

1.16 to 1.26 and 1.56 to 1.61 GHz low noise amplifier with 27.5dB gain

OVERVIEW

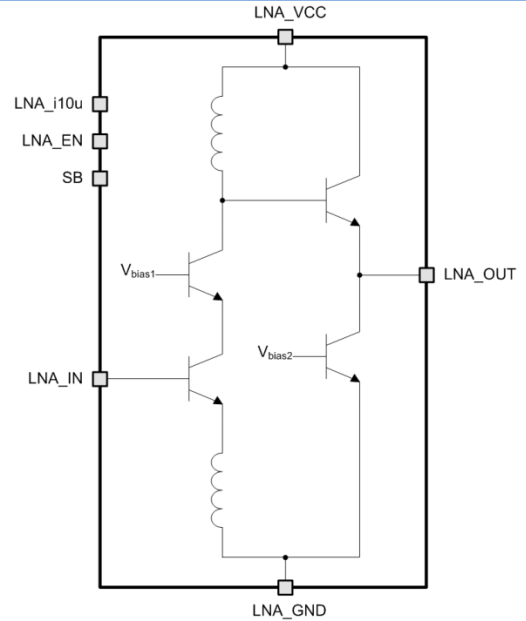
350AMS_LNA_04 is a common receiver front-end device which is used to provide impedance matching to off-chip circuits and to perform first step low noise amplification to overcome noise of subsequent receiver stages.

This IP is two-stage LNA matched to 50Ohms at input and output both. The first stage is based on common-emitter amplifier with cascode and LC-resonant load with 1235MHz or 1590MHz center frequency modes, which are selected by logic level at SB input. To make input matching, external L-type matching network required. The second cascade is emitter follower which increases power gain and provides wideband output matching without any external components.

IP technology: AMS SiGe BiCMOS 350nm.

IP status: silicon proven.

Area: 0.74 mm².



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Supply voltage	V _{CC}	-	2.85	3.00	3.15	V
Operating temperature range	T _j	-	-60	+25	+85	°C
Operating frequency	F _{RF}	SB = "1"	1565	-	1614	MHz
		SB = "0"	1164	-	1257	
Current consumption	I _{cc}	-	11.36	11.93	12.23	mA
Standby current	I _{stb}	-	-	-	61.86	nA
Gain	G	L1 band	24.61	27.66	30.32	dB
		L2/L3 band	26.48	28.82	31.12	
Noise figure	NF	L1 band	0.96	1.81	2.52	dB
		L2/L3 band	0.99	1.75	2.40	
Input 1dB compression point	P _{1dB}	-	-	-28	-	dBm
Input VSWR	VSWR _{IN}	L1 band	1.00	1.17	1.56	-
		L2/L3 band	1.03	1.22	1.95	
Output VSWR	VSWR _{OUT}	L1 band	1.10	1.39	2.23	-
		L2/L3 band	1.39	1.80	2.88	
Input high level voltage	V _{IH}	For digital inputs	0.7 V _{CC}	-	V _{CC} +0.3	V
Input low level voltage	V _{IL}		-0.3	-	0.3V _{CC}	V