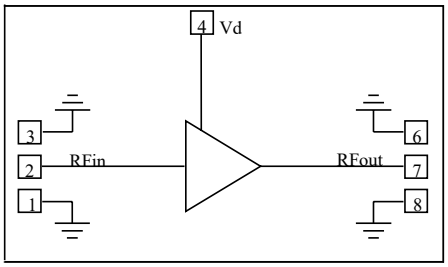
HX11541C-0103 GaAs MMIC **amplifier chip, 120MHz～**300MHz

Performance Features

- Frequency range: 120 MHz to 300 MHz
- Gain: 20.5dB
- Output 1dB compressed power:> 16dBm
- DC power supply: +5V @18mA
- Chip dimensions: 1.53 mm × 0.81 mm × 0.07 mm

functional block diagram



Product Overview

The HX11541C-0103 is an amplifier chip based on GaAs EPHEMT, fabricated using a 0.15μm GaAs EPHEMT process. It operates within a frequency range of 120MHz to 300MHz, with a linear gain of 20.5dB and a P-1 power exceeding 16dBm. The chip is grounded through backside vias, with a typical operating voltage of Vd=+5V.

The chip is mainly used in microwave receiving front-end and communication systems, and bias resistors, choke inductors,

and filter capacitors need to be added to the periphery of the circuit.**DC electrical parameters (TA**= +25℃)

Metric	Symbol	Least value	Representative value	Crest value	Unit
Drain operating voltage	Vd	-	5	-	V
Static drain current	Id	-	18	-	mA

Microwave electrical parameters (TA = +25℃, Vd = +5V)

Metric	Symbol	Least value	Representative value	Crest value	Unit
Frequency range	f	120～300			MHz
Gain	Gain	19.5	20.5		dB
Gain flatness	△Gain		±0.3		dB
Output 1dB compressed power	P_{-1}	15	-	21	dBm
Input standing wave	VSWR_in		1.6	2.0	-
Output standing wave	VSWR_out		1.6	2.0	-

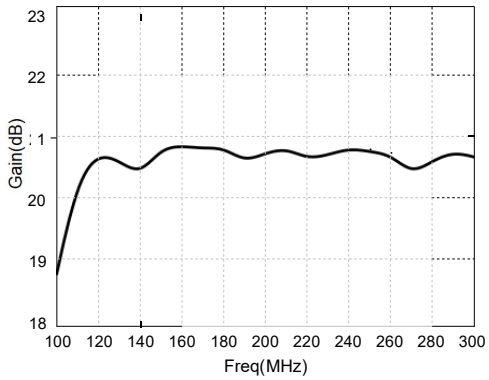
Limit usage parameters

Parameter	Symbol	Limit value
Maximum device voltage	Vd	+5.5V
Maximum input power (CW)	P_p	+15dBm
Storage temperature	T_{STG}	-65℃~+150℃
End-use temperature	T_{op}	-55℃~+125℃
Maximum operating channel temperature	T_{op}	+175℃

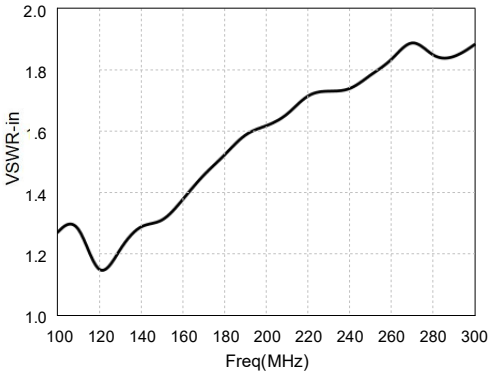
Typical curve (Vd=+5V)

Test results in the film: gain vs.

