S-Band Low Noise Amplifiers

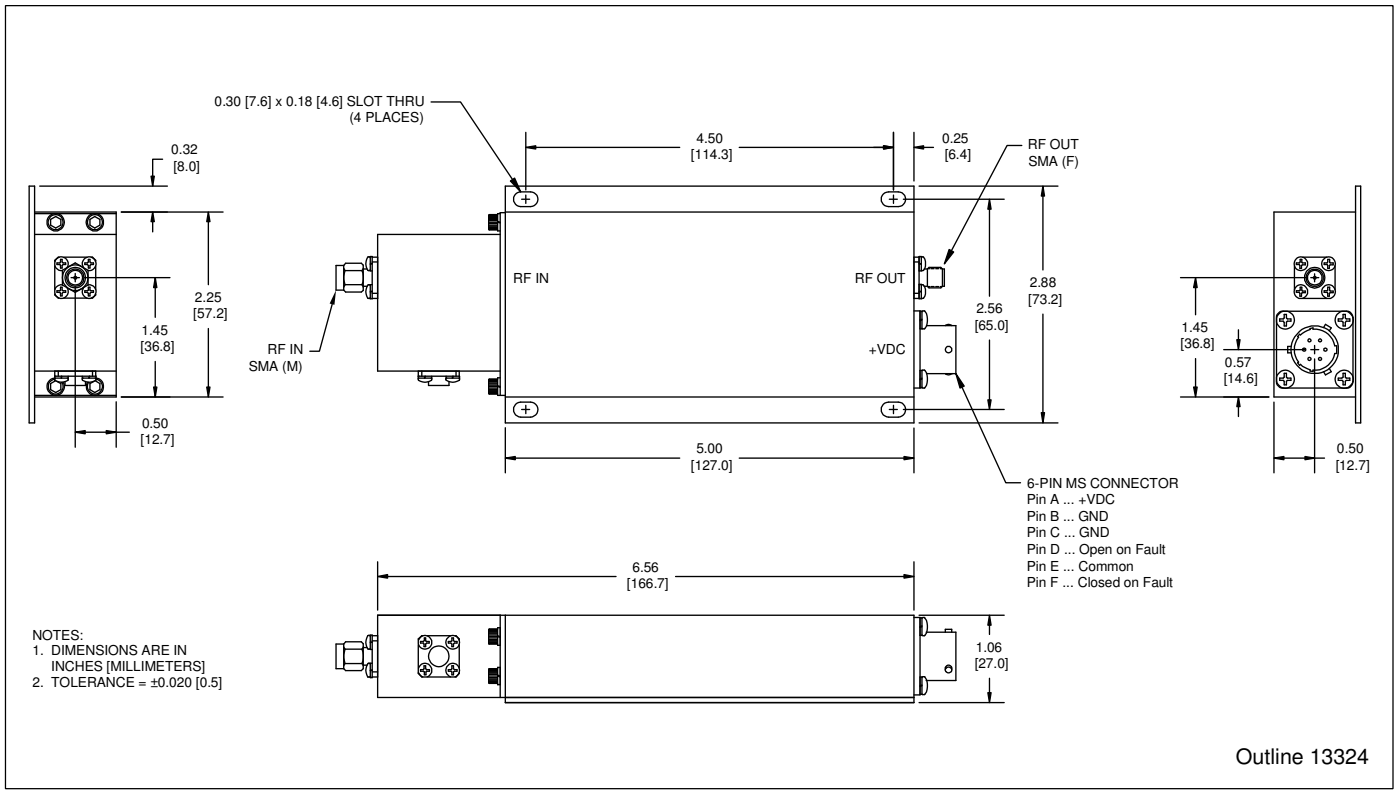
LS-2000 Series

LS-2000 series S-Band Low Noise Amplifiers are specially designed for satellite earth station receiver front ends and other telecommunications applications. Utilizing state-of-the-art HEMT and MMIC technology, these amplifiers have been designed for both fixed and transportable applications. High performance models are available with noise temperatures as low as 45 K. Noise temperature specifications are guaranteed over the full bandwidth of the LNA.

