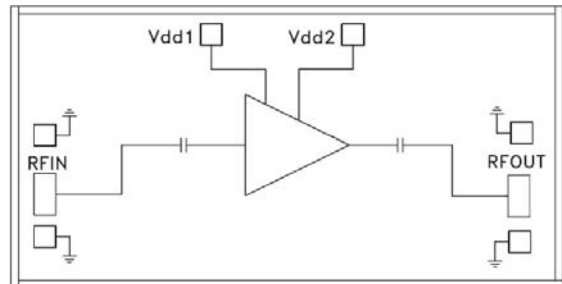
YTLA-1840E

GaAs MMIC Low Noise Amplifier Chip，18-40GHz

Features:

- Frequency：18-40GHz
- Small Signal Gain：15dB
- Noise Figure：3.0dB max.
- P-1dB：5dBm
- Supplying：+5V/45mA
- 50Ohm Input/Output
- 100% Testing
- Chip Size：2.25 x 1.6 x 0.09 mm

Functional Diagram:



General Description:

YTLA-1840E is a GaAs MMIC HEMT Self-biased，wideband Low Noise Amplifier Die Which perate between 18GHz~40GHz with small signal 15dB with noise figure 3.0dB。YTLA-1840E use + 5V single supply。

Parameter [1]	
Max Drain Voltage	+7V
Max. input Power	+20dBm
Working Temperature	-55 ~ +85°C
Storage Temperature	-65 ~ +150°C

【1】 There is a risk of permanent damage over any of the above maximum limits 。

Electrical Specifications(T_A = +25°C，Vd=+5V)

Parameter	Min.	Type	Max	Units
Frequency		18-40		GHz
Small Signal Gain	13.5	15	17.5	dB
Flatness		±2.0		dB
Noise Figure	-	-	3.0	dB
P-1dB	-	5	-	dBm
Input Return Loss	15	18	-	dB
Output Return Loss	20	25	-	dB
Supply Current		45		mA

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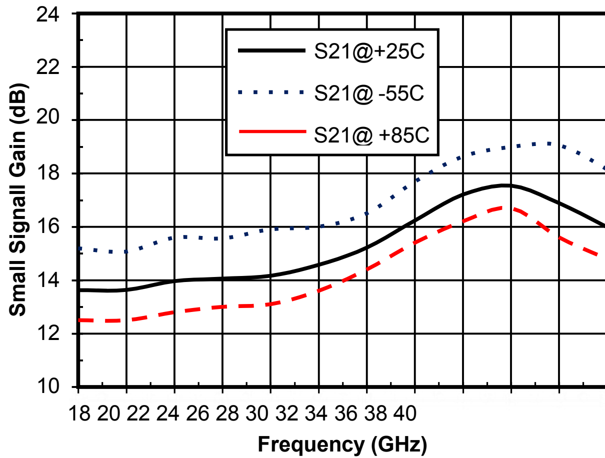
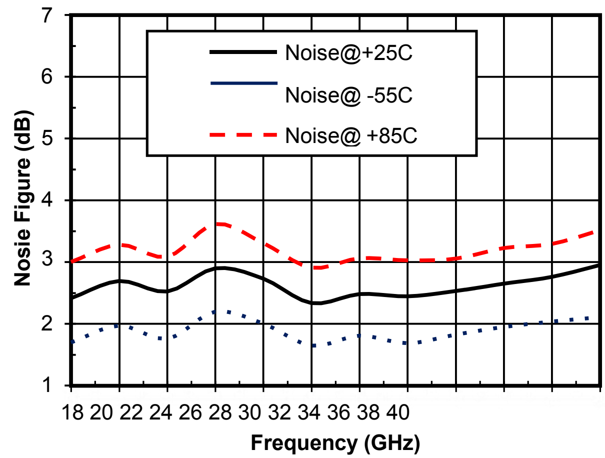
Curve

