1200 ~ 1600 MHz Super Low Noise Amplifier[1]

RLAS1216A 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 0.50 dB noise figure, 20 dB input and output return losses, 31.0 dB gain, and 10 dB output P_{1dB} over the GPS and DGPS frequency bands from 1200 MHz to 1600 MHz. It is most suitable for GPS receivers, wireless data communications, and wireless measurement applications.

RLAS1216A is designed to meet the rugged standards of MIL-STD-202 and MIL-STD-883.

RLAS1216A is **RoHS** compliant. A connectorized version is also available.

Key Features:

Wide frequency range:	1200 ~ 1600 MHz
Ultra low noise:	0.50 dB
Very low VSWR:	1.22:1
Impedance:	50 Ohm
Unconditional stable:	*k* >1
Single DC Supply:	40 mA @ +3.3V
MTBF[2]:	>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 Ratings[3]:

Parameters	Symbol	Absolute Max	Units
DC Power Supply Voltage	V_{dd}	4.5	V
Drain Current	I_{dd}	70	mA
Total Power Dissipation	P_{diss}	350	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}	1.2 ~ 1.6 GHz	30	31	34	dB
Gain Variation	ΔG	1.2 ~ 1.6 GHz		+/- 1.0	+/- 1.3	dB
Input VSWR	$VSWR_1$	1.2 ~ 1.6 GHz		1.22	1.35	:1
Output VSWR	$VSWR_2$	1.2 ~ 1.6 GHz		1.22	1.35	
Reverse Isolation	S_{12}	1.2 ~ 1.6 GHz	35	37		dB
Noise Figure	NF	1.2 ~ 1.6 GHz		0.50	0.65	dB
Output Power @ 1dB Gain Comp. Point	P_{1dB}	1.2 ~ 1.6 GHz	9	10		dBm
Output IP3	OIP3	2-Tone, Pout 0 dBm each, 1 MHz separation		22		dBm
Current Consumption	I_{dd}	V_{dd}= +3.3 V	35	40	45	mA
Power Supply Voltage	V_{dd}		+3.0[4]	+3.3	+3.7	V
Thermal Resistance	$R_{th,c}$	Junction to case			215	°C/W
Operating Temperature	T_o		-40		+85	°C
Maximum Average RF Input Power	$P_{IN,MAX}$	1.2 ~ 1.6 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

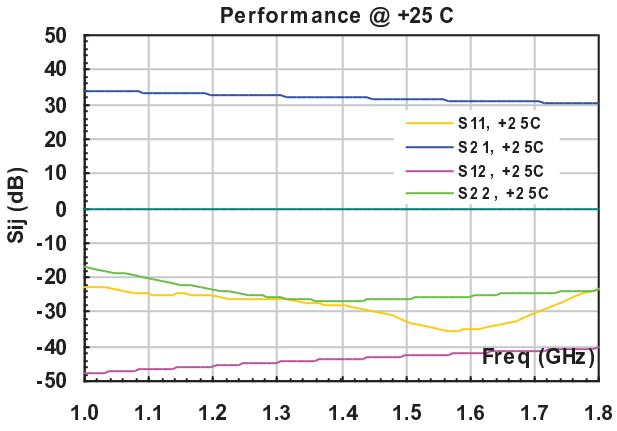

FIG. 1 Small signal performance.

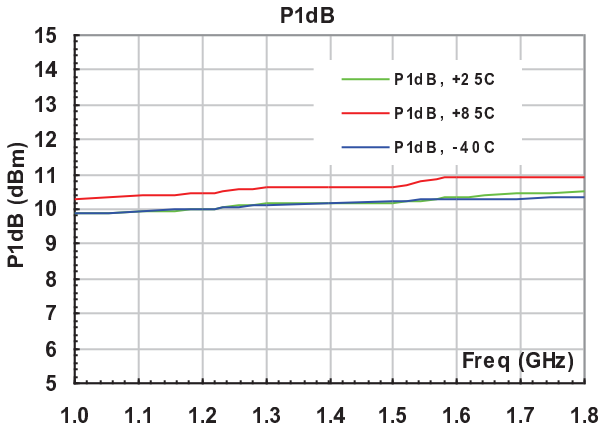

FIG. 2 P_{1dB} Performance at full temperature.

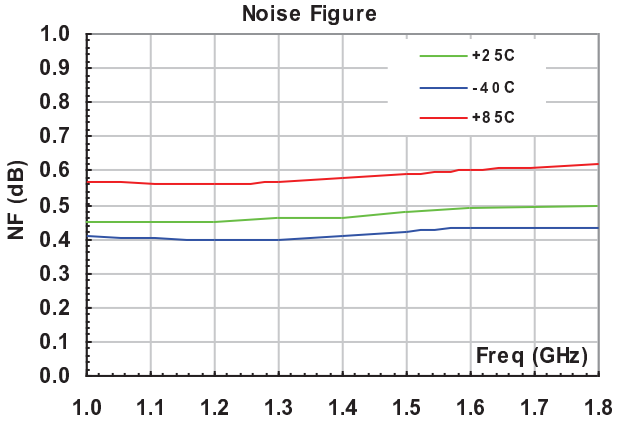

FIG. 3 Noise figure performance at full temperature

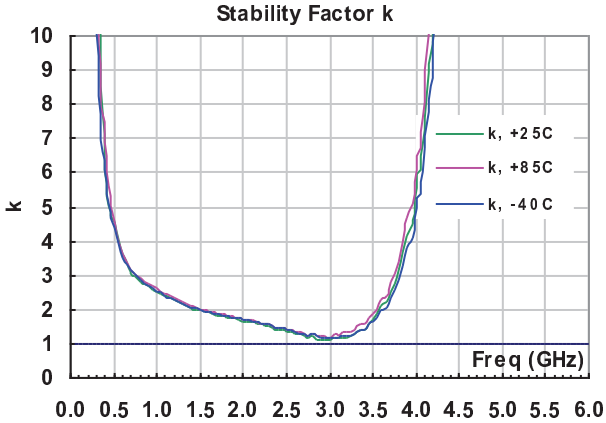

FIG. 4 Stability factor ***k***

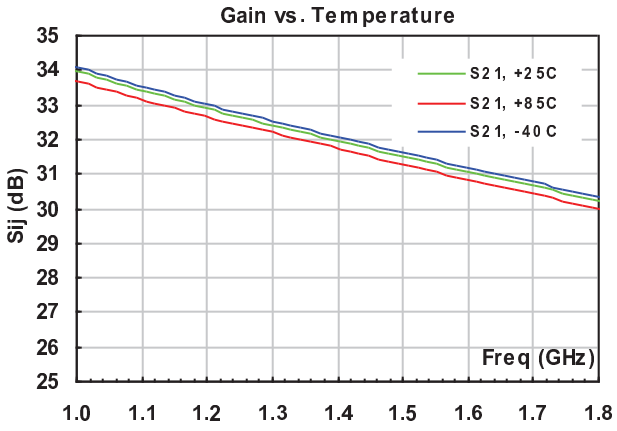

FIG. 5 Gain vs. temperature

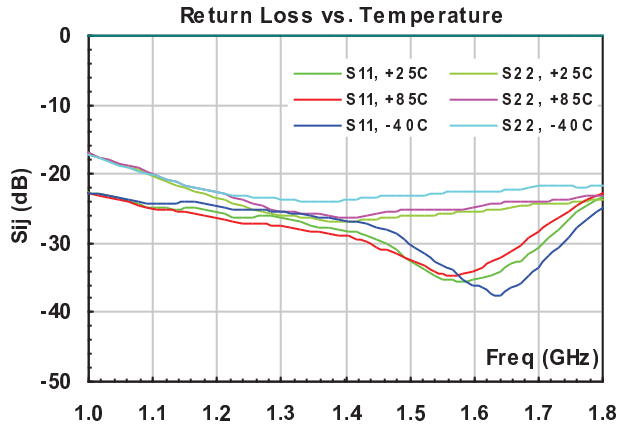

FIG. 6 Return Loss vs. Temperature

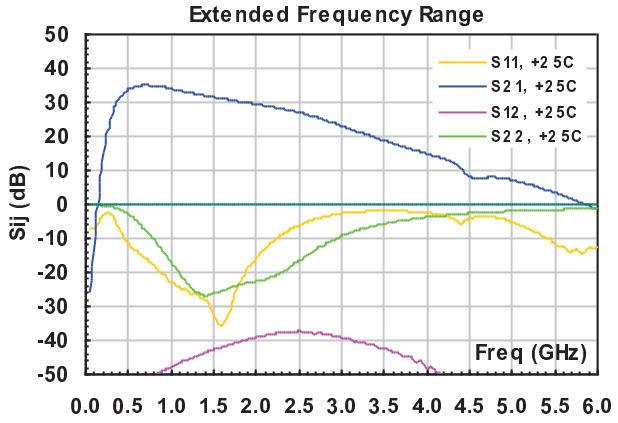

FIG. 7 Frequency response in extended frequency

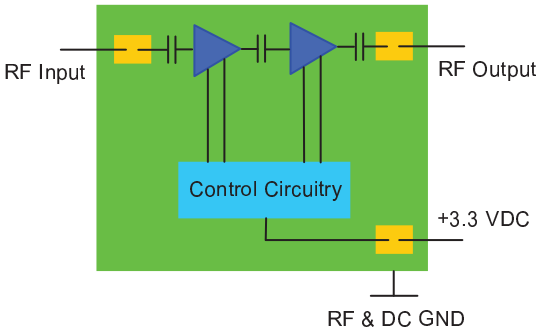

FIG. 8 Block diagram

Mechanical Outline: Do not scale

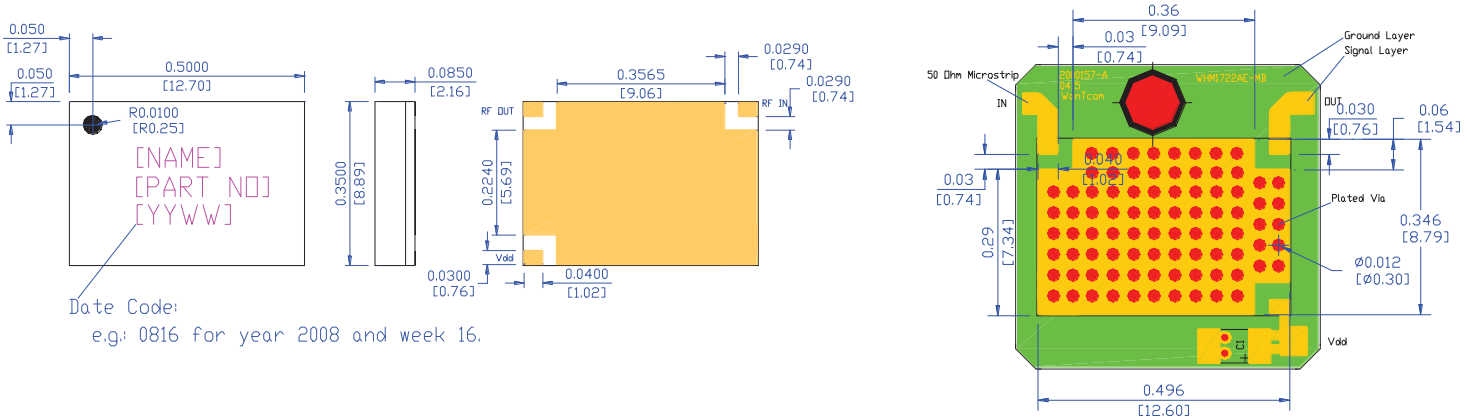

FIG. 9 Outline of standard package.

Ordering Information

Part Number	RLAS1216A

Richardson RFPD, Inc.
40W267 Keslinger Road
P.O. Box 307
LaFox, IL 60147
Telephone: (800) 737-6937
(630) 208-2700
Fax: (630) 208-2662
Internet: www.richardsonrfpd.com

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