

C-band Cryogenic Low Noise Amplifier

4-8GHz/2K Noise temperature/40dB Gain

Model: TLLA4G8G-36-00-Cryo-LP

TLLA4G8G-36-00-Cryo-LP is a C-band cryogenic low noise amplifier with a typical small signal gain of 40 dB across the frequency range of 4 to 8 GHz. The drain voltage range requirement for the amplifier is 0.6V DC and gate voltage range is from -2 to +2V DC. The input and output port configuration offers coax adapter structure with SMA female.

Features:

- Frequency range: 4-8GHz
- Gain: 40dB Typ
- Noise Temperature: 2K @Temperature≤4K
- Capable of operation at 2 K
- Good Power and Gain Flatness
- 50 Ohm Matched Input / Output

Applications:

- Communication systems

电气特性 Electrical Characteristics:

参数 Parameter	Min	Typ	Max	单位 Units
频率范围 Frequency range	4		8	GHz
小信号增益 Small Signal Gain		40		dB
增益平坦度 Gain Flatness		±1.0		dB
噪声温度 Noise Temperature@TEM≤15K		3.5		K
噪声温度 Noise Temperature@TEM≤4K		2	2.5	K
输入回波损耗 Input Return Loss			-6	dB
输出回波损耗 Output Return Loss			-13	dB
漏极电压范围 Drain voltage range		0.6		V
漏极电流范围 Drain current range		20		mA
栅极电压范围 Gate voltage range	-2		+2	V
功耗 Power Consumption		3.5		mW
阻抗 Impedance	50			Ohms

机械特性 Mechanical Specifications:

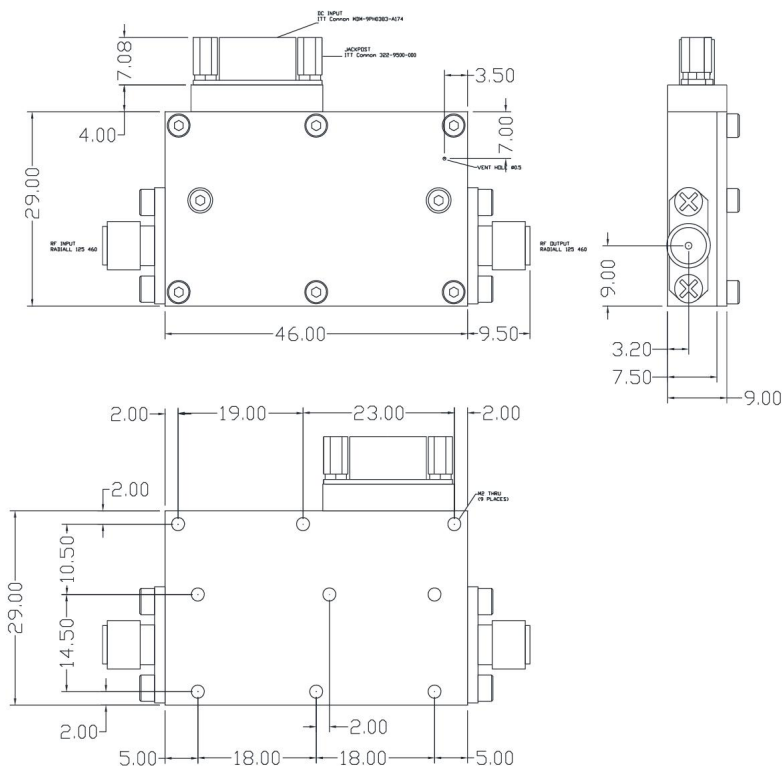
参数 Parameter	指标 Value	单位 Units
输入/输出接口 Input /Output Connector	SMA Female/SMA Female	
直流偏置 DC Bias	Nano D 9-Pin	
尺寸 Size	46*29*9	mm
重量 Weight	65	g

绝对最大值 Absolute Maximum Ratings:

参数 Parameter	指标 Value
漏极电压 Drain voltage	+1.2 V
栅极电压 Gate voltage	+2 V
ESD灵敏度 ESD sensitivity (HBm)	Class 0, passed 150V

外形图 Outline Drawing:

Unit:mm



ESD Protection: Strictly adhere to ESD precautions to prevent electrostatic damage.

