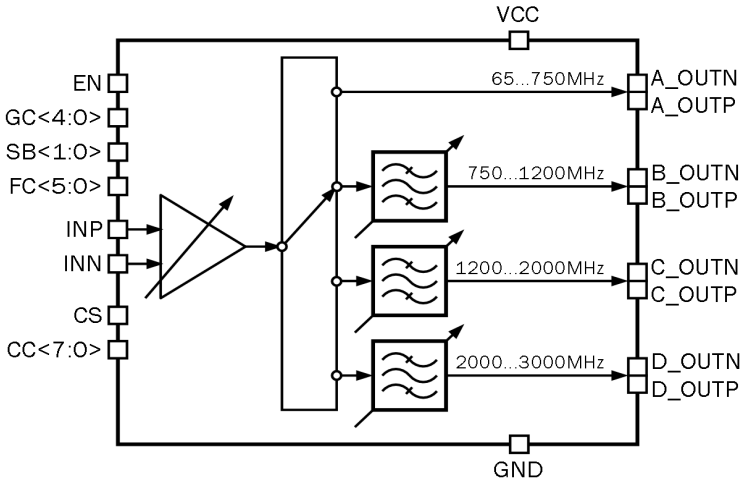
65 to 3000 MHz Low-noise amplifier

OVERVIEW

065TSMC_LNA_10 is a low noise amplifier (LNA) with an operating frequency range from 65 to 3000MHz. The block is used to amplify weak signal at receiver input. It has a commutator to select necessary frequency sub-band and adjustable resonant circuit to fine-tune. Amplifier includes an integrated inductors and uses minimum off-chip components.

IP technology: TSMC CMOS 65 nm.
IP status: silicon proven.
Area: 5.1mm^2.



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions		Value min	Value typ.	Value max	Units
Supply voltage	V_{CC}	-		2.4	2.5	2.6	V
Operating temperature range	T	-		-40	+85	+125	°C
Current consumption	I_{CC}	-		-	88.92	-	mA
Input reference current	I_{REF}	-		-	20	-	uA
Operating input frequency	F_A	-		65	-	750	MHz
	F_B	-		750	-	1200	
	F_C	-		1200	-	2000	
	F_D	-		2000	-	3000	
Bandwidth	BW	-		-	200	-	MHz
Gain	G_{MAX}	GC="11111", 75Ohm*	@F_A	14.3	17.8	19.2	dB
			@F_B	14.2	19.7	23.2	
			@F_C	13.5	18.7	23.8	
			@F_D	14.2	20.8	27.4	
Gain control range	GC	@F_A		27.2	29.7	32.3	dB
		@F_B		42.5	44.9	48.1	
		@F_C		40.5	43.2	45.7	
		@F_D		45.0	47.2	50.3	
Noise figure	NF	GC="11111", 75Ohm*	@F_A	3.4	3.7	4.5	dB
			@F_B	3.7	4.2	5.2	
			@F_C	4.6	5.1	6.0	
			@F_D	4.9	5.3	7.2	
Input VSWR*	$VSWR_{IN}$	GC="11111", 75Ohm*	@F_A	3	3.2	3.7	-
			@F_B	1.5	2.0	2.7	
			@F_C	1.1	1.9	3.5	
			@F_D	1.3	1.9	3.1	
Output impedance	R_{out}	75Ohm*		-	800	-	Ohm
Maximum input power	P_{max}	-		-	-	10	dBm
Input 1dB compression point	P_{1dB}	GC="11111", 75Ohm*	@F_A	-	-18	-	dBm
			@F_B	-	-13	-	
			@F_C	-	-15	-	
			@F_D	-	-18	-	

Note: *External resistance value;
- Table date is specified for the circuit with external transformer.