

BSTGPA114-0006**DC-6 GHz Small Package Power Amplifier****Data Sheet****I. Product Introduction**

BSTGPA114-0006 is a power amplifier chip based on GaN HEMT technology, using metal ceramic packaging. The operating frequency range covers DC ~ 6GHz, the power gain is greater than 10dB, the typical saturated output power is 40dBm, the typical power added efficiency is 35%, and it can work in pulse / continuous wave mode. The chip is grounded through the back through hole, and the typical operating voltage is $V_d=+28V$, $V_g=-2.4V$.

1.1. Application Areas

- Microwave transceiver components
- Solid-state transmitter

1.2. Key technical indicators

- Frequency range: DC ~ 6GHz
- Power gain: 10 dB
- Saturated output power: 40 dBm
- Power added efficiency: 35%

1.3. Absolute maximum ratings

Table 1

PARAMETER	SYMBOL	LIMIT VALUE
Maximum drain-source forward bias voltage	V_d	+32V
Minimum gate negative bias	V_g	-5V
Maximum input power	P_{in}	+35dBm
Storage temperature	TSTG	-65 ~ +150 °C

1.4. Electrical performance table ($T_A = +25\text{ }^{\circ}\text{C}$, $V_d = +28\text{V}$, $V_g = -2.4\text{V}$, $P_{in} = 30\text{dBm}$, CW)

Table 2

INDEX	SYMBOL	MINIMUM	TYPICAL VALUE	MAXIMUM	UNIT
Frequency range	f	DC ~ 6			GHz
Saturated output power	Psat	39	40	-	dBm
Gain Gain	Gp	9	10	-	dB
Power gain flatness	ΔG_p	-	-	± 0.5	dB
Power Added Efficiency	PAE	25	35	-	%
Linear gain	S21	-	-	10	dB
Linear gain flatness	ΔS_{21}	-	-	± 1	dB
Input standing wave	VSWR(in)	-	1.8	2	

II. Typical curve ($T_A = +25\text{ }^{\circ}\text{C}$, $V_d = +28\text{V}$, $V_g = -2.4\text{V}$, $P_{in} = 30\text{dBm}$, CW)

