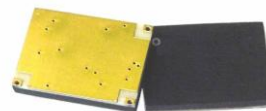


1700 ~ 2200 MHz Super Low Noise Amplifier¹

RLAS1722A is an ultra low noise figure, wideband, and unconditionally stable SMT packaged amplifier with exceptionally low input and output VSWR. The amplifier offers a typical 0.55 dB noise figure, 20 dB input and output return losses, 30.0 dB gain, 19 dBm output P_{1dB} and 32 dBm OIP3 over the DCS, PCS, UMTS and 3G frequency bands from 1700 MHz to 2200 MHz. It is most suitable for receivers, wireless data communications, and other measurement applications.



RLA-1722A is designed to meet the rugged standards of MIL-STD-202, MIL-STD-883, and MIL-STD-810F.

A connectorized version is also available.

Key Features:

Wide frequency range: 1700 ~ 2200 MHz
 Ultra low noise: 0.55 dB
 High OIP3: 32.0 dBm
 Very low VSWR: 1.22:1
 Impedance: 50 Ohm
 Unconditional stable: $k > 1$
 Single DC Supply: 90 mA @ +5.0V
 MTBF²: >600,000 hrs (68 Years)
 Small Size: 0.50"x0.35"x0.08" (SMT package)
 Built-In Functions: DC blocks at input and output ports, temperature compensation circuitry

Absolute Maximum Ratings³:

Parameters	Symbol	Value	Units
DC Power Supply Voltage	V_{dd}	7	V
Drain Current	I_{dd}	120	mA
Total Power Dissipation	P_{diss}	840	mW
RF Input Power	$P_{in,Max}$	10	dBm
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{STG}	-65 ~ 150	°C
Maximum Operating Temperature	$T_{O,MAX}$	-55 ~ 100	°C

Electrical Specifications: (at room temperature)

Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
Gain	S_{21}	1.7 ~ 2.2 GHz	28.5	30	32.5	dB
Gain Variation	ΔG	1.7 ~ 2.2 GHz		+/- 1.0	+/- 1.3	dB
Input VSWR	$VSWR_1$	1.7 ~ 2.2 GHz		1.17	1.25	
Output VSWR	$VSWR_2$	1.7 ~ 2.2 GHz		1.17	1.25	
Reverse Isolation	S_{12}	1.7 ~ 2.2 GHz	38	43		dB
Noise Figure	NF	1.7 ~ 2.2 GHz		0.55	0.75	dB
Output Power @ 1dB Gain Comp. Point	P_{1dB}	1.7 ~ 2.2 GHz	17	19		dBm
Output IP3	OIP3	2-Tone, Pout 0 dBm each, 1 MHz separation	30	32		dBm
Current Consumption	I_{dd}	$V_{dd} = +5.0 V$	85	90	95	mA
Power Supply Voltage	V_{dd}		+4.7 ⁴	+5.0	+5.3	V
Thermal Resistance	$R_{th,c}$	Junction to case			215	°C/W
Operating Temperature	T_o		-40		+85	°C
Maximum Average RF Input Power	$P_{IN,MAX}$	1.7 ~ 2.2 GHz			10	dBm

¹ Specifications are subject to change without notice.

² MTBF: Mean Time Between Failure, Per TR-NWT-000332, ISSUE 3, SEPTEMBER, 1990, T=40 °C

³ Operation of this device above any one of these parameters may cause permanent damage.

⁴ The lower DC supply voltage reduces the LNA performance.

Frequency Response

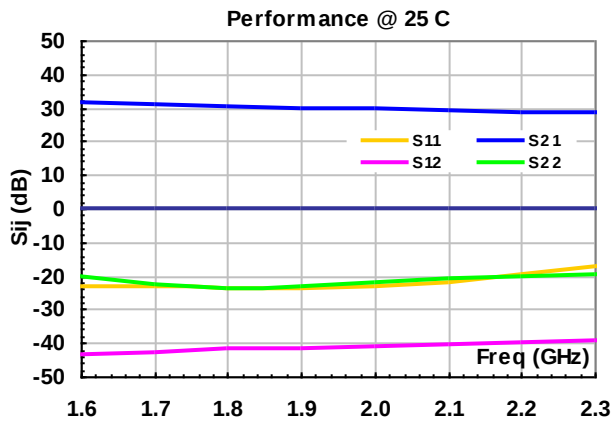


FIG. 1 Small signal performance.

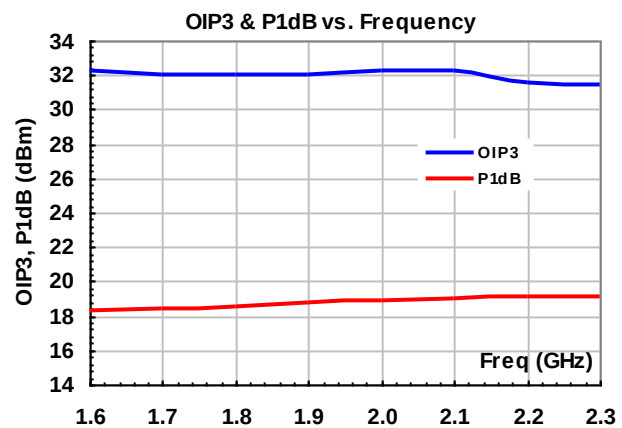


FIG. 2 P_{1dB} and OIP3 at room temperature.

