

## C-band Cryogenic Low Noise Amplifier

4-12GHz/4K Noise temperature/32dB Gain

Model: TLLA4G12G-32-00-Cryo

TLLA4G12G-32-00-Cryo is a C-band cryogenic low noise amplifier with a typical small signal gain of 32 dB across the frequency range of 4 to 12 GHz. The drain voltage range requirement for the amplifier is 0.7 to 1.4V 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: 4-12GHz
- Gain: 32dB Min
- Capable of operation at 4 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		12	GHz
小信号增益 Small Signal Gain	32			dB
增益平坦度 Gain Flatness		±1.0		dB
平均噪声温度 Average Noise Temperature		4		K
输入回波损耗 Input Return Loss			-3	dB
输出回波损耗 Output Return Loss			-10	dB
漏极电压范围 Drain voltage range	0.7		1.4	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			26	mW
阻抗 Impedance	50			Ohms

## 机械特性 Mechanical Specifications:

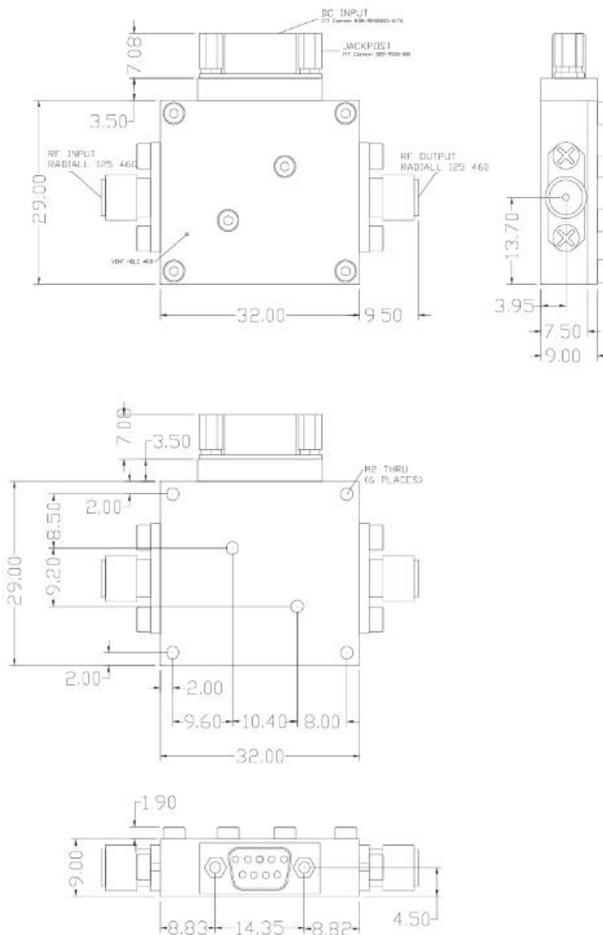
参数 Parameter	指标 Value	单位 Units
输入/输出接口 Input /Output Connector	SMA Female/SMA Female	
直流偏置 DC Bias	Micro MDM 9-Pin	
尺寸 Size	32*29*9	mm

## 绝对最大值 Absolute Maximum Ratings:

参数 Parameter	指标 Value
漏极电压 Drain voltage	+1.4 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 Supply Conector:

Micro MDM Pin			
引脚 Pin#	功能 Function	引脚 Pin#	功能 Function
1	GND	5	VG2
2	VD1	6	VD3
3	VG1	7	VG3
4	VD2	8~9	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			