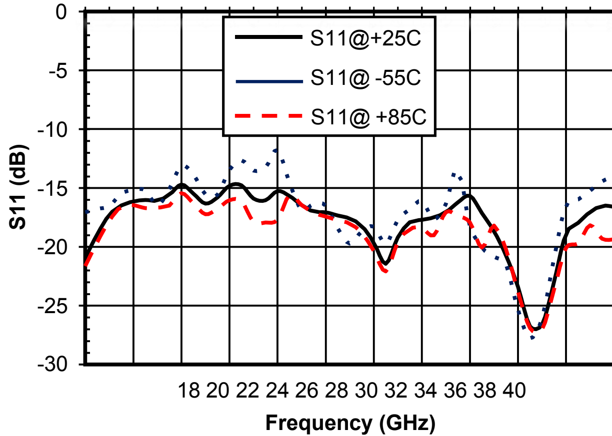
Gain vs. Frequency



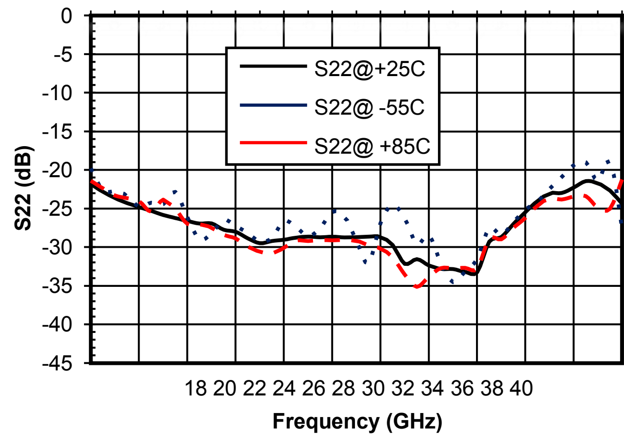
Noise Figure vs. Frequency



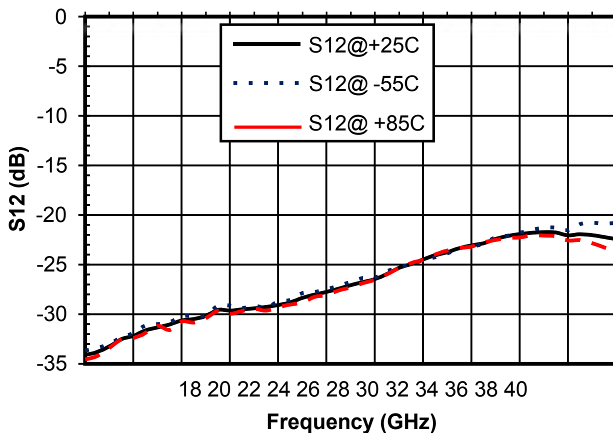
Input Return Loss vs.Frequency



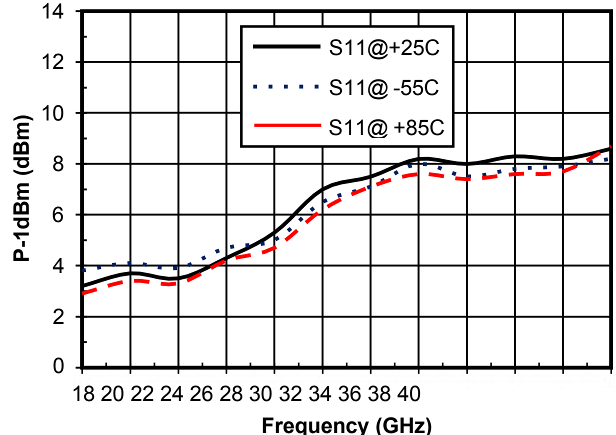
Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency



P-1dB vs. Frequency



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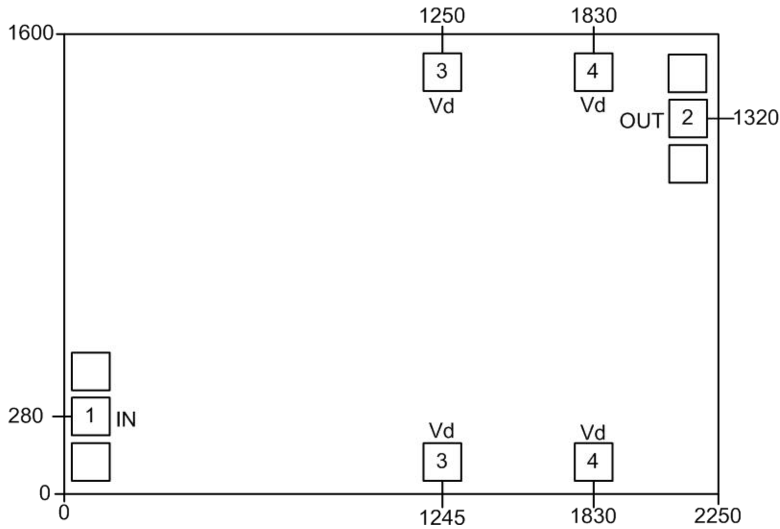
Outline Drawing [2]