Features

- State-of-the-art noise performance
- HEMT/MMIC design
- Internal regulator
- Reverse polarity protection
- High reliability
- Fault alarm

Outline Drawing



Outline 13324

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Parameter	Notes	Min.	Nom./Typ.†	Max.	Units
Frequency Range	Band “C”	2200		2400	MHz
Gain		59	61	63	dB
Gain Flatness	Full band Per 10 MHz			±0.5 ±0.25	dB dB
VSWR	Input Output		1.20 1.25	1.25 1.30	:1 :1
Noise Temperature [A]	At +23 °C Versus temperature		See Table 2	See Table 1	
Power Output	At 1 dB compression	+10	+13		dBm
3rd Order Intercept	Output, OIP_3	+20	+23		dBm
Group Delay per 36 MHz	Linear Parabolic Ripple			0.05 0.005 1.0	ns/MHz ns/MHz^2 ns p-p
AM/PM Conversion	-5 dBm output power			0.05	°/dB
Gain Stability (Constant Temp)	Short term (10 min) Medium term (24 hrs) Long term (1 week)			±0.1 ±0.2 ±0.5	dB dB dB
Gain Stability	Versus temperature		-0.04		dB per °C
Maximum Input Power	Damage threshold			+10	dBm
Connectors	Input Output Power		SMA Male SMA Female PT02E10-6P-027 (mate supplied)		
Power Requirements	Voltage Current	11	12 190	15 220	V mA
Operating Temperature		-40		+60	°C

† When there is only one value on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

[A] Maximum noise temperature at +23 °C at any frequency in the specified band.

Table 1 – Part Number/Ordering Information

LS□2S□

Frequency Band

2200–2400 MHz C

Noise Temperature

50 K 50

45 K 45

Table 2 – Noise Temperature vs. Ambient Temperature

Noise temperature vs. ambient temperature can be found from the equation,

$$NT_2/NT_1 = (T_2/T_1)^{1.5}$$

where:

NT_2 = Noise Temperature at T_2

NT_1 = Noise Temperature at T_1

T_2 = Temperature 2 in K

T_1 = Temperature 1 in K

(K = ℃ + 273)

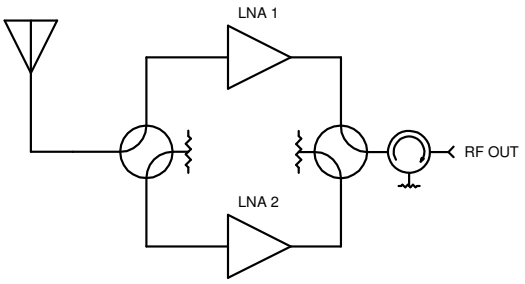
For the case where T_1 = 296 K (+23 ℃), the ratio NT_2/NT_1 is shown in the table below:

Ambient Temperature T_2 (℃)	Ratio NT_2 / NT_1
0	0.88
+23	1.00
+40	1.09
+50	1.14
+60	1.19

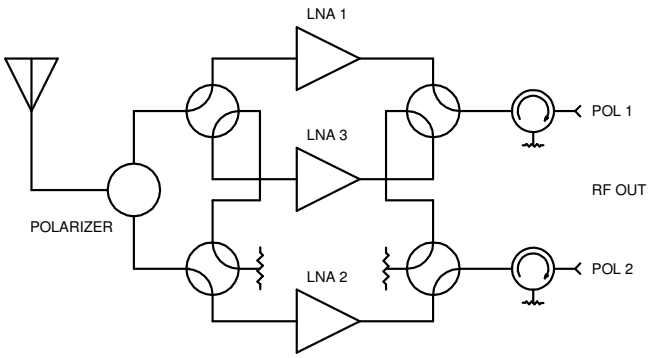
Example: For model LSC2S50, NT_1 = 50 K at +23 ℃; what is NT_2 at +50 ℃?
From the table, NT_2/NT_1 at +50 ℃ = 1.14: NT_2 = 1.14 x (50 K) = 57 K at +50 ℃

Typical Applications

1:1 Redundant Systems



1:2 Redundant Systems



Other Products

- Solid-State Power Amplifiers and SSPA Systems
- Solid-State Power BUCs and SSPB Systems
- Low Noise Amplifiers and LNA Systems
- Low Noise Block Converters and LNB Systems
- Block Up and Block Down Converters
- Synthesized Converters
- Line Drive Amplifiers
- Power Supply Monitors
- Redundant Control Panels for SSPAs, SSPBs, and LNAs

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