BSTGPA35-0206P

2-6GHz GaN MMIC power amplifier chip

Data Sheet

I. Product Introduction

BSTGPA35-0206P is a high-power amplifier chip based on GaN technology, with a frequency range of 2-6GHz, a power gain of 20.5dB, and a saturated output power of 46dBm.

II. Performance Characteristics

- Frequency range: 2-6GHz;
- Small signal gain: 30 dB;
- Typ power gain: 20.5 dB;
- Saturated output power: 46 dBm (CW)
- Power-added efficiency: 35%
- Power supply: +28V@2.3A (static)
- Chip size: 15.20mm × 15.20mm × 4.5mm

III. Absolute Maximum Ratings

Table 1

PARAMETER	
Maximum drain voltage	+32V
Maximum gate voltage	-5V
Maximum input power	+32dBm
Operating temperature	-55°C ~ +125°C
Storage temperature	-65°C ~ +150°C

Note: Exceeding any of the above maximum limits may cause permanent damage.

IV. Electrical Performance Parameters

(T_A=+25 ℃, V_D =+28V, V_G=-2.4V, CW)

Table 2

INDEX	MINIMUM VALUE	TYPICAL VALUE	MAXIMUM VALUE	UNIT
Frequency range		2-6		GHz
Small signal gain	28.5	30	-	dB
Power gain	20	20.5	-	dB
Saturated output power	45	46	-	dBm
Power Added Efficiency	-	35	-	%
Input return loss	-	13	-	dB
Output return loss	-	13	-	dB
Saturation dynamic operating current	-	4	5	A
Static operating current *	-	2.3	-	A
* Adjust V_G within the range of -3.2V to -2.3V to make the quiescent operating current 2.3A.				

V. Key Performance Indicator Test Curves

(T_A=+25 ℃, V_G=-2.4, V_D =+28V, CW, I_{DQ} ≈ 2.7A, P_{IN}=25dBm)

