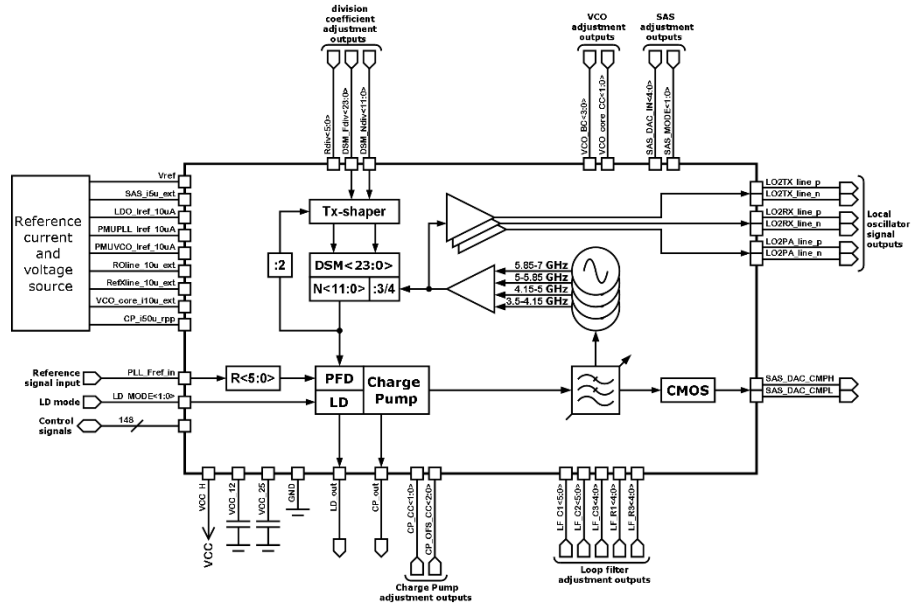


## Wide band 3.5 GHz -7 GHz low noise PLL synthesizer

### OVERVIEW

055TSMC\_PLL\_02 is a PLL frequency synthesizer that generates a high-frequency signal in the range from 3.5GHz to 7GHz. The synthesizer consists of 4 voltage-controlled oscillators (VCO) with internal LC circuit and automatic subband selection system; a digital phase-frequency detector (PFD); a precision charge pump (CP) with integrated adjustable loop filter; a programmable divider of reference signal and a system of programmable feedback dividers controlled by a delta-sigma modulator (DSM).



IP technology: TSMC CMOS 55nm.

IP status: silicon proven.

Silicon area: 2.81 mm<sup>2</sup>

### ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit	
			min	typ.	max		
Supply voltage	V <sub>CC</sub>	-	2.25	2.5	3.3	V	
Temperature range	T <sub>j</sub>	-	-40	+25	+85	°C	
Current consumption	I <sub>CC</sub>	-	-	30	-	mA	
Output frequency	F	-	3.5	-	7	GHz	
Output frequency tuning step	ΔF	Comparison frequency is 50MHz	3	-	-	Hz	
Input reference frequency	F <sub>ref</sub>	-	5	-	50	MHz	
Phase noise	PN	F = 6GHz, Fref = 50MHz	@10kHz	-	-97	-	dBc/Hz
			@100kHz	-	-97	-	
			@1MHz	-	-117	-	
Jitter value	J <sub>RMS</sub>	-	-	350	-	fs	
Input logic-high level	V <sub>IH</sub>	For digital inputs	0.8 V <sub>CC</sub>	-	V <sub>CC</sub>	V	
Input logic-low level	V <sub>IL</sub>		0	-	0.2 V <sub>CC</sub>	V	