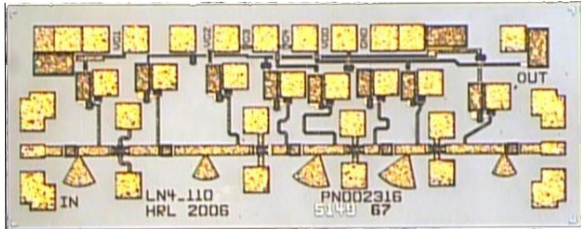




LABORATORIES

# LN4-110



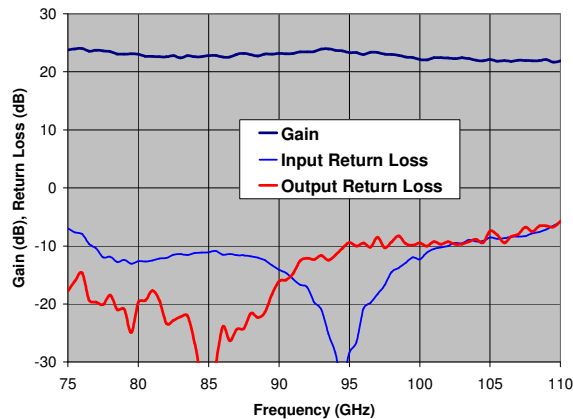
- InP Low Noise Amplifier
- Full W-Band operation
- 22 dB Gain
- 3 dB Noise Figure

The LN4-110 is a four stage MMIC amplifier that covers the entire W-Band. The amplifier is fabricated using HRL's passivated H2 InP HEMT process. The LNA has a single drain supply and is typically used with an independent gate bias for the first stage and a common gate bias for the remaining stages.

**Electrical Specifications,  $T_A=25^\circ\text{C}$ ,  $V_d=1.2\text{ V}$ ,  $I_d=35\text{ mA}$ ,  $P_{in} = -30\text{ dBm}$**

Specification	Units	Min	Typ	Max
Frequency	GHz	75		110
Gain	dB	22	24	27
Input Return Loss	dB		-3	0
Output Return Loss	dB		-5	0
Noise Figure	dB		3	

### Typical Gain and Return Loss Performance



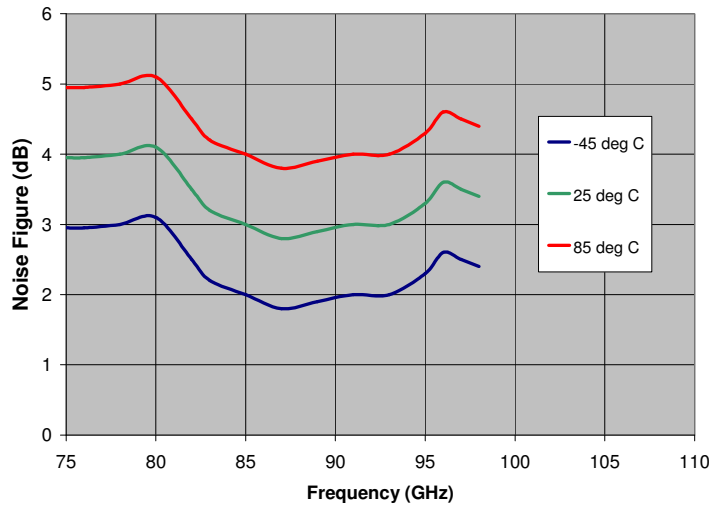
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**Table I Maximum Ratings**

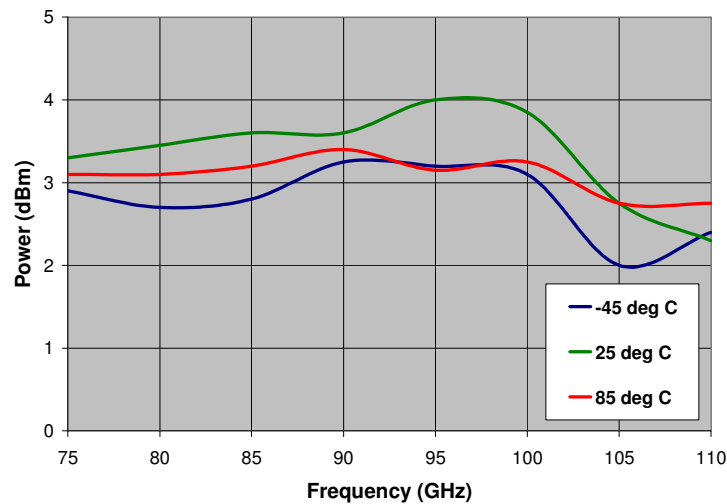
<b>Symbol</b>	<b>Parameter</b>	<b>Value</b>	<b>Note</b>
$P_{IN}$	Input Power	-20 dBm	1
$I_G$	Gate Current	1 mA	1
$V_{DS}$	Drain to Source Voltage	1.5 V	1
$V_{GD}$	Gate to Drain Voltage	-2.5 to 0.0 VDC	1
$V_{GS}$	Gate to Source Voltage	-1.0 to 0.0 VDC	1
$T_M$	Die Attach Temperature (30 seconds)	290° C	