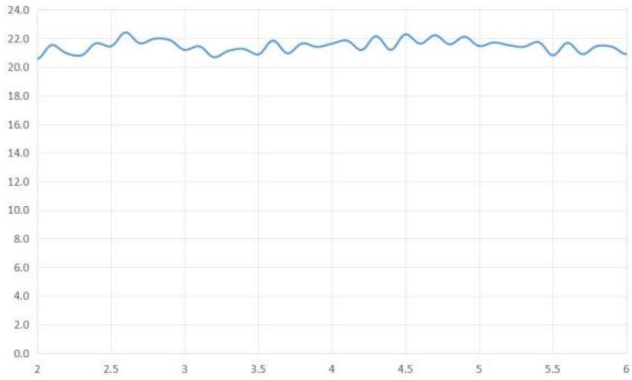

Figure 1. Power gain vs. frequency

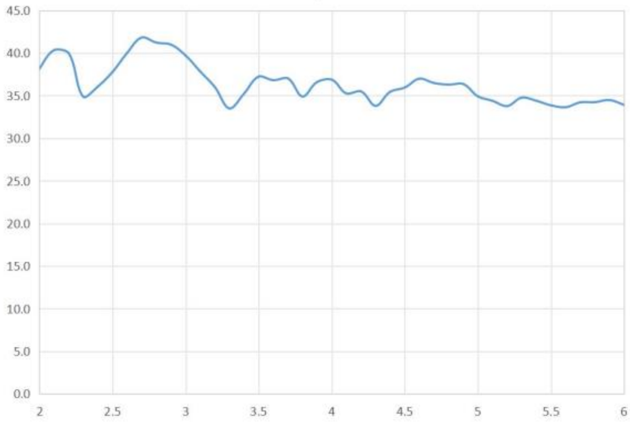

Figure 2. (PAE) vs. frequency

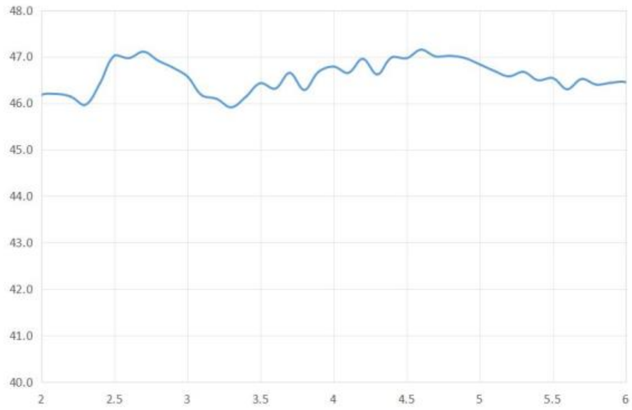

Figure 3. P_{SAT} vs. Frequency

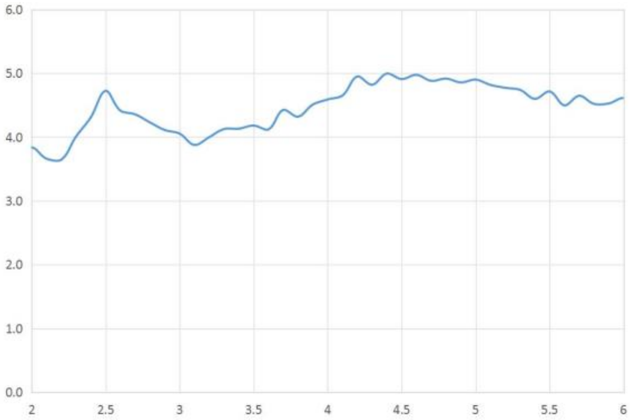

Figure 4. I_{DD} vs. Frequency

VI. External Structure

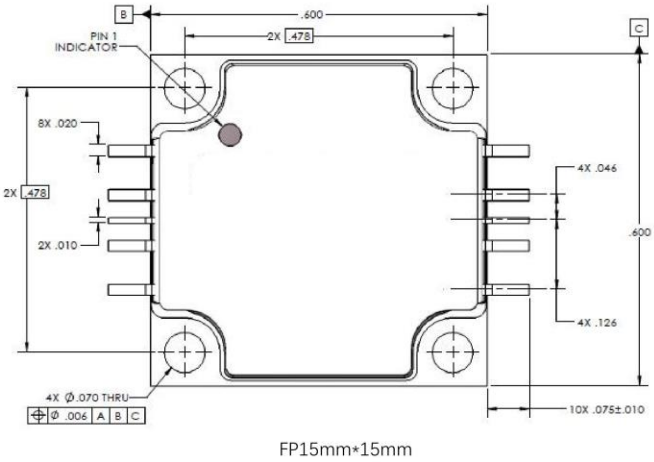

Figure 5

Note: All units in the figure are millimeters.

VII. Bonding Pressure Point Definition

Table 3

BONDING POINT NUMBER	FUNCTIONAL SYMBOLS	FUNCTION DESCRIPTION
2	RF_{IN}	The radio frequency signal input terminal integrates DC blocking function.
5	RF_{OUT}	The radio frequency signal output terminal integrates DC blocking function.
1, 3	VG	The amplifier's gate bias requires external 0.1uF and 10uF bypass capacitors.
4, 6	VD	The amplifier drain bias requires an external 0.1uF bypass capacitor.
Chip bottom	GND	The bottom of the chip must have good contact with the RF and DC ground.

VIII. Recommended Circuit

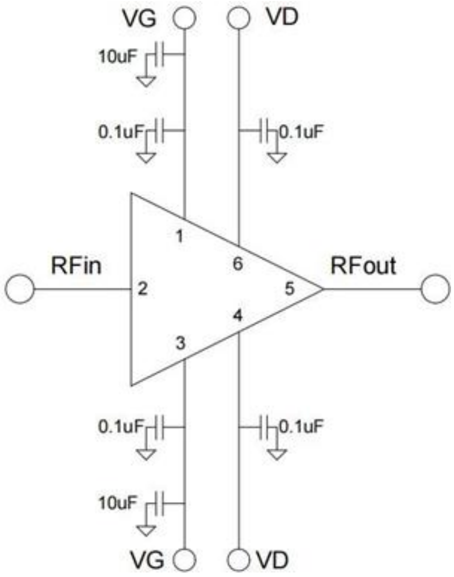

Figure 6