

BSTGPA134-0206

2-6 GHz GaN Power Amplifier

Data Sheet

I. Product Introduction

BSTGPA134-0206 is a high-power amplifier chip based on GaN technology, covering a frequency range of 2-6GHz, with a power gain of 17.5dB and a saturated output power of 45dBm.

II. Key Technical Indicators

- Frequency range: 2-6GHz
- Small signal gain: 27dB
- Typ power gain: 17.5dB
- Saturated output power: 45dBm
- Power added efficiency: 39%
- Power supply: +28V@0.6A (static)
- Chip size: 15.20mm × 15.20mm × 4.5mm

III. Electrical Performance Parameters

($T_A = +25\text{ }^{\circ}\text{C}$, $V_d = +28\text{V}$, $V_g = -2.8\text{V}$, Pulse mode)

Table 1

INDEX	MINIMUM	TYPICAL VALUES	MAXIMUM	UNIT
Frequency range	2~6			GHz
Small signal gain	25	27	-	dB
Power gain	15.5	17.5	-	dB
Saturated output power	42	45	-	dBm
Power added efficiency	-	39	-	%
Input return loss	-	13	-	dB
Output return loss	-	30	-	dB
Saturation dynamic operating current	-	3	3.4	A

INDEX	MINIMUM	TYPICAL VALUES	MAXIMUM	UNIT
Quiescent operating current *		0.6	-	A
* Adjust VG within the range of -3.2V to -2.3V to achieve a quiescent operating current of 0.6A. VG reference value: -2.8V for Pulse.				

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

IV. Absolute Maximum Ratings

Table 2

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

V. Typical curves

T_A = +25 °C, V_d = +28V, Pulse mode test conditions: 100us/1ms

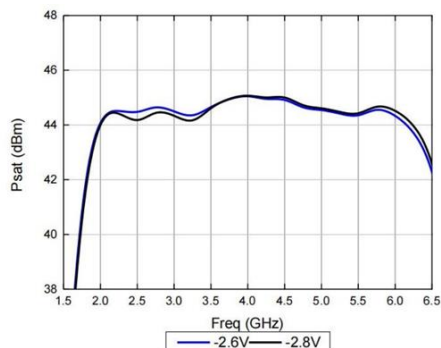


Figure 1. Small Signal Gain vs. Frequency (CW)

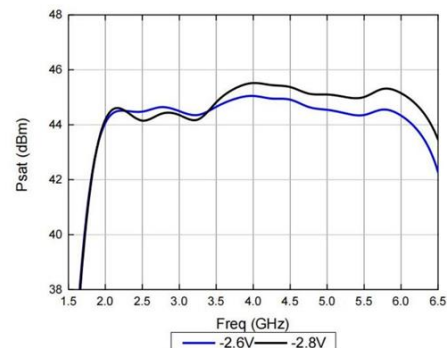


Figure 2. Small Signal Gain vs. Frequency (Pulse)

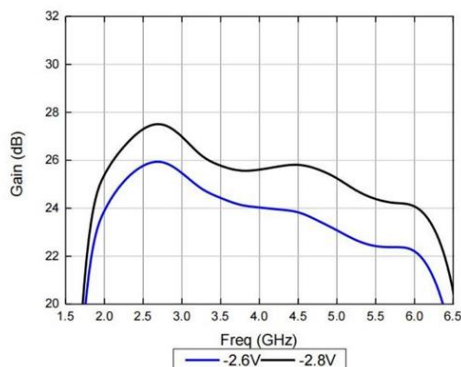


Figure 3. PAE vs. Frequency (CW)

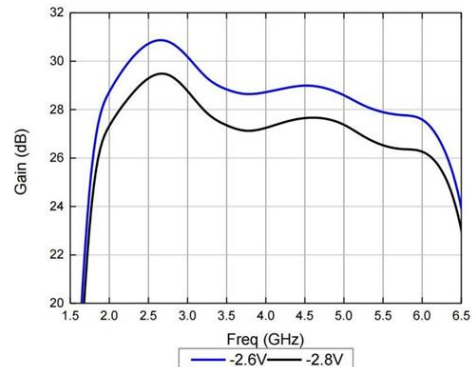


Figure 4. PAE vs. Frequency (Pulse)

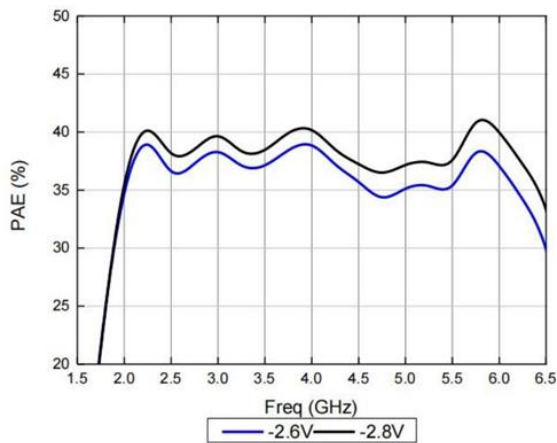


Figure 5. P_{sat} vs. Frequency (CW)