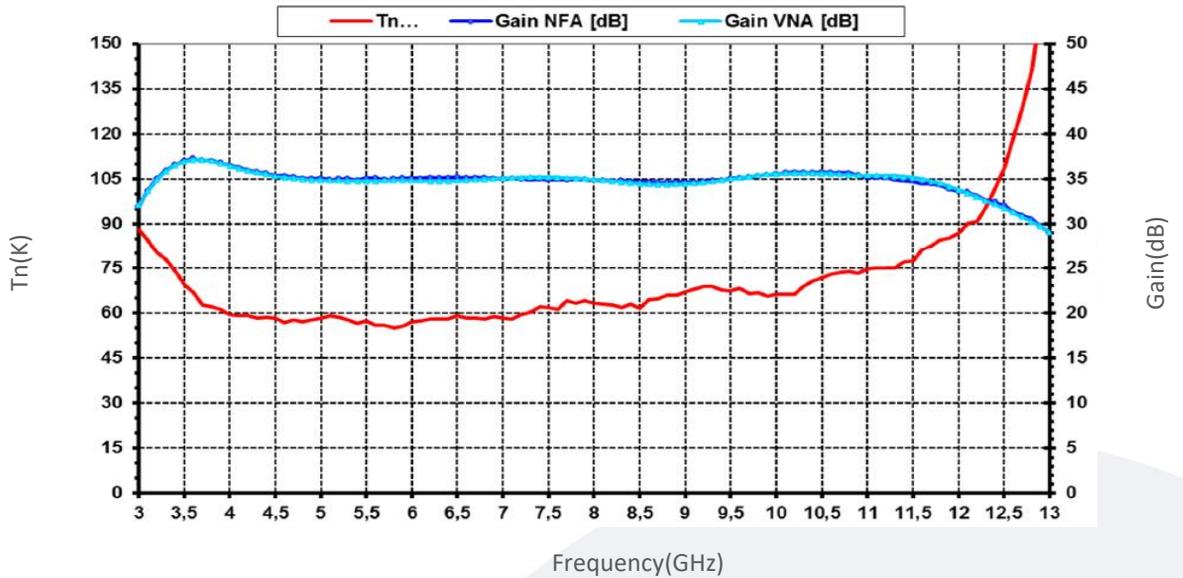
## 订货信息 Ordering Information:

标准型号 Base Number	描述 Description	版本号 Revision
TLLA4G12G-32-00-Cryo	C-band Cryogenic Low Noise Amplifier, 4-12GHz, Noise temperature: 4K, Gain: 32dB	Rev.1.0

## 典型曲线 Typical Performance Data(T=295K):

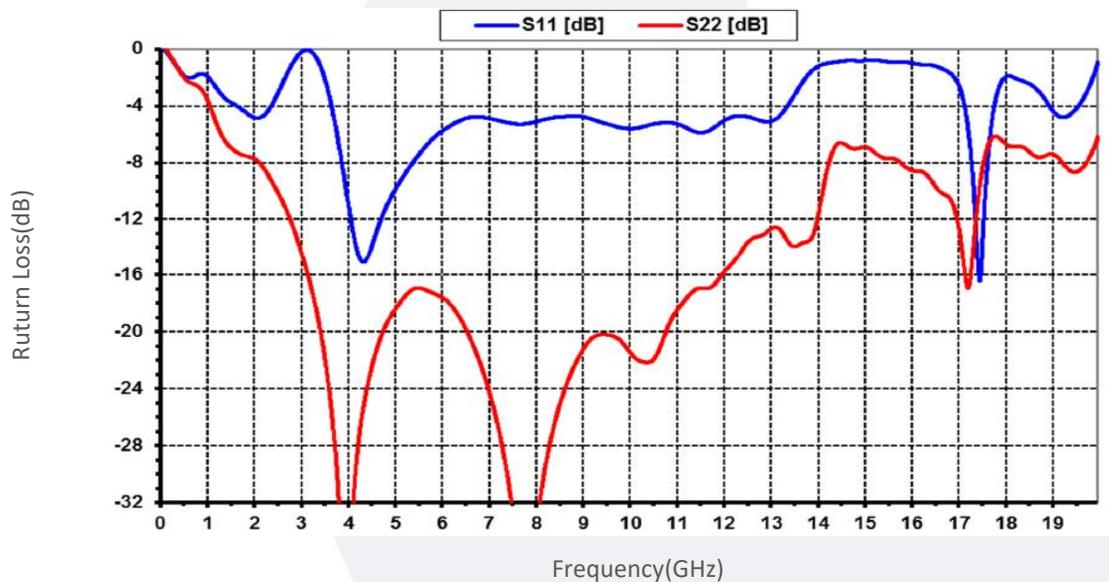
Vd(1,2,3)=1.5V;Id(1,2,3)=10mA:

### Gain vs Frequency



### Noise Figure vs Frequency

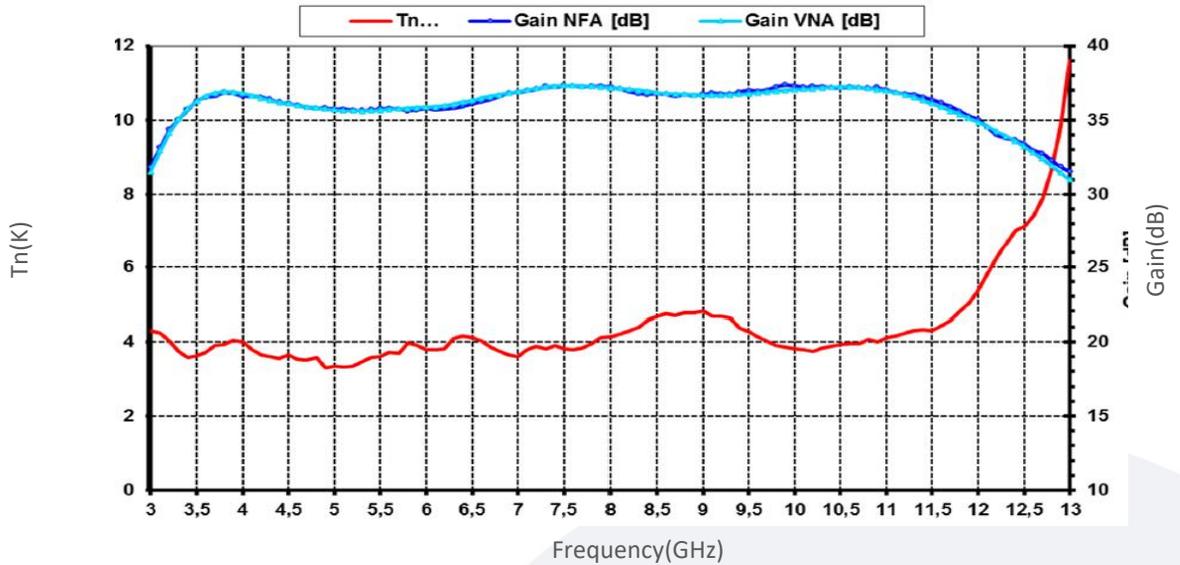
Vd(1,2,3)=1.5V;Id(1,2,3)=10mA:



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.

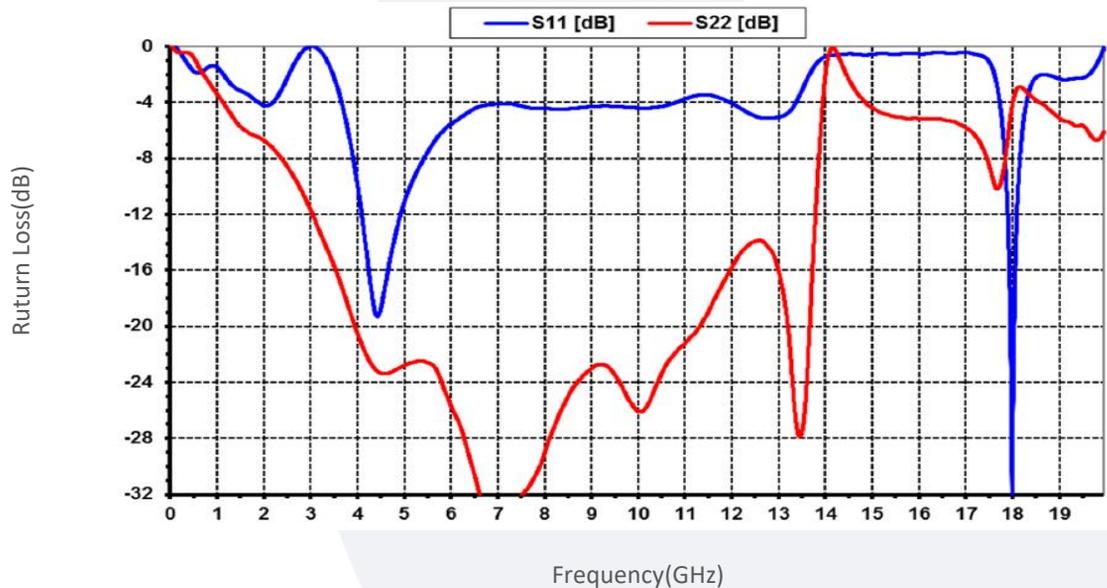
## 典型曲线 Typical Performance Data(T=11K):

Pd<25mW: **Gain vs Frequency**



**Noise Figure vs Frequency**

Pd<25mW:



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.