加电接口 Power Supply Conector:

Nano D 9Pin			
引脚 Pin#	功能 Function	引脚 Pin#	功能 Function
1	GND	3	VG1(-2~+2V)
2	VD1(+0.5~+1.2V)	4~9	NC

温度环境 Environmental Conditions:

参数 Parameter	Min	Typ	Max	单位 Units
相对湿度 Relative humidity		95		%
海拔 Altitude	10,000			feet
震动 Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
冲击 Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

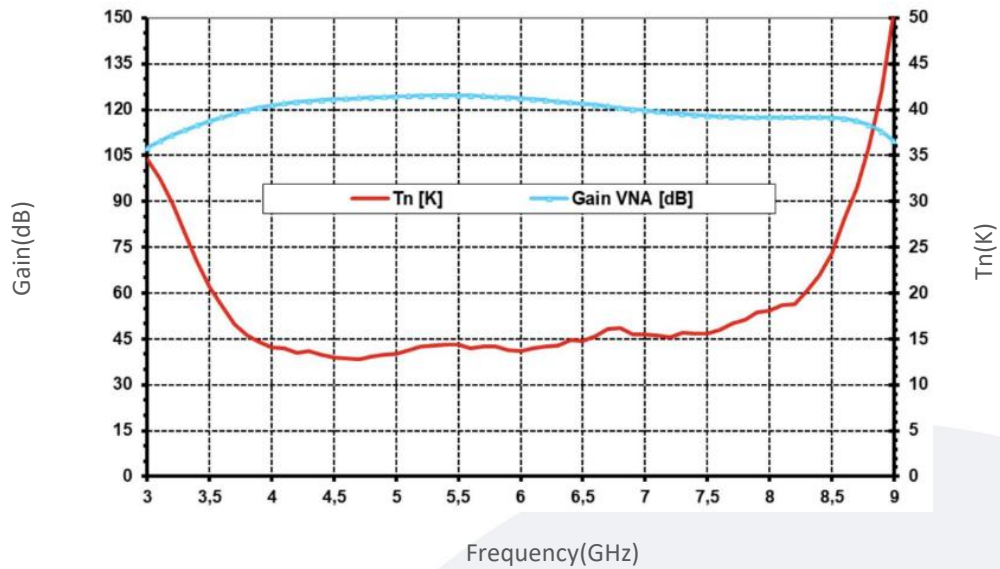
订货信息 Ordering Information:

标准型号 Base Number	描述 Description	版本号 Revision
TLLA4G8G-36-00-Cryo-LP	C-band Cryogenic Low Noise Amplifier, 4-8GHz, Noise temperature: 2K, Gain: 40dB	Rev.1.3

典型曲线 Typical Performance Data:

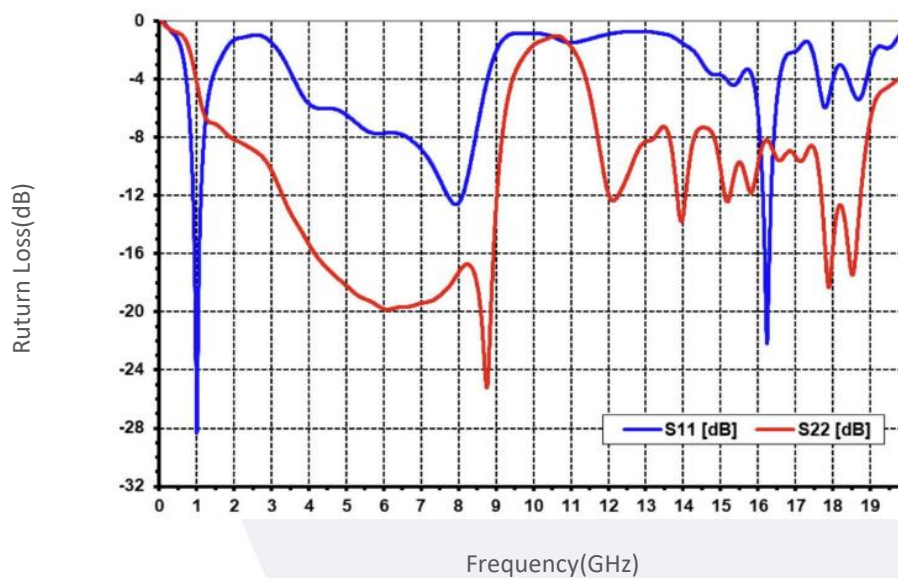
Gain vs Frequency

Vd=0.65V; Id=30mA; T=295K:



