

Features

- 1 GHz to 6 GHz Frequency Range
- Gain 28 dB Typical
- Gain Flatness ± 0.5 dB typical ± 1 dB max
- 0.7 dB Typical Noise Figure 0.9 dB max
- VSWR 1.8:1 typical
- P1dB +14 dBm typical
- Internally Regulated
- Operates from Single +8 to +12V Supply
- Unconditionally Stable
- Compact Housing
- State-of-the-Art GaAs Technology

Applications

- Test Equipment
- Receiver
- Lab Applications
- Broadband Gain Block
- Front End of Receiver

General Description

LA10403 Ultra-low noise amplifier with flat gain, in a compact size. The amplifier I/Os are Internally matched to 50 Ohms and DC Blocked. The LA10403 is ideal for use as input stage with low noise for test equipment, communication systems or where broadband amplification with very low added noise are required in a Hi-Rel communications system for Commercial or Military applications



Electrical Specifications

Parameter	Symbol	Specification	Conditions
Frequency Range		1 to 6 GHz	
Small Signal Gain ¹		26dB minimum	
Gain Flatness		±0.8dB maximum	
Noise Figure		0.9dB maximum	1 to 6 GHz
Output Power (P1dB)		+10dBm minimum	@ 3GHz
OIP3		21dBm typical	@ 3GHz Two tone F1-F2 = 10MHz
Spurs ²		-70dBc minimum	Self-generated spurs
RF Input Impedance		1.8:1	Reference to 50Ω VSWR
RF Output Impedance		1.8:1	Reference to 50Ω VSWR
Supply Voltage Positive		+8 to +12V	Small Signal
Supply Current Positive		100mA maximum	Small Signal

Maximum Ratings³

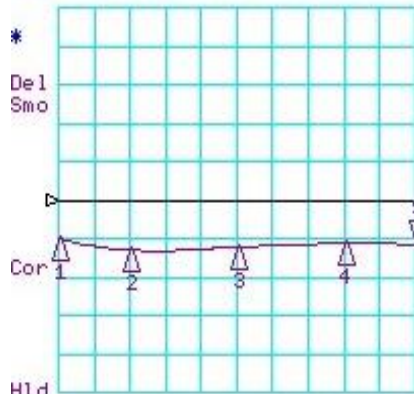
Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Temperature	OTR	-40		+85	°C	
Storage Temperature	STR	-40		+125	°C	
RF Input power (CW)						
Die Junction	T _J			+150	°C	
Positive Supply Voltage				+13	V	

Notes

Note 1	Small signal Input Power -35 dBm
Note 2	Excludes Harmonics
Note 3	Appropriate Heat sink must be used. Do Not apply DC to RF ports.

Simulation plots

CH1 LOG 10 dB/ REF 0 dB
S11 5: -11.465 dB 6.000 000 000 GHz

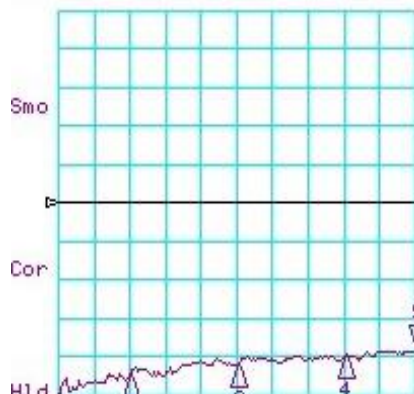


CH1 Markers

1: -9.9220 dB
1.00000 GHz
2: -12.882 dB
2.00000 GHz
3: -12.121 dB
3.50000 GHz
4: -11.039 dB
5.00000 GHz

START 1000.000 MHz STOP 6000.000 MHz

CH3 LOG 10 dB/ REF 0 dB
S12 5: -38.180 dB 6.000 000 000 GHz

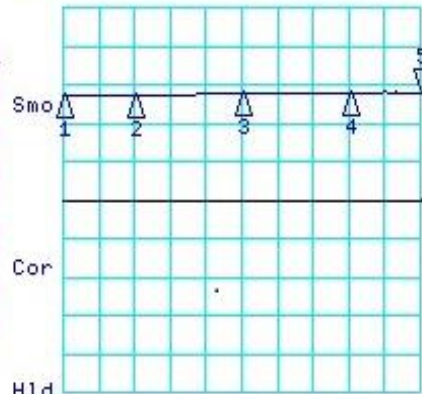


CH3 Markers

1: -49.941 dB
1.00000 GHz
2: -44.717 dB
2.00000 GHz
3: -41.855 dB
3.50000 GHz
4: -40.095 dB
5.00000 GHz

