泰莱微波
Talent Microwave

Suzhou Talent Microwave,Inc
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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

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	4		8	GHz
Small Signal Gain		40		dB
Gain Flatness		±1.0		dB
Noise Temperature@TEM≤15K		3.5		K
Noise Temperature@TEM≤4K		2	2.5	K
Input Return Loss			-6	dB
Output Return Loss			-13	dB
Drain voltage range		0.6		V
Drain current range		20		mA
Gate voltage range	-2		+2	V
Power Consumption		3.5		mW
Impedance		50		Ohms

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Mechanical Specifications:

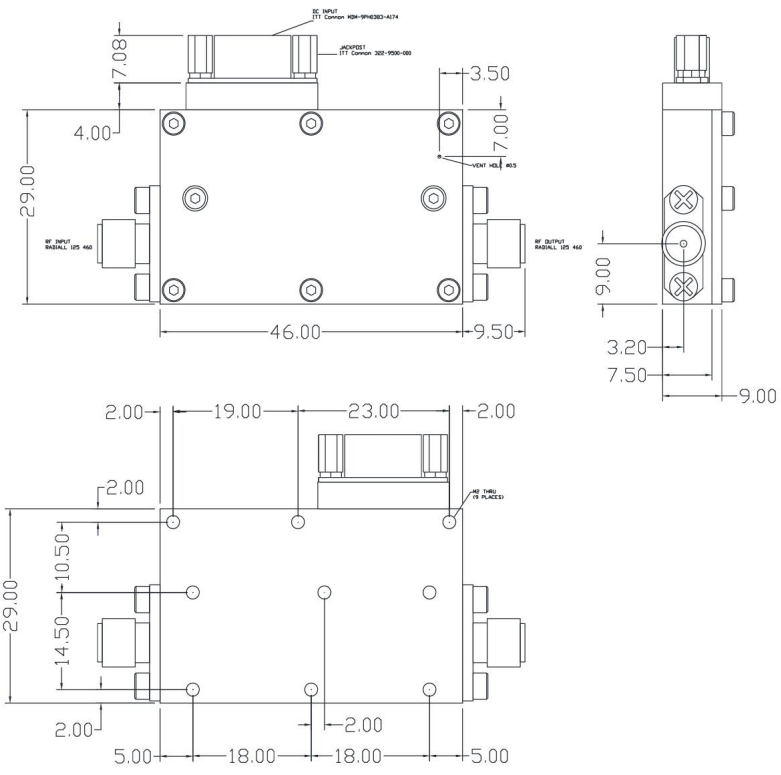
Parameter	Value	Units
Input /Output Connector	SMA Female/SMA Female	
DC Bias	Nano D 9-Pin	
Size	46*29*9	mm
Weight	65	g

Absolute Maximum Ratings:

Parameter	Value
Drain voltage	+1.2 V
Gate voltage	+2 V
ESD sensitivity (HBm)	Class 0, passed 150V

Outline Drawing:

Unit:mm



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

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Power Supply Conector:

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

Environmental Conditions:

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

Ordering Information:

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

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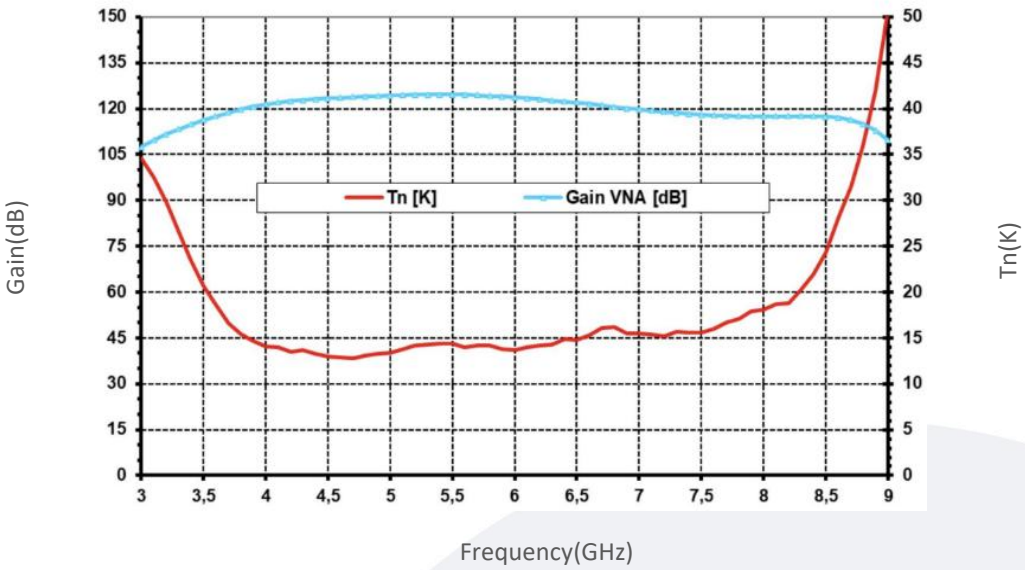
Typical Performance Data:

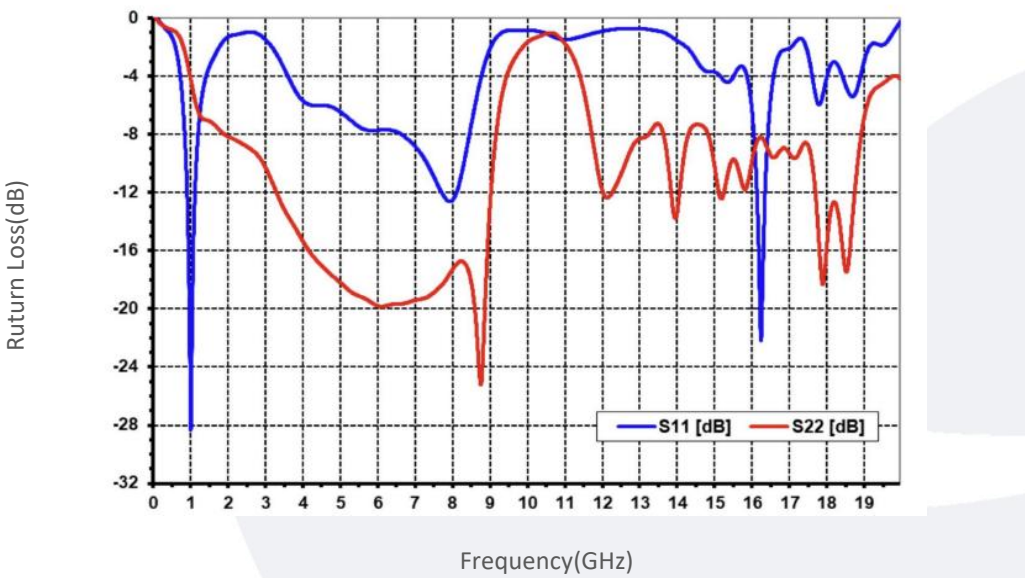
Gain vs Frequency

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



Ruturn 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.

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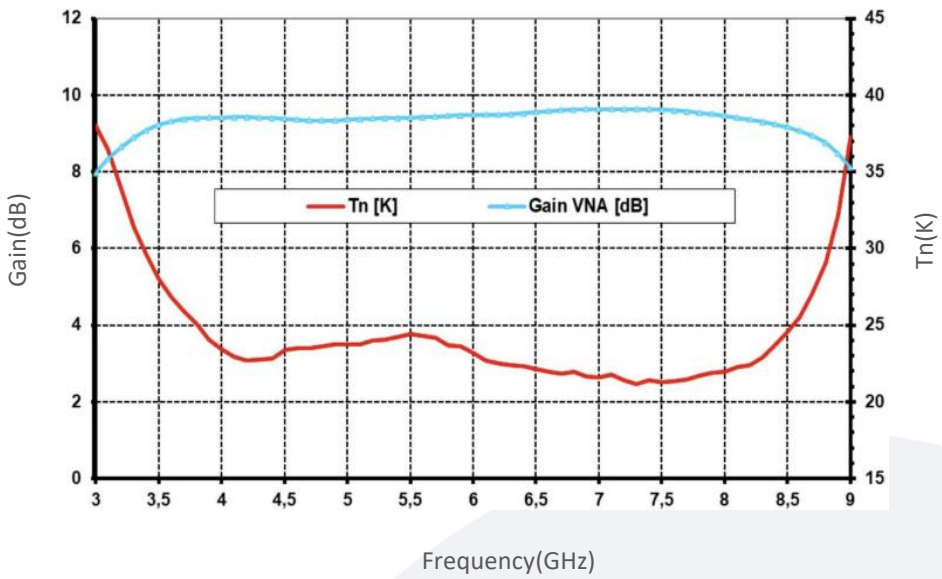
Typical Performance Data:

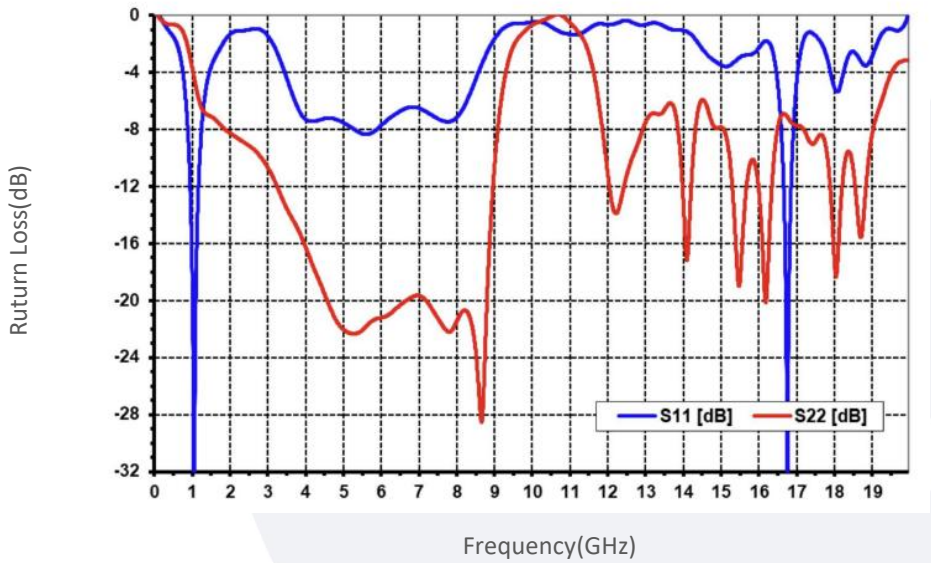
Gain vs Frequency

P=3.8mW; T=12K:



Ruturn Loss vs Frequency

P=3.8mW; T=12K:



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