Return Loss vs Frequency

Vd=0.65V; Id=30mA; T=295K:

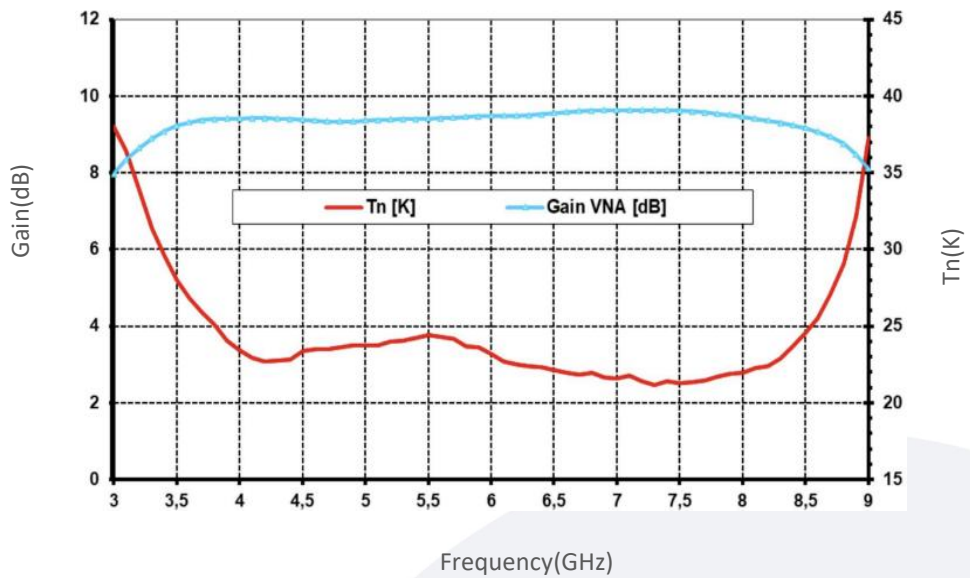


Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

典型曲线 Typical Performance Data:

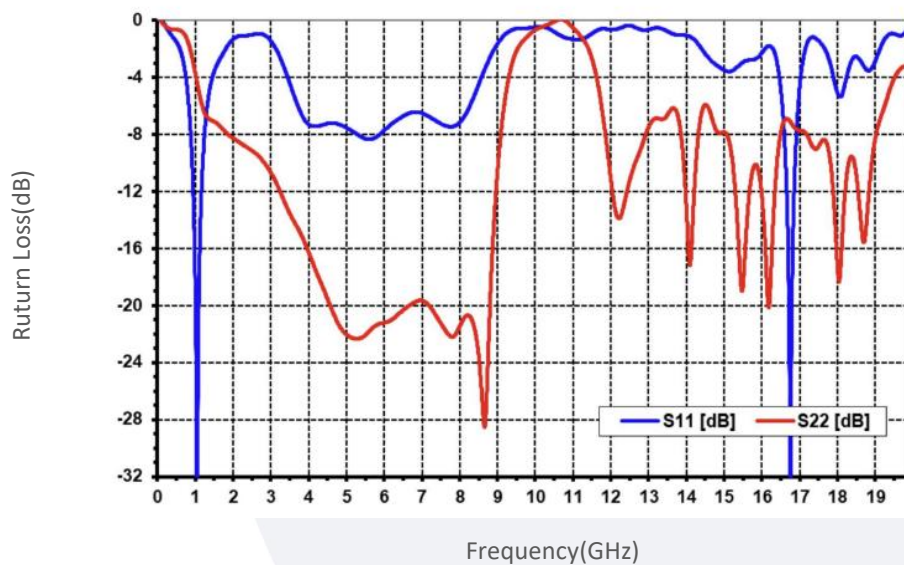
Gain vs Frequency

P=3.8mW; T=12K:



Ruturn Loss vs Frequency

P=3.8mW; T=12K:



Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.