

9.125 GHz to 10.375 GHz Fractional—N Synthesizer, FMCW Radar Linear Chirp Generator

1. Features

Low phase Noise PLL

Differential reference input 300 MHz - 700 MHz

0.8 V PLL Supply - 1.5 V VCO Supply

24 bits Programmable order MASH (1st /2nd /3rd)

Banerjee Figure of Merit: -217 dB

Programmable Active and Passive Loop Filter

with high/low loop bandwidth mode

LC-VCO with 64 bands

Automatic Band Selection System

Output Frequency 9.125 GHz - 10.375 GHz

125 MHz tuning range per Band, Lock time <1 us,

Chirp ramp < 10 us, FM Chirp Linearity error <
1%

Typical In-band noise -100 dBc/Hz Area: 3150 um x 700 um (2.2 mm²)

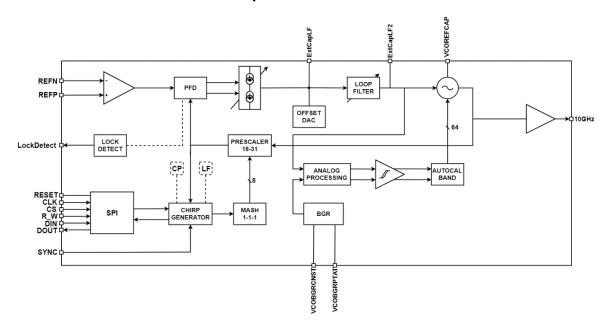
3. Description

The WEA910S22G is PLL-based hiah а performance frequency synthesizer implemented in 22FDX with FD-SOI process integrated multifunction chirp frequency generator. generates a 10 GHz fundamental frequency and various frequency ramps with integrated VCO utilizing a 64band autocalibration system. The synthesizer is powered by a 1.5 V and 0.8 V supplies. The WEA910S22G occupies a silicon area of 3150 um x 700 um (2.2 mm²). It exhibits high performance, high integration and flexibility for automotive RADAR applications.

2. Applications

Chirp Generator for Radar Applications

Simplified Schematic





WEA910S22G

4.	Avail	a	bil	lity
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Silicon verified in GF 22FDX - Metal Option 11 & 19

5. Deliverables

GDSII, Database, Measurement results, VerilogA/Matlab Functional models

About weasic

weasic Microelectronics S.A. designs, develops, and markets high quality complex analog and RF IP for wireless communications and wireless sensors applications, helping semiconductor and system companies to shrink the product design cycle. WEASIC, silicon verified IP is designed in the state of the art CMOS, CMOS-SOI and SiGe processes and can be easily ported and customized to serve the development of 5G and Backhaul communications transceivers, mmWave front-end modules, and RADAR sensors.

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