51.6	13.1	52.8	-28
3.4	38.5	51.5	13.0	55.2	-26
3.5	38.5	51.6	13.1	55.6	-26

3.Test conditions: TA = +25o, VDS=+28V, IDS=80mA, duty cycle D=50%, pulse width τ =200us.

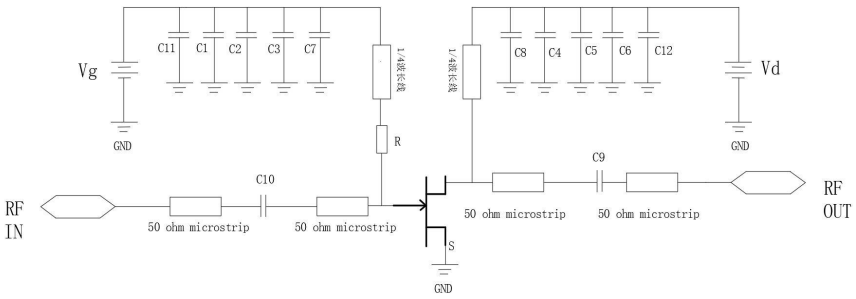
Frequency (GHz)	Input power (dBm)	Out power (dBm)	Gain (dB)	Efficiency (%)	Second harmonic suppression
2.7	39.0	50.8	11.8	51.8	-27
2.8	38.5	50.9	12.4	59.3	-29
2.9	38.5	50.7	12.2	60.1	-32
3.0	38.5	50.7	12.2	59.9	-34
3.1	38.5	50.3	11.8	54.6	-35
3.2	38.5	50.5	12	55.5	-32
3.3	38.5	50.5	12	52	-28
3.4	38.5	50.3	11.8	53.8	-26
3.5	38.5	50.4	11.9	54.8	-26

Dimensional drawing

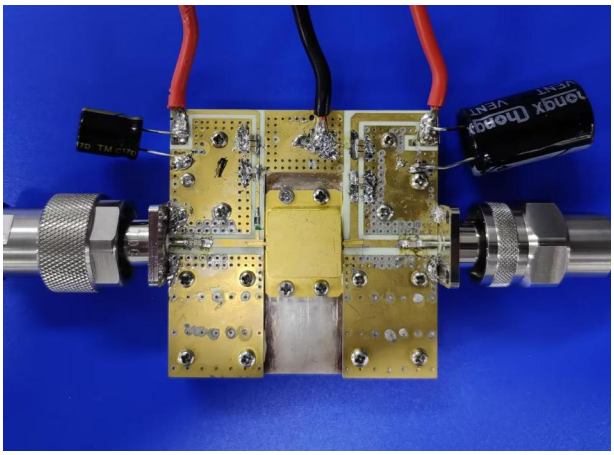
The unit in the figure is millimeters (mm), polarity: chamfered end - gate; square end - drain.



Recommended application circuit diagram



C7, C8, C9, C10	10pF	0805
C3, C4	1000pF	0805
C2, C5	10nF	0805
C1, C6	4.7μF	0805
C11	47μF	
C12	470μF	
R	20Ω	0805



Recommended installation

1. After tightening the tube casing with screws, the height between the tube casing pins and the printed board should be ≥0.1mm. The tube casing should be installed in the middle. The slot width should be ≥17.65mm. Ensure that the clearance between input and output end faces is >0.1mm, otherwise it may cause Pins come off. Can also be soldered.

2. It is recommended to use M2.0 screws, use 0.6N·m torque for assembly, and take anti-loosening measures such as spring washers, thread fasteners or nail cap dispensing.

3. When the device is working, the tube and shell temperature does not exceed 75°C.

Precautions

1. This device is an internal matching device with an input and output impedance of 50Ω.

2. When powering up, please strictly follow the order of first negative pressure and then positive pressure; when powering on, add the gate voltage first, then add the leakage voltage; when powering off, first reduce the leakage voltage, then reduce the grid voltage.

3. Pay attention to heat dissipation during use. The lower the temperature of the tube and shell, the longer the service life of the device.

4. During use, instruments, equipment, etc. should be well grounded; this product is an electrostatic sensitive device, so pay attention to anti-static when storing and using it.

Please select the power supply reasonably according to the specific modulation method and corresponding requirements.