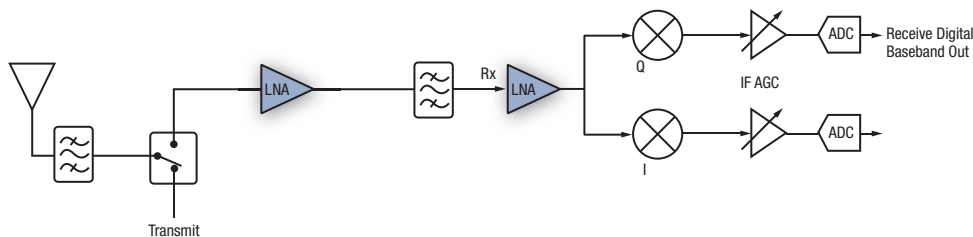


## Skyworks Low Noise Amplifiers, Transistors and Drivers



Typical Receiver Block Diagram

Skyworks' new Low Noise Amplifier (LNA) products meet the demanding ultra low noise figure and high linearity needs of today's receiver designs. Fabricated from Skyworks' advanced pseudomorphic high electron mobility transistor (pHEMT), silicon germanium (SiGe), and Heterojunction Bipolar Transistor (HBT) processes, these amplifiers have the flexibility to achieve the necessary gain and linearity specifications. The LNA product lineup features a family of two-stage cascaded LNAs, discrete packaged transistors, and high linearity low noise driver amplifiers.

The SKY65048-360LF, SKY65049-360LF, and SKY65066-360LF complete the family of two-stage LNAs operating over the 0.7–1.2 GHz, 1.7–2.4 GHz, and 2.3–2.7 GHz frequency bands. The devices integrate the interstage matching network on die to reduce the number external components required. The recommended schematics supplied by Skyworks provides unconditional stability up to 18 GHz and >18 dB return loss while maintaining 0.7 dB noise figure. The same layout is used for all devices, simplifying design for all available frequency bands.

Skyworks' discrete packaged transistors have the flexibility to be used in numerous low noise applications. The SKY65050-372LF and SKY65052-377LF are 200  $\mu\text{m}$  pHEMTs designed for low power applications operating with a bias as low as 2 V, 5 mA. The SKY65052-372LF and SKY65051-377LF are 400  $\mu\text{m}$  pHEMTs designed for high linearity, low noise applications. Skyworks offers recommended matching networks for unconditional stability up to 18 GHz and the design tools necessary to easily design custom matching networks.

Skyworks' low noise driver amplifiers are ideal choices for mid-stage amplification in receiver designs. The devices feature flat gain response,  $\leq 2$  dB noise figure, and high linearity performance. Devices require minimal external components to simply the design and lower overall cost.

For more information and our latest product offering (including data sheets, application notes, and evaluation board) please visit our Web site at [www.skyworksinc.com](http://www.skyworksinc.com)

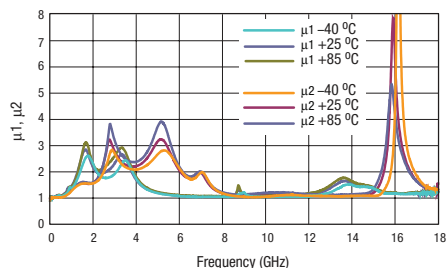


Figure 1. Unconditional Stability of SKY65066-360LF

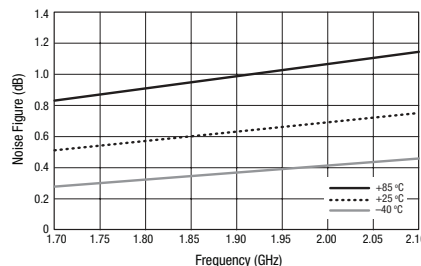
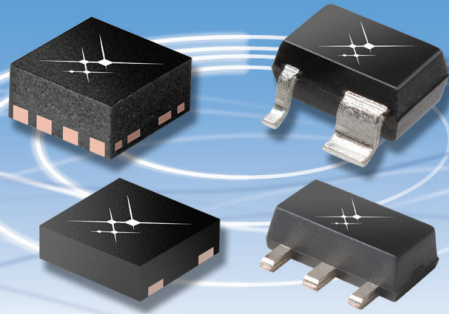


Figure 2. Noise Figure of SKY65049-360LF



# Ultra Low Noise Amplifiers

## Low Noise Amplifiers

Frequency (MHz)	Technology	Gain Typ. (dB)	Test Freq. (MHz)	NF (dB) <sup>(1)</sup>	OIP3 Typ. (dBm)	P <sub>1dB</sub> (dBm)	V <sub>DD</sub> (V)	Quiescent Current Typ. (mA)	Package (mm)	Part Number
1500–2400	pHEMT	24	1950	0.7	34	16	5	65	8-pin QFN 2 x 2	SKY65084-360LF
700–1200	pHEMT	16.5	900	0.65	35	18	5	85	8-pin QFN 2 x 2	SKY65048-360LF
1700–2400	pHEMT	17	2000	0.7	34	17.5	5	65	8-pin QFN 2 x 2	SKY65049-360LF
2300–2700	pHEMT	16.5	2500	0.7	35.5	17.5	5	75	8-pin QFN 2 x 2	SKY65066-360LF
400–3000	SiGe	16.5	915	0.85	31.5	9.5	3.3	7.8	8-pin QFN 2 x 2	SKY65047-360LF

## Low Noise Discrete pHEMT Transistors

Device Size (µm)	Frequency (MHz)	Test Freq. (GHz)	Gain Typ. (dB)	NF (dB) <sup>(1)</sup>	OIP3 Typ. (dBm)	P <sub>1dB</sub> (dBm)	V <sub>DD</sub> (V)	Quiescent Current Typ. (mA)	Package (mm)	Part Number
200	450–6000	2.4	15.5	0.65	23.5	10.5	3	20	4-pin SC-70 2.20 x 1.35	SKY65050-372LF
200	450–6000	2.4	15.5	0.65	24	12	3	20	4-pin QFN 2 x 2	SKY65051-377LF
400	450–6000	2.4	16	0.85	34	19	5	55	4-pin SC-70 2.20 x 1.35	SKY65052-372LF
400	450–6000	2.4	16.5	0.8	33.5	15.5	5	55	4-pin QFN 2 x 2	SKY65053-377LF

## Low Noise Ultralinear Driver Amplifiers

Frequency (MHz)	Technology	Gain Typ. (dB)	Test Freq. (MHz)	NF (dB)	OIP3 Typ. (dBm)	P <sub>1dB</sub> (dBm)	V <sub>DD</sub> (V)	Quiescent Current Typ. (mA)	Package (mm)	Part Number
250–6000	pHEMT	15	1000	2	40	21.5	3 to 5	140	4-pin SOT-89 2.4 x 4.5	SKY65038-70LF
390–1500	HBT	16.5	900	1.8	37.5	25	5	46	4-pin SOT-89 2.4 x 4.5	SKY65045-70LF
1500–2500	HBT	17	2000	2.1	38	21	5	47	4-pin SOT-89 2.4 x 4.5	SKY65080-70LF

1. Input connector loss removed from measurement with unconditionally stable matching and >18 dB input return loss matching.



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