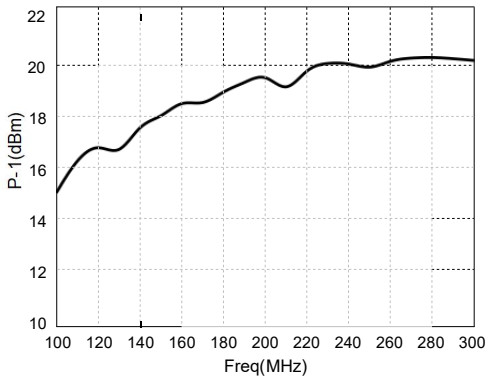
frequency



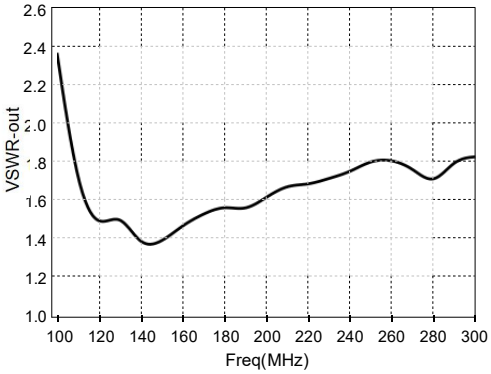
Enter standing wave vs. frequency



Output 1dB compression point power vs. frequency

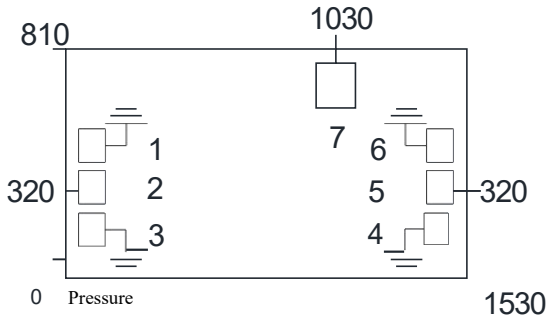


Output standing wave vs. frequency

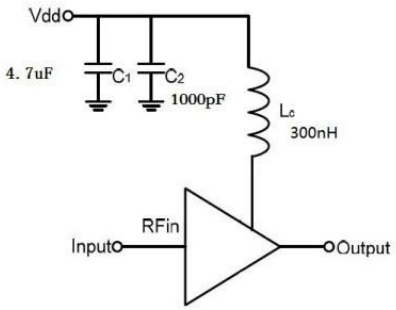


External dimensions and pressure point arrangement diagram

External Dimensions and Typical Applications of HX11541C-0103



Pressure point arrangement diagram



Pressure point number	Function symbol	Functional description	Size
2	RFin	Radio frequency signal input terminal	100×120μm²
5	RFout	Radio frequency signal output terminal	100×120μm²
7	Vd	Feed terminal of amplifier leakage voltage	150×150μm²
1	GND	Grounding pressure point for probe testing	100×120μm²
3,4,6	GND	Grounding pressure point for probe testing	100×120μm²

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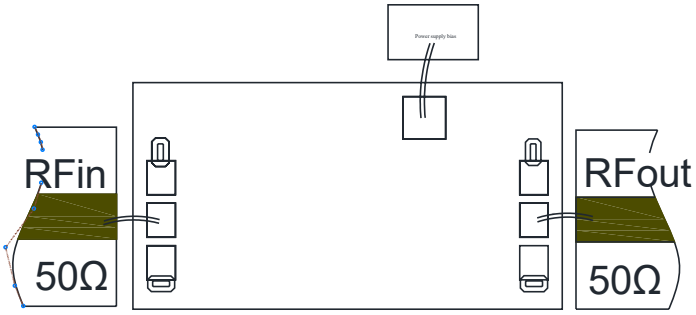
Recommended Assembly Drawing



Note: All units in the figure are in micrometers (μ m); dimensional tolerance ±100 μ m.

Matters Need Attention

1) For use in environmental purification systems;
2) GaAs materials are brittle, and the chip surface is highly susceptible to damage (avoid direct contact with the surface). Handle with extreme caution during use.
3) Use two bonding wires (25μm diameter gold wires) for input and output connections. The bonding wires should be as short as possible, not exceeding 300μm in length.
4) The input and output are connected by a DC-blocking capacitor.
5) Use 80/20 gold-tin solder for sintering. The sintering temperature should not exceed 300°C, and the sintering time should be as short as possible, not exceeding 30 seconds.
6) This product belongs to electrostatic-sensitive devices. Prevent static electricity during storage and use.
7) Store in a dry, nitrogen atmosphere;
8) Do not attempt to clean the chip surface using dry or wet chemical methods;
9) Please contact the supplier if you have any questions.

This product is sensitive to static electricity. Please take anti-static precautions during use.