1  $T_{base} = 25\text{ }^{\circ}\text{C}$  unless specified otherwise

**Typical Noise Figure Performance**



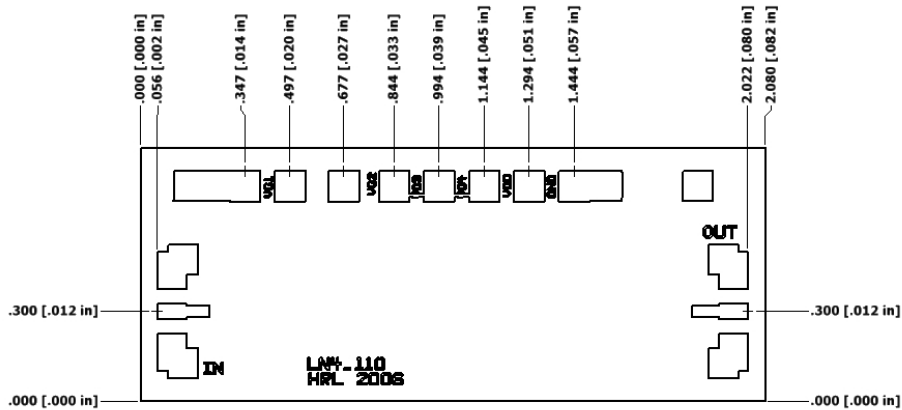
**Typical Saturated Output Power Performance**



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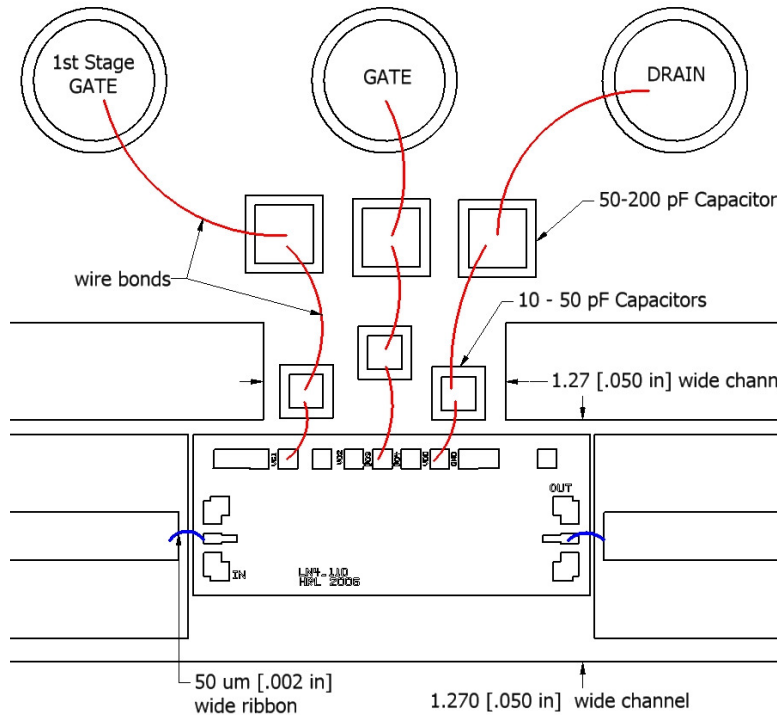
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## Outline Drawing



Bond pads are nominally 0.1mm square  
 Bond pad locations shown from die edge to pad center  
 Die thickness is nominally 50 um  
 Die should not be plasma cleaned

## Typical Assembly Drawing



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