

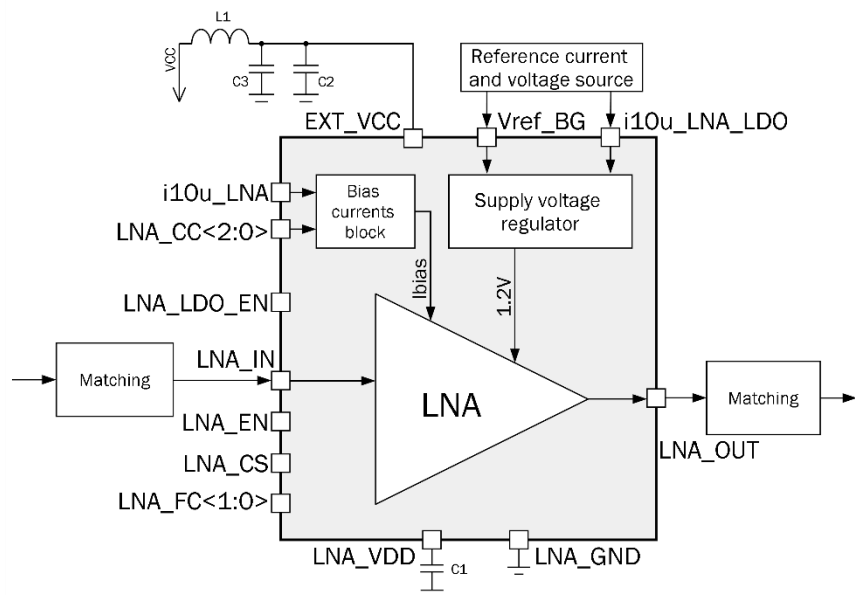
**25-500MHz LNA with 0.8dB NF and 19dB gain**
**OVERVIEW**

055TSMC\_LNA\_02 is an electronic amplifier intended to amplify a very low power signal without significantly degrading its SNR. The operating frequency range from 25 to 500MHz is achieved using several matching schemes. The IP block contains voltage supply regulator intended to keep internal LNA  $V_{CC}$  at selected level.

IP technology: TSMC CMOS 55nm.

IP status: silicon proven.

Area: 0.25 mm<sup>2</sup>.


**ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
Supply voltage	$V_{CC}$	-	2.25	2.5	3.6	V
Operating temperature range	$T_J$	Nominal	-45	+25	+85	°C
Current consumption	$I_{CC}$	Operating mode	-	3.67	-	mA
		Standby mode	-	37	-	pA
Input logic-level low	$V_{IL}$	-	0	-	0.25	V
Input logic-level high	$V_{IH}$	-	$V_{CC}-0.25$	-	$V_{CC}$	V
Output logic-level low	$V_{OL}$	Load current 10mA	0	-	0.25	V
Output logic-level high	$V_{OH}$	Load current 10mA	$V_{CC}-0.25$	-	$V_{CC}$	V
LNA input reference current (outflow)	$I_{REF\_LNA}$	-	-	10	-	μA
LDO input reference current (outflow)	$I_{REF\_LDO}$	-	-	10	-	μA
Reference voltage	$V_{REF}$	-	595	600	605	mV
LDO output voltage	$V_{LDO\_OUT}$	-	-	1.2	-	V
LNA input DC level	$V_{IN\_DC}$	AC coupling	-0.3	-	$V_{CC}$	V
LNA output DC level	$V_{OUT\_DC}$	AC coupling	-0.3	-	$V_{CC}$	V
Operating frequency range	$F_{IN}$	-	25	-	500	MHz
Gain	G	-	17	19	22	dB
Noise figure	NF	-	0.6	0.8	1.5	dB
Input compression point	$IP_{1dB}$	-	-17	-15	-13	dBm
3 <sup>rd</sup> order intermodulation point	$IP_3$	-	-	-23.6	-	dBm
Input resistance	$R_{LNA\_IN}$	-	-	50	-	Ω
Output resistance	$R_{LNA\_OUT}$	-	-	50	-	Ω
Input VSWR	$VSWR_{IN}$	50Ω	-	-	3	-
Output VSWR	$VSWR_{OUT}$	50Ω	-	-	3	-