1 to 200 MHz Low-pass filter frequency adjustment system

OVERVIEW

180SMIC_LFP_04 is based on 3rd order Butterworth low-pass filter (LPF) with cut-off frequency adjustment in a wide range. The cut-off frequency is adjusted in range from 1MHz to 200MHz by **CTR<6:0>**.
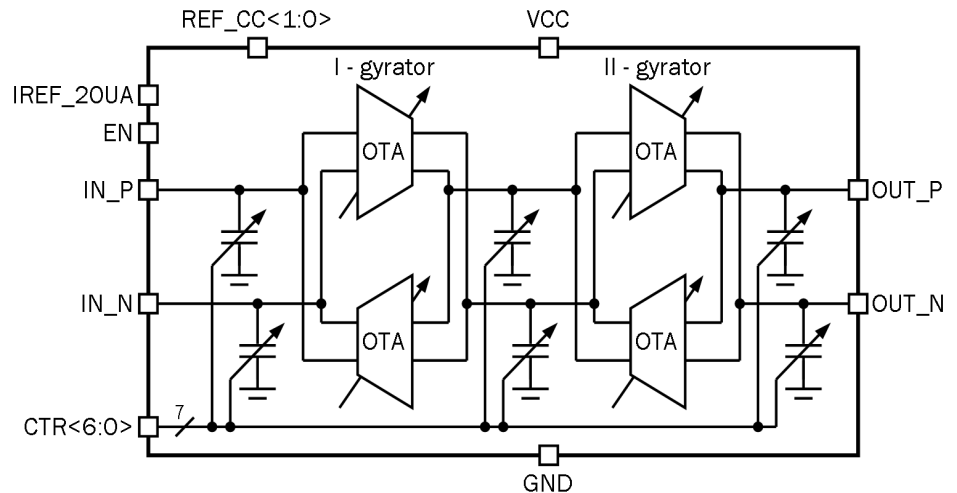
There are 4 operation modes with different rated signal level under the same value of distortion. Greater level of signal corresponds to a higher current consumption.

It is possible to use several LPF with one generator for multichannel systems.

IP technology: SMIC CMOS 180 nm.

IP status: silicon proven.

Area: 0.04mm^2.

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			min	**typ.**	**max**	
Supply voltage	V_{CC}	-	1.7	1.8	1.9	V
Operating temperature range	T	-	-45	+27	+90	ºC
Filter order	k	-	-	3	-	-
Insertion loss	G	-	-	-0.3	-	dB
Input signal bandwidth	F	-	-	18.07	-	MHz
Attenuation factor	A	@25MHz	-	8.05	-	dB
		@50MHz	-	24.08	-	
		@100MHz	-	41.73	-	
Group delay time ripple	t_{del}	-	-	2.48	-	ns
Noise figure	NF	-	-	16.18	-	dB
Input 1dB compression point	P_{1dB}	-	-	-21.26	-21.54	dBm
Input impedance	R_{IN}	-	-	2	-	kOhm
Output impedance	R_{OUT}	-	-	2	-	kOhm
Current consumption	I_{CC}	-	-	1.28	1.53	mA
Current consumption in a standby mode	I_{STB}	-	-	-	0.5	uA
Input logic-high level	V_{IH}	For digital inputs	$0.7V_{CC}$	-	3.6	V
Input logic-low level	V_{IL}		-0.25	-	0.3	V