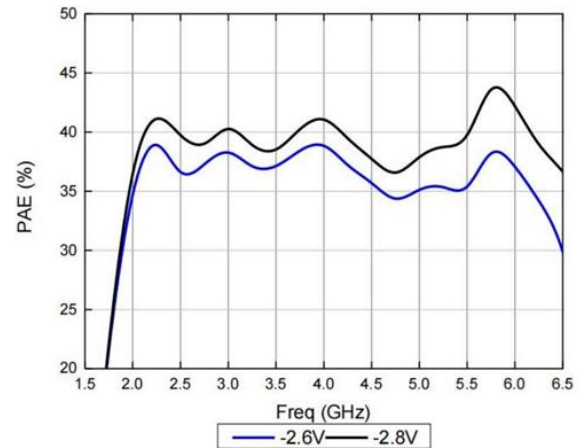


Figure 6. P_{sat} vs. Frequency (Pulse)

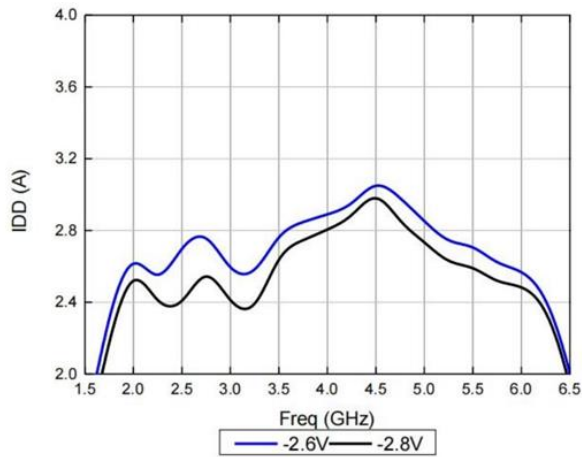


Figure 7. I_{DD} vs. Frequency (CW)

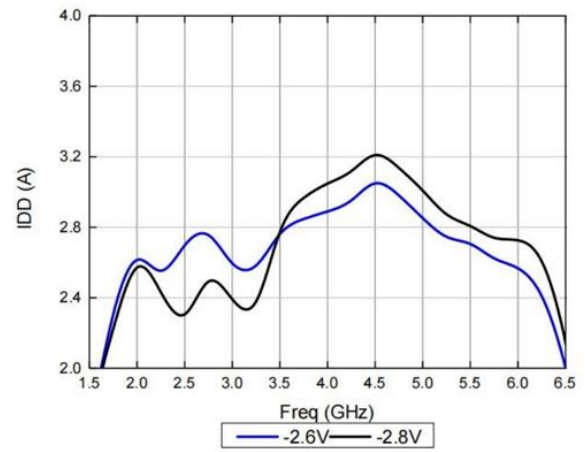


Figure 8. I_{DD} vs. Frequency (Pulse)

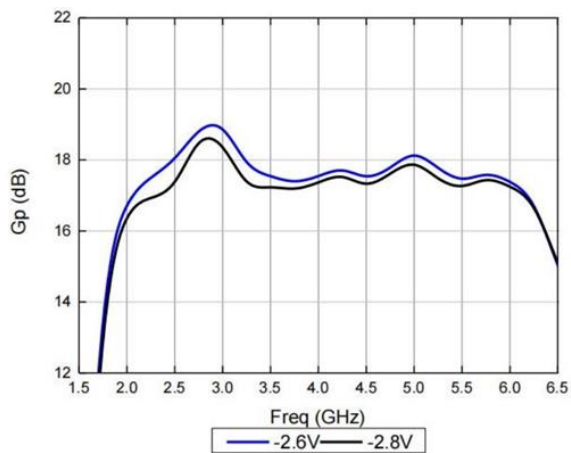


Figure 9. Power Gain vs. Frequency (CW)

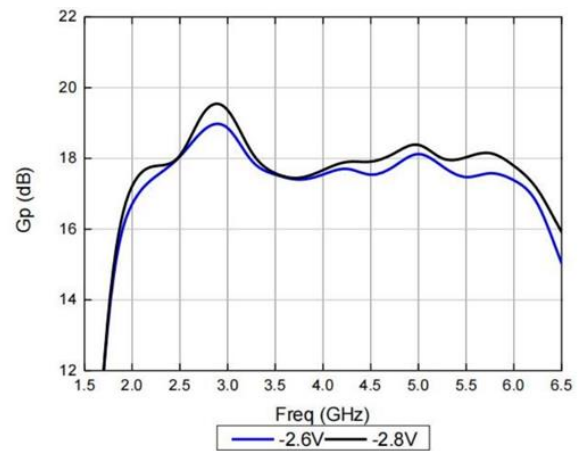


Figure 10. Power Gain vs. Frequency (Pulse)