【2】um

Pad Descriptions			
Part No.	Function	Description	Interface Schematic
1	RFIN	RF signal input, no straightening capacitor	RF IN
2	RFOUT	RF signal input, no straightening capacitor	RF OUT
3	VD	Amplifier drain bias, external 100pf bypass capacitance, single side power supply, only one side of the bonding vd 。	Vdd
Die Bottom	GND	Die bottom must be connected to RF/DC ground.	GND

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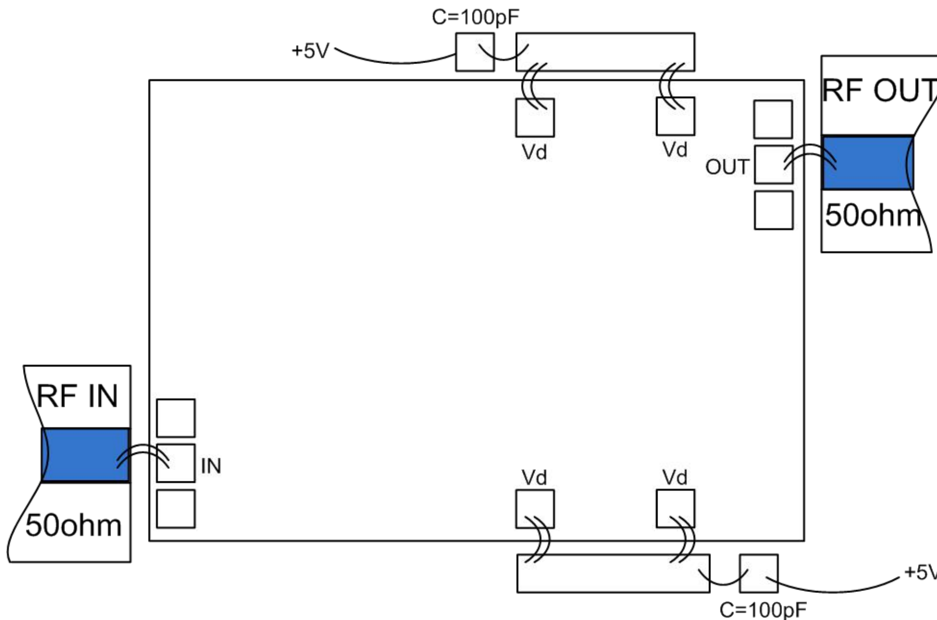
Assembly



【3】single side power supply, only one side of the bonding vd 。

Handling Precautions

- All bare die are placed in either Waffle or Gel based ESD protective containers，stored in a dry nitrogen environment。
- Handle the chips in a clean environment. DO NOT attempt to clean the chip using liquid cleaning systems。
- Follow ESD precautions to protect against ESD strikes。
- Handle the chip along the edges with a vacuum collet or with a sharp pair of bent tweezers. The surface of the chip has fragile air bridges and should not be touched with vacuum collet, tweezers, or fingers。
- The chip is back-metallized and can be die mounted with AuSn eutectic preforms or with electrically conductive epoxy.The mounting surface should be clean and flat。
- temperature of 265 °C. When hot 90/10 nitrogen/hydrogen gas is applied, tool tip temperature should be 290 °C. DO NOT expose the chip to a temperature greater than 320 °C for more than 20 seconds. No more than 3 seconds of scrubbing should be required for attachment
- Apply a minimum amount of epoxy to the mounting surface so that a thin epoxy fi llet is observed around the perimeter of the chip once it is placed into position. Cure epoxy per the manufacturer’s schedule.。

  Ball bonds should be made with a force of 40-50 grams and wedge bonds at 18-22 grams. All bonds should be made with a nominal stage temperature of 150 °C. A minimum amount of ultrasonic energy should be applied to achieve reliable bonds。