

1550 to 1610 MHz Low-noise amplifier

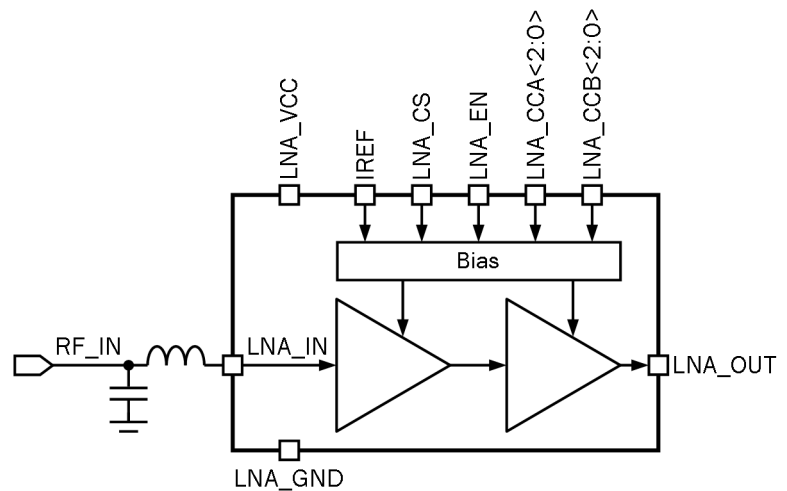
OVERVIEW

180TSMC_LNA_08 a low noise amplifier (LNA) is usually used as the first stage of receivers and is characterized by low noise figure and high linearity. LNA consists of two stages. The first one is based on the circuit with common emitter. Two elements are needed to provide the input matching. Cascode MOS-transistor is applied for good isolation between the input and the output of the amplifier. The second stage is an amplifier with common collector (emitter follower) matching the output to 50 Ohm in the wide frequency range without using external elements.

IP technology: TSMC018 SiGe BiCMOS.

IP status: silicon proven.

Area: 0.25mm².



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
Supply voltage	V_{CC}	-	2.8	3.15	3.6	V
Operating temperature range	T_j	-	-40	+27	+85	°C
Operating input frequency	F_{IN}	-	1550	-	1610	MHz
Noise figure	NF	-	-	1.5	-	dB
Gain	G	-	-	20	-	dB
Input VSWR	$VSWR_{IN}$	@50 Ohm	-	1.5	-	-
Output VSWR	$VSWR_{OUT}$	@50 Ohm	-	1.5	-	-
Input 1dB compression point	P_{1dB}	-	-	-28	-	dBm
Intermodulation point 3 rd order	IIP3	-	-	-18	-	dBm
Current limit	I_{cc}	-	4.3	7.2	11.2	mA
Stand-by current	I_{stb}	-	-	-	250	nA
Input logic-level high	V_{IH}	For digital inputs	0.7 V_{CC}	-	$V_{CC}+0.25$	V
Input logic-level low	V_{IL}		-0.25	-	0.3	V