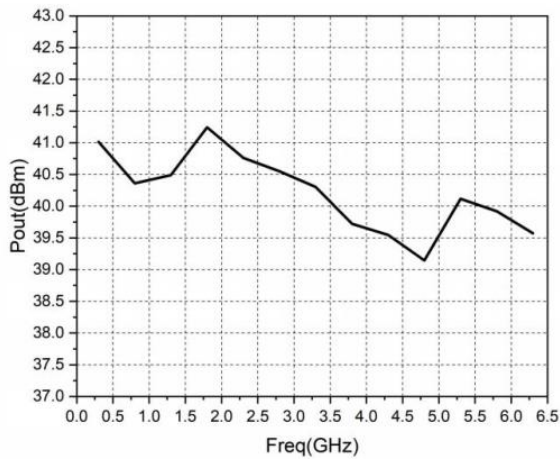


Figure 1. Saturated output power vs. frequency

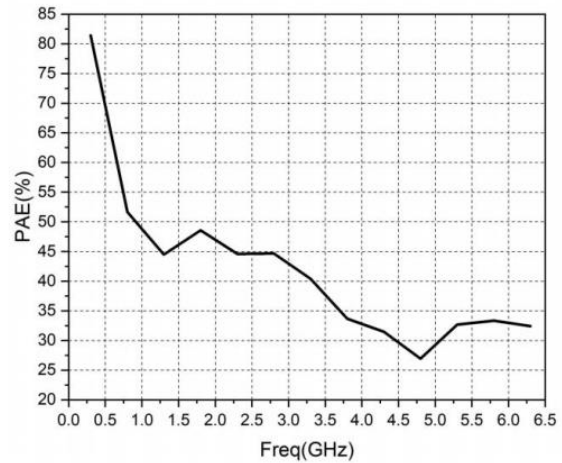


Figure 2. Added efficiency vs. frequency

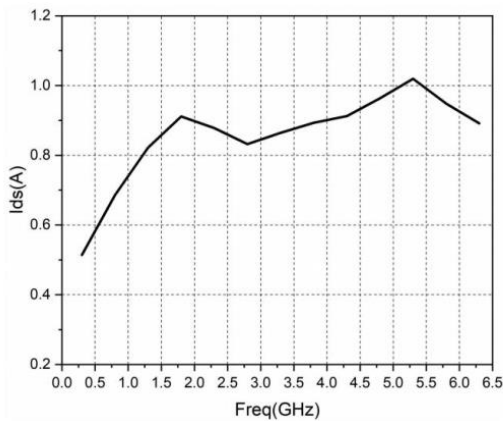


Figure 3. Drain dynamic current vs. frequency

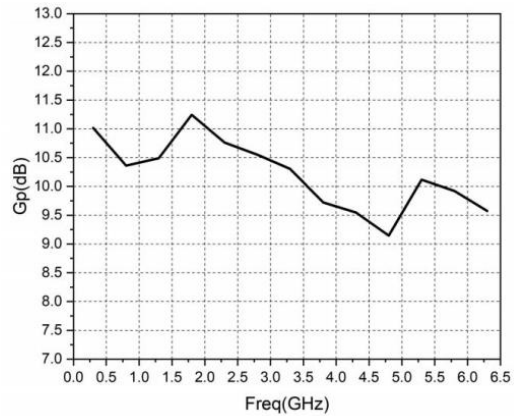


Figure 4. Power gain vs. frequency

Table 3. Pin definition

SERIAL NUMBER	SYMBOL	FUNCTION
1	NC	Not connected
2	RFin	RF input pin
3	NC	Not connected
4	NC	Not connected
5	RFout	RF output pin
6	Vg	Gate power supply pin

III. Dimensions

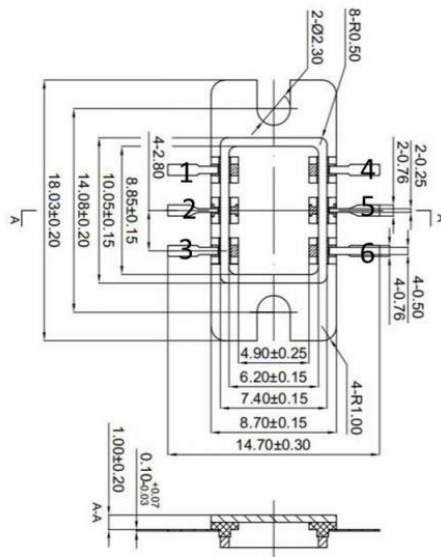


Figure 5

Note: The unit in the figure is millimeter (mm).

IV. Pin Definition Typical Use Circuit Diagram

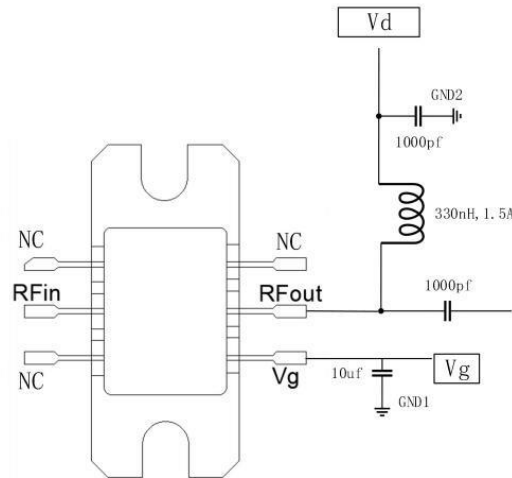


Figure 6

V. Precautions

- This device is an internally matched device with an input and output impedance of 50Ω;
- When adding power, please strictly follow the order of negative first and positive later; when powering on, add the gate voltage first and then the drain voltage; when removing power, reduce the drain voltage first and then the gate voltage;
- Pay attention to heat dissipation during use. The lower the shell temperature, the longer the service life of the device;
- It is recommended that the device operating case temperature does not exceed 75 °C. Too high a temperature will cause device performance to deteriorate and shorten its service life.
- During use, instruments and equipment should be well grounded; this product is an electrostatic sensitive device, so pay attention to anti-static during storage and use.