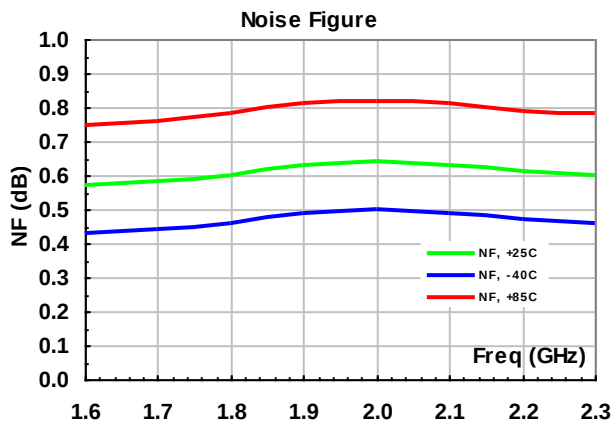


FIG. 3 Noise figure performance at full temperature

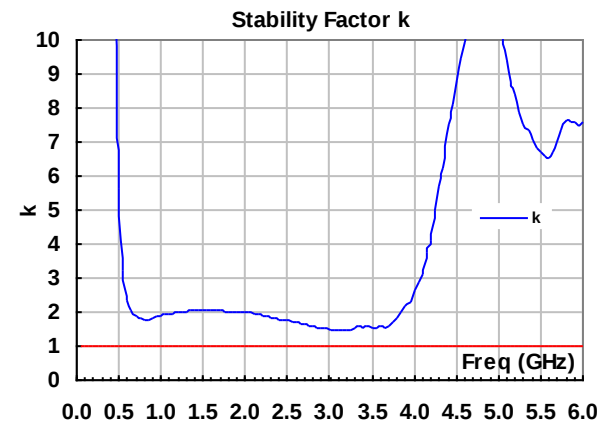


FIG. 4 Stability factor k

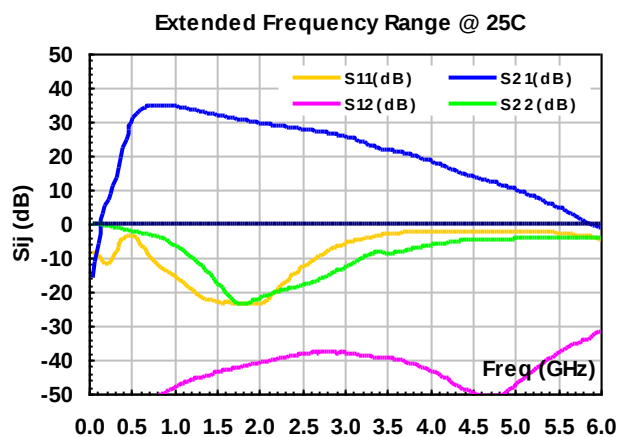


FIG. 5 Frequency response in extended frequency

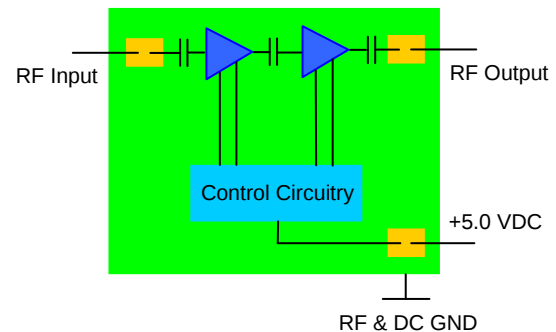


FIG. 6 Block diagram

Mechanical Outline: (2:1 ratio)

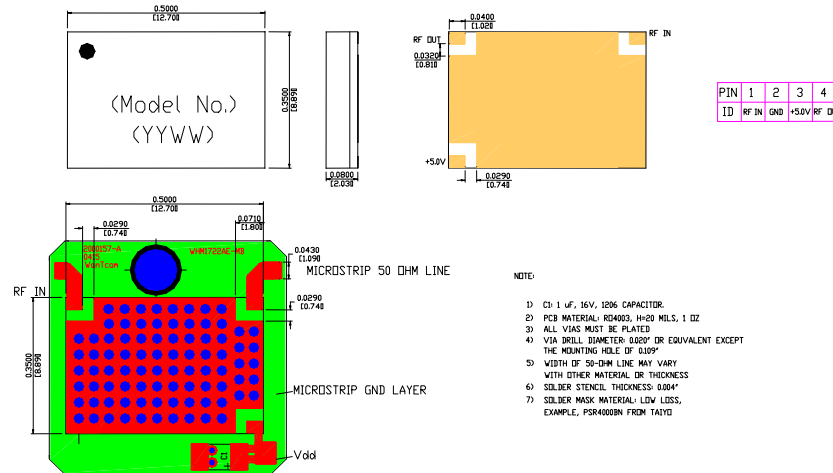


FIG. 7 Outline of standard package and recommended PCB layout.

Ordering Information

Model Number	RLAS1722A
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