

## 22.4 to 44.8 MHz 4th order low pass filter

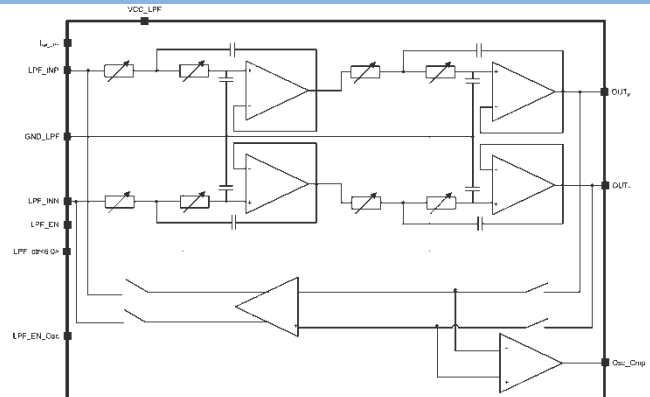
### OVERVIEW

Low-pass filter (LPF) is the 4th order Butterworth filter with cut-off frequency adjustment. There are two modes for cut-off frequency programming: manually or automatically. In automatic mode one of the circuits is used in an oscillator mode therewith the oscillation frequency correlates with the LPF frequency. High third-order input intercept point is reached due to using a pseudodifferential circuit and Sallen-Key circuit.

IP technology: AMS SiGe BiCMOS 0.35um.

IP status: silicon proven.

Area: 0.6 mm<sup>2</sup>



### ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Supply voltage	V <sub>cc</sub>	-	2.7	3	3.3	V
Operating temperature range	T	-	-40	27	+85	°C
Supply current	I <sub>cc</sub>	-	-	3.49	3.52	mA
Cut-off frequency	F	-1 dB	18.7	26.5	37.2	MHz
		-3 dB	22.4	31.9	44.8	
Loss	L	Octave	17	18.9	24	dB
Group delay time ripple	t <sub>del</sub>	Range from 2.5 to 18.2 MHz	-	3.5	8.4	ns
		Range from 4.5 to 22.5 MHz	-	4.8	8.6	
Noise figure	NF	R <sub>IN</sub> = 100 Ohm	-	23.8	27.2	dB
Transmission gain	G	-	-0.5	0.3	0.9	dB
Input compression point	IP <sub>1dB</sub>	R <sub>IN</sub> = 100 Ohm	2.2	5.5	-	dBm
Input logic-high level	V <sub>IH</sub>	For digital inputs	0.9V <sub>cc</sub>	-	V <sub>cc</sub>	V
Input logic-low level	V <sub>IL</sub>		-0.2	0	0.2	V