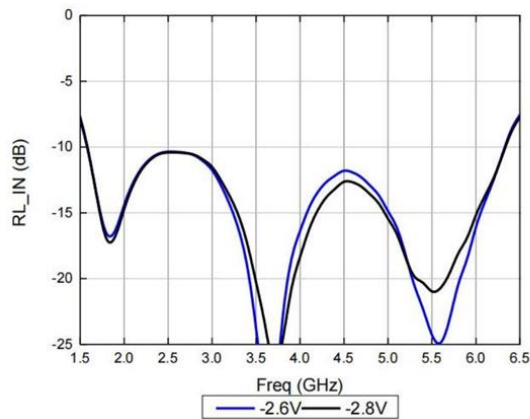


Figure 11. Return Loss vs. Frequency (CW)

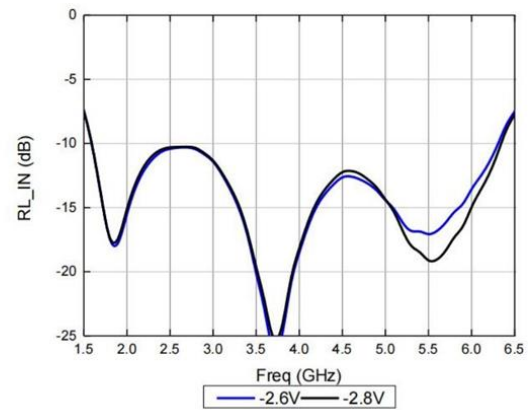


Figure 12. Input Return Loss vs. Frequency (Pulse)

VI. Appearance and Structure

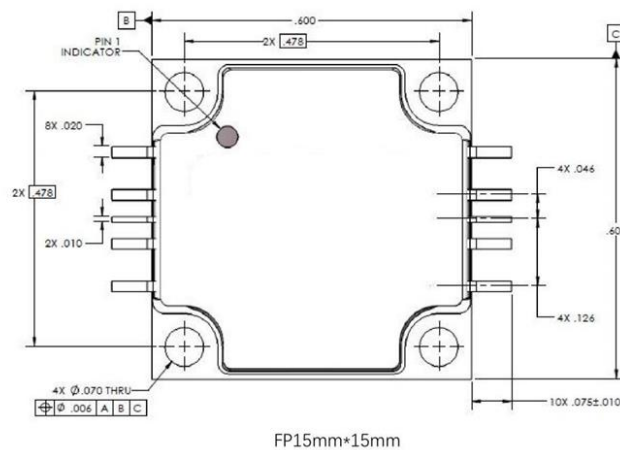


Figure 13. Dimensions (unit is millimeter)

Table 3. Pin definition

PIN NUMBER	SYMBOL	FUNCTIONAL DESCRIPTION
2	FR _{in}	RF signal input terminal, integrated DC isolation function
5	FR _{out}	RF signal output terminal, integrated DC isolation function
1, 3	V _g	Amplifier gate bias, requires external 0.1uF, 10uF bypass capacitors
4, 6	V _d	Amplifier drain bias, requires an external 0.1uF bypass capacitor
Bottom of the chip	GND	The bottom of the chip needs to be in good contact with the RF and DC grounds

VI. Recommended circuit

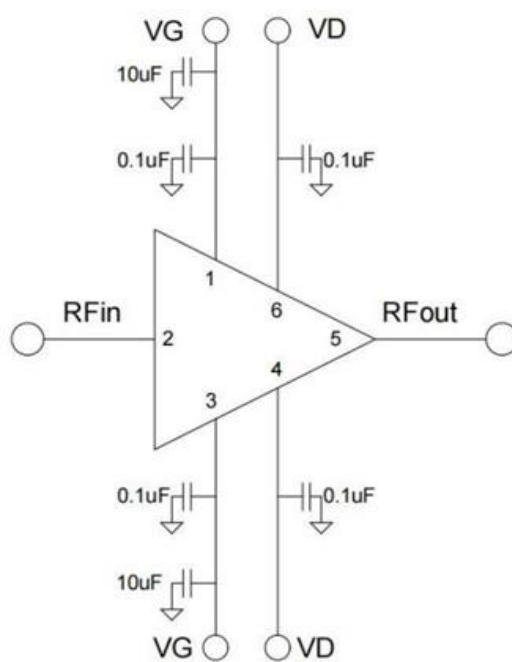


Figure 14