START 1000.000 MHz STOP 6000.000 MHz

CH2 LOG 10 dB/ REF 0 dB
S21 5: 28.007 dB 6.000 000 000 GHz

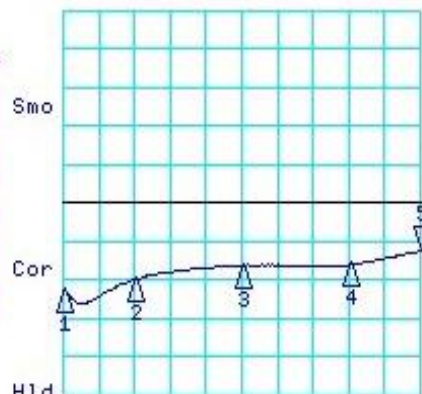


CH2 Markers

1: 27.281 dB
1.00000 GHz
2: 27.346 dB
2.00000 GHz
3: 27.995 dB
3.50000 GHz
4: 28.045 dB
5.00000 GHz

START 1000.000 MHz STOP 6000.000 MHz

CH4 LOG 10 dB/ REF 0 dB
S22 5: -12.565 dB 6.000 000 000 GHz

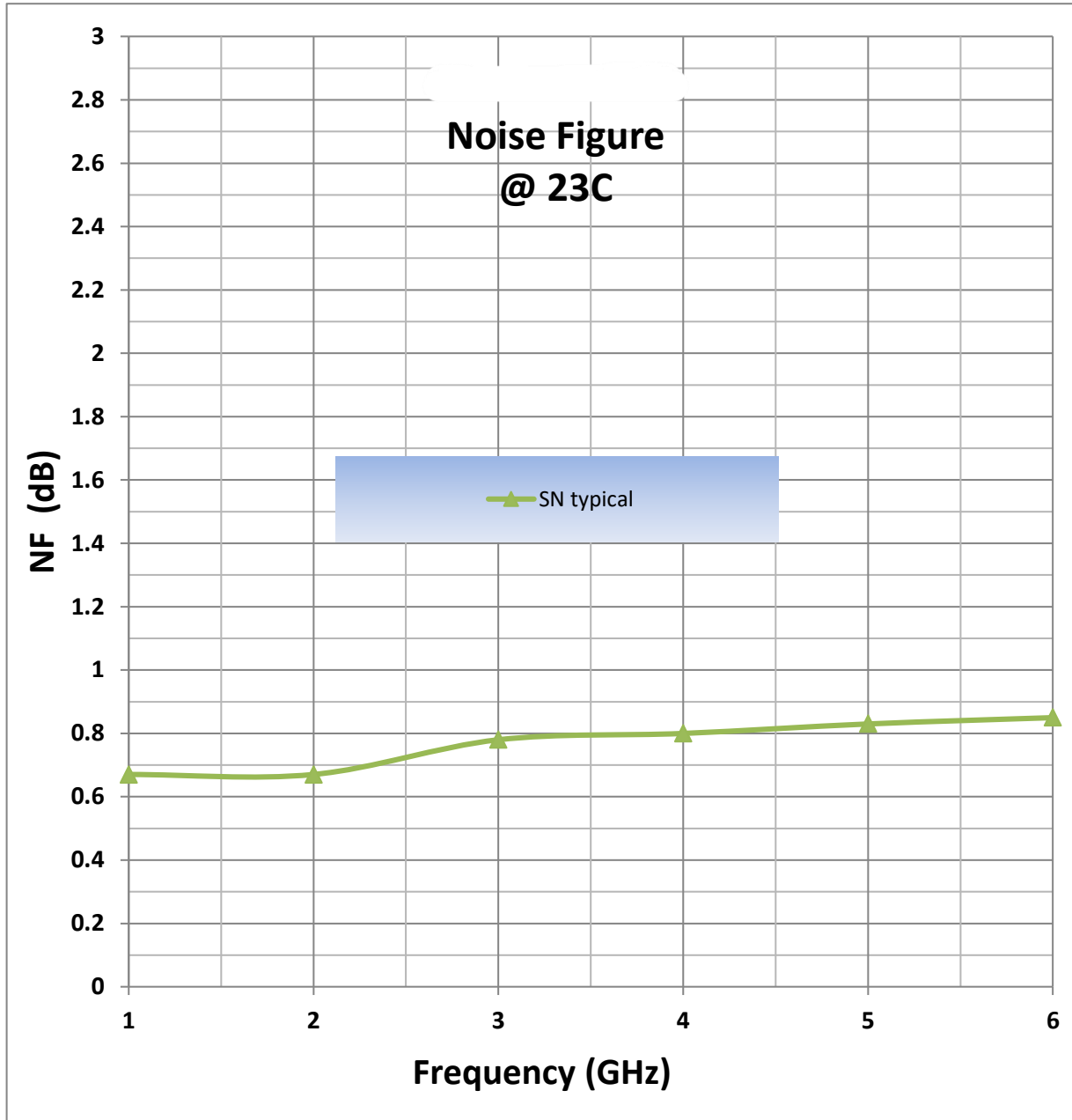


CH4 Markers

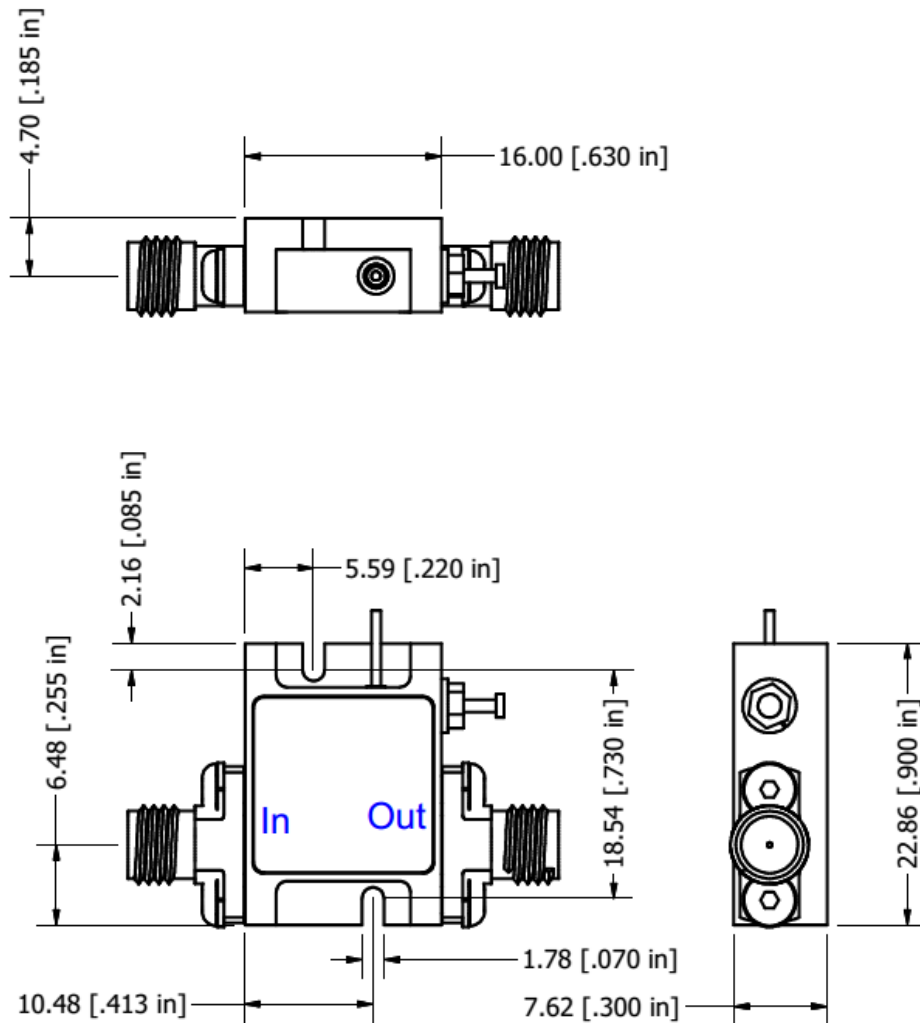
1: -22.455 dB
1.00000 GHz
2: -19.968 dB
2.00000 GHz
3: -16.337 dB
3.50000 GHz
4: -16.144 dB
5.00000 GHz

START 1000.000 MHz STOP 6000.000 MHz

Noise Figure Plot



Package Outline: SMA Female Connectors (inches)



Field replaceable SMA Connectors

Housing: Aluminum Gold over Nickel plated

Note: The unit must be attached to proper heat sink

Revision History

Date	Rev	Author	Details of Revision
04-16-25	0	AR	Initial Version