泰莱微波 Talent Microwave

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Cryogenic Low Noise Amplifier

1-12GHz, Noise temperature:3 K, Gain:33 dB Model: TLLA1G12G-33-00-Cryo

TLLA1G12G-33-00-Cryo is cryogenic InP HEMT amplifier for 1 GHz to 12 GHz which is able to be used for 4K delivers high gain and extreme low noise figure properties.LNAs are tested at both 300 K and 4 K by using cryogenic RF measurement system, and provided with a performance report.

Features:

- Frequency range:1-12 GHz
- Gain: 33 dB Typ
- Average Noise temperature: 3 K @4K
- Technology:InP HEMT
- Compact size & Lightweight

电气特性 Electrical Characteristics:

参数 Parameter	Min	Typ	Max	单位 Units
频率范围 Frequency range	1		12	GHz
增益 Gain@4K		33		dB
增益平坦度 Gain Flatness @4K		±1.5		dB
平均噪声温度 Average Noise temperature @4K		3		K
输入回波损耗 Input Return Loss		7		dB
输出回波损耗 Output Return Loss		10		dB
供电 DC power (typical) @4K	Vds = 0.75 V, Ids = 7.5mA			V DC
功耗 Power Consumption		5.7		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 connector	
尺寸 Size	30.32*21.77*7.5	mm

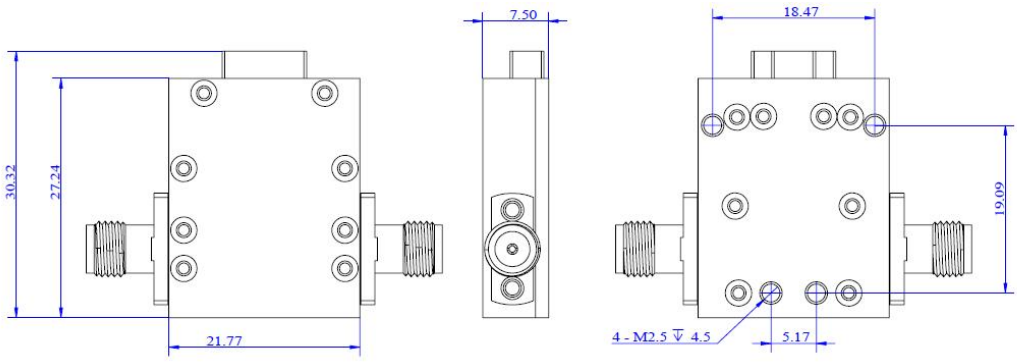
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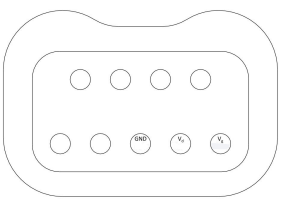
绝对最大值 Absolute Maximum Ratings:

参数 Parameter	指标 Value
漏极电压Drain voltage Vd	+2.5V
漏极电流Drain current Id	100mA
栅极电压 Gate voltage Vg	-0.9V to +0.9V
输入功率 RF Input Power	-10 dBm
ESD灵敏度 ESD sensitivity (HBm)	Class 0, passed 150V

外形图 Outline Drawing:

Unit:mm





Nano D connector seen from outside the LNA	
引脚 Pin #	功能Function
3	GND
4	VD
5	VG
1,2,6,7,8,9	NC

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

温度环境 Environmental Conditions:

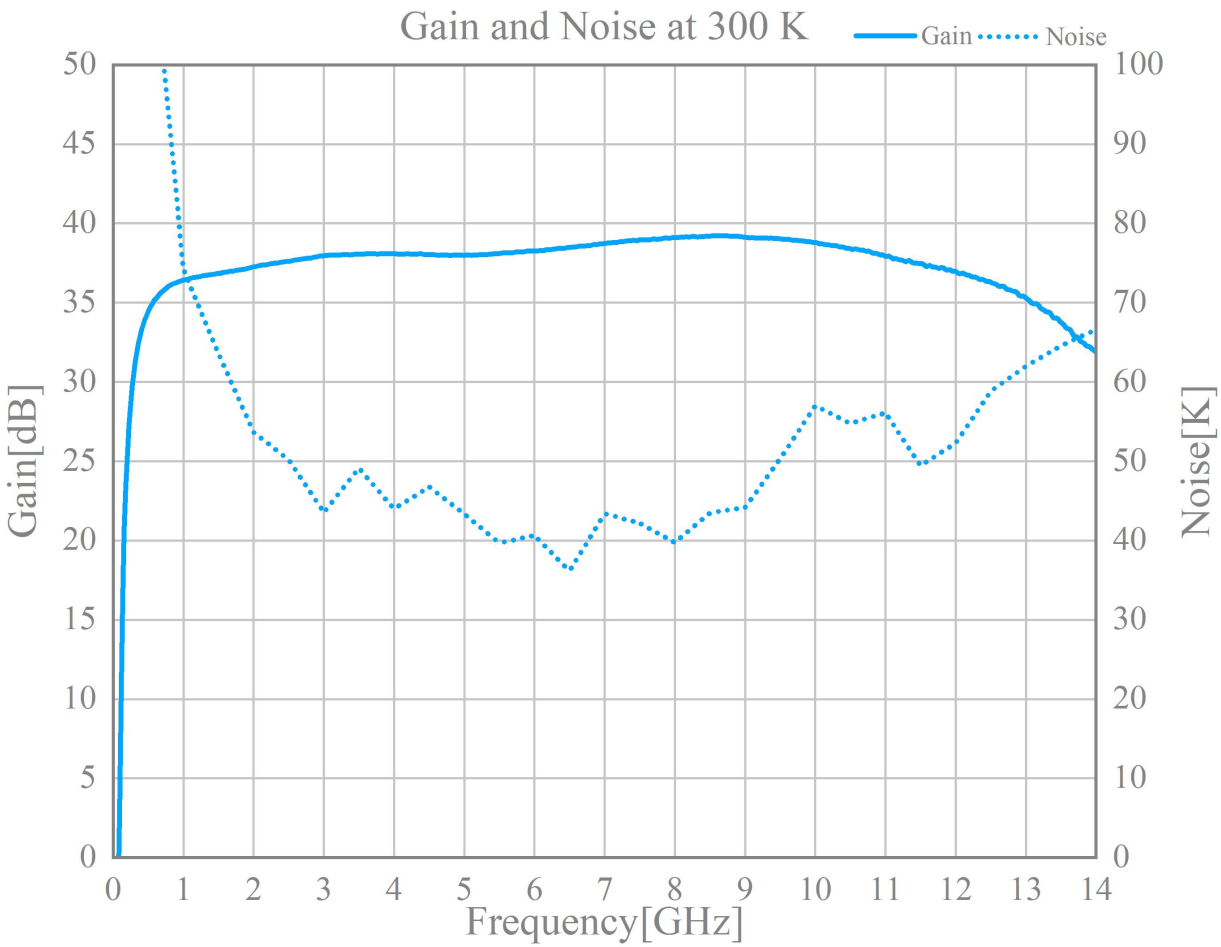
参数 Parameter	Min	Typ	Max	单位 Units
操作温度 Operating Temperature	3		313	K
存储温度 Non-operating Temperature	0		+85	℃
相对湿度 Relative humidity		95		%
海拔 Altitude	10,000			feet
震动 Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
冲击 Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

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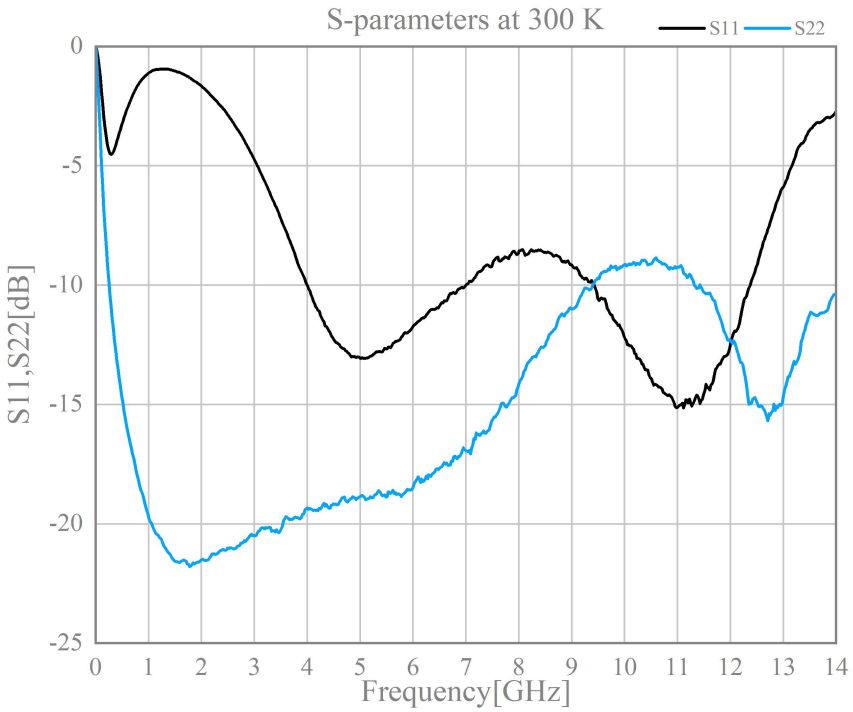
订货信息 Ordering Information:

标准型号 Base Number	描述 Description	版本号 Revision
TLLA1G12G-33-00-Cryo	Cryogenic Low Noise Amplifier 1-12GHz, Noise temperature:3 K, Gain:33 dB	Rev.1.1

测试数据 Measured data, Tamb = 300 K



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测试数据 Measured data, Tamb=4 K:

